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Faculty of Environmental and Life Sciences

<u>Psychology</u>

Shedding New Light on Nostalgia: The Origins, Consequences and
Buffering Capacity of Nostalgia

by

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Thesis for the degree of <u>Doctor of Philosophy</u>

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<u>Abstract</u>

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Nostalgia, a sentimental longing for the past, has several psychological effects. For example, it increases self-continuity, meaning in life, and optimism. Nostalgia also buffers the adverse impact of psychological threats, such as death thoughts or the potential meaninglessness of life. In this thesis, I have expanded upon this existing nostalgia research in three keys ways. In my first empirical paper, I conducted three studies to investigate the, previously undocumented, link between nostalgia and spirituality. In Study 1, nostalgia was related to greater spirituality. In Study 2, nostalgia was again related to greater spirituality, and this relation remained significant after controlling for key demographics and core personality traits. In Study 3, nostalgia fostered spirituality via self-continuity and meaning in life serially. Taken together, nostalgia is associated with, and fosters, spirituality through its effect on self-continuity and meaning in life. In my second empirical paper, I investigated an additional psychological threat against which nostalgia may buffer: life uncertainty. Specifically, I examined whether nostalgia buffers the negative effect of life uncertainty on self-continuity. The findings revealed that life uncertainty reduced self-continuity, but only for participants low in nostalgia proneness, not those high in nostalgia proneness. Furthermore, life uncertainty reduced self-continuity, but only for those who recalled a recent autobiographical event, not those who recalled a nostalgic event. Thus, nostalgia buffers the negative effect of self-continuity on life uncertainty. In my third empirical paper, I investigated the origins of nostalgic memories in three studies. In particular, I examined whether savouring is implicated in the formation of nostalgic memories. I also examined whether nostalgia for a previously savoured experience predicts optimism for the future. In Study 1, retrospective reports of having savoured a specific event were associated with greater nostalgia for it. In Study 2, retrospective reports of savouring a time period were associated with greater nostalgia for that time period. In Study 3, savouring an experience predicted nostalgia for it 4-9 months later. Lastly, in Studies 2-3, nostalgia for a savoured experience was associated with greater optimism. In all, savouring provides a foundation for nostalgic memories and an ensuing optimism.

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I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

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Chapter 1

Literature Review

1.1   Introduction

The New Oxford Dictionary of English (2011) defines nostalgia as a "sentimental longing or wistful affection for a period in the past." Nostalgia is an emotion that is commonly felt (Boym, 2001; Wildschut, Sedikides, Arndt, & Routledge, 2006) by people of all ages (Zhou, Sedikides, Wildschut, & Gao, 2008) across diverse cultures (Hepper, Ritchie, Sedikides, & Wildschut, 2012; Zou, Wildschut, Cable, & Sedikides, 2018). Nostalgia has also captured the public's imagination now more than ever. The word "nostalgia" was listed in the Merriam-Webster's Words of the Year (2014) as the second most popular search on its website. Nostalgic themed films and shows (e.g., *La La Land, Stranger Things*) have dominated in the Academy Award nominations, and movie sequels (e.g., *T2 Trainspotting*, *Incredibles 2*) have popped onto the big screen decades after the originals. In gaming industry, *Pokémon* made a comeback in 2016 with the launch of *Pokémon Go* and it was met with great success. In social media, Facebook created the "On This Day" feature, allowing people to sift through their posts and revisit their memories. Fittingly, a Forbes article declared 2016 "the year of nostalgia" (https://www.forbes.com/sites/danidiplacido/2016/12/30/2016-the-year-of-nostalgia/#2b5259b87aec).

Given this increasing popularity of nostalgia, it is important to build a solid understanding of the psychological dynamics of nostalgia. In the present thesis, I clarify the nature of nostalgia while shedding new light on it. More specifically, I first review the existing literature elucidating what nostalgia is, the psychological effects that it has on people, its capacity to buffer against adverse psychological conditions, and important

issues that the existing nostalgia literature has not yet resolved (Chapter 1). I then present my research, which aims to expand the existing literature in three key ways. In the first empirical paper, I investigated the psychological consequences of nostalgia on spirituality (Chapter 2). In the second empirical paper, I examined the way that nostalgia buffers the negative effect of life uncertainty on self-continuity (Chapter 3). In the third empirical paper, I explored the psychological processes involved in the formation of nostalgic memories (Chapter 4). Lastly, I discuss the general strengths and limitations of my work, directions for future research, as well as practical implications of my findings (Chapter 5).

1.2   Contemporary Conceptions of Nostalgia

Until the later part of the 20th century, scholars conceptualized nostalgia as a medical or psychological disorder akin to homesickness (for a review see Sedikides, Wildschut, & Baden, 2004). Contemporary research has attempted to clarify and describe exactly what nostalgia is. To do this, researchers have examined laypersons' conceptions of nostalgia, the content of nostalgic narratives, and the positioning of nostalgia among other emotions.

1.2.1   Layperson Conceptions

One way researchers have gained a better understanding of nostalgia is by investigating how laypersons conceive nostalgia. In one study, Hepper et al. (2012) examined how lay persons in the UK and US conceive nostalgia. Specifically, these researchers followed a prototype-based approach, in which people's understanding of a concept is organized around representation of its features (Rosch, 1978). That is, they proposed that the concept of nostalgia includes many features, each of which is more representative (i.e., central) or less representative (i.e., peripheral) of the prototype of the concept. To examine this, Hepper et al. (2012) asked participants to list all features that

describe their personal view of nostalgia. Then, two coders read these descriptors and placed them into categories. This resulted in a list of the 35 most frequently mentioned features of nostalgia. In a subsequent study, Hepper et al. (2012) presented the list to another set of participants who rated how closely each of these 35 features is related to their view of nostalgia. Next, these researchers classified the features with the highest ratings as central to nostalgia and those with lowest ratings as peripheral to nostalgia (Appendix A).

The findings revealed that the central features of nostalgia focus on fond, idealized, and personally meaningful memories of childhood or relationships with close others. Additionally, central features refer to thinking, remembering, reminiscing, and reliving the past. Finally, both central and peripheral features focus more on positive emotions, such as happiness, warmth/comfort, and calm/relaxed, and less on negative emotions such as sadness, anxiety, and loneliness. In sum, these results illustrated that people predominantly conceive nostalgia to be a personally meaningful, social, reflective, and positive emotional state.

In another study, Hepper et al. (2014) investigated whether these lay conceptions of nostalgia are shared across cultures. In particular, they tested whether people in 18 countries across five continents exhibit similar prototypical features of nostalgia. To test this, they provided participants with the list of the 35 prototypical features of nostalgia which were previously identified by Hepper et al. (2012). Next, they asked participants to rate how closely each feature is associated with their personal view of nostalgia. Lastly, they classified the features with the highest ratings as central to nostalgia and those with the lowest ratings as peripheral to nostalgia. The findings showed that people across different cultures share similar conceptions of nostalgia. Participants provided higher ratings to the features that described nostalgia as a sentimental longing for the past, especially for personally meaningful events. Furthermore, they provided higher ratings to

the features that described nostalgia as an emotion that encapsulates more positive feelings than negative feelings. Thus, in line with Hepper et al. (2012) study, this study showed that people across a range of cultures mainly view nostalgia as a past-oriented, self-relevant, and positive emotion.

1.2.2   Content of Nostalgic Narratives

In addition to understanding laypersons conceptualization of nostalgia, it is also informative to consider what people are thinking about when they are nostalgic. To examine this, researchers have investigated the content of nostalgic narratives. In one investigation, Holak and Havlena (1992) examined the common themes emerging from nostalgic narratives. They first presented participants with a dictionary definition of nostalgia (i.e., "a bittersweet longing for the past"; The American Heritage Dictionary, 1994, p. 569). Next, they asked participants to provide narratives of three different past experiences that they now feel nostalgic about: (1) one narrative about *objects*, (2) one narrative about *people*, and (3) one narrative about *events*. Regarding *objects*, they found that nostalgic narratives typically include tangible items (e.g., photographs, antiques, clothing) or intangible stimuli (e.g., music, recordings, movies). Regarding *people*, they found that nostalgic narratives commonly include family members (e.g., parents, siblings, children) and friends from their school and college years. Regarding *events*, they found that nostalgic narratives are mostly about important events that were personally experienced (e.g., birthdays, graduations, holidays, weddings) and important events that were not personally experienced (e.g., historical events and major sports events). Taken together, nostalgic narratives predominantly refer to personally important objects and significant others in the context of momentous life events.

In another investigation, Holak and Havlena (1998) examined the affective nature of nostalgic narratives. They followed the procedure of their previous study (Holak &

Havlena, 1992). However, in this study, they asked participants to focus on describing the emotions that they felt for each nostalgic experience. After this writing task, eight coders rated the extent to which each nostalgic narrative contained references to emotions taken from the Pleasure-Arousal-Dominance scale (e.g., "Happy," "Excited," "Jittery," "Autonomous"; Mehrabian & Russel, 1974) and the Standardized Emotional Profile scale (e.g., "Loving," "Grateful," "Curious," "Anxious"; Holbrook & Batra, 1987). The analysis of the nostalgic narratives showed that nostalgic narratives encompass both positive feelings and negative feelings. In particular, the positive component of nostalgia entails feelings showing elation (e.g., excited, active, entertained), tenderness (e.g., affectionate, loving, warm-hearted) and serenity (e.g., restful, uninvolved). The negative component of nostalgia entails feelings showing loss (e.g., wishful, desirous, full of craving), fear (e.g., fearful, afraid), and irritation (e.g., enraged, angry, annoyed). For most nostalgic narratives, the positive feelings overshadowed the negative feelings.

In a more recent investigation, Wildschut et al. (2006) further examined the content of nostalgic narratives, but also explored the structure of the nostalgic narratives. Specifically, they first presented participants with a dictionary definition of nostalgia (i.e., "a sentimental longing or wistful affection for the past"; The New Oxford Dictionary of English, 1998, p. 1266). Next, they asked participants to think and write about a nostalgic event. Two coders, then, categorized the nostalgic narratives into emerging themes related to objects of nostalgia and salience of self. Additionally, they rated the extent to which each nostalgic narrative contained references to emotions taken from the Positive and Negative Affect Schedule scale (e.g., "enthusiastic," "determined," "distressed," "afraid"; Watson, Clark, & Tellegen, 1988). Finally, they coded each narrative as to whether it follows a redemption sequence (i.e., the narrative progresses from a negative life scene to a positive one) or a contamination sequence (i.e., the narrative progresses from a positive life scene to a negative one; McAdams, Reynolds, Lewis, Patten, & Bowman, 2001).

The findings are consistent with and expanded upon those of Holek and Havlena (1992, 1998). In particular, the results demonstrated that nostalgic narratives are mostly about personally important life events (e.g., holidays, birthdays, family reunions) where the self is the main protagonist. However, the self is almost always surrounded by close others (e.g., family members, partners, friends). Additionally, nostalgic narratives often refer to picturesque settings (e.g., mountains, lakes, sunsets), tangible objects (e.g., cars, coats, watches), and pets. Furthermore, nostalgic narratives entail considerably more positive, than negative, affect. The results also revealed interesting information about the structure of the nostalgic narratives. Specifically, nostalgic narratives commonly involve a juxtaposition of positive and negative affective states. When a nostalgic narrative contains negative elements, the narrative is typically redemptive. That is, people view negative experiences as overshadowed or redeemed by positive ones (e.g., "joy of seeing extended family at a loved one's funeral").

1.2.3   Nostalgia and Other Emotions

The research reviewed thus far has helped clarify the nature of nostalgia, but it has done so by examining nostalgia in isolation. Researchers have recently examined nostalgia in comparison with other emotions to better understand how nostalgia is similar to and distinct from other emotions. In two studies, Van Tilburg, Bruder, Wildschut, Sedikides, and Goritz (2018) examined the cognitive appraisals of nostalgia, i.e., evaluations of an event or situation in which an emotion (nostalgia) occurs (Frijda, 1988, 1993). Subsequently, they compared nostalgia with other emotions in terms of its appraisal profile. The choice of the comparator emotions was based on what scholars in the past several decades have considered to be emotions that bear resemblance with nostalgia. In the first study, Van Tilburg et al. asked participants to think and write about a past event from their lives and then to evaluate it on several appraisals (i.e., pleasantness, temporal

distance, irreversible loss, uniqueness, and reflection). Next, they asked participants to

indicate the extent to which they felt nostalgia and 31 other comparator emotions in

response to the recalled event. Some examples of these comparator emotions were:

longing, homesickness, melancholy, gratitude, tenderness, and enthusiasm. The results

revealed that events which elicited nostalgia were pleasant, felt psychologically distant,

involved an irretrievable loss, and were unique. Importantly, this appraisal profile of

nostalgia was different from the appraisal profile of the comparator emotions, suggesting

that nostalgia is distinct.

In the second study, Van Tilburg et al. (2018) experimentally manipulated the four

previously identified appraisals of nostalgia (i.e., pleasantness, irretrievable loss, temporal

distance, and uniqueness). In particularly, they instructed participants to recall four

autobiographical events, each related to one of the four appraisals. For each event related

to an appraisal (e.g., temporal distance), they asked half of the participants to think about

an event that represented low levels of the specific appraisal (e.g., "events differ in how far

or close they feel. Please now remember an event that feels very *close*") and the rest to

think about an event that represented high levels of the specific appraisal (e.g., "events

differ in how far or close they feel. Please now remember an event that feels very *distant*").

Immediately after recalling each event, these researchers asked participants to indicate the

extent to which the recalled event made them feel nostalgia and 10 other comparator

emotions. The comparator emotions were: happiness, longing, shame, love, anger,

sympathy, sadness, pride, disappointment, and sorrow. Corroborating the first study, the

results showed that participants experienced most nostalgia when they recalled events that

were pleasant (vs. unpleasant), involved high (vs. low) irretrievable loss, were temporarily

distant (vs. close), and were unique (vs. common). Importantly, this appraisal profile that

elicited nostalgia was different from the appraisal profile that elicited the comparator

emotions. Stated otherwise, nostalgia and the comparator emotions did not share the same appraisal profile, suggesting that nostalgia is distinct.

In another line of research, Van Tilburg, Wildschut, and Sedikides (2018) compared nostalgia with other emotions, and more particularly with other self-relevant emotions. They started by examining the (dis)similarities in how people perceive nostalgia compared to 10 other self-relevant emotions. The comparator emotions were: self-compassion, pride, gratitude, inspiration, passion, shame, guilt, embarrassment, hurt feelings, unrequited love. In particular, these researchers instructed participants to indicate the extent to which they perceived several pairs of the comparator emotions (e.g. nostalgia and pride, nostalgia and self-compassion, pride and self-compassion) similar to each other. The results indicated that participants perceived nostalgia to be an emotion that is most similar to positive self-relevant emotions, such as self-compassion, pride and gratitude, and least similar to negative self-relevant emotions, such as shame, guilt and embarrassment.

In a subsequent study, Van Tilburg, Wildschut, and Sedikides (2018) examined the (dis)similarities in how people actually experience (instead of perceive) nostalgia compared to the self-relevant emotions of the previous study. Specifically, these researchers instructed each participant to think and write about four emotional events from their past. Next, they asked participants to indicate the extent to which they experienced nostalgia and the comparator emotions in response to each of these events. This process led to four correlation matrices, one for each event, demonstrating how strongly the emotions are correlated. The correlations among emotions showed that they are experientially similar (Jaworska & Chupetlovska-Anastasova, 2009; Van Tilburg & Igou, 2017). In line with the previous study, the results showed that participants experienced nostalgia as most similar to positive self-relevant emotions (e.g., self-compassion, pride, and gratitude), and least similar to negative self-relevant emotions (e.g., shame, guilt and embarrassment).

Building from the findings of their previous studies, Van Tilburg, Wildschut, and Sedikides (2018) examined how the previously identified dis(similarities) among nostalgia and the comparator emotions are reflected on the emotions' attributes. More specifically, they instructed participants to indicate the extent to which nostalgia and each of the comparator emotions are characterized by four attributes: valence, arousal, approach/avoidance, and relevance to morality. The results demonstrated that participants viewed nostalgia as an emotion that is characterized by a positive valence, low arousal, and subtle approach orientation, and that it had little relevance to morality. Importantly, nostalgia differed from the comparator self-relevant emotions in terms of these attributes. In particular, nostalgia was more positive and approach oriented compared to shame, guilt, embarrassment, or hurt feelings. However, nostalgia was less positive and approach-oriented than inspiration. Additionally, nostalgia was higher in arousal than self-compassion and guilt. Yet, nostalgia was lower in arousal than passion, inspiration, and embarrassment. Furthermore, nostalgia was not as relevant to morality as shame, guilt, and embarrassment. However, nostalgia was more relevant to morality than pride and inspiration. Taken together, these studies illustrate that nostalgia may bear resemblance with other emotions, yet it is distinct from them.

1.2.4   Summary

The research reviewed thus far provides a consistent picture of nostalgia. People across diverse countries perceive nostalgia to be a past-oriented, self-relevant, social, and largely positive emotion. Nostalgic narratives typically involve personally meaningful life events that focus on the self within a social context. Nostalgia mainly entails positive experiences, although it may also involve negative experiences. Yet, in nostalgic reverie, negative experiences are overshadowed or redeemed by positive ones. Nostalgia is a discrete emotion that is similar to, but also distinct from, other emotions.

1.3   The Psychological Effects of Nostalgia

As discussed, nostalgia refers to past events that typically involve the self and others. It follows that nostalgia may have psychological effects on how people perceive themselves and others. On this basis, researchers have also been interested in understanding how nostalgia psychologically affects people. In particular, they have investigated three domains of psychological effects that nostalgia may have: self-related, social, and existential (Sedikides et al., 2015).

To examine the psychological effects of nostalgia, researchers have experimentally induced nostalgia through written narratives, prototypical features, music, or scents. For narrative based inductions, participants typically spend a few minutes thinking and writing about a nostalgic event or control topic. The control topic is typically an ordinary autobiographical event. This experimental manipulation is frequently referred to as the event reflection task, or ERT (Sedikides et al., 2015). For prototype based inductions, participants are randomly assigned to write about a past event using central prototypical features of nostalgia or to write about a past event using peripheral prototypical features of nostalgia (as previously determined by the above mentioned prototype analyses; see Appendix A). For music based inductions, participants are randomly assigned to read or listen to lyrics of a song that they have previously identified as personally nostalgic or to read or listen to lyrics of a song that they did not previously identify as personally nostalgic (Cheung et al., 2013). For scent based inductions, participants are randomly assigned to think about scents that evoke nostalgic memories or scents that evoke other autobiographical memories (Reid, Green, Wildschut, & Sedikides, 2014). Immediately after such nostalgia inductions, researchers measure the potential psychological outcomes of nostalgia. Researchers have followed this procedure to investigate the self-related, social, and existential effects of nostalgia.

1.3.1 Self-Related Effects

As previously discussed, nostalgia is a self-relevant and predominantly positive emotion. That is, when people are nostalgic, they tend to reflect on positive events of the past where the self is the main protagonist. Given this, researchers have speculated that nostalgia may affect how people view and understand themselves.

Self-esteem. Theoretical views and research evidence have well established that people are motivated to reinforce a positive view of the self (e.g., Alicke & Sedikides, 2009; Steele, 1988). For example, people may use their self-relevant or positive memories to enhance their self-worth (Peetz & Wilson, 2008; Wilson & Ross, 2003). As mentioned, nostalgia mainly refers to personally meaningful and positive, or at least redemptive, events of the past. Given this, researchers have speculated that nostalgic reverie can serve to promote self-esteem. To examine this, researchers have used divergent methodological procedures.

In one study, Wildschut et al. (2006) experimentally induced nostalgia with a variant of the ERT. In particular, they asked half of the participants to think about a nostalgic event (nostalgia condition) and the rest to think about an ordinary event (ordinary condition). Next, they assessed self-esteem using a state version of the Rosenberg (1965) Self-Esteem Scale. This scale assesses participants' present feelings of self-esteem with statements such as, "I feel that I'm a person of worth, at least on an equal plane with others." The results revealed that participants in the nostalgia condition reported greater self-esteem than those in the ordinary condition. In a subsequent study, Wildschut et al. (2006) replicated this finding using a different scale to measure state levels of self-esteem. This scale included statements such as, "I value myself," and "I feel good about myself." Together, these studies illustrate that nostalgia enhances self-esteem.

In another study, Hepper et al. (2012) examined the effect of nostalgia on self-esteem using the prototype based induction of nostalgia. In particular, they asked

participants to write about a past event using central features of nostalgia (nostalgia

condition) or peripheral features of nostalgia (control condition). Following this, they

assessed state levels of self-esteem (e.g., "I value myself"). The findings demonstrated that

participants in the nostalgia condition indicated elevated self-esteem compared to those in

the control condition. Corroborating Wildschut et al. (2006) studies, this study

demonstrates that nostalgia augments self-esteem.

In another similar study, Vess, Arndt, Routledge, Sedikides, & Wildschut (2012)

examined the effect of nostalgia on self-esteem using a different operationalisation of self-

esteem. Specifically, they examined whether nostalgia makes people more likely to

describe themselves with positive personality traits. To do this, they asked participants to

bring to mind either a nostalgic event or a future positive event. Thinking about a future

positive event enhances self-esteem (Bryant, 2003), making this a stringent control

condition. Next, they presented participants with positive and neutral trait words on a

computer screen and asked them to categorize the words as either descriptive of

themselves or not descriptive of themselves. These researchers considered the

categorization speed as an index of how descriptive each word was for the participants.

Past research has shown that faster categorization of a trait word indicates that this trait

word is more descriptive for the self (Schlegel, Hicks, Arndt, & King, 2009). The results

showed that participants who reflected on a nostalgic event categorized positive trait words

faster than those who reflected on a future positive event. Thus, nostalgia made people

more likely to describe themselves with positive personality traits.

Perceptions of a Positive Future. Given that nostalgia helps people view

themselves more positive in the present, it is interesting to consider whether nostalgia may

also affect how people view their future. That is, people may use the current feelings of

self-worth that nostalgia elicits to produce a brighter outlook on the future. In line with this

speculation, studies have shown that self-esteem promotes perceptions of a positive future

(Chemers, Watson, & May, 2000). Based on this, Cheung et al. (2013) investigated whether nostalgia promotes perceptions of a positive future through its effect on self-esteem.

As a means to test this, Cheung et al. (2013) examined the causal effect of nostalgia on optimism. Specifically, they experimentally induced nostalgia through the ERT and then measured state levels of optimism with items such as, "I feel hopeful about my future," and "I feel optimistic about my future." The findings revealed that participants who reflected on a nostalgic (vs. ordinary) event showed greater optimism. Reid et al. (2014) tested the replicability of this finding using a different manipulation of nostalgia. They induced nostalgia through scents and then measured state levels of optimism using the same scale of Cheung et al. (2013) study. The results showed that participants who thought about nostalgic (vs. non-nostalgic) scents indicated greater optimism.

Cheung et al. (2013) further examined whether nostalgia increases optimism through its effect on self-esteem. In other words, they examined whether people who feel nostalgia may project the positivity that they feel in the present into the future. To do this, they conducted two studies utilizing the capacity of music to elicit nostalgia. In the first study, they experimentally induced nostalgia by asking participants to listen lyrics of a nostalgic (vs. non-nostalgic) song. Subsequently, they administrated a scale assessing state levels of self-esteem and another one assessing state levels of optimism (using scales previously mentioned). The findings showed that nostalgia increased self-esteem and optimism. Additionally, self-esteem predicted greater optimism, and mediation analysis revealed that there was a significant indirect effect of nostalgia on optimism through self-esteem. In the second study, Cheung et al. (2013) replicated these findings when experimentally induced nostalgia by asking participants to read (instead of listen to) lyrics of a nostalgic (vs. non-nostalgic) song. Thus, nostalgia augments optimism by increasing self-esteem.

Beyond fostering optimism, nostalgia may have a positive effect on another indicator of positive perceptions of the future, namely inspiration. The experience of inspiration entails an awareness of attractive ideas and encompasses an intention to enact these ideas in the future (Thrash & Elliot, 2003, 2004). Nostalgia's capacity to boost positive self-views may foster confidence that these attractive ideas are likely to be successful in the future. In other words, nostalgia may enhance inspiration via increasing self-esteem. In an initial study, Stephan et al. (2015) examined whether nostalgia increases inspiration. They induced nostalgia via the ERT and then measured state levels of inspiration with items such as, "I feel inspired," "I feel inspired to do something." The findings showed that participants who reflected on a nostalgic event experienced greater inspiration. Thus, nostalgia bolsters inspiration. Stephan et al. (2015) conducted a follow-up study to examine whether nostalgia increases inspiration through its effect on self-esteem. In particular, they first experimentally induced nostalgia via lyrics of songs. Next, they administrated one scale assessing state levels of self-esteem and another one assessing state levels of inspiration (using scales previously mentioned). The results demonstrated that nostalgia fostered self-esteem and inspiration. Additionally, self-esteem predicted greater inspiration, and mediation analysis demonstrated that there was a significant indirect effect of nostalgia on inspiration through self-esteem. In sum, nostalgia promotes inspiration and this effect is due to nostalgia's capacity to increase self-esteem.

Self-Continuity. As reviewed, nostalgia promotes positive perceptions of the self. When people feel nostalgic about the past, they perceive themselves more positively in the present. Given that nostalgia bridges the past with the present, nostalgia may also influence how people understand themselves over time. Stated otherwise, nostalgia may promote perceptions of a stable and coherent view on one's self over time (i.e., self-continuity).

Research has investigated whether nostalgia increases self-continuity by implementing different nostalgia manipulations. In one study, Sedikides et al. (2015)

induced nostalgia through the ERT and then administrated the Self-Continuity Index (Sedikides et al., 2015). This scale measures self-continuity with items such as, "I feel that the important aspects of my personality remain the same across time." These researchers demonstrated that participants who recalled a nostalgic event reported greater self-continuity. In a related study, Reid et al. (2014) induced nostalgia through scents and then measured state levels of self-continuity with items such as, "I feel that the important aspects of my personality remain the same across time." They found that scent-evoked nostalgia increases self-continuity. In yet another study, Sedikides et al. (2015) replicated this finding using a song lyrics induction of nostalgia. In all, nostalgia engenders self-continuity.

1.3.2   Social Effects

As previously discussed, nostalgia is a highly social emotion. When people are nostalgic, they tend to reflect on social events that are marked by the presence of important others. Thus, nostalgia is a potent reminder of social relationships. Given this, people may use nostalgia to reassure themselves that they are connected with others. Based on this speculation, researchers have investigated whether nostalgia has implications on how people (1) perceive others (i.e., social intimacy), (2) understand and share the feelings of others (i.e., empathy), and (3) behave towards others (i.e., social approach).

Social Intimacy. Researchers have investigated the effect of nostalgia on perceptions of social intimacy implementing divergent operationalisations of social intimacy. For example, one line of research has examined whether nostalgia affects social connectedness, namely a sense of belongingness and acceptance. Hepper et al. (2012) examined this by using a prototype based induction of nostalgia. Specifically, they asked participants to write about a past event using central features of nostalgia or peripheral features of nostalgia. Next, they measured state levels of social connectedness with items

such as, "I feel loved" and "I feel protected." The results revealed that participants who

wrote about a past event using central (vs. peripheral) features of nostalgia reported greater

levels of social connectedness. Additional studies have replicated this finding using

different nostalgia manipulations. In particular, participants who recalled a nostalgic (vs.

ordinary) event experienced greater social connectedness (Wildschut et al., 2006).

Relatedly, participants who thought about nostalgic (vs. non-nostalgic) scents indicated

greater social connectedness (Reid et al., 2014). This bulk of evidence establishes that

nostalgia increases social connectedness.

Additional research has further investigated the effect of nostalgia on perceptions

of social intimacy. For example, Zhou et al. (2008) examined whether nostalgia affects

perceptions of social support. To do this, they induced nostalgia via the ERT and

subsequently administered a state version of the Multidimensional Scale of Perceived

Social Support scale (Zimet, Dahlem, Zimet, & Farley, 1988). This scale assesses

participants' present perceptions of social support with statements such as, "I can count on

my friends when things go wrong." The findings showed that participants who recalled a

nostalgic event reported increased perceptions of social support.

Beyond fostering social support, nostalgia may also affect attachment security (i.e.,

a sense that one is worthy of being loved and close others will be there when needed;

Mikulincer & Shaver, 2004). To examine this, Wildschut et al. (2006) induced nostalgia

via the ERT and then administered a state version of the Experiences in Close

Relationships Scale (Fraley, Waller, & Brennan, 2000). This scale assesses anxiety and

avoidance attachment styles with statements such as, "I worry that romantic partners won't

care about me as much as I care about them" and "I am very uncomfortable with being

close to romantic partners" respectively. Attachment security is represented by the

combination of low scores on both the anxiety and avoidance subscales (Mikulincer &

Shaver, 2004). The findings demonstrated that nostalgia decreased attachment anxiety and

attachment avoidance. Hence, nostalgia reinforces attachment security. In sum, nostalgia engenders perceived social intimacy, that is, nostalgia promotes perceptions of closeness with others.

Empathy. Given that nostalgia enhances social intimacy, it is also interesting to consider whether nostalgia affects how people understand and share the feelings of others. According to attachment theory (Mikulincer et al., 2001; Mikulincer, Shaver, Gillath, & Nitzberg, 2005), psychological processes that promote perceptions of closeness and security with others may also foster empathic concerns for others. On this basis, researchers investigated whether nostalgia increases empathy.

In one study, Juhl et al. (2019) assessed the relationship between dispositional nostalgia (i.e., nostalgia proneness) and empathy. In particular, they measured nostalgia proneness using the Southampton Nostalgia Scale (SNS; Routledge, Arndt, Sedikides, & Wildschut, 2008), which is comprised of items referring to the proneness, frequency, and personal relevance of nostalgia. Next, they measured empathy with the Basic Empathy Scale (Jolliffe & Farrington, 2006). This scale assesses the participants' emotional reactions to others' misfortune with items such as, "After being with a friend who is sad about something, I usually feel sad." The results revealed that participants with higher proclivity to be nostalgic indicated greater empathic concerns for others.

In another study, Zhou, Wildschut, Sedikides, Shi, and Feng (2012) tested the causal effect of nostalgia on empathy. Specifically, they induced nostalgia through the ERT and then presented participants with a one-page description of an organization that had a mission to aid earthquake victims. Next, they measured state levels of empathy by asking participants to indicate the extent to which they felt "sympathetic", "compassionate", "soft hearted", and "tender" for the earthquake victims. They found that participants in the nostalgia (vs. ordinary) condition showed greater empathy for the earthquake victims. Thus, nostalgia fosters empathetic perceptions towards others.

Social Approach. The studies reviewed thus far have demonstrated that nostalgia makes people feel more connected with others. Based on this, nostalgia may also affect how people behave towards others. That is, nostalgia reflection may allow people to indicate a greater tendency to approach others. Thus, researchers have investigated the potential implications of nostalgia on intention and actual behaviour to connect with others.

One line of research has investigated whether nostalgia affects intention to connect with others. For example, Abeyta, Routledge, and Juhl (2015) examined whether nostalgia has implications on pursuing relationship goals of connecting with others. To examine this, they induced nostalgia through the ERT and then asked participants to indicate the extent to which they think that they will fulfil their relationship goals in the future. They demonstrated that participants in the nostalgia (vs. ordinary) condition felt more confident that they will accomplish their relationships goals. In a subsequent study, Abeyta et al. (2015) tested the replicability of this finding using a different measure of relationship goal-pursuit. Following ERT-induced nostalgia, they administrated a state version of the Friendship-Approach subscale of the Friendship-Approach/Avoidance Goal scale (Elliot, Gable, & Mapes, 2006). This subscale assesses participants' present perceptions of pursuing friendship goals with items such as, "I feel that I want to move toward growth and development in my friendships." They demonstrated that participants in the nostalgia condition showed stronger intentions to pursue goals of connecting with their friends. Thus, nostalgia promotes pursuing goals to connect with others.

In a related study, Stephan et al. (2014) investigated the effect of nostalgia on intention to connect with others. In particular, they examined whether nostalgia affects physical proximity that people establish between themselves and another person. They induced nostalgia through the ERT and then instructed participants to place two chairs for an ostensible interaction between themselves and another person. These researchers

considered the distance between the two chairs as an index of physical proximity. The results revealed that participants in the nostalgia (vs. ordinary) condition placed the chairs closer together, demonstrating that nostalgia fosters intentions to connect with others.

In another study examining how nostalgia affects social behaviour, Zhou et al. (2012) tested whether nostalgia has implications on intentions to help others. Helpfulness behaviour requires developing emotional and physical proximity to others and, thus, it is an indicator of social approach behaviour (Snyder & Stuermer, 2009; Vohs, Mead, & Goode, 2006). These researchers induced nostalgia through the ERT and then assessed participants' intentions to volunteer for and donate money to a charity. More specifically, they provided participants with a one-page description of an organisation whose mission was to help victims of an earthquake. Then, they asked participants how much time and money they are intended to give to charity. The results demonstrated that participants in the nostalgia condition indicated greater intentions to volunteer and make donations, showing that nostalgia increases intentions to help others.

Building from the previous finding, Zhou et al. (2012) inquired whether nostalgia may also promote actual behaviours of helpfulness. Hence they examined whether nostalgia promotes actual charitable behaviours. To do this, they used a novel manipulation of nostalgia. They randomly assigned participants to one of two conditions showing them a charity appeal which was different for each condition. In the nostalgic appeal condition, the appeal included nostalgic cues such as the headline "Those Were the Days: Restoring the Past for Children in Wenchuan." In the future-oriented condition, the appeal included cues to the future such as the headline "Now Is the Time: Build the Future for Children in Wenchuan." Next, these researchers informed participants that there is a collection box near the laboratory exit and mentioned that they could donate as much money as they wished for the charity. The findings showed that participants in the nostalgic appeal condition donated more money to the charity compared to those in the non-nostalgic

appeal condition, thus demonstrating that nostalgia promotes actual behaviour to help others.

In a related study, Stephan et al. (2014) further examined the effect of nostalgia on helping behaviours. They induced nostalgia through the ERT and then staged a mishap. In particular, an experimenter walked into the laboratory room holding a box of pencils and spilled the pencils in front of the participant. These researchers counted the number of pencils that participants picked up. They found that participants in the nostalgia condition helped picking up more pencils. Hence, in line with Zhou et al. (2012) study, nostalgia increases behaviour to help, and thus connect with, others.

1.3.3   Existential Effects

As discussed, nostalgia is a self-relevant emotion. When people are nostalgic, they tend to reflect on personally meaningful events that involve significant others. Such memories are likely to make life seem meaningful (Lambert et al., 2010). Based on this, researchers examined whether nostalgia affects perceptions of existential meaning in life.

Researchers have used diverge methodologies to examine this. In one study, Hepper et al. (2012) induced nostalgia via a prototype based approach and then assessed state levels of meaning with statements such as, "life is worth living," and "there is a greater purpose to life." They demonstrated that participants who wrote about a past event using central (vs. peripheral) features of nostalgia experienced greater meaning. In another study, Van Tilburg, Igou and Sedikides (2013) induced nostalgia via the ERT and administrated a scale assessing state levels of meaning (previously mentioned). They found that participants in the nostalgia (vs. ordinary) condition perceived their life to be more meaningful. In another similar study, Reid et al. (2014) induced nostalgia via nostalgic scents and then assessed state levels of meaning. They showed that participants who thought about nostalgic (vs. non-nostalgic) scents reported enhanced meaning. In yet

another study, Routledge et al. (2011) induced nostalgia via nostalgic lyrics of a song and then administered a state version of the Presence of Meaning in Life subscale of the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006). This subscale assesses the extent to which participants perceive their life meaningful with items such as, "I have a good sense of what makes my life meaningful." They found that participants who read nostalgic (vs. non-nostalgic) lyrics of a song indicated higher levels of meaning. In summary, nostalgia imbues life with meaning.

In two studies, Routledge, Wildschut, Sedikides, Juhl, and Arndt (2012) tested the replicability of the previous findings using more stringent control groups. In the first study, they experimentally induced nostalgia by asking participants to think about a nostalgic event or a desired-future event. Thinking about a desired future event augments perceived meaning in life (Emmons, 2003), making this a more rigorous control condition. Next, they measured state levels of meaning with the Presence of Meaning in Life subscale of the Meaning in Life Questionnaire (Steger et al., 2006). The results showed that those who reflected on a nostalgic event showed greater meaning than those who reflected on a desired future event.

In the second study, Routledge et al. (2012) tested this effect using another stringent control group. In particular, they asked participants to think about a nostalgic event or a recent positive event. Events entailing positive affect can enhance perceived meaning in life (Hicks, Schlegel, & King, 2010), making this a rigorous control condition. Next, they administered a state version of the Search for Meaning in Life subscale of the Meaning in Life Questionnaire (Steger et al., 2006). This subscale assesses participants' present tendencies to search for meaning in their life with items such as, "I am looking for something that makes my life feel meaningful." Prior work has demonstrated that people search for meaning when they lack it (Park, 2010; Steger, Kashdan, Sullivan, & Lorentz, 2008; Vess, Routledge, Landau, & Arndt, 2009). If nostalgia provides meaning, then it

should reduce the need to search for meaning. Indeed, the results demonstrated that participants who reflected on a nostalgic event indicated lower tendency to search for meaning compared to those who reflected on a recent positive event. Together, nostalgia imbues life with meaning.

1.3.4   Summary

The research reviewed thus far has revealed that the effects of nostalgia are psychologically beneficial. First, nostalgia have self-related benefits–it enhances self-esteem, engenders positive perceptions of the future, and augments self-continuity. Second, nostalgia has social benefits–it fosters perceptions of social intimacy and promotes intention and behaviour to connect with others. Third, nostalgia has existential benefits–it imbues life with perceptions of existential meaning. Taken together, this bulk of evidence has shown that nostalgia confers psychological benefits.

1.4   The Buffering Capacity of Nostalgia

Given that nostalgia has beneficial psychological effects, researchers have also investigated whether nostalgia can buffer against psychological threats. In other words, nostalgia may protect people from the negative consequences that they typically experience when encountering threatening information. Below, I detail research investigating the buffering capacity of nostalgia within specific domains. I organize the evidence on the basis of the threats against which nostalgia buffers, i.e., self-threats, existential threats, and well-being threats.

1.4.1   Self-Threats

One line of research has investigated whether nostalgia protects people from conditions entailing threats to the self. Specifically, researchers have examined whether nostalgia buffers threats to the intrinsic self and self-esteem.

Intrinsic self-threat. To begin, researchers have investigated whether nostalgia protects people from threats to the intrinsic self. The intrinsic self refers to a set of ideas, feelings and beliefs about one's core and authentic attributes. Prior work has shown that people are less likely to express their true self when confronting situations that make them feel confused about who they are (Lenton, Bruder, Slabu, & Sedikides, 2013). As discussed, nostalgia refers to personally important memories which, when recalled, confer benefits on the self. As such, nostalgia may buffer threats to the intrinsic self.

If nostalgia buffers an intrinsic self-threat, then people who are given the opportunity to feel nostalgic should not show reduced intrinsic self-expression as a result of an intrinsic self-threat. To test this, Baldwin, Biernat, and Landau (2015) instructed participants to think and write about a situation in which they cannot feel like their real self (intrinsic self-threat condition) or a situation that typically occurs in their life (no threat condition). Then, they experimentally induced nostalgia by asking participants to reflect on a nostalgic event or ordinary event. Lastly, they assessed participants' present perceptions of intrinsic self-expression with statements such as, "I have a clear sense of who I am or what I am." They found that among participants who recalled an ordinary event, those in the intrinsic self-threat condition evidenced lower intrinsic self-expression compared to those in the no threat condition. However, nostalgia buffered this effect—among participants who recalled a nostalgic event, there was no difference on intrinsic self-expression between the two conditions. In sum, this study supports the postulated buffering capacity of nostalgia, showing that nostalgia protects people from detrimental consequences of intrinsic self-threat.

Self-esteem threat. Additional research has also investigated whether nostalgia protects people from threats to self-esteem (Vess et al., 2012). As mentioned, nostalgia bolsters self-esteem. Thus, nostalgia may buffer against threats to self-esteem. Prior work has demonstrated a well-documented defensive response to self-esteem threat in which people make internal attributions for their successes and external attributions for their failures (i.e. self-serving attribution; Campbell & Sedikides, 1999). Based on this work, researchers examined whether nostalgia prevents the need to make such self-serving attributions.

If nostalgia buffers self-esteem threats inherent to a failure, then people who have the chance to reflect on their nostalgic memories should not show increased external attribution of this failure to their ability. To examine this, Vess et al. (2012) asked participants to complete a test of analytic reasoning (Remote Associates Test; Mednick, 1962) and subsequently gave them bogus feedback for their performance: either feedback that they failed the task (self-esteem threat condition) or feedback that they succeeded at the task (self-esteem boost condition). Immediately after the completion of this test, they asked participants to reflect on a nostalgic event or an ordinary event. Finally, they asked participants to indicate the extent to which their test performance was caused by their ability. The results demonstrated that among participants who recalled an ordinary event, those in the self-esteem threat condition attributed their performance to their ability less than those in the self-esteem boost condition. In other words, within the ordinary condition, there were strong self-serving attributions. However, within the nostalgia condition, the self-serving attributions were weaker. This effect was driven by participants in the nostalgia condition being more willing to attribute their failure to their own ability. In sum, these results suggest that nostalgia protects against the need to respond defensively to self-esteem threats.

1.4.2   Existential threats

Given that nostalgia provides meaning in life, researchers have also investigated whether nostalgia protects people from conditions entailing existential threats. More specifically, researchers have examined two different types of existential threats: death awareness and meaninglessness.

Death Awareness. Death awareness refers to the knowledge of inevitably of death. Studies have shown that reminders of death increases anxiety and compromise well-being (Juhl & Routledge, 2016). According to terror management theory (Greenberg, Pyszczynski, & Solomon, 1986; Greenberg, Solomon, & Arndt, 2008) and research (Routledge & Juhl, 2010), perceiving life as meaningful prevents the awareness of death from undermining psychological well-being. As discussed, nostalgia imbues life with meaning. It follows that nostalgia may buffer the effects of death awareness.

If nostalgia buffers death awareness, then nostalgic prone people should not evidence death anxiety following heightened death awareness. To test this, Juhl, Routledge, Arndt, Sedikides, and Wildschut (2010) measured nostalgia proneness with the SNS (Routledge et al., 2008). Next, they experimentally heightened the awareness of death by assigning participants to a mortality salience condition or a control condition (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). In the mortality salience condition, they asked participants to "briefly describe the emotions that the thought of your own death arouses in you," and to "jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead." In the control condition, they asked participants to respond to parallel instructions about physical pain, instead of death. Subsequently, they administrated the Death of Self subscale of the Revised Collett-Lester Fear of Death Scale (Lester, 1990). This subscale assesses the extent to which participants feel anxious about different aspects of death such as, "the shortness of life" and "the total isolation of death." The findings showed that among

participants with low levels of nostalgia proneness, mortality salience increased death

anxiety. However, this effect did not occur among those with high levels of nostalgia

proneness. Hence, a tendency to be nostalgic circumvents the detrimental effect of death

awareness on anxiety about death.

Meaninglessness. Beyond buffering the effects of death awareness, nostalgia may

buffer another existential threat. That is, nostalgia may buffer threats to perceived

meaning.

If nostalgia buffers a meaning threat, then people who are given the opportunity to

feel nostalgic should not show reduced meaning in response to a meaning threat. Viewing

absurd painting reduces perceptions of life as meaningful (Proulx, Heine, & Vohs, 2010).

Given this, Routledge et al. (2012) examined whether nostalgia prevents such reduction in

perceived meaning that is due to viewing an absurd painting. In particular, they asked

participants to view an absurd painting or a representational painting. Next, they instructed

participants to think about a nostalgic event or a desired-future event. As previously

mentioned, thinking about a desired future event bolsters perceived meaning in life

(Emmons, 2003), making this a rigorous control condition. Finally, they measured state

levels of meaning with the Presence of Meaning in Life subscale of the Meaning in Life

Questionnaire (e.g., "I have a good sense of what makes my life meaningful"; Steger et al.,

2006). They found that among participants who recalled a desired-future event, viewing an

absurd (vs representational) painting reduced meaning. However, this effect did not occur

among those in the nostalgia condition. Nostalgia thus buffers threats to perceived

meaning.

1.4.3   Well-being Threats

Research has also investigated whether nostalgia protects people from conditions

entailing threats to the psychological wellbeing. Specifically, researchers examined

whether nostalgia buffers stress (Routledge et al., 2011). The World Health Organization (2001) lists stress one of the most significant mental and physical health problems of the twenty-first century. However, studies have shown that not all people experience stress in the same way. For example, people with deficits in meaning are vulnerable to experience stress in challenging situations (Park & Folkman, 1997). As discussed, nostalgia is a source of meaning. It follows that nostalgia could be implemented to buffer the effect of a distressing experience for people with low meaning.

As a means to examine this, Routledge et al. (2011) first assessed trait levels of meaning with statements such as, "My life has meaning." Next, they instructed participants to think about a nostalgic event or ordinary event. They, then, administrated the Trier Social Stress Test (Kirschbaum, Pirke, & Hellhammer, 1993). This test consists of a public speaking and mental arithmetic task, and it reliably produces psychological stress responses (Schlotz et al., 2008). Immediately after the completion of this test, Routledge et al. (2011) measured state levels of stress by asking participants to indicate the extent to which they felt "jittery," "fearful," and "ashamed." The findings showed that among participants who recalled an ordinary event, those who were low (vs. high) in meaning experienced greater stress. However, this effect did not occur among those who recalled a nostalgic event. Hence, nostalgia buffered the deleterious effect of a distressing experience for people with low meaning.

1.4.4   Summary

In sum, research has shown that nostalgia buffers the aversive consequences of self-threats, shields against existential threats, and protects well-being from the detrimental consequences of stress. Thus, this bulk of evidence demonstrates the buffering capacity of nostalgia.

1.5   The Regulatory Role of Nostalgia

The previously reviewed research has shown that nostalgia prone people or those who are given the chance to reflect on their nostalgic memories are protected against various psychological threats. However, this work did not consider whether people naturally become nostalgic to cope with psychological threats. Stated otherwise, when people are feeling psychological distress or experience psychological deficits, do they turn to nostalgia to cope with these aversive states? Davis (1979) initially speculated that nostalgia "occurs in the context of present fears, discontents, anxieties, and uncertainties" (p.34) and further suggested that people may retrieve nostalgic memories in a way to counteract these negative states. In other words, people may become nostalgic in the face of an aversive condition as a way to alleviate or counteract the deleterious consequences of this condition.

Although it might seem counterintuitive that an aversive condition would trigger a predominantly positive emotion (i.e., nostalgia), previous research is in line with this proposition. For example, Josephson, Singer, and Salovey (1996) demonstrated that those in a condition that evokes sadness who reflected upon positive autobiographical memories often described this as a way to repair their mood. Relatedly, additional evidence shows that people are highly attuned to positive information following negative events and that this tuning to positivity helps maintain psychological homeostasis (DeWall & Baumeister, 2007; DeWall et al., 2011; Sedikides, 2012). This line of research raises the possibility that people may turn to nostalgia as a way to cope with adverse psychological conditions of their life.

On this basis, Sedikides et al. (2015) proposed a regulatory model of nostalgia. They described this model as follows. Adverse psychological conditions will have a negative impact on a psychological outcome (e.g., well-being). However, these negative

conditions will also trigger nostalgia. Nostalgia, in turn, will alleviate or counteract the negative consequences of these adverse conditions.

In one investigation, Stephan et al. (2014) examined a general version of the regulatory model of nostalgia with respect to avoidance and approach motivation. People tend to avoid adverse psychological states that are likely to lead to negative outcomes, whereas they tend to approach positive psychological states that are likely to lead to positive outcomes. In situations where the avoidance motivation is salient, approach motivation is suppressed. In such situations, the unopposed avoidance motivation poses a threat to psychological well-being (Elliot & Sheldon, 1997). However, people may use diverse psychological mechanisms to reinforce approach motivation in the presence of avoidance motivation (Elliot & Friedman, 2007). Based on this, Stephan et al. (2014) investigated whether nostalgia is one such mechanism. Specifically, they examined whether nostalgia regulates the negative impact of avoidance motivation (i.e. adverse psychological condition) on approach motivation.

As a means to test this, they first experimentally induced avoidance motivation by randomly assigning participants to an avoidance condition or control condition. In the avoidance condition, they instructed participants to write about five events they wanted to avoid in the future. In the control condition, they instructed participants to write about five ordinary events that are likely to happen in the future. Following the completion of this task, they assessed nostalgia using the Nostalgia Inventory (Batcho, 1995) for which participants rated the extent to which they felt nostalgic about 20 objects from their past (e.g., "family," "music," "things I did"). Lastly, they administrated the Behavioral Activation System subscale of the Behavioral Inhibition System and Behavioral Approach System scale (Carver & White, 1994). This subscale assesses approach motivation with statements such as, "I go out of my way to get things I want" and "I will often do things for no other reason than that they might be fun." The results demonstrated that avoidance

motivation decreased approach motivation. However, it also increased nostalgia. Additionally, nostalgia was related to greater approach motivation, and mediation analysis demonstrated that there was a significant indirect effect of avoidance motivation on approach motivation through nostalgia. Hence, nostalgia alleviated the negative consequences of avoidance motivation on approach motivation. In all, this research provides evidence supporting the postulated regulatory role of nostalgia, that is, people naturally turn to nostalgia in response to a psychological threat as a way to regulate the threat.

Below, I detail research investigating the regulatory model of nostalgia within specific domains. I organize the evidence on the basis of the adverse conditions that trigger nostalgia. The adverse conditions may involve threats directed at the self (i.e. self-threats), targeting the social sphere (i.e., social threats), or pertaining to existential concerns (i.e. existential threats).

1.5.1   Self-Threats

One line of research has investigated the regulatory role of nostalgia with respect to threats to the self. Specifically, researchers have examined whether nostalgia regulates threats to the intrinsic self and self-continuity.

Intrinsic self-threat. To begin, researchers have investigated whether nostalgia regulates threats to the intrinsic self (i.e., a set of ideas, feelings and beliefs about one's core and authentic attributes). As discussed, nostalgia buffers the detrimental consequences of intrinsic self-threat. Given this, people may naturally turn to nostalgia to regulate intrinsic self-threats.

If people turn to nostalgia to regulate intrinsic self-threats, then exposure to an intrinsic self-threat will heighten nostalgia as a way to counter this threat. To test this, Baldwin, Biernat, and Landau (2015) instructed participants to think and write about a

situation in which they cannot feel like their real self (intrinsic self-threat condition) or a situation that typically occurs in their life (no threat condition). Next, they measured state levels of nostalgia by asking participants to indicate the extent to which they felt "nostalgic," "wistful," "longing," and "sentimental." The findings showed that participants in the intrinsic self-threat condition experienced greater nostalgia compared to those in the no threat condition. Thus, intrinsic self-threat leads to nostalgia, suggesting that people naturally turn to nostalgia to regulate intrinsic self-threat.

Self-continuity threat. Further research has investigated the regulatory role of nostalgia corresponding to threats to self-continuity, or in other terms self-discontinuity. Self-discontinuity refers to a sense of disjointedness with respect to who oneself is across time (Davis, 1979), and it is associated with greater negative affect, anxiety, and likelihood of psychopathology (Chandler, Lalonde, Sokol, & Hallet, 2003; Lampinen, Odegard, & Leding, 2004). As mentioned, nostalgia increases self-continuity. It follows that nostalgia may regulate self-discontinuity.

If people turn to nostalgia to regulate threats to self-continuity, then exposure to self-discontinuity will lead to nostalgia as a way to counter this threat. To test this, Sedikides et al. (2015) experimentally threatened self-continuity by randomly assigning participants to a self-discontinuity condition or self-continuity condition. In the self-discontinuity condition, they instructed participants to read an essay arguing that the transition to university life involves changes for their life. This essay included statements such as, "Students become cut off from their family environment and circle of friends." In the self-continuity condition, they instructed participants to read an essay arguing that the transition to university life do not involve changes for their life. This essay included statements such as, "Students are surrounded by a stable group of friends in a familiar surrounding." Immediately following this reading task, these researchers assessed state levels of nostalgia with the Nostalgia Inventory (Batcho, 1995). Participants in the self-

discontinuity condition felt greater nostalgia compared to those in the self-continuity condition. Hence, self-discontinuity leads to greater nostalgia. This finding provides evidence in line with the notion that people naturally turn to nostalgia to regulate threat to self-continuity.

1.5.2   Social Threats

Another line of research has investigated the regulatory role of nostalgia with respect to threats to social connectedness, in particular, loneliness. Loneliness is a negative emotional state that is characterized by perceptions of reduced social support and by fewer and less satisfying relationships (Archibald, Bartholomew, & Marx, 1995; Cacioppo et al., 2006). When people feel lonely, they may rely on mental representations of their interpersonal relationships to meet their interpersonal needs (Gardner, Pickett, & Knowles, 2005). Because nostalgia bolsters perceptions of social connectedness, nostalgia may also regulate loneliness.

If people turn to nostalgia to regulate loneliness, then exposure to loneliness will lead to nostalgia as a way to counter this threat. To examine this, Wildschut et al. (2006) experimentally induced loneliness by asking participants to complete statements drawn from the UCLA Loneliness Scale (Russel, Peplau, & Cutrona, 1980). This scale assesses loneliness with statements such as, "I feel isolated from others." However, for this study, Wildschut et al. (2006) changed the phrasing of these statements depending on whether participants were in the high loneliness condition or in the low loneliness condition. In the high loneliness condition, these researchers phrased the statements to evoke agreement (e.g., "I *sometimes* feel isolated from others"), and thus, raise the sense of high loneliness. In the low loneliness condition, they phrased the statements to evoke disagreement (e.g., "I *always* feel alone"), and thus, raise the sense of low loneliness. Following this task, they assessed state levels of nostalgia with the Nostalgia Inventory (Batcho, 1995). The findings

demonstrated that participants in the high loneliness condition felt greater nostalgia

compared to those in the low loneliness condition. In short, loneliness leads to nostalgia.

If, in turn, nostalgia effectively regulates loneliness, then nostalgia should also

alleviate or counteract reductions in perceived social support due to loneliness. Zhou et al.

(2008) examined this by experimentally inducing loneliness using the same method as

Wildschut et al. (2006). Next, they measured state levels of nostalgia with items such as, "I

am feeling quite nostalgic." Lastly, they measured state levels of perceived social support

with the Multidimensional Scale of Perceived Social Support (e.g., "I can count on my

friends when things go wrong"; Zimet et al., 1988). They showed that loneliness decreased

social support, but also increased nostalgia. Additionally, nostalgia predicted greater social

support, and mediation analysis showed that there was a significant indirect effect of

loneliness on social support through nostalgia. In particular, loneliness increased social

support via nostalgia. That means, nostalgia counteracted reductions in perceived social

support due to loneliness. Together, these studies corroborate the postulated regulatory role

of nostalgia, illustrating that people naturally turn to nostalgia in response to a

psychological threat as a way to regulate the threat.

1.5.3   Existential threats

Research has also investigated the regulatory role of nostalgia corresponding to

conditions entailing existential threats. As discussed, nostalgia increases meaning in life

and buffers threats to perceived meaning. It follows that nostalgia may regulate threats to

meaning.

If people turn to nostalgia to regulate meaning threats, then exposure to a meaning

threat should heighten nostalgia as a way to counter this threat. Routledge et al. (2011)

threatened meaning by assigning participants to a meaning-threat condition or a no-threat

condition. In the meaning-threat condition, participants read an essay stating that life is

meaningless. This essay included statements such as, "These statistics serve to emphasize how our contribution to the world is paltry, pathetic and pointless." In the no-threat condition, participants read an essay concerning computers. This essay included statements such as, "A computer does not comprehend what is stored in its 'memory' any more than a book in the library understands what it contains." After this reading task, they measured state levels of nostalgia with statements such as, "I am feeling quite nostalgic." The findings demonstrated that participants in the meaning-threat condition felt more nostalgic compared to those in the no-threat condition. In all, meaninglessness leads to nostalgia, suggesting that people naturally turn to nostalgia to regulate meaning threats.

Additional research has investigated the regulatory role of nostalgia in relation to a threat to meaning, namely boredom. Past research has demonstrated that boredom makes people think that their present situation is meaningless (Van Tilburg & Igou, 2012). If people turn to nostalgia to regulate meaning threats, then boredom should lead to nostalgia as a way to counter this meaning threat. In one study, Van Tilburg, Igou, and Sedikides (2013) experimentally induced boredom by asking participants to copy ten (high-boredom condition) or two (low-boredom condition) references about concrete mixtures. Next, they measured state levels of nostalgia with statements such as, "I am feeling quite nostalgic." They found that participants in the high boredom condition experienced greater nostalgia compared to those in the low-boredom condition. In a subsequent study, Van Tilburg et al. (2013) replicated this finding with a different manipulation of boredom in which they asked participants to trace a line through either nine (high-boredom condition) or three (low-boredom condition) large spirals. Together, these studies illustrated that boredom leads to nostalgia.

If, in turn, nostalgia effectively regulates meaning threats, then nostalgia should also alleviate or counteract reductions in meaning due to boredom. Van Tilburg et al. (2013) examined this by experimentally inducing boredom using the reference-copying

task. Next, they administrated a scale assessing state levels of nostalgia (previously

mentioned). Lastly, they assessed meaning using the Presence of Meaning subscale of the

Meaning in Life Questionnaire (e.g., "I have a good sense of what makes my life

meaningful"; Steger et al., 2006). They demonstrated that boredom decreased meaning, but

also increased nostalgia. Furthermore, nostalgia predicted greater meaning, and mediation

analysis revealed that there was a significant indirect effect of boredom on meaning

through nostalgia. Specifically, boredom enhanced meaning through nostalgia. That

means, nostalgia counteracted reductions in meaning due to boredom. Together, these

studies are consistent with the postulated regulatory role of nostalgia, illustrating that

people naturally turn to nostalgia in response to a psychological threat as a way to regulate

the threat.

1.5.4   Summary

The regulatory model posits that adverse psychological conditions will have

negative consequences on a psychological outcome, but that they will also trigger

nostalgia. Nostalgia, in turn, will alleviate or counteract the negative consequences of

theses aversive conditions. Indeed, research has supported this regulatory model. Adverse

conditions entailing self-threat (intrinsic self-threat, self-discontinuity), social threat

(loneliness), and existential threat (meaningfulness) instigate nostalgia. In turn, nostalgia

alleviates or counteracts the deleterious consequences of self-threats, the harmful

repercussions of loneliness, and the reductions in meaning due to existential concerns.

1.6   Weaknesses and Controversies in Nostalgia Research

The research reviewed thus far has provided crucial information about the nature of

nostalgia and its effects. This research depicts nostalgia as a self-relevant and

predominantly positive emotion that confers various benefits. However, before leaping to

this conclusion, it is important to bear in mind that there is no research without weaknesses

and there is no literature without controversies.

1.6.1   Limitations in Nostalgia Research

       To gain a more thorough and critical insight of the nostalgia research, it is

important to consider and address its limitations. To begin, there may be concerns with the

most widely used nostalgia manipulation, the ERT. In the ERT, researchers typically

provide participants with a definition of nostalgia and then explicitly ask them to recall a

nostalgic event. This definition may cause participants to respond to ERT prompts based

on their expectations about how they think nostalgia should feel, rather than how it actually

makes them feel (i.e., demand characteristic). Similarly, the definition may evoke demand

characteristics with respect to the nostalgia manipulation check, which typically comes

immediately after the ERT and assesses state nostalgia with items such as "Right now, I

am feeling quite nostalgic" (e.g., Wildschut et al., 2006, 2010; Zhou et al., 2008).

Specifically, participants who are provided with the definition of nostalgia and then recall a

nostalgic event may feel bound to endorse the manipulation-check items even if they do

not actually feel nostalgic. An additional concern about the ERT is the use of an "ordinary

event" as control condition. When participants recall ordinary events from their past, they

may bring to mind events that could plausibly elicit nostalgia. Perhaps this issue is not a

large concern; however, it would likely weaken the effects of nostalgia and create

conservative estimates of the effects of nostalgia. This would increase the risk of making

type II errors.

       Additionally, the primary measure of nostalgia, the SNS, has potential weaknesses

(Newman, Sachs, Stone, & Schwarz, 2019). This scale consists of seven items that are

highly similar. In fact, the word nostalgia appears in all of them. This scale thus measures a

narrow construct. Nostalgia, however, is not a narrow construct. It is complex, as

illustrated by the narrative and prototype analyses reviewed above (Hepper et al., 2012;

Wildschut et al., 2006). Another issue with the SNS is that two of the SNS items ask participants how significant and valuable nostalgic feelings are to them (Newman et al., 2019). This could cause participants to focus on the positive side of nostalgia.

A further limitation is that the majority of studies examining the regulatory role or buffering capacity of nostalgia rely on the measurement-of-mediation design. That is, researchers experimentally manipulate the independent variable (i.e., the adverse state) and then measure the mediator (i.e., nostalgia) and outcome. The shortcoming of this design is that it does not allow for drawing definite causal conclusions regarding the effect of the mediator (i.e., nostalgia) on the outcome (Bullock, Green, & Ha, 2010; Pirlott & MacKinnon, 2016). To address the limitations of this design, future studies could implement experimental-causal-chain designs (Spencer, Zanna, & Fong, 2005). Although there are some nostalgia studies (Sedikides et al., 2015) that have adopted this design, future research should implement this procedure more regularly. In such studies, researchers will manipulate each variable in a proposed model and examine its effects on the outcome.

1.6.2   Does Nostalgia Ever Have Negative Consequences?

An additional concern that needs to be addressed is that the research I have reviewed highlights the positive aspect of nostalgia, implying that nostalgia has only beneficial effects on people. This conclusion is not necessarily warranted and begs the question of whether nostalgia ever has negative consequences. In contrast to the research reviewed so far, there is some research that has provided the platform for such negative effects to surface. In particular, there is some work that, at least at first glance, reveals that nostalgia could have a negative side.

To begin, a few studies have found that nostalgia prone people have greater levels of neuroticism (Barrett et al., 2010; Seehusen et al., 2013; Stephan et al., 2014). While no causal conclusion can be made from this finding, one possible explanation is that being a

highly nostalgic person might lead one to be more neurotic. However, Seehusen et al.

(2013) speculated that the relation between nostalgia proneness and neuroticism is due to

their mutual overlap with a third variable: the need to belong (Leary, Kelly, Cottrell, &

Schreindorfer, 2013). Indeed, these researchers found that the link between nostalgia

proneness and neuroticism was eliminated when they controlled for the need to belong.

Yet, the need to belong was still linked to nostalgia proneness when they controlled for

neuroticism. This remaining link between nostalgia proneness and the need to belong is

consistent with Seehusen et al.'s (2013) additional findings that experimentally induced

belongingness deficits leads to nostalgia. Such findings actually provide additional support

for the regulatory role that nostalgia plays. In short, the relation between nostalgia and

neuroticism appears to be due to their mutual overlap with the need to belong. The

remaining relation between the need to belong and nostalgia is consistent with

experimental evidence for nostalgia's capacity to help address belonging deficits.

In other research, Iyer and Jetten (2011) investigated whether nostalgia is equally

beneficial to all. More specifically, they examined whether trait levels of self-continuity

moderate the positive effect of nostalgia on well-being. They found that nostalgia had a

negative effect on well-being for people low in self-continuity. This thus suggests that

nostalgia may have some negative consequences for individuals who lack self-continuity.

However, some aspects of this study obscure this conclusion. First, Iyer and Jetten

operationalized nostalgia as a concept more closely related to homesickness (i.e., the extent

to which homesick first-year university students wished to still be in high school) rather

than to nostalgia. Homesickness, however, is distinct from nostalgia (Sedikides et al.,

2004). In particular, homesickness is a negative emotion experienced by people who are

away from home and facing adjustment challenges. Second, Iyer and Jetten's

operationalized self-continuity as social-identity continuity, that is "the extent to which

students maintained their group membership from their home community during the

transition to university" (p. 97; Study 1) or the extent to which students retained links with their home communities (Studies 2-3). Despite these important methodological issues, Iyer and Jetten's findings are interesting and beg for further investigation.

Verplanken (2012) also investigated the effects of nostalgia for different types of individuals, specifically focusing on people who habitually worry (vs. those who do not). He found that all participants experienced positive affect immediately following a nostalgia induction, but habitually worriers reported greater anxiety and depression soon thereafter. Thus, nostalgia may have negative effects for habitual worriers. For these people, nostalgic memories may serve as an idealized past that contrasts with their chronic state of worry in the present. This salient contrast between the desirable past and the undesirable present may result in increased rumination. This speculation appears more appealing if we consider prior work showing that rumination is dominant among habitual worriers (Watkins, 2008). Relatedly, some theorists have questioned whether people with predominantly negative childhood memories have the capacity to harvest the benefits of nostalgia or even, broadly speaking, the capacity for nostalgia (Sedikides et al., 2015). Future research should explore this possibility as well as whether habitual worriers and, more broadly, people prone to unhealthy thought patterns (e.g., rumination, repetitive regret, counterfactual thinking) experience negative effects due to nostalgia reflection.

1.6.3   Summary

The majority of nostalgia research points out the positive aspect of nostalgia, illustrating that nostalgia confers various psychological benefits. However, this work has some limitations. Additionally, not all individuals may benefit from nostalgia, and nostalgia may negatively affect some individuals. Nevertheless, the purpose of the thesis research was to further understand the positive effects of nostalgia.

1.7   The Present Research

I have built upon the existing understanding of the positive influence of nostalgia in three key ways. First, I investigated whether nostalgia might have an additional psychological effect. In particular, I examined whether nostalgia promotes spirituality (i.e., "the quality of being concerned with the human spirit or soul as opposed to material or physical things," The New Oxford Dictionary of English, 1998, p. 1794). Second, I expanded upon the understanding of nostalgia's capacity to buffer psychological threats. More specifically, I examined whether nostalgia buffers the adverse effects of life uncertainty (i.e. uncertainty about major aspects of life such as one's career, relationships, or financial stability). Third, I investigated the psychological processes involved in the formation of nostalgic memories. Specifically, I examined whether savouring (i.e., consciously capturing and retaining an on-going experience; Bryant, 2003) facilitates the formation of nostalgic memories.

1.7.1   Nostalgia and Spirituality

As I have reviewed, past research has shown that nostalgia has several positive psychological effects. For example, nostalgia increases perceptions of self-continuity (e.g., Sedikides et al., 2015) and meaning in life (e.g., Routledge et al., 2011). I expanded upon this research by investigating whether nostalgia also promotes spirituality.

Spirituality is "the quality of being concerned with the human spirit or soul as opposed to material or physical things" (The New Oxford Dictionary of English, 1998, p. 1794). Correlational research has shown that spirituality is associated with greater well-being. For example, Gnanaprakash (2013) examined whether spirituality is associated with greater resilience. He measured spirituality using the Daily Spiritual Experience Scale (Underwood & Teresi 2002), which is comprised of items referring to the frequency of spiritual experiences as expressed in people's daily lives. Next, he measured resilience

using the Cognitive Emotion Regulation Questionnaire (Garnefski et al., 2002), which

assesses the extent to which people use adaptive strategies (e.g., acceptance, positive

reappraisal) and maladaptive strategies (e.g., self-blame, blaming others) of emotion

regulation. The results showed that participants with greater levels spirituality tended to

follow adaptive strategies while participants with lower spirituality tended to follow

maladaptive strategies. Ellison and Fan (2008) further revealed that spirituality is

associated with indicators of well-being. They measured spirituality with the Daily

Spiritual Experience Scale (Underwood & Teresi 2002). They also measured optimism and

self-esteem, and found that spirituality was positively associated with both.

One reason that spirituality may be associated with well-being is because

spirituality can be helpful when facing adverse life situations. For example, Bereavement

Life Review therapy (Ando et al., 2010) is designed to help bereaved individuals get in

touch with their spirituality side in order to help cope with the death of a loved one. To test

this idea, Ando and colleagues (2010) measured spirituality and depression in individuals

who recently lost a loved one. They then gave these participants two weeks of

Bereavement Life Review therapy. After the therapy, the researchers measured depression

and spirituality again. The results revealed that participants had greater levels of

spirituality and lower levels of depression after, compared to before, the therapy. Thus, the

therapy increased spirituality and decreased depression in the wake of an adverse life

experience. This suggests that spirituality may help people cope with the death of a loved

one (see also Michael, Crowther, Schmid, & Allen, 2003). Generally speaking, researchers

believe that spirituality can help cope with a host of adverse life situations, such as life-

threatening illnesses (Daaleman & Dobbs, 2010, Spilka, Hood, Hunsberger, & Gorsuch,

2003), socioeconomic distress (Wimberley, 1984), and close relationship troubles

(Kirkpatrick, 2005).

People do not only become spiritual in response to adversity. People also report greater spirituality when experiencing events that elicit positive emotions such as awe, elevation, and admiration (Saroglou, Buxant, & Tilquin, 2008; Van Cappellen, Saroglou, Iweins, Piovesana, & Fredrickson, 2013). For example, Saroglou et al. (2008) instructed participants to either watch videos inducing the emotion of awe or neutral videos that did not induce any emotion (control condition). Following the videos, they administrated the Spiritual Transcendence Scale (Piedmont, 1999) which measures spirituality with items such as "There is an order to the universe that transcends human thinking." They found that participants who watched the video eliciting awe perceived themselves as being more spiritual compared to controls.

My research built upon this line of research by examining whether nostalgia invokes spirituality. In Chapter 2, I examined whether nostalgia is related to, and affects, spirituality. In particular, I theorized that nostalgia fosters spirituality through self-continuity and meaning in life.

1.7.2   Uncertainty and Nostalgia

As I have discussed, nostalgia buffers against psychological threats. For example, nostalgia buffers the discomfort caused by psychological threats, such as the awareness of one's mortality (Juhl et al., 2010) or the potential meaninglessness of life (Routledge et al., 2011). I extended this research by investigating whether nostalgia also buffers life uncertainty.

Uncertainty is generally aversive (Van den Bos & Lind, 2002). Some individuals struggle more with, and are less tolerant of, uncertainty. For example, Carleton, Collimate, and Amundsen (2010) measured intolerance for uncertainty with the short form of the Intolerance of Uncertainty scale (Carleton, Norton, & Asmundson, 2007; e.g., "I must get away from all uncertain situations"). They additionally measured negative affect, anxiety

sensitivity, and social anxiety. They found that those who were less tolerant of uncertainty experience greater levels of negative affect, are more sensitive to anxiety, and more socially anxious. Consistent with these findings, further research has shown that being less tolerant of uncertainty is associated with greater worry (Dugas, Schwartz, & Francis, 2004), anxiety (Wright, Lebell, & Carleton, 2016), and rumination (de Jong-Meyer, Beck, & Riede, 2009).

In addition, struggling with uncertainty is associated with negative implications for the self. For example, Butzer and Kuiper (2006) assessed Intolerance of Uncertainty (using the full Intolerance of Uncertainty scale; Freeston et al., 1994; e.g., "Uncertainty makes life intolerable"). Next, these researchers assessed self-concept clarity using the Self-Concept Clarity scale (Campbell et al., 1996). This scale assesses the extent to which one's self-concept is clearly defined and stable over time with statements such as, "My beliefs about myself seem to change very frequently" (reversed scored). The results revealed that intolerance of uncertainty was associated with less self-concept clarity. Another investigation examined how uncertainty about the self is associated with self-esteem (Story, 2004). Specifically, participants listed some of their own personality traits and then rated how certain they were that they possessed each of these traits. They additionally completed the Rosenberg Self-Esteem scale (Rosenberg, 1965). Those who were more uncertain about their own personal traits exhibited lower self-esteem. In summary, struggling with uncertainty is associated with negative self-related outcomes.

It is important to identify ways in which people can efficiently cope with life uncertainty. Research has shown that one way people cope with uncertainty is by clinging firmly to their existing attitudes and beliefs. Specifically, McGregor, Zanna, Holmes, and Spencer (2001) experimentally induced uncertainty by having participants reflect on their personal uncertainties (vs. control). They then asked participants to indicate their beliefs regarding a number of social issues (e.g., abortion, capital punishment). After participants

indicated their beliefs, they rated how strongly their convictions were in these beliefs (e.g., "How firmly do you believe in this position?"). Those who previously reflected on their uncertainties held stronger convictions. This suggests that people cling firmly to their beliefs as a way to cope with uncertainty.

My research expanded upon this line of research by investigating an additional way in which people can efficiently cope with life uncertainty and its detrimental consequences. In Chapter 3, I examined whether nostalgia helps people cope with life uncertainty. More specifically, I tested whether nostalgia preserves self-continuity in the face of life uncertainty. I examined whether both nostalgia proneness and induced nostalgia buffers the negative impact of life uncertainty on self-continuity.

1.7.3   Savouring and Nostalgia

As I have reviewed above, research has illustrated what nostalgia is and the psychological effects that is has on people. This work has shown that nostalgia is a bittersweet, albeit predominantly positive, emotion that entails psychological benefits. In particular, nostalgia helps people manage psychological adversity in the present. It is thus crucial to identify those psychological processes that are likely to supply more nostalgic memories upon which people can reflect when facing psychological adversity. I thus addressed this gap in the literature in Chapter 4. Specifically, I aimed to unearth a psychological process that occurs during a life experience that may lead the experience to subsequently become a nostalgic memory. I specifically examined whether savouring is one such process.

Savouring entails deep attention to a present experience in order to capture it, retain it, and fully appreciate it (Bryant & Veroff, 2007). Research has shown that savouring is positively associated with traits indicative of psychological health and negatively associated with traits indicative of poor psychological health (Bryant, 2003; Bryant &

Veroff, 2007). For example, Bryant (2003) examined the relation between savouring and several indicators of well-being. In particular, he assessed savouring using the Savouring Beliefs Inventory. This scale assesses participants' capacity to savour with items such as, "I can prolong enjoyment by own effort." (Bryant, 2003). He additionally assessed optimism, self-esteem, life satisfaction, happiness, neuroticism, hopelessness, and depression. Results revealed that savouring was positively associated with optimism, self-esteem, life satisfaction, and happiness, and negatively associated with neuroticism, hopelessness, and depression.

Further work has experimentally examined whether savouring can reduce ill-being. Specifically, Hurley and Kwon (2012) tested a savouring intervention. They randomly assigned participants to an intervention condition or control condition. Those in the intervention condition listened to a 20-minute video teaching them strategies for savouring the moment. They were then instructed to use these strategies over the next two weeks. Those is the control condition simply did not watch a video, and thus they were not instructed to use savouring strategies. After two weeks, the participants completed a measure of depressive symptomology (Beck Depression Inventory II). Participants in the savouring intervention condition exhibited lower depression compared to those in the control condition. Thus, savouring reduces symptoms of depression.

Researchers (Bryant, 2003; Bryant & Veroff, 2007) also believe that people savour experiences in order to enhance the emotionality of those experiences. Correlational research is consistent with this. Bryant (2003), reviewed above, additionally measured affective intensity. He found that savouring was positively related to affective intensity.

The notion that savouring may enhance the emotionality of experiences provided the basis for investigating savouring as a psychological process implicated in the creation of nostalgic memories. The presence of strong emotions can strengthen the encoding of events into memory (LaBar & Cabeza, 2006). Additionally, deeply processing information,

as one does when savouring, helps solidify memories (Craik, 2002). Together, the

enhanced emotionality and deep processing of a savoured experience should increase the

likelihood of it being stored and subsequently becoming a memory for which one could

feel nostalgic. Thus, in Chapter 4, I investigated whether savouring is implicated in the

formation of nostalgic memories. Additionally, based on previous findings showing that

nostalgia increases optimism, I also investigated the downstream implications of nostalgia

on optimism. Thus, in all, I examined whether *present* feelings of nostalgia for *past* life

experiences that were savoured predicts greater optimism for the *future*.

Chapter 2

Empirical Paper I

2.1   Nostalgia and Spirituality

In this empirical paper, I investigated whether nostalgia is associated with, and fosters, spirituality. I also examined the mechanisms underlying the effect of nostalgia on spirituality. This paper is finished and submitted to the *Psychology of Religion and Spirituality*. What follows in this Chapter is the submitted version of this manuscript.

As the first author of this empirical paper, I was the primary person conducting the research and preparing the manuscript. In particular, I was in charge of collecting the data and obtaining the data from online panels. I was also the main responsible for analysing the data. I also led the writing of the manuscript. I drafted it, and then collected and collated feedback from my collaborators to produce the final draft.

The Nostalgia and Spirituality Link: The Role of Self-Continuity and Meaning in Life

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Abstract

We hypothesized that nostalgia is linked to greater spirituality through self-continuity and, in turn, meaning in life (nostalgia $\Rightarrow$ self-continuity $\Rightarrow$ meaning in life $\Rightarrow$ spirituality). In Study 1 ($N = 186$), we measured nostalgia and spirituality. Nostalgia was related to greater spirituality. In Study 2 ($N = 315$), we tested this relation in a nationally representative sample. Nostalgia was, once again, related to greater spirituality, and this relation remained significant after controlling for key demographic variables and core personality traits. In Study 3 ($N = 160$), we experimentally induced nostalgia and measured self-continuity, meaning in life, and spirituality. Nostalgia increased spirituality via self-continuity and meaning in life serially. Taken together, nostalgia is positively associated with spirituality and fosters spirituality through self-continuity and meaning in life.

Keywords: nostalgia, spirituality, self-continuity, meaning in life

Nostalgia, "a sentimental longing or wistful affection for the past" (The New Oxford Dictionary of English, 1998, p. 1266), promotes self-continuity (a sense of connection between one's past and present; Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008) and meaning in life. Some scholars have loosely speculated that nostalgia is also linked to spirituality, "the quality of being concerned with the human spirit or soul as opposed to material or physical things" (The New Oxford Dictionary of English, 1998, p. 1794). However, no work has expanded upon these speculations nor empirically tested this link. Here, we theoretically develop and test the relation between nostalgia and spirituality.

Nostalgia

Nostalgia is a past-oriented, self-relevant, social, and predominantly positive emotion (Sedikides, Wildschut, Routledge, Arndt, et al., 2015). Prototype analyses have revealed that laypersons conceive nostalgia as fond recollection of the past (Hepper et al., 2014). Content analyses have shown that nostalgic recollections typically involve personally important life events (e.g., reunions, holidays, weddings) and life periods (e.g., childhood, high school, college). The self plays a protagonistic role in such recollections, but is nearly always surrounded by close others (e.g., family members, partners, friends; Wildschut, Sedikides, Arndt, & Routledge, 2006). Although nostalgic recollections are predominantly positive, they often involve hints of yearning or sadness (Wildschut et al., 2006). Nostalgia is commonly experienced (Boym, 2001; Wildschut et al., 2006) by people of various ages (Biskas et al., 2018; Zhou, Sedikides, Wildschut, & Gao, 2008) across cultures (Hepper et al., 2014).

In addition, nostalgia has various psychological effects. For example, experimentally induced nostalgia increases social connectedness (Wildschut et al., 2006), intrinsic self-expression (Baldwin, Biernat, & Landau, 2015), and optimism (Cheung et al., 2013). Most pertinent to our research, nostalgia fosters self-continuity. In relevant experiments, half of participants think and write about a nostalgic event, whereas the other

half think and write about an ordinary event, from their past (Event Reflection Task; Sedikides, Wildschut, Routledge, Arndt, et al., 2015). Next, all participants report their level of self-continuity (Sedikides, Wildschut, Routledge, & Arndt, 2015). Participants in the nostalgia condition manifest greater self-continuity than controls (for replications with song-based or scent-based nostalgia inductions, see: Reid, Green, Wildschut, & Sedikides, 2014; Sedikides et al., 2016). Also pertinent to our research, nostalgia fosters meaning in life. Participants in the nostalgia condition—induced via the Event Reflection Task (Sedikides et al., 2015), scents (Reid et al., 2014), or song lyrics (Routledge et al., 2011)—report greater meaning in life than controls.

Nostalgia and Spirituality

We expanded upon prior work to examine whether nostalgia is related to, and affects, spirituality. Spirituality involves perceptions that there is more to one's life than the purely physical and mundane (Park, 2013). Spirituality is linked to, but is distinct from, religiosity (Hill & Pargament, 2003; Zinnbauer et al., 1997). Religion refers to a set of beliefs, practices, and rituals (e.g., church attendance, prayer) associated with a particular theological tradition or denomination, and religiosity is the extent to which one is religious. Religiosity typically involves spirituality, but spirituality does not necessary occur within religion. We focused on the link between nostalgia and spirituality, rather than religiosity, because spirituality is not bound to specific religious beliefs. (We return to this issue in General Discussion.)

Some scholars have discussed spirituality within the context of nostalgia. For example, Harper (1966) described nostalgia as a spiritual awareness of "what life ought to be like" (p. 28-29), and Boym (2001) viewed nostalgia as "a spiritual longing" including "a home that is both physical and spiritual, the Edenic unity of time and space…" (p. 8). Along these lines, nostalgic reflections in Facebook contained mentions of spirituality (Davalos, Merchant, Rose, Lessley & Teredsai, 2015). However, the details of a potential

link between nostalgia and spirituality remained unclear. We thus developed a rationale for the link between nostalgia and spirituality, and tested this relation empirically.

We theorized, in particular, that nostalgia is linked naturalistically to greater spirituality, and also that it promotes spirituality. The effect of nostalgia on self-continuity and meaning in life, previously reviewed, lays the foundation for this formulation. Van Tilburg, Sedikides, Wildschut, and Vingerhoets (2018) further investigated the effect of nostalgia on self-continuity and meaning in life and found that nostalgia fosters meaning in life via its effect on self-continuity. Consistent with prior work, they found that nostalgia increases self-continuity and meaning in life. Additionally, self-continuity predicted greater meaning in life, and self-continuity mediated the effect of nostalgia on meaning in life.

Taking off from these findings, we propose a model in which nostalgia ⇒ self-continuity ⇒ meaning in life ⇒ spirituality, as meaning in life lays fertile ground for spirituality. For example, people who have greater meaning in life are more spiritual (Roepke, 2013) and more likely to perceive their life as sacred (Doehring et al., 2009). Also, when people reflect upon what makes their life meaningful, they became more in touch with their spiritual self (Barry & Gibbens, 2011). Moreover, going through a life period (i.e., transition from middle school to high school) that one feels is a meaningful turning point in life increases spirituality (Iimura & Taku, 2018). In all, given that nostalgia harbors meaning in life (via self-continuity), it may also foster spirituality.

Overview

We conducted three studies. In Studies 1- 2, we examined the robustness and generality of the relation between nostalgia and spirituality. In Study 2, we tested whether the relation holds when controlling for Big Five personality traits, and whether it varies across demographic profiles. In Study 3, we examined the influence of nostalgia on spirituality, and whether self-continuity and meaning in life explain this effect. Studies 1

and 3 were approved by our institutional ethics committee. For ethical considerations in Study 2, see https://www.lissdata.nl/faq-page/how-are-ethics-and-consent-organized-liss-panel.

Study 1

In Study 1, we provided an initial test of the link between nostalgia and spirituality. We thus measured nostalgia and spirituality and hypothesized that nostalgia would be positively associated with spirituality.

Method

Participants. Students (18 or older) who were enrolled in psychology modules at the University of Southampton were eligible to participate in this online study. One hundred and ninety-nine British undergraduates participated for course credit. Of the initial 199 participants, we excluded the responses of 13 participants because they did not complete the central measures of nostalgia and spirituality. Thus, the final sample consisted of 186 participants (154 women, 24 men, 8 unknown; M_{age} = 19.77 years, SD_{age} = 2.91, $Range_{age}$ = 18-49; eight students did not provide their age). We aimed to test at least 175 participants. This is the required sample size to secure power = .80 (two tailed, α = .05) for detecting the typical effect size in social psychology (r = .21; Richard, Bond, & Stokes-Zoota, 2003).

Procedure. After providing consent, participants read instructions informing them that they "will complete a number of psychology questionnaires that will assess your beliefs." They then completed measures of nostalgia, spirituality, and demographics. Participants were then probed for suspicion with one question asking them to report what they thought was the purpose of the study. [1] Finally, they read an online statement in which they were thanked and debriefed.

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[1] Observations of the probing question demonstrated that participants were unaware of the real purpose of the study.

Nostalgia. We measured nostalgia with two scales: the Southampton Nostalgia Scale (SNS; Routledge, Arndt, Sedikides, & Wildschut, 2008) and the Nostalgia Inventory (NI; Batcho, 1995). We applied the logic of multiple convergent operations (i.e., reality is estimated through multiple operations and triangulation) to prevent the drawback of single operationalizations (Campbell & Fiske, 1959; Cook & Campbell, 1979). For the SNS, participants read The New Oxford Dictionary of English (1998) definition of nostalgia (previously mentioned) and responded to seven items (e.g., "How prone are you to feeling nostalgic"; 1 = *not at all*, 7 = *very much*) that assess proclivity to nostalgize. We averaged responses to compute SNS scores ($\alpha = .97$, $M = 4.32$, $SD = 1.61$). For the NI, participants reported how nostalgic (1 = *not at all nostalgic*, 6 = *very nostalgic*) they felt about 20 objects from their past (e.g., "family," "music," "things I did," "feelings I had," "holidays I went on"). We averaged responses to compute NI scores ($\alpha = .92$, $M = 3.32$, $SD = 0.95$). Research has shown that the SNS and NI are correlated in US ($r[36] = .40$, $p = .013$; Routledge et al., 2008) and Chinese ($r[191] = .41$, $p < .001$; Zhou et al., 2008) samples. Here, the SNS and NI were also correlated ($r[184] = .71$, $p = .001$). Thus, consistent with previous research (Stephan et al., 2014; Zhou et al., 2008), we standardized (z scored) and averaged the two scales to form a composite that encapsulated both global (SNS) and aspect-specific (NI) nostalgia ($\alpha = .97$).[2] We present results for the nostalgia composite for economy of description, but separate analyses for the SNS and NI produced essentially identical results.

Spirituality. Next, participants read a definition of spirituality (i.e., "the quality of being concerned with the human spirit as opposed to material or physical things;" The New Oxford Dictionary of English, 1998, p. 1794) and completed the 6-item Intrinsic

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[2]In Studies 1-2, in which we administered both the SNS and the NI, the scales were highly correlated. We first standardized the scales and then averaged responses across the scales to create a nostalgia index. Accordingly, we report reliability coefficients for the linear combination of the two scales (denoted α). We computed these reliabilities using equation 7-16 of Nunnally and Bernstein (1994).

Spirituality Scale (ISS; Hodge, 2003). The scale contains items such as, "My spirituality beliefs affect…": 0 = *no aspect of my life*, 10 = *absolutely every aspect of my life*; Spirituality is…, 0 = *not part of my life*, 10 = *the master motive of my life, directing every other aspect of my life.* We averaged responses to compute spirituality scores (α = 97, M = 3.75, SD = 2.57).

Results and Discussion

Nostalgia was significantly and positively related to spirituality, $r(184) = .20$, $p = .008$. Study 1 provided initial evidence that nostalgia is related to greater levels of spirituality.

<div align="center">

Study 2

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In Study 2, we tested the generality of the nostalgia-spirituality link by extracting data available from the Longitudinal Internet Studies for the Social Sciences (LISS) panel. The panel is a representative sample of the Dutch population based on a true probability sampling. Panel members completed measures of nostalgia, spirituality, and demographics. The representativeness of this sample provided an opportunity to scrutinize whether the relation between nostalgia and spirituality exists above and beyond key demographics (i.e., gender, age, education level, household income), and whether it varies across different demographics. Panel members also completed a measure of the Big Five personality traits. This afforded the opportunity to test whether the relation between nostalgia and spirituality exists above and beyond core personality traits. We hypothesized that nostalgia would be positively associated with spirituality, and explored whether this relation holds when controlling for demographics and the Big Five personality traits, and whether it is moderated by demographics.

Method

Data Collection. We obtained the data from the LISS panel (www.lissdata.nl; managed by CentERdata in Tilburg, The Netherlands), which consists of household

members, selected based on a true probability sampling of all households registered with

Statistics Netherlands. The panel members complete studies every month, and their

responses can be merged across studies. We drew upon four LISS panel studies to create

the dataset for Study 2: "Background Variables" included demographic measures;

"Nostalgia" included measures of nostalgia; "Unaffiliated spirituality and social

engagement" included a measure of spirituality; and "Personality" included a measure of

the Big Five traits. "Background Variables" is completed monthly to ensure the

demographic variables are updated. We used data that were collected during the same

month as "Unaffiliated spirituality and social engagement," the study that contained the

spirituality measure. "Nostalgia" is a longitudinal study that consists of two waves (i.e.,

Wave 1 and Wave 2), with each wave consisting of three parts (i.e., Part 1, Part 2, and Part

3). Part 1 of Wave 1 was administered closest in time to the study that contained the

spirituality measure ("Unaffiliated spirituality and social engagement"). We thus used data

from this part to obtain the nostalgia measures. Finally, "Personality" is in an on-going

longitudinal study that is administered once annually. Nine waves of data were available.

Wave 2 was administered closest in time to the study that contained the spirituality

measure ("Unaffiliated spirituality and social engagement"). We thus used data from Wave

2 to obtain the Big Five variables.

Participants. Our sample size ($N = 315$) was determined by the number of panel

members who completed the nostalgia and spirituality measures (156 women, 159 men;

$M_{age} = 54.74$ years, $SD_{age} = 15.08$, $Range_{age} = 19\text{-}87$; $M_{monthly\ GHI} = 4121.74$, $SD_{monthly\ GHI} =$

2566.91, $Range_{monthly\ GHI} = 0\text{-}26000$). Most of these participants also completed Big Five

traits ($N = 315$) as well as demographic questions concerning gender ($N = 315$), age ($N =$

315), gross household income (GHI; in Euros; $N = 295$), education level ($N = 305$), and

relationship status ($N = 315$).[3] Participants' highest education level varied greatly (0.3%

indicated that they had not yet started any education [coded as 1], 0.3% indicated that they

had not completed any education [coded as 2], 4.1% indicated elementary school as their

highest level of education [coded as 3], 23.8% indicated junior high school [coded as 4],

7.0% indicated high school [coded as 5], 24.8% indicated intermediate vocational

education [coded as 6], 27.9% indicated higher vocational education [coded as 7], and

8.6% indicated university education [coded as 8], and 3.2% indicated other [coded as

missing]). Regarding relationship status, 62.9% of participants were married, 12.7% were

divorced, 5.4% were widowed, and 19.0% had never been married. Given that we relied on

available data, we did not conduct a priori power analyses. However, a post-hoc power

analysis revealed that we achieved a power of .99 to detect a medium to small effect ($r =$

.24; Cohen, 1992) at $\alpha = .05$.

Nostalgia. Participants completed the SNS ($\alpha = .94$, $M = 4.11$, $SD = 1.21$) and NI

($\alpha = .94$, $M = 3.76$, $SD = 1.15$) described in Study 1. The SNS and NI were significantly

correlated ($r[312] = .67$, $p = .001$).[4] As in Study 1, we standardized (z scored) and

averaged the two scales to form a nostalgia composite ($\alpha = .96$). We present results for the

nostalgia composite, although separate analyses for the SNS and NI yielded essentially

identical findings.

Spirituality. Participants completed the Experiences of Non-Religious

Transcendence scale (Berghuijs, Pieper, & Bakker, 2013). Specifically, they indicated how

frequently they have six spiritual experiences (e.g., "A feeling of connectedness to a

universal power"; 1 = *no, not at all*, 2 = *yes, sometimes*, 3 = *yes, often*). We averaged

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[3]Data on income were unavailable from some LISS participants. However, CentERdata
used an imputation procedure (http://www.lissdata.nl/dataarchive/study_units/view/322) to
compute gross household income for most participants.
[4]The degrees of freedom were 312 (instead of 313), because one participant did not
complete the NI scale. For this participant, we used the standardized nostalgia score based
only on the SNS scale. We re-ran the analyses excluding this participant and obtained the
same results.

responses to compute spirituality scores (α = .85; see Table 1 for descriptive statistics).

Big Five traits. Participants completed the Big Five personality scale (Goldberg, 1992). This includes five subscales, 10 items each. These subscales assess Agreeableness (e.g., "Make people feel at ease"; α = .81), Neuroticism (e.g., "Get stressed out easily"; α = .87), Conscientiousness (e.g., "Follow a schedule"; α = .80), Extraversion (e.g., "Start conversations"; α = .87), and Openness to Experience (e.g., "Have a vivid imagination"; α = .78). Participants reported how accurately each statement described them (1 = *very inaccurate*, 5 = *very accurate*). We reverse-scored the appropriate items and averaged responses for each subscale to compute subscale scores (see Table 1 for descriptive statistics).

Cross-cultural Measurement. We should note at this point that the nostalgia and Big Five scales were originally developed in English. As a reminder, data for this study was attained by merging datasets across different studies completed by the LISS panel. Different researchers are responsible for the materials of each of the LISS studies. The researchers responsible for a particular study are also responsible for translating the scales into Dutch. The process used to translate the scales is not always clear. This raises potential issues about the validity of these scales in the Dutch population, as there are several pitfalls to overcome when properly translating scales for use in other cultures (Van de Vijver & Hambleton, 1996). One potential issue is when a construct of interest simply does not exist in the culture to which a scale is being translated. Another potential issue concerns the choice of words when translating particular items. The connotation of particular words tapping into important constructs could be lost in some direct translations. To minimize these pitfalls, the International Test Commission (ITC) has provided Adaptation Guidelines that should be adhered to as applicable and appropriate (see Hambleton, 2001 for a review and useful comment).

Results

Zero-order correlations. We computed correlation coefficients between nostalgia and spirituality as well as the Big Five traits (Table 1). Nostalgia was significantly and positively related to spirituality. Additionally, nostalgia was significantly and positively related to agreeableness, conscientiousness, and extraversion. The relationship between nostalgia and neuroticism was marginally significant and positive. Lastly, the relationship between nostalgia and openness was not significant.

Correlations after controlling for demographic variables and personality. To test whether nostalgia predicts spirituality above and beyond key demographics (i.e., gender, age, household income, relationship status, education) and Big Five traits (i.e., Agreeableness, Neuroticism, Conscientiousness, Extraversion, Openness to Experience), we conducted a hierarchical regression analysis (Table 2). In the first step, we entered the demographics as predictors of spirituality. In the second step, we entered the Big Five traits. In the third step, we entered nostalgia. In the first step, gender and income were significant predictors of spirituality. In the second step, Agreeableness, and Openness predicted spirituality, while income was also a significant predictor; Education and neuroticism were marginal predictors. Finally, in the third step, nostalgia predicted increased spirituality, while income, Agreeableness, and Openness were also significant predictors. Thus, nostalgia predicted spirituality above and beyond key demographics and core personality traits.

Tests of moderation by demographic variables. We conducted moderation analyses to examine if the relation between nostalgia and spirituality varied as a function of demographics. To test whether the categorical demographic variables (i.e., gender and relationship status) moderated the relation, we carried out a separate Analysis of Covariance for each variable. For each analysis, we entered the respective demographic variable, nostalgia, and the Nostalgia × Demographic variable interaction as predictors of spirituality. Neither gender, $F(1, 311) = 0.10$, $p = .758$, nor relationships status, $F(3, 307) =$

0.81, $p = .490$, moderated the relation between nostalgia and spirituality.

To test whether the continuous demographic variables (i.e., age, household income, level of education) moderated the relation, we conducted a hierarchical regression analysis for each variable. For each, we entered nostalgia and the respective demographic variable in the first step, and their interaction in the second step, as predictors of spirituality. Neither age, $t(311) = .13$, $p = .892$, household income, $t(291) = -1.49$, $p = .138$, nor level of education, $t(301) = -1.71$, $p = .088$, moderated the relation between nostalgia and spirituality.[5,6]

Discussion

Study 2 conceptually replicated and expanded upon the findings of Study 1. In a nationally representative sample, nostalgia predicted greater spirituality and it did so above and beyond key demographics and core personality traits. Lastly, demographic variables did not moderate the nostalgia-spirituality relation, demonstrating the generality of this relation.

Nostalgia was also linked to some of the Big Five personality traits. In particular, nostalgia was related to greater agreeableness, extraversion, and consciousness. Nostalgia was also marginally related to greater neuroticism. These findings support those of previous studies illustrating that nostalgia prone people tend to demonstrate higher levels of agreeableness, extraversion, consciousness and neuroticism (Barrett et al., 2010; Seehusen et al., 2013; Stephan et al., 2014). Additionally, our study showed that nostalgia was not related significantly to openness. Contrary to this finding, prior research has shown that nostalgia prone people tend to demonstrate higher levels of openness (Stephan

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[5]For the household income variable, the degrees of freedom were 291 (instead of 311), because 20 participants did not provide information about their household income. For the level of education variable, the degrees of freedom were 301 (instead of 311), because 10 participants did not provide information about their level of education.
[6]We also considered level of education as a categorical moderator, and it similarly did not moderate the relation between nostalgia and spirituality, $F(6, 299) = 0.84$, $p = .537$.

et al., 2014; Van Tilburg, Sedikides, & Wildschut, 2015). This inconsistency might be attributed to the greater diversity of our sample and the fact that participants complete the nostalgia and openness measures at different time points.

Study 3

Studies 1-2 demonstrated that nostalgia is related to greater spirituality. However, the correlational design of these studies did not allow us to test whether nostalgia bears a causal effect on spirituality. Thus, in Study 3, we manipulated nostalgia (vs. control) and then measured spirituality. Additionally, we explored the mechanisms underlying the effect of nostalgia on spirituality. We initially theorized that nostalgia fosters spirituality, because (1) nostalgia promotes meaning in life via its effect on increased self-continuity, and (2) perceptions of meaning in life lay fertile ground for spirituality. Hence, after experimentally inducing nostalgia, we also measured self-continuity and meaning in life. We hypothesized that nostalgia would have a serial indirect effect on spirituality via self-continuity and meaning in life (i.e., nostalgia $\Rightarrow$ self-continuity $\Rightarrow$ meaning in life $\Rightarrow$ spirituality).

Method

Participants. Students (18 or older) who were enrolled in psychology modules at the University of Southampton were eligible to participate in this laboratory study. One hundred and sixty-one British undergraduates participated in exchange for course credit. Of the 161 participants, we excluded one participant because they did not complete the manipulation task. Thus, the final sample consisted of 160 participants (142 women, 18 men; $M_{age} = 19.31$ years, $SD_{age} = 1.85$, $Range_{age} = 18\text{-}38$). We aimed to test at least 132 participants. This is the required sample size to secure power = .80 ($\alpha = .05$) to detect the effect size of $r = .24$ ($f = .2472$) which we obtained in the previous study using a representative sample.

Procedure. Participants completed the entire study on computers in private

cubicles. After providing consent, they read instructions informing them that they will participate in a study for which they "will complete a number of questionnaires and tasks that will assess your personality characteristics." They then completed an experimental task in which they had to recall a nostalgic event or ordinary event. Following this task, they completed measures of self-continuity, meaning in life, and spirituality. Next, participants completed a manipulation check and demographics. They were then probed for suspicion with one question asking them to report what they thought was the purpose of the study. [7] Finally, they read an online statement in which they were thanked and debriefed.

Nostalgia. We first experimentally induced nostalgia via the Event Reflection Task. Specifically, we randomly assigned participant to a nostalgia condition or control condition. In the nostalgia condition, we provided participants with a definition of nostalgia and then instructed them to "think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience and spend a couple minutes thinking about how it makes you feel." Next, we asked participants to "write down four keywords relevant to this nostalgic event (i.e., words that describe the experience)." Finally, we gave them a space to write and instructed them: "for the next few minutes, we would like you to write about the nostalgic event. Immerse yourself into this nostalgic experience. Describe the experience and how it makes you feel."

In the control condition, we instructed participants to "bring to mind an ordinary event in your life. Specifically, try to think of a past event that is ordinary. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience and spend a couple minutes thinking about how it makes you feel" Next, we asked them to "write down

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[7] Observations of the probing question demonstrated that participants were unaware of the real purpose of the study.

four keywords relevant to this ordinary event (i.e., words that describe the experience)."
Finally, we gave participants a space to write and instructed them: "for the next few minutes, we would like you to write about the ordinary event. Immerse yourself into this experience. Describe the experience and how it makes you feel."

Self-Continuity. Participants completed a self-continuity scale (Sedikides, Wildschut, Routledge, & Arndt, 2015). They indicated the extent to which they agreed (1 = *strongly disagree,* 6 = *strongly agree*) with four statements preceded by the stem: "With this event in mind, I feel...": "connected with my past," "connected with whom I was in the past," "there is continuity in my life," "important aspects of my personality remain the same across time." We averaged responses to compute self-continuity scores (α = .75; see Table 3 for descriptive statistics).

Meaning in life. Participants completed a meaning in life scale (Routledge et al., 2011). They indicated their agreement (1 = *strongly disagree,* 6 = *strongly agree*) with four statements preceded by the stem: "With this event in mind, I feel...": "that life is meaningful," "that life has a purpose," "that there is a greater purpose to life," "that life is worth living." We averaged responses to compute meaning in life scores (α = .81; see Table 3 for descriptive statistics).

Spirituality. Participants completed a version of the ISS (used in Study 1; Hodge, 2003) that we adapted to conform to the format of the self-continuity and meaning in life scales. In particular, participants indicated the extent to which they agreed (1 = *strongly disagree,* 6 = *strongly agree*) with six statements preceding by the stem "With this event in mind, I feel...": "my spirituality answers my questions," "that growing spiritually is important in my life," "my spirituality is central when I am faced with an important decision," "that spirituality is a primary motive of my life, directing other aspect of my life," "my spirituality is an important factor in my personal growth," "my spiritual beliefs affect many aspect of my life." We averaged responses to compute spirituality scores (α =

.97; see Table 3 for descriptive statistics).

Manipulation check. Lastly, participants thought back to the Event Reflection Task and indicated their agreement with three statements (e.g., "I was feeling nostalgic during the task"; 1 = *strongly disagree*, 6 = *strongly agree*). We averaged responses to compute manipulation check scores (α = .98, *M* = 4.62, *SD* = 1.45).

Results

Zero-order correlations. We computed correlation coefficients among self-continuity, meaning in life, and spirituality (Table 3). Self-continuity was significantly and positively related to meaning in life and spirituality. Additionally, meaning in life was significantly and positively related to spirituality.

Main effects. Participants in the nostalgia condition (*M* = 5.25, *SD* = .87) reported greater nostalgia than those in the control condition (*M* = 3.92, *SD* = 1.64), $F(1, 158) = 41.99$, $p < .001$, $\eta^2 = .21$, demonstrating that the manipulation was effective. Participants in the nostalgia condition (*M* = 4.78, *SD* = 0.89) exhibited greater self-continuity than those in the control condition (*M* = 4.26, *SD* = 1.07), $F(1, 158) = 10.96$, $p = .001$, $\eta^2 = .06$. Also, participants in the nostalgia condition (*M* = 5.11, *SD* = 0.79) reported greater meaning in life than controls (*M* = 4.83, *SD* = 0.85), $F(1, 157) = 4.72$, $p = .031$, $\eta^2 = .03$. Finally, participants in the nostalgia condition (*M* = 3.38, *SD* = 1.36) tended to manifest greater spirituality than controls (*M* = 3.00, *SD* = 1.36), $F(1, 158) = 3.14$, $p = .078$, $\eta^2 = .02$.

Mediation analysis. We tested the hypothesized model: nostalgia ⇒ self-continuity ⇒ meaning in life ⇒ spirituality (Figure 1) using PROCESS v2.0 (Model 6; Hayes, 2013; 10,000 bootstrap resamples). As illustrated in Figure 1, the direct effects from nostalgia to self-continuity, self-continuity to meaning in life, and meaning in life to spirituality were all significant. Additionally, the serial indirect effect (denoted ab_1b_2) was significant, $ab_1b_2 = 0.0658$, *SE* = 0.0456, 95% *CI* = [0.0049, 0.1915].

Alternative models. Given that self-continuity, meaning in life, and spirituality

are measured variables, the specific causal order of these variables is not certain. Five

viable alternative models (i.e., orders) could explain the data (Table 4). Thus, as

recommended by Anderson and Gerbing (1988), we compared the original model

(nostalgia ⇒ self-continuity ⇒ meaning in life ⇒ spirituality) with the alternatives.

To compare models, we computed the Akaike Information Criterion (AIC; Akaike,

1974) and the Expected Cross-Validation Index (ECVI; Browne & Cudeck, 1992) for each

model using AMOS 25 (Arbuckle, 2017). Lower values for each of these indices indicate a

better model fit. Models that have the same paths between the same variables produce

identical AIC and ECVI values, even if some paths are in a different direction. For

example, consider the alternative model in which the order of meaning in life and self-

continuity is reversed. To test this model, one cannot simply reverse the order of self-

continuity and meaning in life. Doing so would create an alternative model that differs

from the original model only in the direction of the link between the paths, and would still

contain the same paths between the same variables. Thus, this model would have the same

fit as the original model. To avoid this, we trimmed (1) the path from the independent

variable to the second mediator, (2) the path from the independent variable to the

dependent variable, and (3) the path from the first mediator to the dependent variable from

each of the original and all alternative models when computing AIC and ECVI values (see

Cheung, Sedikides, & Wildschut, 2017, for similar procedure). Figure 2 illustrates the

models used to compute AIC and ECVI values. It shows the exact paths between the

variables that were used when computing these values. This procedure enabled us to assess

which ordering of variables produced the lowest AIC and ECVI values, and thus which

model best fits the data. Table 4 presents the AIC and ECVI values for the original model

and all the five alternatives. As it shows, the original model had lower AIC and ECVI

values than any of the alternatives. Thus, the original model fits the data better than the

alternatives.

Discussion

Study 3 showed that nostalgia promotes spirituality serially via self-continuity and meaning in life. Although the main effect of nostalgia on spirituality was marginal, the serial indirect effect was significant. It is possible to find a significant indirect effect if there is a marginal or non-significant main effect (Hayes, 2013; MacKinnon, Krull, & Lockwood, 2000). We also obtained evidence for each path of the proposed model. Specifically, nostalgia increased self-continuity. Self-continuity, in turn, predicted greater meaning in life. Subsequently, meaning in life predicted greater spirituality. Additionally, the data fit the hypothesized serial mediation model better than all possible alternatives.

<div align="center">

General Discussion

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Scholars have loosely speculated that nostalgia is linked to spirituality, yet no relevant empirical work had existed. Hence, we examined the link between nostalgia and spirituality. In Study 1, nostalgia was related to greater spirituality. In Study 2, nostalgia was related to greater spirituality in a representative sample of the Dutch population. Further, the relation was independent of core personality traits and key demographics, and it did not vary across demographic profiles. In Study 3, we expanded upon these findings by examining the causal effect of nostalgia on spirituality and the mechanisms that underlie this effect. Nostalgia fostered spirituality via self-continuity and meaning in life serially.

Spirituality and Meaning in Life

Some scholars view spirituality as a construct that overlaps with that of meaning in life (Bellingham, Cohen, Jones, & Spaniol, 1989; King, Speck, & Thomas, 1995). It follows that one might question the utility of examining spirituality as a downstream outcome of meaning in life. In our studies, however, we follow others who do not conceptualize spirituality as meaning in life (Zinnbauer et al., 1997; Petry & Finkel, 2004; Vaughan, 199). While meaning in life is perception that one's existence is purposeful and

significant (Frankl, 1959/2006; King, Hicks, Krull, & Del Gaiso, 2006), we defined

spirituality as a broader construct that refers to "the quality of being concerned with the

human spirit or soul as opposed to material or physical things" (The New Oxford

Dictionary of English, 1998, p. 1794). Aligned with this definition of spirituality, theorists

posit that spirituality is a broad and multidimensional construct. For example, researchers

conceptualize spirituality as belief in a higher power (Petry & Finkel, 2004) and subjective

experience of sacredness (Vaughan, 1991). Additionally, the distinction between meaning

in life and spirituality is in line with the moderately small relation between meaning in life

and spirituality ($r = .24$) that we found in Study 3.

Contributions to the Spirituality Literature

The finding that nostalgia fosters spirituality extends prior research on the

conditions influencing spirituality. People often become more spiritual after or during

adverse life experiences, such as socioeconomic distress (Wimberley, 1984), close

relationship troubles (Kirkpatrick, 2005), illness (Spilka, Hood, Hunsberger, & Gorsuch,

2003), or the death of a loved one (Michael, Crowther, Schmid, & Allen, 2003). People

also report greater spirituality when experiencing events that elicit positive emotions such

as awe, elevation, and admiration (Saroglou, Buxant, & Tilquin, 2008; Van Cappellen,

Saroglou, Iweins, Piovesana, & Fredrickson, 2013). Such events typically involve

appreciation for something that is perceived as greater than the self (e.g., the wonders of

nature, childbirth). Our findings contribute to this line of inquiry by showing that nostalgia,

a predominantly positive and self-relevant experience, invokes spirituality.

The findings in Study 2 showed a link between spirituality and the Big Five

personality traits: Spirituality was positively associated with Agreeableness,

Consciousness, Extraversion, and Openness, but not with Neuroticism. These findings are

largely consistent with the literature. For example, in a meta-analysis of the relation

between spirituality and the Big Five personality traits, Saroglou (2010) found that

spirituality was positively linked to Agreeableness, Consciousness, Extraversion, and

Openness. Contrary to our results, the meta-analysis revealed a negative relation between

spirituality and Neuroticism. This contrast may be due to our operationalization of

spirituality. MacDonald (2000) assessed various dimensions of spirituality and found that

the negative relation between spirituality and Neuroticism only emerged when spirituality

was assessed as a source of existential comfort.

Nostalgia and Religiosity: Future Directions

As mentioned, we focused on spirituality, because it is not confined to specific

religious beliefs or traditions. However, given the relation between spirituality and

religiosity (Hill & Pargament, 2003; Zinnbauer et al., 1997), our work sets the stage for

follow-up investigations to examine whether nostalgia is similarly linked with religiosity.

Due to the great diversity in the beliefs of those who subscribe to different religions, we

speculate that nostalgia is related to religiosity within some religions, but not others. Some

religions may promote habitual focus on different time orientations. Orthodox Christianity,

for example, is a traditional religion that encourages past-focused thinking (Lowicki,

Witowska, Zajenkowsk, & Stolarski, 2018). Conversely, Buddhism stresses the importance

of living in the present (Wegela, 2009), while Protestant Christianity advances a future

time orientation (Murrell & Mingrone, 1994). Perhaps nostalgia, as a past-oriented

emotion, is more common among people who subscribe to past-oriented religions, such as

Orthodox Christianity.

In addition, there are different dimensions of religiosity that reflect variations in

how people approach or use religion. Indeed, religiosity theorists have proposed that the

relation between religiosity and other constructs (e.g., nostalgia) may be best understood

by assessing how people use religiosity in their life and the motivations behind their

religious beliefs (Tsang & McCullough, 2003). There are reasons to suspect that nostalgia

is linked with some of these dimensions, namely, intrinsic religiosity, extrinsic religiosity,

and religion as a quest.

First, intrinsic religiosity involves a deep commitment to one's religion (Allport & Ross, 1967). Individuals who are intrinsically religious view their religious beliefs and practices as ends in and of themselves. These individuals often engage in intimate practices, such as private prayer. Nostalgia may promote intrinsic religiosity, because nostalgia promotes intrinsic self-expression (Baldwin et al., 2015). *Second*, extrinsic religiosity refers to an instrumental use of religion as a means to other ends (Allport & Ross, 1967). Extrinsically religious individuals, for example, use religion as a way to forge connections with others. Nostalgia could also promote extrinsic religiosity, because nostalgia strengthens the desire to forge connections with others (Stephan et al., 2014). *Third*, viewing religion as a quest involves using religion to answer existential questions and find meaning (Batson & Schoenrade, 1991a, 1991b). Individuals who approach religion in this way recognize that they will likely never know the final truth about existential questions. Yet, they value the process of exploring answers to these questions. Nostalgia may facilitate viewing religion as a quest, because it promotes growth and exploration (Baldwin & Landau, 2014).

Practical Implications

Our finding that nostalgia enhances spirituality has therapeutic implications. Spirituality is associated with greater well-being. For example, spirituality is related to increased self-esteem and optimism (Ellison & Fan, 2008), higher life satisfaction (Kelley & Miller, 2007), and more resilience against life stressors (Gnanaprakash, 2013). Furthermore, spirituality helps people cope with conditions invoking death-related concerns. For example, spirituality can be a source of solace to older people approaching death by providing the sense that life will continue after death (Agli, Bailly, Ferrand, & Martinent, 2018; Wink, 2006). Spirituality can assure people that their life-threatening illness may offer lessons to self or others (Daaleman & Dobbs, 2010). Additionally,

spirituality can offer bereaved people a sense of vicarious control, leaving the death of the loved one in the hands of a higher power (Ando et al., 2010). Due to these benefits of spirituality, therapists have developed psychological treatments that promote spirituality in the face of death-related conditions.

The present finding that nostalgia fosters spirituality suggests that therapists could implement nostalgia in these treatments. This approach holds some promise. For example, reminiscence and life review therapies, which are based on the recollection of personally important memories, facilitate adaptation to bereavement (Ando et al., 2010; Ando, Sakaguchi, Shiihara, & Izuhara, 2014) and various life-threatening illnesses (Ando, Morita, Akechi, & Okamoto, 2010; Keall, Clayton, & Butow, 2015; Taghadosi & Fahimifar, 2014) by promoting spirituality. Also, nostalgia helps people cope with situations entailing existential threats such as death awareness (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010) and meaninglessness (Routledge et al., 2011). Nostalgia, then, could strengthen existing treatments, because it fosters spirituality.

Conclusion

The current work provides the first empirical evidence for a link between nostalgia and spirituality. Nostalgia predicts greater spirituality, and it does so above and beyond core personality traits and key demographics. By enhancing self-continuity and meaning in life, nostalgia promotes spirituality. These findings pave the way for several exciting avenues for future research and bear important practical implications.

Table 1 [Table 2.1].
Descriptive Statistics and Correlations among Measured Variables in Study 2

| Scale | *M* | *SD* | Correlation with | | | | | | | |
			S	A	N	C	E	O	Gender	Age
Nostalgia proneness	0.00	0.91	.24***	.20***	.10†	.16**	.16**	.04	-.03	.07
Spirituality (S)	1.42	0.44	--	.24***	.05	.13*	.12*	.18**	.12*	.03
Agreeableness (A)	3.87	0.50		--	-.07	.29***	.26***	.16**	.40***	.09†
Neuroticism (N)	2.53	0.63			--	-.20***	-.21***	-.15**	.08	-.05
Conscientiousness (C)	3.76	0.52				--	.01	.19**	.08	.26***
Extraversion (E)	3.27	0.63					--	.31***	.04	-.11†
Openness (O)	3.52	0.49						--	-.09	-.10†

Note. † *p* < .10, * *p* < .05, ** *p* < .01, *** *p* < .001. Correlations with gender are point-biserial (men = 0, women = 1). *N* = 315. *Df* = 313.

Table 2 [Table 2.2].

Hierarchical Regression Analysis Predicting Spirituality in Study 2

	Predictor	b	t
Step 1:	Gender	0.10	1.94[*]
	Age	0.01	0.03
	Income	-0.01	-3.04[**]
	Relationship Status	0.01	0.13
	Education	-0.01	-0.61
Step 2:	Gender	0.04	0.67
	Age	-0.01	-0.36
	Income	-0.01	-3.34[**]
	Relationship Status	-0.01	-0.20
	Education	-0.03	-1.64[†]
	Agreeableness	0.16	2.70[**]
	Neuroticism	0.07	1.83[†]
	Conscientiousness	0.05	0.95
	Extraversion	0.03	0.69
	Openness	0.18	3.06[**]
Step 3:	Gender	0.05	1.00
	Age	-0.01	-0.37
	Income	-0.01	-3.10[**]
	Relationship Status	-0.01	-0.09
	Education	-0.03	-1.39
	Agreeableness	0.14	2.29[*]
	Neuroticism	0.06	1.38
	Conscientiousness	0.04	0.67
	Extraversion	0.01	0.19
	Openness	0.18	3.01[**]
	Nostalgia	0.08	2.65[**]

Note. $R^2 = .06$ (adjusted $R^2 = .04$) for Step 1, $R^2 = .16$ (adjusted $R^2 = .13$, $\Delta R^2 = .10$, $p < .001$) for Step 2, $R^2 = .18$ (adjusted $R^2 = .15$, $\Delta R^2 = .02$, $p < .01$) for Step 3. † $p < .10$, * $p < .05$, ** $p < .001$. Gender was coded as men = 0, women = 1. $N = 315$. Step 1 $df = 280$, step 2 $df = 275$, step 3 $df = 274$.

Table 3 [Table 2.3].
Descriptive Statistics and Correlations among Measured Variables in Study 3

Scale	*M*	*SD*	M	S	Gender	Age
Self-continuity	4.53	1.01	.51***	.24**	-.10	-.22*
Meaning (M)	4.98	0.83	--	.26**	.01	-.07
Spirituality (S)	3.20	1.37		--	-.01	-.09

Note. * *p* < .05, ** *p* < .01, *** *p* < .001. Correlations with gender are point-biserial (men = 0, women = 1). *N* = 160. *Df* = 158.

Table 4 [Table 2.4].

Comparison of Alternative Mediational Models in Study 3

		AIC	ECVI
O	Nostalgia $\Rightarrow$ Self-Continuity $\Rightarrow$ Meaning $\Rightarrow$ Spirituality	25.97	0.16
A1	Nostalgia $\Rightarrow$ Self-Continuity $\Rightarrow$ Spirituality $\Rightarrow$ Meaning	64.93	0.41
A2	Nostalgia $\Rightarrow$ Meaning $\Rightarrow$ Self-Continuity $\Rightarrow$ Spirituality	33.81	0.21
A3	Nostalgia $\Rightarrow$ Meaning $\Rightarrow$ Spirituality $\Rightarrow$ Self-Continuity	70.91	0.45
A4	Nostalgia $\Rightarrow$ Spirituality $\Rightarrow$ Self-Continuity $\Rightarrow$ Meaning	35.35	0.22
A5	Nostalgia $\Rightarrow$ Spirituality $\Rightarrow$ Meaning $\Rightarrow$ Self-Continuity	33.50	0.21

Note. O = Original Model, A1 = Alternative Model 1, A2 = Alternative Model 2, A3 = Alternative Model 3, A4 = Alternative Model 4, A5 = Alternative Model 5

Figure 1 [Figure 2.1]. Mediational Model in Study 3. Note. † *p* <

.10, * *p* < .05, ** *p* < .01, *** *p* < .001.

Original Model

| Nostalgia | → | Self-Continuity | → | Meaning | → | Spirituality |

Alternative Model 1

| Nostalgia | → | Self-Continuity | → | Spirituality | → | Meaning |

Alternative Model 2

| Nostalgia | → | Meaning | → | Self-Continuity | → | Spirituality |

Alternative Model 3

| Nostalgia | → | Meaning | → | Spirituality | → | Self-Continuity |

Alternative Model 4

| Nostalgia | → | Spirituality | → | Self-Continuity | → | Meaning |

Alternative Model 5

| Nostalgia | → | Spirituality | → | Meaning | → | Self-Continuity |
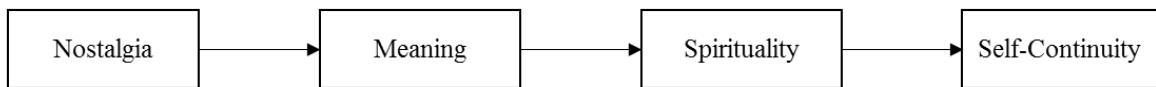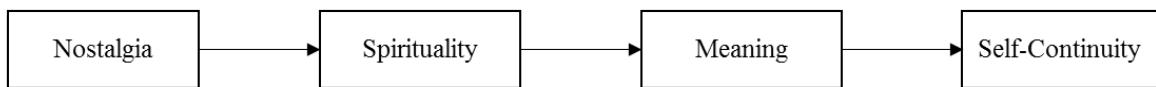
Figure 2 [Figure 2.2]. Models used to compute AIC and ECVI values for comparing alternative models in Study 3.

Chapter 3

Empirical Paper II

3.1   Uncertainty and Nostalgia

In this empirical paper, I investigated whether nostalgia buffers life uncertainty. In particular, I examined whether nostalgia buffers the negative effect of life uncertainty on self-continuity. This paper is finished and has been submitted to the *Journal of Social and Clinical Psychology* and the *Journal of Social Psychology*. It was not successfully published in either journal and we are now considering further potential outlets. What follows in this Chapter is the last submitted version of this manuscript.

As the first author of this empirical paper, I was the primary person conducting the research and preparing the manuscript. More specifically, I collected the data and I analysed the data. I also led the writing of the manuscript. I drafted it, and then collected and collated feedback from my collaborators to produce the final draft.

Nostalgia as an Antidote to Life Uncertainty

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Abstract

Nostalgia, a sentimental longing for the past, confers psychological benefits. For example, nostalgia promotes a stable and coherent view of one's self over time (i.e., self-continuity). Additionally, nostalgia buffers the adverse impact of psychological threats. We expanded upon this research, examining whether nostalgia helps preserve self-continuity in the face of life uncertainty (i.e., uncertainty about major aspects of life). The results revealed that life uncertainty reduced self-continuity, but only for participants low in nostalgia proneness, not those high in nostalgia proneness. Additionally, there was weaker (i.e., non-significant) evidence that life uncertainty reduced self-continuity, but only for participants who recalled a recent autobiographical event, not those who recalled a nostalgic event. Taken together, there was evidence supportive of the notion that nostalgia maintains self-continuity in the face of life uncertainty.

Keywords: nostalgia, life uncertainty, buffer, self-continuity

Nostalgia as an Antidote to Life Uncertainty

Nostalgia confers psychological benefits. For example, it promotes perceptions of a stable and coherent view on one's self over time, that is, self-continuity (Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008). Additionally, nostalgia buffers individuals from the discomfort caused by psychological threats, such as the awareness of one's mortality (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010) or the potential meaninglessness of life (Routledge et al., 2011). We expanded upon this literature, examining whether nostalgia preserves self-continuity in the face of uncertainty about major aspects of life.

Nostalgia

Characterizing Nostalgia

The New Oxford Dictionary of English (1998) defines nostalgia as "a sentimental longing or wistful affection for the past" (p. 1266). Consistent with this definition, research has shown that nostalgia is a self-relevant, social, and mostly positive emotion (Hepper, Ritchie, Sedikides, & Wildschut, 2012; Van Tilburg, Wildschut, & Sedikides, 2018). Nostalgic recollections typically involve personally meaningful events (e.g., graduation ceremony, birth of a child, wedding) that focus on the self within social contexts (e.g., family, friends, romantic partners; Abeyta, Routledge, Roylance, Wildschut, & Sedikides, 2015; Wildschut, Sedikides, Arndt, & Routledge, 2006). Nostalgic recollections entail a mixture of positive and negative affect, with the former outweighing the latter (Sedikides & Wildschut, 2016a).

Nostalgia's Psychological Benefits

Further research has revealed that nostalgia confers psychological benefits. For example, it promotes social-connectedness (Wildschut et al., 2006), bolsters meaning in life (Routledge et al., 2011), elevates self-esteem (Hepper et al., 2012), and enhances optimism (Cheung et al., 2013). Most relevant to our present purposes, nostalgia fosters self-continuity. That is, it cultivates a stable and coherent view on one's self over time, which is associated with greater well-being (Chandler, Lalonde, Sokol, & Hallett, 2003; Zou, Wildschut, Cable, & Sedikides, 2018). In one study, researchers (Sedikides et al.,

2016) experimentally induced nostalgia by assigning participants to spend a few minutes thinking and writing about either a nostalgic memory (nostalgia condition) or an ordinary autobiographical memory (control condition). Subsequently, they measured self-continuity and found that participants in the nostalgia condition reported greater self-continuity than those in the control condition. In another study, these researchers compared the effects of thinking and writing about a nostalgic memory to thinking and writing about a positive memory (i.e., a time when participants were lucky). Again, nostalgia increased self-continuity. These findings were replicated when nostalgia was induced with song lyrics (Sedikides et al., 2016) or scents (Reid, Green, Wildschut, & Sedikides, 2014).

Nostalgia Buffers against Threats

In addition, nostalgia buffers psychological threats. Nostalgia proneness (i.e., the disposition to engage in nostalgic reflection) is a case in point. In one study, pondering threatening thoughts about death increased anxiety about death, but only for participants who were low in nostalgia proneness, not those high in nostalgia proneness (Juhl et al., 2010). Similarly, thinking about death decreased meaning in life for those low in nostalgia proneness, but not those high in nostalgia proneness (Routledge, Arndt, Sedikides, & Wildschut, 2008).

In addition to nostalgia proneness, induced nostalgia also acts as a buffer. Routledge et al. (2011) examined whether nostalgia curtails defensive responses to meaning threat. They induced nostalgia by having participants think and write about a nostalgic or ordinary memory. Then, they experimentally threatened meaning by having participants read an essay on the meaninglessness of life (meaning-threat condition) or an essay on the limitations of computers (no-threat condition). Lastly, they assessed participants' views about the essay they had read and its author. People typically respond defensively to such threatening information by derogating its source (Greenberg et al., 1990). Indeed, Routledge et al. reported that, among participants who recalled an ordinary memory, those in the meaning-threat condition derogated the essay and its author to a greater extent than those in the no-threat condition. However, this effect did not occur for participants who recalled a nostalgic memory. In short, nostalgia prevented defensive

responses to the meaning threat. A similar investigation (Routledge, Wildschut, Sedikides, Juhl, & Arndt, 2012) further examined whether induced nostalgia prevents the established (Proulx, Heine, & Vohs, 2010) negative effect of viewing absurd art on meaning. Participants viewed an absurd painting or a representational painting, were subject to a nostalgia induction (vs. control), and completed a meaning in life scale. Viewing an absurd (vs. representational) painting reduced meaning among participants who recalled an ordinary autobiographical event, but not among those who recalled a nostalgic event.

Induced nostalgia also buffers defensive responses to self-threatening information. Vess, Arndt, Routledge, Sedikides, and Wildschut (2012) had participants complete an analytical reasoning test. They subsequently gave participants bogus feedback indicating that they either performed well on the test or failed the test. Next, participants reflected on a nostalgic or ordinary memory. Lastly, they indicated the extent to which their test performance was caused by their ability. People typically respond defensively to failure by eschewing internal (i.e., ability-related) attributions for it (Campbell & Sedikides, 1999). Indeed, in the ordinary memory condition, those who learned that they failed the test attributed their performance to their own ability to a lesser extent than those who learned that they had performed well. However, this defensive response was attenuated in the nostalgic memory condition. In summary, nostalgia thwarted defensive responding to self-threatening information.

Life Uncertainty and Nostalgia's Protective Role

In the current research, we expanded upon previous work by addressing whether nostalgia protects against life uncertainty. Life uncertainty is uncertainty about major aspects of life such as one's career, relationships, or financial stability. Uncertainty is generally aversive, and so individuals attempt to minimize it (Van den Bos & Lind, 2002). In addition, uncertainty has negative implications for the self, as it is associated with lower self-esteem (Baumgardner, 1990; Story, 2004), and higher self-handicapping and pessimism (Martin, Marsh, & Debus, 2003). Most relevant, life uncertainty can be threatening to self-continuity. For example, people who feel uncertain about the important life domain of interpersonal relationships are more likely to report unclear and inconsistent

views of themselves (Kusec, Tallon, & Koerner, 2016). Similarly, those who struggle with uncertainty lack a firm sense of who they are and who they have been (Butzer & Kuiper, 2006; Kusec, Tallon, & Koerner, 2016).

Given that nostalgia fosters self-continuity, we surmised that nostalgia preserves self-continuity in the face of life uncertainty. We examined whether both nostalgia proneness and induced nostalgia buffer the adverse impact of life uncertainty on self-continuity. We first experimentally induced life uncertainty (vs. life certainty) and then induced nostalgia (vs. control). Next, we assessed self-continuity. Lastly, following collection of demographic information, we assessed nostalgia proneness. We formulated two hypotheses. If nostalgia buffers the adverse impact of life uncertainty on self-continuity then (1) life uncertainty (vs. certainty) will reduce self-continuity, but only for participants low (not high) in nostalgia proneness, and (2) life uncertainty (vs. certainty) will reduce self-continuity, but only for participants in the control (not nostalgia) condition. These hypotheses correspond to the life uncertainty x nostalgia proneness interaction and the life uncertainty x induced nostalgia interaction, respectively. We also explored the life uncertainty x induced nostalgia x nostalgia proneness interaction.

Method

Participants

We recruited participants online via Amazon's Mechanical Turk. They received $1.00 for their participation. MTurk workers residing in the United States and with a "hit approval" rating of 99% or greater were eligible to participate. Previous studies testing the buffering role of nostalgia have obtained medium to large effect sizes, ranging from $f = .23$ ($\eta^2 = .05$) to $f = .54$ ($\eta^2 = .21$). These studies, however, were conducted in controlled laboratory environments. Given that participants in the present study were going to complete the study online in a less controlled environment, we estimated our sample size based on a small to medium effect size ($f = .18$; $\eta^2 = .03$). Specifically, we used G*Power (Faul, Erdfelder, Buchner, & Lang, 2009) to conduct an a-priori power analysis with a power of .80, significance level of $\alpha = .05$, and effect size of $f = .18$. This analysis recommended a target sample size of 245. We rounded this to 250 to account for potential

missing data. Indeed, two participants failed to complete at least one of the experimental manipulations and were thus removed from the data set. This yielded a final sample size of 248 (154 women, 91 men, 1 other, 2 unknown; MTurk; M_{age} = 32.14, SD_{age} = 9.75, $Range_{age}$ = 18-70; one participant did not provide information about their age).

Procedure

After providing consent, participants read the online instructions in which they were informed that they will participate in a study for which they "will complete a number of questionnaires and tasks that will assess your personality characteristics and thoughts about your life." They then completed an experimental task in which they had to write about uncertainties or certainties in their life. Following this task, they completed an experimental task in which they had to recall a nostalgic event or a recent (i.e., yesterday) event. Next, participants completed measures of self-continuity and nostalgia proneness. They were then probed for suspicion with one open-end question asking them to report what they thought was the purpose of the study.[1] Finally, they read an online statement in which they were thanked and debriefed.

Life Uncertainty

We experimentally manipulated uncertainty by randomly assigning participants to either a life-uncertainty condition or life-certainty condition. In the life-uncertainty condition, we initially provided participants with examples of life uncertainties: "People face a lot of uncertainties in life. For instance, they are typically uncertain about their job or career, relationships, and financial stability." Following this, we instructed participants to "make a detailed list of the specific uncertainties you face in your life." Finally, we instructed them to "explain in detail your thoughts on these uncertainties and how they make you feel."

In the life-certainty condition, we initially gave participants examples of life certainties: "People face a lot of certainties in life. For instance, they are typically certain about the hobbies they have, the types of food they generally eat and the friends they tend to see." Next, we instructed them to "make a detailed list of the specific certainties you

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[1] Observations of the probing question demonstrated that participants were unaware of the real purpose of the study.

have in your life." Lastly, we instructed them to "explain in detail your thoughts on these certainties and how they make you feel."

Nostalgia Induction

We proceeded to induce nostalgia (Sedikides, Wildschut, Routledge, Arndt, et al., 2015). In particular, we randomly assigned participants to a nostalgia condition or yesterday (control) condition. In the nostalgia condition, we first provided them with a dictionary definition of nostalgia (i.e., "a sentimental longing for the past;" *The New Oxford Dictionary of English*, 1998, p. 1266). Then, we instructed them to "think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience and spend a couple minutes thinking about how it makes you feel." Afterwards, we asked participants to "write down four keywords relevant to this nostalgic event (i.e., words that describe the experience)."

In the yesterday condition, we instructed participants to "bring to mind the activities of your day yesterday. Specifically, try to think of the series of events that took place throughout your day. Bring these to mind and spend a couple minutes thinking about them." Subsequently, we instructed them to "type four keywords relevant to the yesterday's activities (i.e., words that describe what you did yesterday)." We asked these participants to reflect upon yesterday's activities in order to prevent them from bringing to mind a nostalgic event.

Self-Continuity

We then measured self-continuity (Sedikides et al., 2016; Sedikides, Wildschut, Routledge, & Arndt, 2015). We asked participants to indicate the extent to which they agreed (1 = *strongly disagree,* 6 = *strongly agree*) with four statements (e.g., "I feel important aspects of my personality remain the same across time," "I feel there is continuity in my life"). We averaged responses to compute self-continuity scores ($\alpha = .76$, $M = 4.37$, $SD = .96$).

Nostalgia Proneness

Finally, after measuring demographics, we asked participants to complete the Southampton Nostalgia Scale (SNS; Barrett et al., 2010; Routledge, Arndt, Sedikides, & Wildschut, 2008). Specifically, they responded to seven items (e.g., "How prone are you to feeling nostalgic;" 1 = *not at all*, 7 = *very much*) that assess the proclivity to be nostalgic. We averaged responses to compute SNS scores (α = .94, M = 4.45, SD = 1.42). We administered the SNS at the end of the study (rather than the beginning) to prevent it from priming nostalgia among participants in the control condition.

Results

Preliminary Analyses

To ascertain that the nostalgia proneness measure was not influenced by the experimental manipulations, we submitted nostalgia proneness scores to a 2 (life uncertainty: uncertainty vs. certainty) x 2 (induced nostalgia: nostalgia vs. yesterday) Analysis of Variance (ANOVA). These analyses revealed no main effects of life uncertainty, $F(1, 238) = 2.41$, $p = .122$, $\eta^2 = .01$, nor induced nostalgia, $F(1, 238) = 1.65$, $p = .201$, $\eta^2 = .01$, and no life uncertainty x induced nostalgia interaction, $F(1, 238) = .52$, $p = .469$, $\eta^2 = .002$.

Life Uncertainty and Nostalgia Proneness

To examine whether life uncertainty reduced self-continuity, but only for participants low (not high) on nostalgia proneness (Hypothesis 1), we conducted a moderation analysis using model 1 of PROCESS v2.0 (Hayes, 2013). We entered life uncertainty (life certainty = 0, life uncertainty = 1) as the independent variable, nostalgia proneness as the moderator, and self-continuity as the dependent variable. The analysis revealed a significant life uncertainty x nostalgia proneness interaction, $b = 0.17$, $SE = .08$, $t(245) = 2.03$, $p = .043$ (Figure 1). The analysis also yielded simple effects of life uncertainty on self-continuity for participants low (-1 SD) and high (+1 SD) levels of nostalgia proneness. At low levels of nostalgia proneness, life uncertainty decreased self-continuity, $b = -0.41$, $SE = .17$, $t(245) = -2.41$, $p = .017$. However, at high levels of nostalgia proneness, there was no significant effect of life uncertainty on self-continuity, $b = 0.08$, $SE = .16$, $t(245) = .46$, $p = .648$.

In addition, we examined the simple effects of nostalgia proneness on self-continuity for participants within the life-certainty condition and life-uncertainty condition (by entering nostalgia proneness as the independent variable and life uncertainty as the moderator). Within the life-uncertainty condition, nostalgia proneness predicted increased self-continuity, $b = 0.29$, $SE = .06$, $t(245) = 4.70$, $p < .001$. Within the life-certainty condition, nostalgia proneness was also significantly related to greater self-continuity, $b = 0.12$, $SE = .05$, $t(245) = 2.27$, $p = .024$, albeit less strongly than in the life-uncertainty condition. In all, life uncertainty decreased self-continuity, but nostalgia prone individuals were buffered from this effect, demonstrating that nostalgia protects against life uncertainty.

Life Uncertainty and Induced Nostalgia

To examine whether life uncertainty (vs. certainty) reduced self-continuity, but only for participants in the control (not in the nostalgia) condition (Hypothesis 2), we submitted self-continuity scores to a 2 (life uncertainty: uncertainty vs. certainty) x 2 (induced nostalgia: nostalgia vs. control) ANOVA. There was no main effect of life uncertainty, $F(1,238) = .68$, $p = .409$, $\eta^2 = .003$. There was a marginal main effect of nostalgia $F(1,238) = 3.23$, $p = .073$, $\eta^2 = .01$, such that participants in the nostalgia condition ($M = 4.46$, $SD = .93$) reported higher levels of self-continuity than those in the control condition ($M = 4.24$, $SD = .99$).

The life uncertainty x induced nostalgia interaction was not significant, $F(1,238) = 2.64$, $p = .106$, $\eta^2 = .01$ (Figure 2). Although not significant, we conducted simple effect tests to investigate whether the pattern of this interaction aligns with Hypothesis 2. First, we tested the simple effects of life uncertainty (vs. certainty) for participants in the control and nostalgia conditions. Within the control condition, participants in the life-uncertainty condition tended to exhibit lower levels of self-continuity than those in the life-certainty condition, however, this effect was only marginally significant, $F(1,238) = 2.90$, $p = .090$, $\eta^2 = .01$. Within the nostalgia condition, there was no difference between participants in the life-uncertainty and life-certainty conditions, $F(1,238) = .33$, $p = .567$, $\eta^2 = .001$.

Next, we investigated the simple effects of induced nostalgia (vs. control) within the life-uncertainty and life-certainty conditions. Within the life-uncertainty condition, participants in the control condition exhibited lower levels of self-continuity than those in the nostalgia condition, $F(1,238) = 5.54$, $p = .019$, $\eta^2 = .02$. Within the life-certainty condition, however, there was no difference between participants in the nostalgia and control conditions, $F(1, 238) = .02$, $p = .899$, $\eta^2 = .000$. Overall, although the life uncertainty x induced nostalgia interaction was not significant, observation of the pattern of this interaction is weakly supportive of our hypothesis that life uncertainty reduces self-continuity and that induced nostalgia buffers this effect.

Life Uncertainty, Induced Nostalgia, and Nostalgia Proneness

In order to explore the life uncertainty x induced nostalgia x nostalgia proneness interaction, we conducted a moderation analysis using model 3 of PROCESS v2.0 macro (Hayes, 2013). In particular, we entered life uncertainty as the independent variable, induced nostalgia as the first moderator, nostalgia proneness as the second moderator, and self-continuity as the dependent variable. The life uncertainty x induced nostalgia x nostalgia proneness interaction was not significant, $b = 0.07$, $SE = .17$, $t(242) = .39$, $p = .697$.

General Discussion

This study yielded evidence supporting the idea that nostalgia buffers the adverse influence of life uncertainty on self-continuity. In particular, the results provided strong support for Hypothesis 1, namely that life uncertainty reduced self-continuity, but only for those low in nostalgia proneness, not those high in nostalgia proneness. Stated otherwise, nostalgia prone individuals were buffered from the negative impact of life uncertainty on self-continuity. The results provided weaker (i.e., non-significant) support for Hypothesis 2, namely that life uncertainty reduced self-continuity, but only for participants who recalled a recent (i.e., yesterday) autobiographical event, not those who recalled a nostalgic event. Together, the results support the notion that nostalgia helps preserve self-continuity in the face of life uncertainty. The findings are generative and have practical implications.

Implications for Future Research

Given that nostalgia buffers the adverse influence of life uncertainty on self-continuity, it may render life uncertainty (and the downstream implications of self-continuity) more tolerable. As a result of this, nostalgia may make people more likely to make decisions that place them in situations that are uncertain. For example, it may strengthen people's willingness to pursue a further educational degree despite uncertainty about their capacity to fund it or whether they can complete it. Similarly, nostalgia may fortify people's resolve to initiate midlife career changes despite some uncertainty about monetary consequences for their family. Further, nostalgia may provide the spark needed to end a dissatisfying relationship notwithstanding the uncertainty of single life or the availability of desirable partners. Generally speaking, nostalgia may, in some circumstances, provide the impetus needed to take risks. Aligned with this assertion is research indicating that nostalgia fosters approach motivation (Stephan et al., 2014), which is associated with risk taking (Kim & Lee, 2011; Voigt et al., 2009) and impulsivity (Leone & Russo, 2009; Smillie, Jackson, & Dalgleish, 2006). Future work will do well to directly examine whether nostalgia increases tolerance for uncertainty and risk taking in life decisions.

We found that nostalgia buffers the adverse influence of *life uncertainty*, i.e., uncertainty about major aspects of life such as one's career, relationships, and financial stability. This raises the question of whether nostalgia could also protect against uncertainty more generally, not just life uncertainty. There are several things about which people can be uncertain and not all of these uncertainties concern major aspects of life. For example, people can be uncertain about the meaning of an ambiguously worded sentence, whether to bring snacks instead of drinks to a party, or whether it is best to purchase a gas weed trimmer or an electric one. Does nostalgia also buffer the effects of these relatively minor uncertainties? The literature does not offer a definitive answer. On the one hand, empirical efforts have focused on nostalgia's capacity to buffer the impact of existential threats (e.g., meaning in life, mortality awareness). Given that nostalgia largely refers to meaningful life events and time periods (Abeyta et al., 2015; Wildschut et al., 2006), and that nostalgia affords the opportunity to reflect more broadly on one's life (providing, for

example, self-continuity; Sedikides et al., 2016; Zou et al., 2018), there are solid grounds to expect that nostalgia buffers the effects of more serious psychological threats. On the other hand, there is less of a basis to suspect that nostalgia should buffer more minor uncertainties. They do not pose a serious threats to self-continuity. They can, however, arouse negative affect (Bar-Anan, Wilson, & Gilbert, 2009). Because nostalgia can foster positive affect (Wildschut et al., 2006), it may help circumvent this negative affect (Sedikides, Wildschut, Routledge, Arndt, et al., 2015). However, follow-up work would need to establish whether nostalgia buffers the effects of more minor uncertainties.

Practical Implications

Our work is relevant to the developmental periods of late adolescence and early adulthood. These periods are marked by life changes and uncertainties in several life domains, including relationships, education, and career. Our findings suggest that being nostalgic may contribute to the maintenance of self-continuity during this transformative time. For example, nostalgia may facilitate coping with career-related uncertainty.

Career uncertainty can plague some individuals, necessitating the need for career counsellors. High levels of career uncertainty, characterized by greater indecision about one's self and future, can be harmful to well-being (Meldahl & Muchinsky, 1997). Individuals facing career uncertainty often express fears of failing, making the wrong choices, or displeasing close others (Serling & Betz, 1990). These individuals are also more likely to be pessimistic about their career opportunities as well as their control over the employment and career in which they eventually find themselves (Saka, Gati, & Kelly, 2008). To overcome these discomforting states, people often accept the first available career opportunity, rather than tolerating a period of uncertainty that could lead to more valuable career opportunities (Trevor-Roberts, 2006). Our findings suggest that nostalgia may increase tolerance for this uncertainty and thus enable individuals to pursue optimal professional prospects.

This possibility seems likely in light of evidence that people who struggle to maintain a stable self-concept are more vulnerable to career uncertainty. Specifically, those with lower self-esteem (Lin, Wu, & Chen, 2015), and ill-defined self-concepts (Saka, Gati,

& Kelly, 2008) or vocational self-concepts (Garrison, Lee, & Ali, 2017) are more likely to manifest career indecision. Unsurprisingly, one of the main goals of career counselling programs is to help people who struggle with career uncertainty to reconnect with their life values, interests, and goals, and subsequently to script their own personal and career stories, thus strengthening self-continuity (Bright & Pryor, 2011; Mitchell, Levin, & Krumboltz, 1999). Our finding that nostalgia prevents life uncertainty from disrupting self-continuity indicates that career counsellors could utilize nostalgia to assist with this process.

Our findings have clinical relevance as well. Maintaining self-continuity contributes to well-being. Self-continuity is related to greater self-esteem (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Usborne & Taylor, 2010), enhanced self-acceptance (Diehl & Hay, 2011), and increased self-efficacy (Mattingly & Lewandowski, 2013). Moreover, self-continuity is associated with increased positive affect (Diehl & Hay, 2011), greater meaning in life (Shin, Steger, & Henry, 2016), lower stress, anxiety and depression (Anderzén & Arnetz, 1999; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997) as well as augmented satisfaction with life (Ritchie, Sedikides, Wildschut, Arndt, & Gidron, 2011; Zou et al., 2018). In addition, uncertainty can be detrimental to well-being, as it is associated with decreased self-esteem (Baumgardner, 1990; Story, 2004) and greater pessimism (Martin, Marsh, & Debus, 2003). Furthermore, people who struggle with uncertainty report more negative affect (Carleton, Collimore, & Asmundson, 2010), worry (Dugas, Schwartz, & Francis, 2004), anxiety (Wright, Lebell, & Carleton, 2016), and rumination (de Jong-Meyer, Beck, & Riede, 2009). Lastly, uncertainty is related to several mental disorders, such as generalized anxiety disorder (Sexton, Norton, Walker, & Norton, 2003), social anxiety (Carleton, Collimore, & Asmundson, 2010), panic disorder (Carleton et al., 2014), obsessive compulsive disorder (Gentes & Ruscio, 2011) and depression (Boswell, Thompson-Hollands, Farchione, & Barlow, 2013). Because of the undesirable consequences of uncertainty, clinicians have developed treatments to reduce uncertainty or increase tolerance for it (Ladouceur et al. 2000; Dugas & Ladouceur, 2000).

Nostalgia's capacity to maintain self-continuity in the face of life uncertainty suggests that nostalgia could complement and enhance therapeutic approaches. Research suggests that this may be promising. For instance, psychological treatments, such as reminiscence and life review therapies are based on the recollection of personally important memories, and have been implicated in the promotion of psychological health (Bohlmeijer, Smit, & Cuijpers, 2003; Pinquart & Forstmeier, 2012). Additional research has shown that nostalgia can evoke behavioral changes (i.e., increased physical activity) when it is induced repeatedly (Kersten, Cox, & Van Enkevort, 2016). Taken together, the implementation of nostalgia in clinical environments appears promising.

Conclusion

Nostalgia buffers the adverse effect of life uncertainty on self-continuity. As such, nostalgia maintains self-continuity in the face of life uncertainty. These findings are generative and have practical implications.
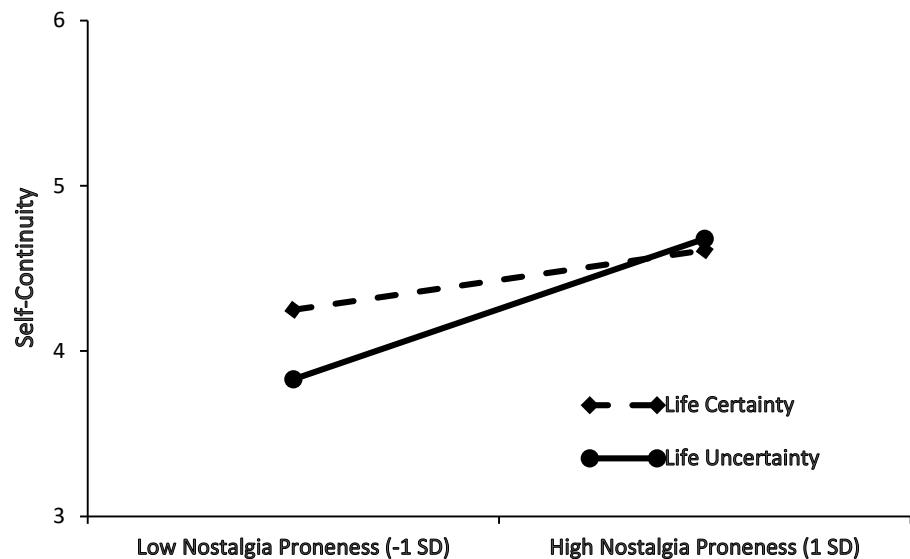
Figure 1 [Figure 3.1]. Effects of nostalgia proneness and life uncertainty on self-continuity.
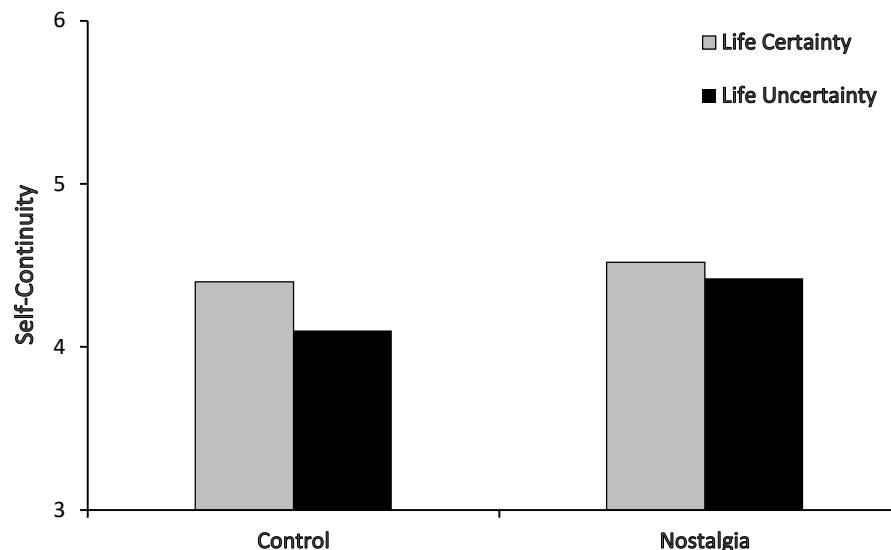
Figure 2 [Figure 3.2]. Effects of manipulated life uncertainty and nostalgia on self-continuity.

Chapter 4

Empirical Paper III

4.1   Savouring and Nostalgia

In this empirical paper, I explored how life experiences are transformed into nostalgic memories. In particular, I aimed to unearth a psychological process (i.e. savouring) that occurs during a life experience that may lead the experience to subsequently become a nostalgic memory. This paper is accepted for publication in *Cognition and Emotion*. What follows in this Chapter is the accepted version of this manuscript.

The data was collected by Wing-Yee Cheung. As first author of the article, I analysed the data. I also led the writing of the manuscript. I drafted it, and then collected and collated feedback from my collaborators to produce the final draft.

Please note that in the remainder of this chapter we have used U.S. spelling and terminology. For example, "college" is equilant to "university".

A Prologue to Nostalgia: Savoring Creates Nostalgic Memories that Foster Optimism

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Abstract

How are nostalgic memories created? We considered savoring as one process involved in the genesis of nostalgia. Whereas nostalgia refers to an emotional reflection upon *past* experiences, savoring is a process in which individuals deeply attend to and consciously capture a *present* experience for subsequent reflection. Thus, having savored an experience may increase the likelihood that it will later be reflected upon nostalgically. Additionally, to examine how cognitive and emotional processes are linked across time, we tested whether nostalgia for a previously savored experience predicts optimism for the future. Retrospective reports of having savored a positive event were associated with greater nostalgia for the event (Study 1). Retrospective reports of savoring a time period (college) were associated with greater nostalgia for that time period when participants were in a setting (alumni reunion event) that prompted thoughts of the time period (Study 2). Savoring an experience predicted nostalgia for the experience 4-9 months later (Study 3). Additionally, nostalgia was associated with greater optimism (Studies 2-3). Thus, savoring provides a foundation for nostalgic memories and an ensuing optimism.

Keywords: nostalgia, savoring, optimism, memory

Over the past decade, researchers have sought to understand what nostalgia is and what it does. This work has revealed that nostalgia is a bittersweet, albeit predominantly positive, emotion that entails psychological benefits (Sedikides et al., 2015). In particular, nostalgia, despite inherently being about the past, helps individuals manage psychological adversity in the present. It also positively influences how they perceive their future; for example, nostalgia fosters an optimistic outlook of the future (Cheung et al., 2013). Although this work has clarified what nostalgia is and its psychological benefits, research has not yet addressed the psychological processes implicated in the formation of nostalgic memories. Put otherwise, how are life experiences transformed into nostalgic memories? To answer this question, we focused on a psychological process that occurs during a life experience that may contribute to the transformation of the experience into a nostalgic memory. Specifically, we examined whether savoring, defined as consciously capturing and retaining an on-going experience (Bryant, 2003), is implicated in the creation of nostalgic memories. Additionally, because nostalgia increases optimism, we aimed to examine how cognitive and emotional processes are linked over time. Thus, we tested whether individuals' present nostalgia for previously savored experiences is associated with greater optimism for the future.

What Nostalgia Is

Historically, scholars conceptualized nostalgia as a medical or psychological disorder (see Batcho, 2013; Sedikides, Wildschut, & Baden, 2004). However, recent findings paint a different picture. The New Oxford Dictionary of English (1998) defines nostalgia as 'a sentimental longing or wistful affection for the past' (p. 1266). Consistent with this definition, prototype analyses examining lay persons' conceptualizations of nostalgia have shown that people conceive nostalgia to be a past-oriented, social, self-relevant, and mostly positive emotion (Hepper, Ritchie, Sedikides, & Wildschut, 2012; Sedikides & Wildschut, 2016a; Van Tilburg, Wildschut, & Sedikides, 2017). This

conceptualization of nostalgia is similar across 18 countries and five continents (Hepper et al., 2014). Analyses of nostalgic narratives (Wildschut, Sedikides, Arndt, & Routledge, 2006) have additionally demonstrated that nostalgic recollections typically consist of personally meaningful life events (e.g., graduation ceremony, birth of a child, wedding) that focus on the self within a social context (e.g., family, friends, romantic partners). These analyses have also indicated that nostalgia is primarily a positive emotion. Yet, nostalgia frequently involves a hint of negativity, as people may miss or long for experiences or time periods from their past. Finally, nostalgia is a frequent occurrence, with 79% of individuals reporting that they feel nostalgic one to four times a week (Wildschut et al., 2006). In all, nostalgia is a common and ambivalent, although primarily positive, sentimental reflection on one's past, encompassing meaningful and social experiences.

What Nostalgia Does

While research has helped understand what nostalgia is, the bulk of contemporary research on nostalgia has investigated the psychological impact that nostalgia has on individuals. This work can largely be summarized in the regulatory model of nostalgia (Sedikides et al., 2015). According to this model, nostalgia manages psychologically aversive states and, in turn, confers psychological benefits (Sedikides et al., 2015). Research supporting the model has shown, for example, that when people are in a negative mood, lonely, bored, or lack meaning in life, they become more nostalgic. Nostalgia, in turn, improves mood, increases a sense of social connectedness, reduces boredom, and bolsters meaning in life (Routledge et al., 2011; Van Tilburg, Igou, & Sedikides, 2013; Wildschut et al., 2006; Zhou, Sedikides, Wildschut, & Gao, 2008).

Additionally, although nostalgia is about the past, it influences perceptions of the future. For example, it increases approach motivation (Stephan et al., 2014), goal pursuit (Sedikides et al., 2017), inspiration (Stephan et al., 2015), and creativity (Van Tilburg,

Sedikides, & Wildschut, 2015; for a review, see: Sedikides & Wildschut, 2016b). Most relevant to the present research, nostalgia makes people more optimistic about their future. Specifically, Cheung et al. (2013) assigned participants to recall either a nostalgic or an ordinary autobiographical event, and then assessed optimism. Participants in the nostalgia (vs. ordinary) condition evinced greater optimism.

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The Present Research

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The Formation of Nostalgic Memories through Savoring

   Whereas previous research has illustrated what nostalgia is and what nostalgia does, we aimed to examine the psychological or cognitive processes involved in the formation of nostalgic memories. We focus in particular on savoring. Savoring entails deep attention to a present experience in order to capture it, retain it, and fully appreciate it (Bryant & Veroff, 2007). Research on savoring has investigated whether savoring is beneficial for well-being (Bryant, 2003; Bryant & Veroff, 2007). Indeed, this work has shown that savoring is positively associated with traits indicative of psychological health, such as positive affectivity and optimism, and is negatively associated with traits indicative of poor psychological health, such as hopelessness and neuroticism.

   In contrast to nostalgia, which concerns an experience that occurred in the *past*, savoring is a process that occurs while an experience is *presently* ongoing. In the words of Bryant and Veroff (2007), savoring is a "process for the here and now" (p. 8). These authors also acknowledged, however, that people savor experiences with an eye towards being able to remember them in the future. In particular, they viewed savoring as the "process of active memory building" (p. 35). Citing a personal example, they wrote (p. 34):

    I have a strong sense of the fleetingness of the moment, and I make special

    efforts to capture it. I want to remember this moment for the rest of my life,

    so I build the memory of it actively and deliberately.

Hence, savoring is consciously capturing a current experience so it can later be reflected upon fondly. We thus propose that savoring an experience makes it more likely that the experience will subsequently become a nostalgic memory.

Consistent with this proposal, research has shown that people savor life experiences as a means to enhance the emotionality of those experiences (Bryant, 2003; Bryant & Veroff, 2007), and that the presence of strong emotions can strengthen the encoding of events into memory (LaBar & Cabeza, 2006). Moreover, deep information processing, as one does when savoring, helps solidify memories (Craik, 2002), particularly when the experience is important to one's self-concept (Sedikides, Green, Saunders, Skowronski, & Zengel, 2016).

Downstream Relation with Optimism

We additionally conjectured whether nostalgia, as a product of savoring, is in turn associated with greater optimism. As mentioned, nostalgia increases optimism (Cheung et al., 2013). We aimed to expand upon this finding by testing whether individuals' *current* nostalgic sentiments for an experience that they had *previously* savored predicts greater optimism for the *future*. In so doing, we examined how cognitive and emotional processes are related over time. More specifically, we tested how a cognitive process occurring in individuals' past (i.e., having savored an experience) is linked with emotion in the present (i.e., nostalgia) and, in turn, with perceptions of the future (i.e., optimism).

We had an ancillary reason for investigating optimism. Prior work has indicated that individuals who tend to savor their experiences are more optimistic (Bryant, 2003). However, no research has examined why savoring is linked to greater optimism. Our research gives rise to the possibility that nostalgia helps explain this relationship. If, as we propose, savoring nurtures nostalgic memories and, as previous work has illustrated, nostalgia increases optimism (Cheung et al., 2013), then nostalgia may at least partially account for the link between savoring and optimism.

Overview

To ascertain if savoring life experiences contributes to the creation of nostalgic memories, we conducted three studies testing the association between savoring an experience and subsequent nostalgia for that experience. In Study 1, we examined whether savoring a specific positive event (reported retrospectively) is associated with greater nostalgia for the event. In Study 2, we examined the relation between retrospective reports of savoring a time period in one's life (i.e., attending college) and nostalgia for that period when in a context that naturally prompts thoughts about the time period (i.e., alumni reunion). In Study 3, we used a longitudinal design to test the association between savoring an experience and subsequent nostalgia for that experience. In particular, we assessed savoring for a time period (attending college) which was currently ongoing, albeit about to end. At a later point, we assessed nostalgia for that time period. Finally, to find out if individuals' present nostalgic sentiments for past savored experiences predicts greater optimism, we assessed optimism in Studies 2-3. In all studies, we recruited as many participants as possible during the designated study period. We did so under the *a priori* stipulation that $N \geq 84$, which yields power $\geq .80$ to detect a medium effect size $r = .30$ (two-tailed $\alpha = .05$). The designated study periods for Studies 1-3 were, respectively, one week, one day (university reunion), and one day (graduation day).

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Study 1

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In Study 1, we addressed whether having savored an event is associated with heightened nostalgia for the event upon recalling it. We instructed participants to recall a positive event from their life. Next, we asked them to indicate how much they had savored the recalled event and how nostalgic they currently felt about it. We hypothesized that having savored the positive event would be associated with greater nostalgia for it.

Method

Participants. Two hundred and sixty-six volunteers (200 women, 54 men, 12 unknown) aged between 15 and 64 years ($M = 26.02$, $SD = 10.71$) took part in an online study (11 volunteers did not provide information about their age).[1] We advertised the study on three websites: John Krantz's "Psychological Research on the Net" ($n = 117$), Social Psychology Network ($n = 121$), and Online Psychology Research UK ($n = 11$); 17 volunteers did not report the website on which they found the study's advertisement.

Procedure and materials. First, we provided participants with written instructions in which they were informed that they will participate in a study that is about "social psychology research related to feelings and memories." After providing consent, we instructed participants to write about a positive event from their past: "Bring to mind a positive event in your adulthood. Specifically, try to think of a past event that is positive. Bring this positive experience to mind. Immerse yourself in the positive experience and think about how it makes you feel." Next, we asked participants to "write down four keywords relevant to this positive event" and then spend a minimum of 5 minutes writing about the experience. We specified that they should recall only events from their adulthood in order to reduce the variance in the time that had passed since the event.

Next, we assessed how much participants had savored the event at the time it occurred. We administered an adapted version of the Savoring Beliefs Inventory (SBI; Bryant, 2003). To ensure that participants responded with respect to how they felt at the time the event occurred, we prefaced each statement with "When the event occurred, I felt that...", and we worded each item using the past tense. The statements were: "I felt fully able to appreciate the good things about the event," "I could prolong enjoyment of the event by my own effort," "I knew how to make the most of the good parts of the event," "I found it easy to enjoy myself when I wanted to," "I was my own worst enemy in enjoying the event," "I couldn't seem to capture the joy of the happy moments," "I didn't enjoy the event as much as I should have," and "I found it hard to hang onto a good feeling." For

each statement, participants indicated the extent to which they agreed (1 = *strongly disagree*, 6 = *strongly agree*). We reverse-scored the last four statements and then averaged responses across all items to compute savoring scores (α = .84, *M* = 4.96, *SD* = .97).

Finally, we measured how nostalgic participants were for the event. We first instructed them to bring to mind the event they initially described. Then, we presented them with the definition of nostalgia (i.e., "sentimental longing or wistful affection for the past") and asked them to indicate the extent to which they agreed (1 = *strongly disagree*, 6 = *strongly agree*) with three items: "Thinking about the event I described leaves me feeling nostalgic," "I feel nostalgic when I think about the event I described," and "The event I described is a nostalgic experience for me." The items were worded in present tense to ensure that participants responded based on how they presently feel. We averaged responses to compute nostalgia scores (α = .97, *M* = 3.99, *SD* = 1.72).

Upon the completion of the study, we asked participants to read an online statement in which we thanked them and debriefed them.

Results and Discussion

Savoring was significantly and positively related to nostalgia, *r*(264) = .18, *p* = .003. The more individuals had savored an event, the more nostalgic they feel about it. This provided evidence that savoring an event conduces to nostalgia for it.

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Study 2

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In Study 2, we attempted to replicate and extend the finding of Study 1 with three goals in mind. First, prior work has established that information about autobiographical memories is arranged hierarchically (Conway & Pleydell-Pearce, 2000). At the broadest level, people store information about general life periods (e.g., high school, college). At a more specific level, they store information about general events (e.g., first time riding an airplane). Memory construction and retrieval can differ across these levels of specificity.

For example, people access information from life periods quicker than information for particular events. However, they prefer to access their memories at the level of events (Conway & Pleydell-Pearce, 2000). In Study 1, we measured savoring and nostalgia pertaining to a specific past event. In Study 2, we examined the generality of the link between savoring and nostalgia by focusing on a general life period.

Second, to bolster the ecological validity of our finding, we assessed nostalgia in a naturalistic setting. Specifically, we approached college alumni during an alumni reunion event and asked them to indicate how much they had savored their time spent in college and how nostalgic they currently felt for that period in their life. We hypothesized that having savored one's time in college would be associated with greater nostalgia for it.

Third, we tested whether nostalgia for past savored experiences is associated with greater optimism, and whether nostalgia helps explain the association between savoring and optimism. Thus, during the reunion event, we asked participants to indicate how optimistic they felt about their future. We hypothesized that having savored the college experience would predict greater optimism and that nostalgia would mediate the relation between savoring and optimism.

Method

Participants. One hundred and twenty-two alumni of the University of Southampton (48 women, 74 men), varying in age between 32 and 79 years ($M = 59.07$, $SD = 10.08$) completed the study during an alumni reunion event at the University. All participants had graduated between 1955 and 2012.

Procedure and Materials. We approached alumni at a reunion and requested their voluntary participation. We first provided participants with written instructions in which they were informed that they will participate in a study that is about "how you remembered their time at university and how you felt while thinking about those memories." We then administered an adapted version of the SBI (Bryant, 2003) to assess how much they had

savored their time in college. Specifically, we asked them to indicate the extent to which they agreed (1 = *strongly disagree*, 6 = *strongly agree*) with four statements preceded by the stem "During my time at university…": "I felt fully able to appreciate good things that happened to me," "I could make my enjoyment of good moments last longer by thinking or doing certain things," "I could not seem to capture the joy of happy moments," and "It was hard for me to hang onto a good feeling for very long." We shortened the scale to four items so that we could quickly administer it when approaching alumni at the busy reunion. We reverse-scored the last two items and averaged responses across all items to compute savoring scores ($\alpha = .53$, $M = 4.34$, $SD = 0.71$).

Next, we assessed participants' current levels of nostalgia for college. After presenting participants with the definition of nostalgia, we asked them to "Think about your experience of coming back to the University today, and how it is making you feel," and indicate the extent to which they agreed (1 = *strongly disagree*, 6 = *strongly agree*) with two statements preceded by the stem "Right now…": "…I am feeling nostalgic about my time at the University of Southampton" and "…I am having nostalgic feelings about my time at the University of Southampton." These items were highly correlated, $r(115) = .92$, and we averaged them to compute nostalgia scores ($M = 4.04$, $SD = 1.28$).[2]

Finally, we assessed the extent to which thinking about college made participants feel optimistic (Cheung et al., 2013). We asked them to indicate the extent to which they agreed (1 = *strongly disagree,* 6 = *strongly agree*) with two statements preceded by the stem "Thinking about my time at the University, I feel….": "optimistic about my future" and "hopeful about my future." These items were highly correlated, $r(117) = .89$, and we averaged them to compute optimism scores ($M = 3.95$, $SD = 1.14$).[3]

Upon the completion of the study, we thanked participants, gave them a written debriefed sheet to read, and offered them the opportunity to ask any questions.

Results

Zero-order correlations. First, we examined the relations among savoring, nostalgia, and optimism. Savoring was significantly and positively related to nostalgia, $r(120) = .26$, $p = .004$. Similarly, savoring was significantly and positively related to optimism, $r(120) = .25$, $p = .006$. Finally, nostalgia and optimism were significantly and positively related to each other, $r(120) = .26$, $p = .004$.

Mediation analysis. We subsequently tested the indirect effect of savoring on optimism via nostalgia by conducting a bootstrapped mediational analysis (10,000 resamples) using PROCESS (Model 4; Hayes, 2013). The indirect effect (denoted as *ab*) was significant, $ab = 0.0866$, $SE = 0.0543$, 95% CI = [0.0113, 0.2294] (Figure 1).[4]

Alternative models. In addition to the original model (savoring $\Rightarrow$ nostalgia $\Rightarrow$ optimism), there are five potential alternative models that could explain the relations among savoring, nostalgia, and optimism (Table 1). To compare models, we computed the Akaike Information Criterion (AIC; Akaike, 1974) and the Expected Cross-Validation Index (ECVI; Browne & Cudeck, 1992) for each model (lower values indicate better models). Models that have the same paths between the same variables will produce identical AIC and ECVI values, even when some paths are in a different direction. We therefore trimmed the 'direct effect' path between the independent and dependent variable. Additionally, models that are mirror images of each other will produce the same AIC and ECVI values, because they have the same paths between the same variables. As can be seen in Table 1, the original model (and its mirror image) had lower AIC and ECVI values than any of the alternatives. Thus, we retained the original (and its mirror image) over the alternative models.

We retained the original model and rejected its mirror image on conceptual grounds. First, participants' savoring of college took place prior to their nostalgic sentiments for college. The savoring items directed participants to respond with respect to

how they felt "During my time at university," and the nostalgia items directed them to

respond with respect to how they felt at the time of the alumni event. Additionally, prior

work has demonstrated a causal effect of nostalgia on optimism (Cheung et al., 2013), but

it has not demonstrated the reverse. Finally, nostalgia is generally triggered by negative

psychological states, not by positive states such as optimism (for reviews, see Sedikides et

al., 2015; Wildschut, Sedikides, & Cordaro, 2011).

Discussion

Study 2 conceptually replicated the findings of Study 1, showing that retrospective

reports of having savored an experience are associated with nostalgia for it. Study 2 also

extended upon Study 1 in several ways. First, in Study 2, we found that savoring a general

time period (instead of a specific event) is associated with subsequent nostalgia for that

time period. Our findings thus generalize across different levels of hierarchically organized

autobiographical memories. Second, we assessed nostalgia in a naturalistic setting and

found that having savored college life was associated with greater nostalgia for college

during an alumni reunion event. This demonstrated ecological validity of our findings.

Third, we assessed how optimistic participants felt about the future. Consistent with

Cheung et al. (2013), nostalgia for a savored experience predicted greater optimism.

Additionally, consistent with Bryant (2003), savoring was associated with greater

optimism. Importantly, nostalgia mediated the relation between savoring and optimism,

suggesting that nostalgia is one reason why savoring and optimism are related.

Study 3

Studies 1-2 provided evidence that savoring contributes to the formation of

nostalgic memories. These studies, however, relied on retrospective reports of savoring

that were assessed at the same time as nostalgia. To address this limitation in Study 3, we

used a longitudinal design in which we assessed (1) savoring of a specific experience while

the experience was ongoing, yet about to end, and (2) nostalgia for that experience 4-9

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months later. Specifically, we approached college students during their graduation ceremony day (Time 1) and asked them how much they have been savoring their final year at college. Then, 4-9 months later (Time 2), we asked them how nostalgic they felt for college. We hypothesized that savoring college would predict greater nostalgia for it. At Time 2, we also assessed how optimistic participants felt about their future. We hypothesized that nostalgia for college would predict greater optimism. Moreover, we hypothesized that savoring would predict greater optimism, and that nostalgia would mediate the relation between savoring and optimism.

Method

Participants. We collected data at two time points. Time 1 (T1) was on the day of the graduation ceremony, and Time 2 (T2) was 4-9 months later. One hundred and sixty-eight undergraduate and graduate students from the University of Southampton (115 women, 52 men, 1 unknown) aged between 20 and 55 years ($M = 22.35$, $SD = 4.00$) participated at T1. Sixty-six students from the original sample (39.3% response rate; 51 women, 14 men, 1 unknown) aged between 20 and 55 years ($M = 22.18$, $SD = 4.41$) participated at T2. All subsequent statistics and analyses are from participants who completed both parts of the study. Although we exceeded the stipulated minimum sample size of 84 at T1, the lower than expected response rate at T2 meant that we achieved power $= .70$ to detect a medium effect size $r = .30$ (two-tailed $\alpha = .05$).

Procedure and Materials. At T1, we approached graduating students on the University of Southampton campus the day of the graduation ceremony and requested their participation. We provided participants with written instructions in which they were informed that they will participate in "social psychology research related to memories and life adjustment." We then assessed how much they have been savoring experiences from their final year of college with one item adopted from Bryant, Smart, and King (2005, Study 1). We only used one item due to time constraints. Specifically, participants

indicated the extent to which they agreed (1 = *strongly disagree*, 6 = *strongly agree*) with "In your final year, did you consciously try to save the memories in your mind for later?" (*M* = 3.15, *SD* = 1.34).

At T2, we emailed participants and asked them to complete the second part of the study. We first assessed nostalgia for college. We presented participants with the definition of nostalgia and instructed them to indicate the extent to which they agreed (1 = *strongly disagree*, 6 = *strongly agree*) with three statements: "Thinking about my university life leaves me feeling nostalgic," "I feel nostalgic when I think about my university life," and "My university life is a nostalgic experience for me." We averaged responses to compute nostalgia scores (α = .96, *M* = 4.35, *SD* = 1.33).

We also assessed the extent to which participants experienced optimism at T2. In particular, we asked them to indicate the extent to which they agreed (1 = *strongly disagree,* 6 = *strongly agree*) with two statements preceded by the stem "Thinking about my University life makes me feel...": "optimistic about my future," "ready to take on new challenges" (Cheung et al., 2013). These items were highly correlated, *r*(64) = .81, and we averaged them to compute optimism scores (*M* = 4.42, *SD* = 1.15).

Upon the completion of the study, we provided participants with an online statement in which we thanked them and debriefed them.

Results

Zero-order correlations. We first examined the relations among T1 savoring, T2 nostalgia, and T2 optimism. T1 savoring was significantly and positively related to T2 nostalgia, *r*(64) = .28, *p* = .024, but was not significantly related to T2 optimism, *r*(64) = .20, *p* = .116. T2 nostalgia and T2 optimism were significantly and positively related to each other, *r*(64) = .38, *p* = .001.

Mediation analysis. Next, we tested the indirect effect of T1 savoring on T2 optimism via T2 nostalgia by conducting a bootstrapped mediational analysis (10,000

resamples) using PROCESS (Model 4; Hayes, 2013). The indirect effect was significant, $ab = 0.09$, $SE = 0.06$, 95% CI = [0.009 / 0.235] (Figure 2).

Alternative models. As in Study 2, we compared our original model against all possible alternatives using AIC and ECVI (Table 2). The original model (and its mirror image) again had lowest values for both AIC and ECVI. Thus, we retained the original (and its mirror image) over the alternative models. We also retained the original model and rejected its mirror image on theoretical grounds (see Study 2).

Discussion

Study 3 extended the findings of Studies 1-2, demonstrating that savoring a particular experience longitudinally predicts greater subsequent nostalgia for the experience. Specifically, savoring the last year of college was associated with higher nostalgia for college 4-9 months later. Additionally, nostalgia for college was associated with greater optimism. The hypothesized relation between savoring and optimism was not significant in this study. However, the size of this relation ($r = .20$) was comparable to that of the relation in Study 2 ($r = .25$), and we suspect that the lack of significance was due to the limited number of participants who participated at Time 2. Indeed, we meta-analyzed the correlation across the two studies and obtained a significant relation between savoring and optimism ($M_r = .23$, $p = .002$; two-tailed).[5] Finally, in Study 3, we found an indirect relation between savoring and optimism via nostalgia.

General Discussion

The literature has extensively addressed what nostalgia is and what nostalgia does. We complemented those foci by investigating how nostalgic memories are formed. We theorized that savoring an experience leads individuals to subsequently be nostalgic about it, and we tested this general idea in three studies. In Study 1, savoring a specific event was related to greater nostalgia for it. In Study 2, savoring a general time period was associated with greater nostalgia for it. Finally, in Study 3, savoring a time period predicted greater

nostalgia for it 4-9 months later. These convergent findings provide evidence that savoring contributes to the formation of nostalgic memories.

Our findings also illustrate that, although nostalgia refers to the past, it orients individuals toward the future. Studies 2 and 3 showed that nostalgia for savored experiences was associated with optimism for the future. In doing so, the present research illustrates that nostalgia bridges past experiences with perceptions of the future.

In addition, the findings document the link between savoring and optimism (Bryant, 2003) and make strides towards explaining it. Specifically, savoring one's experience at college was linked with higher optimism, and this relation was mediated by nostalgia. This suggests that savoring and optimism are associated, in part, because savoring provides the foundation for nostalgic memories, which in turn facilitate a brighter perspective of the future.

Further Explication of the Formation of Nostalgic Memories

Savoring has been conceptualized as a memory building process (Bryant & Veroff, 2007). As such, savoring an experience should secure it in memory, allowing greater opportunity for subsequent nostalgic reflection on it. Consistent with this, people savor experiences to enhance their current emotions (Bryant, 2003; Bryant & Veroff, 2007), and heightened emotionality during an experience strengthens memory for it (LaBar & Cabeza, 2006). Moreover, savoring entails deep processing of information, which fortifies memories (Craik, 2002). However, to our knowledge, no work has examined whether savoring an experience actually strengthens memory for it. Future work should directly examine whether savoring an experience strengthens memory for it and if this accounts for the link between savoring and nostalgia.

Additional items on the research agenda pertain to testing whether other processes, independent of savoring, are involved in the formation of nostalgic memories. For example, does the amount of elapsed time (or perception of time) since an experience

occurred influence nostalgic sentiments for the experience? That is, are chronologically older memories more likely to elicit nostalgia? Also, do triggers of specific memories (e.g., scent, music, pictures) influence whether an experience is remembered nostalgically? Finally, are frequently recalled or discussed memories more likely to prompt nostalgia?

Cognition and Emotion across Time

Our research is illustrative of, and builds upon, contemporary views of the complex interdependence between cognition and emotion (Oatley, Parrott, Smith, & Watts, 2011; Pessoa, 2015). Savoring, in and of itself, showcases the effect that cognition has on emotion. In particular, savoring involves cognitive processes (e.g., deep attention) aimed at heightening the intensity of one's present emotions (Bryant, 2003; Bryant & Veroff, 2007). Our studies, however, extended beyond this, illustrating how cognition and emotion are linked across time. Having deeply and consciously attended to (i.e., having savored) an experience was associated with subsequent emotionality (i.e., nostalgia). This was particularly evident in Study 3, in which we assessed savoring and nostalgia at separate time points. Further, we extended the timeline toward the future, demonstrating that nostalgic sentiments (for savored experiences) are associated with positive cognitions and emotions concerning the future (i.e., optimism).

Emotion-Regulation and Well-Being

The interplay between savoring and nostalgia may also aid emotion regulation and, as such, improve well-being. Our findings suggest that savoring can be construed as a unique emotion-regulation strategy. Like many other emotion-regulation strategies, savoring is aimed at altering (intensifying) emotions in the present (Bryant, 2003; Bryant & Veroff, 2007). However, given that savoring appears to be implicated in the creation of nostalgic memories, it can also be construed as a longer term (perhaps pre-emptive) emotion-regulation strategy. As we noted, people use nostalgia to manage negative psychological states (Sedikides et al., 2015). Having savored previous life experiences is

likely to supply more nostalgic memories upon which people can reflect when facing psychological adversity. Thus, the more one has savored life experiences, the better able one will be to use nostalgia for regulating negative states.

This interplay between savoring and nostalgia may be one reason why people high in trait savoring evince better well-being (Bryant, 2003). The mediating role of nostalgia in the relation between savoring and optimism begins to illustrate this. Future research employing longitudinal and daily diary methods should examine how the interplay between savoring and nostalgia facilitates emotion regulation and well-being. Such research could, for example, determine whether individuals who have savored several life experiences more readily recruit nostalgic memories to regulate negative states.

Practical Implications

Our findings additionally have practical utility that warrants further empirical inquiry. The idea that savoring and nostalgia work together across time to regulate emotions and enhance well-being has potential therapeutic value. There has been enduring interest in interventions that can improve well-being (Lyubomirsky & Layous, 2013). Research has shown, for example, that routinely counting one's blessings and performing acts of kindness (Lyubomirsky, Sheldon, & Schkade, 2005) confer psychological health benefits. Along similar lines, there have been efforts to examine whether savoring interventions benefit psychological well-being (for a review, see Smith, Harrison, Kurtz, & Bryant, 2014). While this work shows promise of savoring's therapeutic effects, these interventions have all taken place within the span of a few weeks or less, and thus, are not well-positioned to test the long-term benefits of savoring. In particular, this work is not positioned to test whether savoring stores life experiences in memory for people to subsequently reflect upon nostalgically when they are facing adversity.

Long-term interventions are thus warranted to scrutinize the therapeutic utility of the interplay between savoring and nostalgia. An example of such an intervention would

involve teaching first-year college students how to savor, and reminding them to savor their college experience through the entirety of their undergraduate degree. In follow-up assessments, researchers could examine memory and nostalgia for college, as well as the use of nostalgia in response to negative life events. Large-scale interventions like this could set the stage for the use of savoring and nostalgia in clinical settings.

Our findings are also relevant to non-profit organizations in search of donations. Universities, for example, constantly solicit donations from alumni. Prior research suggests that, if alumni are nostalgic for their time in college, they may be more likely to donate money to their alma mater. Specifically, nostalgia increases the willingness to part with one's money (Lasaleta, Sedikides, & Vohs, 2014) and the willingness to make monetary donations to charities (Zhou et al., 2012). Moreover, marketing research has shown that imbuing advertisements with nostalgia improves their effectiveness (Schindler & Holbrook, 2003). In all, making alumni nostalgic for their time at university may boost donations, and, as the current research attests, encouraging students to savor their time at university may facilitate this goal.

Limitations

Positive affect. It is possible that our findings can be accounted for by positive affect. That is, high levels of trait positive affect could lead to more savoring, higher nostalgic engagement, and increased optimism. However, a closer inspection of the literature renders this possibility unlikely. As we discussed earlier, nostalgia is triggered by negative affect, not by positive affect (Wildschut et al., 2006; see Sedikides et al., 2015). Additionally, positive affect does not play a role in the link between nostalgia and optimism (Cheung et al., 2013). Thus, it is unlikely that positive affect underlies the present findings.

Meaningful Experience. It is also possible that our findings can be explained by the extent to which one perceives an on-going experience as personally meaningful. More

specifically, people who perceive an on-going experience as personally meaningful may be more likely to savor it and also more likely to subsequently feel nostalgia about it. This speculation merits empirical scrutiny. Counter to this possibility, however, Bryant (2007) posited that savoring promotes people's quest for personal meaning rather than the opposite. In particular, he argued that savoring "increases the likelihood that one can find purpose, fulfilment, and meaning in one's life" (p.194).

Savoring and optimism. An ancillary objective of our studies was to explain the relation between savoring and optimism (Bryant, 2003). We advanced this objective by demonstrating the mediating role of nostalgia, but we did not fully explain this relation. The size of the indirect effect was not large, suggesting that there are additional mechanisms linking savoring and optimism. Self-efficacy may qualify as such a mechanism. Savoring can be construed as an *ability* to capture the present moment. Having greater ability may increase perceived self-efficacy, which may in turn provide a good reason for being optimistic.

Same focal experience. Another potential limitation is that in all three studies participants responded to both the savoring and nostalgia scales in reference to the same focal experience. This, perhaps, confounds the two variables. If our research objective was to test whether savoring and nostalgia are related at the trait level, then rooting nostalgia and savoring scores in the same experience would have been an issue. We were interested, however, in how a particular life experience subsequently becomes a nostalgic memory, and so we proposed that savoring a life experience is a contributing factor. Hence, we assessed the link between how much participants had savored a particular experience and how much they subsequently felt nostalgic for that same experience. Thus, the method we used is optimal for our research purposes.

Gender. Women were overrepresented in our studies, specifically in Study 1 (77% women) and Study 3 (74% women). Although this is a limitation, we do not think it poses

a threat to our main conclusions. The results of Study 3 (which included only 14 men) were consistent with those of Study 1 (54 men) and Study 2 (74 men). Also, there were no gender differences on savoring, nostalgia, or optimism in any of the studies (all $ps > .05$). Finally, we re-ran all analyses controlling for gender, and all effects remained significant. Nevertheless, future research ought to attain a more representative sample of women and men.

Prior work has shown that women manifest a greater tendency to savor their life experiences (Bryant, 2003). We suspect that the inconsistency between prior work and our research is due to our assessment of specific experiences rather than the general tendency to savor. Additionally, in Studies 2-3, we further confined the savoring measures to the life experience of college attendance.

Conclusion

The present work evidences that savoring is a psychological process that helps turn life experiences into nostalgic memories. It also showed that nostalgia for savored life experiences is associated with an optimistic outlook of the future. In doing so, it helps explain why savoring and optimism are related. These findings set the stage for additional forays into the origins of nostalgic memories, the temporal interplay between cognition and emotion, as well as the role of savoring and nostalgia in emotion regulation and well-being.

Footnotes

1. We re-ran the analyses for all studies controlling for gender. The significance of the reported analyses did not change when controlling for gender.

2. The degrees of freedom were 115 (instead of 120), because five participants did not complete one item.

3. The degrees of freedom were 117 (instead of 120), because three participants did not complete one item.

4. In a correlational context such as this, 'indirect effect' refers to the significant change in relation between two variables when statistically controlling for a mediating variable (Hayes, 2013).

5. Following Goh, Hall, and Rosenthal's (2016) guidelines, we used fixed effects in which the mean correlation was weighted by sample size.

Table 1 [Table 4.1].

Comparison of Alternative Mediational Models

		AIC	ECVI
O	Savoring $\Rightarrow$ Nostalgia $\Rightarrow$ Optimism	14.54	0.12
A1	Optimism $\Rightarrow$ Nostalgia $\Rightarrow$ Savoring	14.54	0.12
A2	Nostalgia $\Rightarrow$ Savoring $\Rightarrow$ Optimism	15.33	0.13
A3	Optimism $\Rightarrow$ Savoring $\Rightarrow$ Nostalgia	15.33	0.13
A4	Savoring $\Rightarrow$ Optimism $\Rightarrow$ Nostalgia	15.32	0.13
A5	Nostalgia $\Rightarrow$ Optimism $\Rightarrow$ Savoring	15.32	0.13

Note. O = Original Model, A = Alternative Model

Table 2 [Table 4.2].

Comparison of Alternative Mediational Models

		AIC	ECVI
O	T1 Savoring $\Rightarrow$ T2 Nostalgia $\Rightarrow$ T2 Optimism	10.65	0.16
A1	T2 Optimism $\Rightarrow$ T2 Nostalgia $\Rightarrow$ T1 Savoring	10.65	0.16
A2	T2 Nostalgia $\Rightarrow$ T1 Savoring $\Rightarrow$ T2 Optimism	18.47	0.28
A3	T2 Optimism $\Rightarrow$ T1 Savoring $\Rightarrow$ T2 Nostalgia	18.47	0.28
A4	T1 Savoring $\Rightarrow$ T2 Optimism $\Rightarrow$ T2 Nostalgia	13.37	0.21
A5	T2 Nostalgia $\Rightarrow$ T2 Optimism $\Rightarrow$ T1 Savoring	13.37	0.21

Note. O = Original Model, A1 = Alternative Model 1, A2 = Alternative Model 2, A3 = Alternative Model 3, A4 = Alternative Model 4, A5 = Alternative Model 5
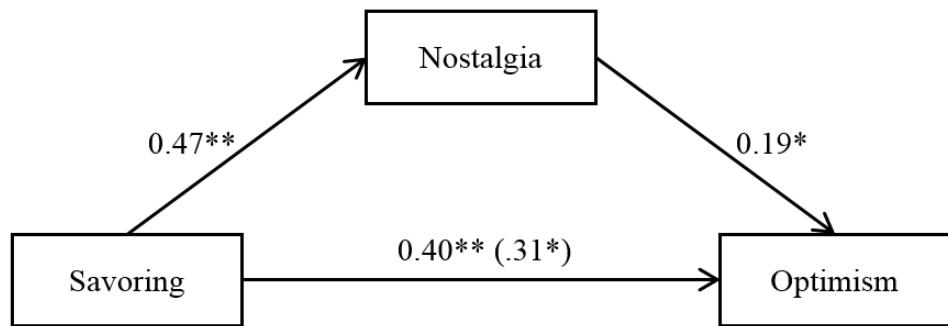
Figure 1 [Figure 4.1]. Indirect effect of savoring on optimism via nostalgia. *p* < .05, **p* < .01.
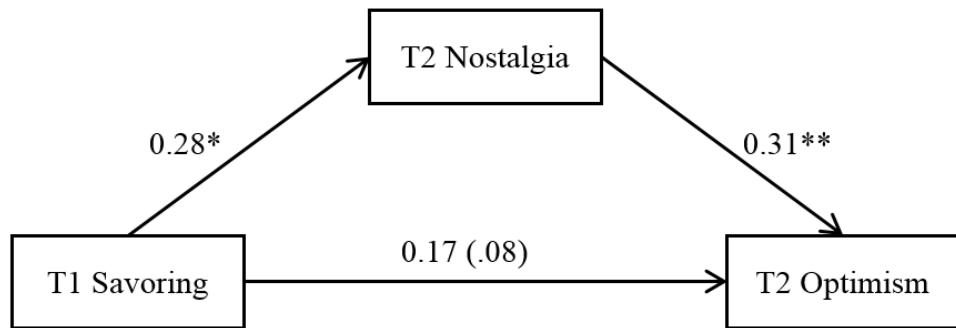
Figure 2 [Figure 4.2]. Indirect effect of T1 savoring on T2 optimism via T2 nostalgia. *p

< .05, **p < .01.

Chapter 5

General Discussion

The key objective of my research was to shed a new light on the psychological dynamics of nostalgia. In this chapter, I will first summarize the key findings of this research. Next, I will discuss the general strengths and limitations of this work, as well as directions for future research. I will then consider the practical implications of the findings. I will end this chapter with a general conclusion.

5.1   Summary of Key Findings

In Chapter 2, I presented three novel studies that investigated the link between nostalgia and spirituality. In Studies 1-2, I examined this link and whether it exists when controlling for Big Five personality traits (Study 2) and whether it varies across key demographics (i.e., gender, age, education level, and household income). I found that nostalgia was related to greater spirituality and that this relation still existed after controlling for core personality traits and key demographics. Additionally, the nostalgia and spirituality relation did not vary across demographic profiles. In Study 3, I conducted an experiment to examine whether nostalgia fosters spirituality and the mechanisms that might explain this effect. I found that nostalgia fostered spirituality serially through self-continuity and meaning in life (nostalgia ⇒ self-continuity ⇒ meaning in life ⇒ spirituality). Taken together, these convergent findings provide evidence demonstrating the link between nostalgia and spirituality.

In Chapter 3, I presented an experiment that investigated the protective role of nostalgia against life uncertainty. In particular, I examined whether nostalgia buffers the negative effect of life uncertainty on self-continuity. I found that life uncertainty reduced self-continuity, but only for those low in nostalgia proneness, not those high in nostalgia

proneness. I also found that life uncertainty reduced self-continuity, but only for participants who recalled a recent (i.e., yesterday) autobiographical event, not those who recalled a nostalgic event. In short, this research illustrates that nostalgia preserves self-continuity in the face of life uncertainty.

In Chapter 4, I presented three studies that investigated whether savouring is implicated in the creation of nostalgic memories. In Study 1, I examined whether having savoured an event is related to greater nostalgia for the event upon recalling it. Indeed, retrospective reports of having savoured a specific event were associated with greater nostalgia for it. In Study 2, I examined whether having savoured a time period (i.e., attending university) is associated with greater nostalgia for that time period. I also examined whether nostalgia for that savoured period is related to greater optimism. Retrospective reports of savouring university time were associated with greater nostalgia for it. Further, nostalgia for that savoured time period was associated with greater optimism. In Study 3, I examined the longitudinal relation between savouring an experience (i.e., attending university) and subsequent nostalgia for the experience. I also examined whether nostalgia for the savoured experience is related to greater optimism. I found that savouring university time was associated with greater nostalgia for it 4-9 months later. Additionally, nostalgia for that savoured experience was associated with greater optimism. Together, these studies provide consistent evidence demonstrating that savouring is involved in the formation of nostalgic memories. Additionally, people's current nostalgic sentiments for an experience that they had previously savoured predicts greater optimism for the future.

5.2   Strengths

This research expands the current understanding of nostalgia in three key ways. First, it uncovers an additional psychological effect of nostalgia (i.e., spirituality). Prior to

my research, some scholars had loosely speculated that nostalgia is linked to spirituality (Boym, 2001; Harper, 1966; Jacoby, 1985). However, there was no research expanding upon these speculations. In the nostalgia and spirituality paper, I theoretically developed and empirically tested the link between nostalgia and spirituality, and found that nostalgia increases spirituality. Second, the present work revealed an additional psychological threat against which nostalgia buffers (i.e., life uncertainty). Specifically, in the uncertainty and nostalgia paper, I demonstrated that nostalgia buffers against the negative effect of life uncertainty on self-continuity. Finally, the current work provides the first empirical evidence for the origins of nostalgic memories. Although past research has clarified what nostalgia is, as well as its psychological effects (Sedikides et al., 2015), no work had addressed the psychological processes implicated in the creation of nostalgic memories. I addressed this in the savouring and nostalgia paper, showing that savouring is a psychological process that helps turn life experiences into nostalgic memories. In all, the present work provides novel insights into the psychological dynamics of nostalgia.

Another strength of the current research is that I deployed diverse methodological approaches. For example, in the uncertainty and nostalgia paper, I assessed nostalgia by both measuring trait levels of nostalgia and experimentally inducing state levels of nostalgia. This methodological approach strengthens the validity of the finding that nostalgia buffers the negative effect of life uncertainty on self-continuity. Relatedly, in the nostalgia and spirituality paper, I combined correlational and experimental approaches, and found that nostalgia is positively associated with, and fosters, spirituality. Lastly, in the savouring and nostalgia paper, I assessed the savouring and nostalgia relation in both a laboratory setting, and a more naturalistic setting (i.e., alumni reunion event). This approach bolsters the ecological validity of the finding that savouring is associated with greater nostalgia. I also replicated this finding using a longitudinal design.

An additional strength of the present research is that I used heterogeneous samples of participants in an attempt to generalize my findings to a broad population. For example, in the savouring and nostalgia paper, I recruited both university students and older adults, and demonstrated that the savouring and nostalgia relation exists among student and community populations. Furthermore, in the uncertainty and nostalgia paper, I recruited participants online via Amazon's Mechanical Turk (Mturk). Mturk reaches a more diverse population than a typical student sample and even some community samples (Buhrmester, Kwang, & Gosling, 2011). Lastly, in the nostalgia and spirituality paper, I relied on both student and community samples, and recruited participants from two countries (United Kingdom, the Netherlands). In particular, I used survey data available from the Longitudinal Internet Studies for the Social Sciences (LISS) panel. The LISS panel is a representative sample of the Dutch population that is based on a true probability sampling. Probability-based panels are generally preferable to those that rely on nonprobability methods as they are more representative to a target population (Blom et al., 2016; Reg et al., 2010).

5.3   Limitations and Future Directions

Although I used samples of people from a broader population, the samples were predominantly from Western cultures (i.e., United Kingdom, USA, and the Netherlands). This raises the possibility that the findings of the current work may not be generalized to Eastern cultures. Although I did not draw participants from Eastern cultures, past nostalgia research has done so, illustrating that nostalgia functions similarly across Western cultures and Eastern cultures. Specifically, nostalgia predicts greater empathy, fosters social intimacy, and promotes social approach for people from Eastern cultures (i.e., China; Stephan et al., 2014; Zhou et al., 2008; Zhou, Wildschut, Sedikides, Chen, & Vingerhoets, 2012; Zhou et al., 2012) as it does for people from Western cultures (i.e., USA, UK,

Ireland, The Netherlands; Abeyta, Routledge, & Juhl, 2015; Juhl et al., 2015; Wildschut et al., 2006). On this basis, it is less likely that the findings of the present work are limited to Western cultures.

Nonetheless, it is important for future research to examine the generalizability of the findings to Eastern cultures. For example, cross-cultural research on savouring has shown that culture influences the extent to which people savour an experience. In particular, people generally tend to savour rather than dampen their positive experiences, but this tendency is less pronounced for Eastern cultures than it is for Western cultures (Miyamoto & Ma, 2011). This is not surprising given that positive emotions are perceived to be more desirable in Western cultures compared to Eastern cultures, while negative emotions are considered to be more undesirable in Western cultures compared to Eastern cultures (Eid & Diener, 2001). Thus, the relation between savouring and nostalgia may not operate in similar ways across Western and Eastern cultures. That is, savouring may be less likely to contribute to the creation of nostalgic memories for Easterners than Westerners. Future research should explore this possibility.

A further limitation of the current research is the cross-sectional nature of the majority of the studies (except for Study 3 in the savouring and nostalgia paper). A cross-sectional design cannot capture the ways nostalgia functions as part of people's daily life. Future research should consider using daily diary methods to investigate how nostalgia is associated with relevant constructs on a day-to-day or even moment-to-moment basis. For example, people who feel nostalgic at the same time that they feel uncertainty may be more likely to maintain self-continuity in their daily life. Relatedly, people who feel uncertainty and nostalgia as they strive to attain a challenging goal (e.g., interview job) may show increased tolerance for this uncertainty. Daily diary studies could also elucidate the interplay between nostalgia and spirituality on a daily basis. For example, people may be more likely to feel a greater sense of self-continuity and meaning in life on days, or even at

moments when they feel nostalgic. And because of this co-occurrence of nostalgia, self-continuity and meaning in life, people may also be more likely to come in touch with their spiritual side.

An additional limitation of the current work is that the results did not exactly conform to the hypotheses. For example, this was the case in the savouring and nostalgia paper. Although the findings of Study 2 demonstrated a significant relation between savouring and optimism, those of Study 3 showed that this relation was not significant. Given that the size of the savouring and optimism relation in both of these studies was comparable, the lack of significance in (longitudinal) Study 3 was likely due to the limited number of participants who took part at both time points ($N = 66$). Indeed, a meta-analysis assessing the correlation across the two studies demonstrated a significant relation between savouring and optimism.

Relatedly, in the nostalgia and spirituality paper, the main effect of nostalgia on spirituality was only marginally significant, yet the postulated indirect effect of nostalgia on spirituality (nostalgia $\Rightarrow$ self-continuity $\Rightarrow$ meaning in life $\Rightarrow$ spirituality) was significant. Although these findings suggest that nostalgia fosters spirituality through self-continuity and meaning in life, they also suggest that the main effect of nostalgia on spirituality is weak. However, the indirect effect of nostalgia on spirituality is of value. Mediation analyses can be used to reveal interesting indirect effects, even if there is a marginally significant or non-significant main effect (Hayes, 2009, 2013; MacKinnon, Krull, & Lockwood, 2000; Shrout & Bolger, 2002).

In a similar vein, in the uncertainty and nostalgia paper, the interaction between life uncertainty and manipulated nostalgia was only marginally significant. This could be due to the fact that the nostalgia manipulation was after the uncertainty induction. As mentioned, we experimentally induced nostalgia by asking half of the participants to recall a nostalgic event (nostalgia condition) and the rest to recall a recent (i.e., yesterday)

autobiographical event (control condition). It is possible that within the control condition, the life uncertainty induction may have increased nostalgia as a way to manage feelings of life uncertainty. To eliminate this possibility, future research could use a control condition which aims to block participants from experiencing nostalgia. Van Tilburg, Sedikides, and Wildschut (2018), for example, used a cognitive load task (i.e., counting backwards) to accomplish this.

5.4   **Practical Implications**

My research has potential therapeutic implications. Generally speaking, my work has revealed that nostalgia's effects are beneficial. In particular, nostalgia predicts greater optimism, enhances self-continuity, and increases meaning in life. In addition, nostalgia promotes spirituality which is a predictor of greater well-being (Ellison & Fan, 2008; Kelley & Miller, 2007). As reviewed in the introduction, nostalgia confers additional benefits, such as increased social connectedness and self-esteem. Given these beneficial effects, it is likely that nostalgia could have therapeutic implications.

To begin, research suggests that nostalgia itself could be a therapeutic treatment. First, nostalgia can be elevated via interventions. Kersten, Cox, and Van Enkevort (2016) conducted one such intervention by inducing nostalgia (via the ERT) three times over a period of two weeks. Following this period, they assessed a behavioural outcome (i.e., physical activity). This repeated nostalgic reflection led to greater physical activity. Second, nostalgia may benefit clinical population as it does for non-clinical populations. One research programme in progress is investigating the nostalgia's effect on individuals with dementia (Christopher, Cheston, Dodd, Wildschut, & Sedikides, 2017; Ismail, 2017; Ismail, Cheston, Christopher, & Meyrick, 2018). Preliminary evidence has demonstrated that for those who have mild-to-moderate dementia, reflecting on nostalgic memories results in greater self-esteem, self-continuity, optimism, social connectedness, and meaning

in life. Third, psychological treatments that are based on reflecting upon personally

important memories, such as life review and reminiscence therapies, have been implicated

in the promotion of psychological health (Bohlmeijer, Smit, & Cuijpers, 2003; Pinquart &

Forstmeier, 2012). For example, such therapies are effective at treating mood disorders,

especially depressive symptoms (Bohlmeijer et al., 2003; Chin, 2007; Hsieh & Wang,

2003). In all, the implementation of nostalgia as a therapeutic treatment appears promising.

Nostalgia may have therapeutic implications, not only as an independent

therapeutic treatment, but also as a means of enhancing existing psychological treatments.

Life review therapy is a case in point. In clinical setting, life review therapy involves a

highly structured evaluation of one's life that aims at coping with negative experiences,

encouraging self-continuity, and providing a meaning to life (Haight, 1992; Pinquart &

Forstmeier, 2012; Westerhof, Bohlmeijer, Van Beljouw, & Margriet, 2010). Although life

review therapy involves the use of the past as a psychological resource, it does not do so

via a specific focus on nostalgic memories. In other words, life review therapy does not

make a distinction between nostalgic recollection and non-nostalgic recollection. As

discussed, nostalgia fosters self-continuity and meaning in life, and it does so to a greater

extent than other (ordinary, recent past, or positive) autobiographical memories. This

suggests that nostalgia may be incorporated in life review therapy to enhance its efficacy.

5.5   **General Conclusion**

The current thesis *shed*s *new light on nostalgia*. In the first paper, I provided

empirical evidence for the, previously undocumented, psychological *consequences* of

nostalgia on spirituality. In the second paper, I revealed that nostalgia acts as a *buffer*,

preserving self-continuity in the face of life uncertainty. In the third paper, I unearthed a

psychological process, that is savouring, that contributes to the *origins* of nostalgia. These

findings pave the way for exciting avenues of research and have important implications.

Appendix A

Central and Peripheral Features of Nostalgia (Hepper et al., 2012)

Feature	Exemplars Written by Participants
Central	
Memory/Memories	Memory, past memories
The past	Past, days gone by, old times
Fond memories	Fond memories, funny moments, good old days
Remembering	Remember, recall, looking back
Reminiscence	Reminiscence, reminiscing
Feeling	Emotions, feelings, sentimental
Personal Meaning	Personal, values, special
Longing/yearning	Longing, yearn, yearning for what was
Social relationships	Friends, family, relationships, love, sharing
Memorabilia/keepsakes	Keepsakes, old photos, memorabilia
Rose-tinted memory	Better days, rose-tinted, idealized
Happiness	Happy, positive, enjoy, smiles
Childhood/youth	Childhood experiences, school, youth
Sensory triggers	Reminders, familiar smells, music
Thinking	Thought, thinking, introspect, contemplation
Reliving/dwelling	Relive the past, dwelling, immerse in memories
Missing	Missing, miss someone, loss
Want to return to past	Want to go back in time, want to live in the past
Peripheral Features	
Comfort/warmth	Comfort, warm glow, sense of security
Wishing/desire	Wish, desire, wishful
Dreams/daydreaming	Dreaming, daydream, staring into space
Mixed feelings	Bittersweet, happiness and sadness at same time
Change	Change, moving on, future
Calm/relaxed	Calm, peaceful, relaxed
Regret	Regret, remorse, missed opportunities
Homesickness	Homesick, homesickness, home-missing
Prestige/success	Achieving, success, prestige
Aging/old people	Age, ageing, old people
Loneliness	Lonely, unloved, loneliness
Sadness/depressed	Sad, cry, depressed, grief
Negative past	Bad times, past pain, sad events
Distortions/illusions	Illusions, distorted view of past, false memories
Solitude	Introversion, solitary, withdrawn

Appendix A

Pain/anxiety	Distress, anxiety, pain, nausea, heart-wrenching
Lethargy/laziness	Apathy, lethargic, lazy, bored

Appendix B

Materials used in Empirical Paper I

B.1   Questionnaires in Study 1

Nostalgia (Southampton Nostalgia Scale)

According to the Oxford Dictionary, 'nostalgia' is a 'sentimental longing for the past.' Specifically, nostalgia is when we think fondly about our past, and when we miss times or people from our past.

Please respond to each of the following items.

1. How valuable is nostalgia for you?

1	2	3	4	5	6	7
Not at all						Very much

2. How important is it for you to bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Not at all						Very much

3. How significant is it for you to feel nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

4. How prone are you to feeling nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

5. How often do you experience nostalgia?

1	2	3	4	5	6	7
Very rarely						Very frequently

6. Generally speaking, how often do you bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Very rarely						Very frequently

7. Specifically, how often do you bring to mind nostalgic experiences?

_____ At least three times a day

_____ One or two times a day

_____ Approximately once every two days

_____ Approximately twice a week

_____ Approximately once a week

_____ Once every two weeks

_____ Once a month or less

Nostalgia (Batcho Nostalgia Inventory)

Please indicate how nostalgic you feel about each of the 20 persons, situations, or events below. Indicate your answer using the scale provided.

1	2	3	4	5
Not at all nostalgic				Very nostalgic

How nostalgic do you generally feel about…

1. _____ my family

2. _____ vacations I went on

3. _____ places

4. _____ music

5. _____ someone I loved

6. _____ my friends

7. _____ things I did

8. _____ my childhood toys

9. _____ the way people were

10. _____ my heroes/heroines

11. _____ feelings I had

12. _____ my school

13. _____ having someone to depend on

14. _____ not having to worry

15. _____ the way society was

16. _____ my pets

17. _____ not knowing sad or evil things

18. _____ TV shows, movies

19. _____ my family house

20. _____ my church/religion

Spirituality (Intrinsic Spirituality Scale)

According to Oxford Dictionary, spirituality is defined as the quality of being concerned with the human spirit as opposed to material or physical things.

The items in this scale use a sentence completion format to measure various attributes associated with spirituality. Each item is a sentence fragment, followed by two phrases that are linked to a scale ranging from 0 to 10. For each item, use this scale to respond.

1. In terms of the questions I have about life, my spirituality answers…

0	1	2	3	4	5	6	7	8	9	10
No questions										Absolutely all my questions

2. Growing spirituality is…

0	1	2	3	4	5	6	7	8	9	10
Of no importance to me										More important than anything else in my life

3. When I am faced with an important decision, my spirituality...

0	1	2	3	4	5	6	7	8	9	10
Plays absolutely no role										Is always the overriding consideration

4. Spirituality is…

0	1	2	3	4	5	6	7	8	9	10
Not part of my life										The master motive of my life, directing every other aspect of my life
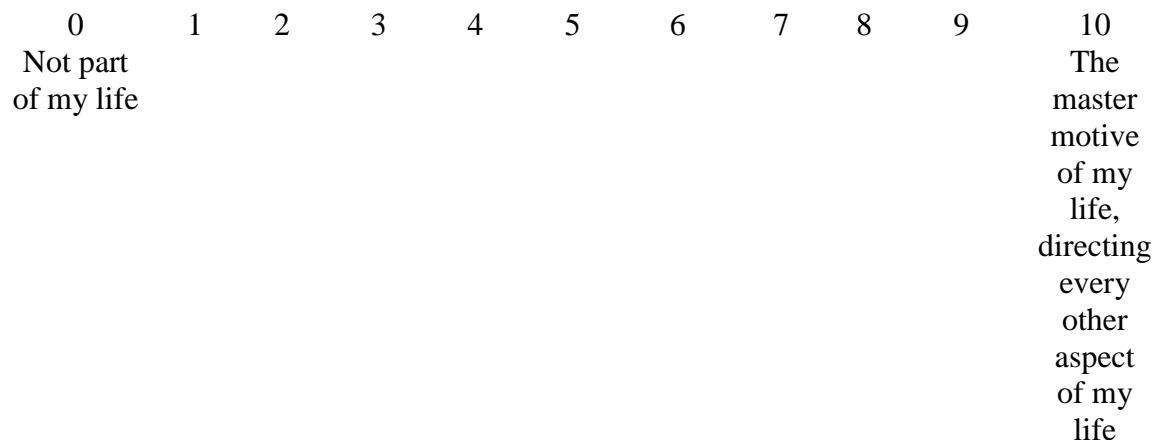
5. When I think of the things that help me to grow and mature as a person, my spirituality…

0	1	2	3	4	5	6	7	8	9	10
Has no effect on my personal growth										Is absolutely the most important factor in my personal growth

6. My spirituality beliefs affect…

0	1	2	3	4	5	6	7	8	9	10
No aspect of my life										Absolutely every
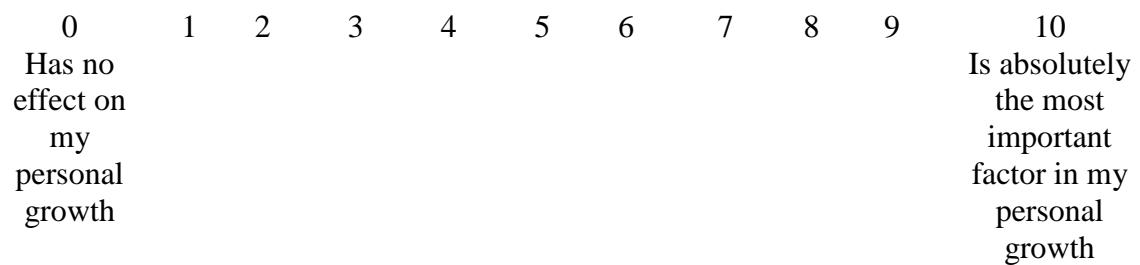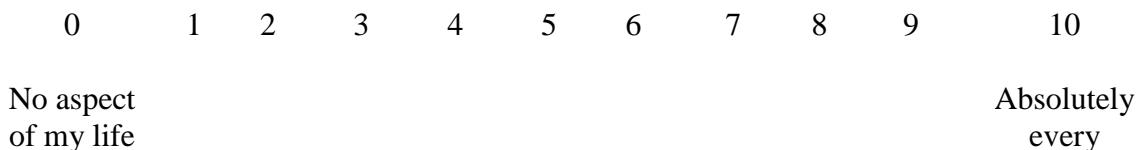
aspect of
my life

Demographics

Please indicate your sex: ☐ Male   ☐ Female   ☐ Other

Please indicate your age: _____ years

B.2   Questionnaires in Study 2

Demographics

Please indicate your sex: ☐ Male   ☐ Female

Please indicate your age: _____ years

Please indicate your gross household income: _____ Euros

How would you describe your highest level of education?

☐ primary school (US: elementary school)
☐ vmbo (intermediate secondary education, US: junior high school)
☐ havo/vwo (higher secondary education/preparatory university education, US: senior high school)
☐ mbo (intermediate vocational education, US: junior college)
☐ hbo (higher vocational education, US: college)
☐ wo (university education)
☐ other
☐ Not yet completed any education
☐ Not (yet) started any education

How would you describe your relationship status?

☐ Married
☐ Separated
☐ Divorced
☐ Widow or Widower
☐ Never been married

Nostalgia (Southampton Nostalgia Scale)

This questionnaire is about nostalgia. By nostalgia we mean a kind of sentimental longing for the past, or for activities and things from the past.

Please respond to each of the following items.

1. How valuable is nostalgia for you?

1	2	3	4	5	6	7
Not at all						Very much

2. How important is it for you to bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Not at all						Very much

3. How significant is it for you to feel nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

4. How prone are you to feeling nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

5. How often do you experience nostalgia?

1	2	3	4	5	6	7
Very rarely						Very frequently

6. Generally speaking, how often do you bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Very rarely						Very frequently

7. Specifically, how often do you bring to mind nostalgic experiences?

_____ At least three times a day

_____ One or two times a day

_____ Approximately once every two days

_____ Approximately twice a week

_____ Approximately once a week

_____ Once every two weeks

_____ Once a month or less

Nostalgia (Batcho Nostalgia Inventory)

By nostalgia we mean a kind of sentimental longing for the past, or for activities and things from the past.

Please rate the extent to which you feel nostalgic about each of the following aspects of your past.

1	2	3	4	5	6	7
Not at all nostalgic						Very nostalgic

1. _____ my family   11. _____ feelings I had

2. _____ vacations I went on   12. _____ my school

3. _____ places   13. _____ having someone to depend on

4. _____ music   14. _____ not having to worry

5. _____ someone I loved   15. _____ the way society was

6. _____ my friends   16. _____ my pets

7. _____ things I did   17. _____ not knowing sad or evil things

8. _____ my childhood toys   18. _____ TV shows, movies

9. _____ the way people were   19. _____ my family house

10. _____ my heroes/heroines   20. _____ my church/religion

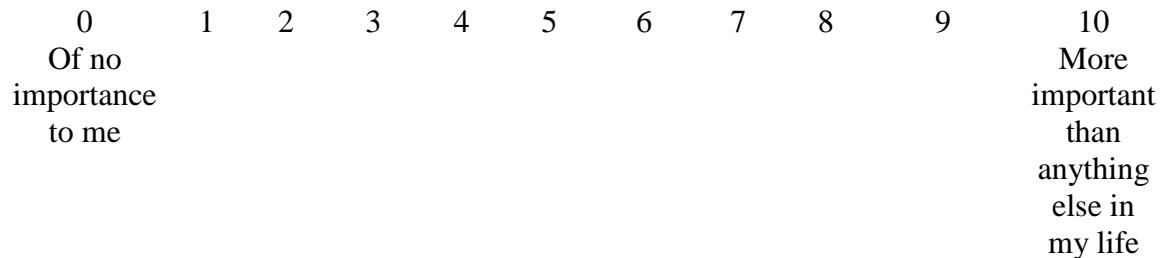**Spirituality (Experiences of Non-Religious Transcendence)**

Which of the following experiences have you had?

1. A feeling of connectedness to a universal power

        1   2   3
   No, not at all   Yes,   Yes, often
                     sometimes

2. An experience in which I seemed to become part of a power greater than myself

        1   2   3
   No, not at all   Yes,   Yes, often
                     sometimes

3. A concurrence of events in my life which made me feel: this is cannot be a coincidence

        1   2   3
   No, not at all   Yes,   Yes, often
                     sometimes

4. An experience in which the nature of reality became clear to me

        1   2   3
   No, not at all   Yes,   Yes, often
                     sometimes

5. An experience in which all things seemed part of a larger whole

        1   2   3
   No, not at all   Yes,   Yes, often
                     sometimes

6. An experience in which everything seemed perfect

        1   2   3
   No, not at all   Yes,   Yes, often
                     sometimes

Big Five traits

On the following pages, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. Please read each statement carefully, and then fill in the bubble that corresponds to the number on the scale.

Please use the rating scale below to describe how accurately each statement describes *you*.

1	2	3	4	5
Very inaccurate	Moderately inaccurate	Neither inaccurate nor accurate	Moderately accurate	Very accurate

1. Am the life of the party.

1	2	3	4	5
Very inaccurate				Very accurate

2. Feel little concern for others.

1	2	3	4	5
Very inaccurate				Very accurate

3. Am always prepared.

1	2	3	4	5
Very inaccurate				Very accurate

4. Get stressed out easily.

1	2	3	4	5
Very inaccurate				Very accurate

5. Have a rich vocabulary.

1	2	3	4	5
Very inaccurate				Very accurate

6. Don't talk a lot.

1	2	3	4	5
Very inaccurate				Very accurate

7. Am interested in people.

1	2	3	4	5
Very inaccurate				Very accurate

8. Leave my belongings around.

1	2	3	4	5
Very inaccurate				Very accurate

9. Am relaxed most of the time.

1	2	3	4	5
Very inaccurate				Very accurate

10. Have difficulty understanding abstract ideas.

1	2	3	4	5
Very inaccurate				Very accurate

11. Feel comfortable around people.

1	2	3	4	5
Very inaccurate				Very accurate

12. Insult people.

1	2	3	4	5
Very inaccurate				Very accurate

13. Pay attention to details.

1	2	3	4	5
Very inaccurate				Very accurate

14. Worry about things.

1	2	3	4	5
Very inaccurate				Very accurate

15. Have a vivid imagination.

1	2	3	4	5
Very inaccurate				Very accurate

16. Keep in the background.

1	2	3	4	5
Very inaccurate				Very accurate

17. Sympathize with others' feelings.

1	2	3	4	5

     Very
     inaccurate

                                    Very
                                    accurate

18. Make a mess of things.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

19. Seldom feel blue.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

20. Am not interested in abstract ideas.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

21. Start conversations.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

22. Am not interested in other people's problems.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

23. Get chores done right away.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

24. Am easily disturbed.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

25. Have excellent ideas.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

26. Have little to say.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

27. Have a soft heart.

   1   2   3   4   5
 Very   Very
inaccurate   accurate

28. Often forget to put things back in their proper place.

1	2	3	4	5
Very inaccurate				Very accurate

29. Get upset easily.

1	2	3	4	5
Very inaccurate				Very accurate

30. Do not have a good imagination.

1	2	3	4	5
Very inaccurate				Very accurate

31. Talk to a lot of different people at parties.

1	2	3	4	5
Very inaccurate				Very accurate

32. Am not really interested in others.

1	2	3	4	5
Very inaccurate				Very accurate

33. Like order.

1	2	3	4	5
Very inaccurate				Very accurate

34. Change my mood a lot.

1	2	3	4	5
Very inaccurate				Very accurate

35. Am quick to understand things.

1	2	3	4	5
Very inaccurate				Very accurate

36. Don't like to draw attention to myself.

1	2	3	4	5
Very inaccurate				Very accurate

37. Take time out for others.

1	2	3	4	5
Very inaccurate				Very accurate

38. Shirk my duties.

1	2	3	4	5

	Very inaccurate				Very accurate

39. Have frequent mood swings.

1	2	3	4	5
Very inaccurate				Very accurate

40. Use difficult words.

1	2	3	4	5
Very inaccurate				Very accurate

41. Don't mind being the center of attention.

1	2	3	4	5
Very inaccurate				Very accurate

42. Feel others' emotions.

1	2	3	4	5
Very inaccurate				Very accurate

43. Follow a schedule.

1	2	3	4	5
Very inaccurate				Very accurate

44. Get irritated easily.

1	2	3	4	5
Very inaccurate				Very accurate

45. Spend time reflecting on things.

1	2	3	4	5
Very inaccurate				Very accurate

46. Am quiet around strangers.

1	2	3	4	5
Very inaccurate				Very accurate

47. Make people feel at ease.

1	2	3	4	5
Very inaccurate				Very accurate

48. Am exacting in my work.

1	2	3	4	5
Very inaccurate				Very accurate

49. Often feel blue.

1	2	3	4	5
Very inaccurate				Very accurate

50. Am full of ideas.

1	2	3	4	5
Very inaccurate				Very accurate

B.3   Tasks and Questionnaires in Study 3

Nostalgia Condition

According to the Oxford Dictionary, 'nostalgia' is defined as a 'sentimental longing for the past.'

Please think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience and spend a couple minutes thinking about how it makes you feel.

Now, please write down four keywords relevant to this nostalgic event (i.e., words that describe the experience).

Keywords that describe my nostalgic experience:

_____
_____
_____
_____

[Next Page]

Using the space provided below, for the next few minutes, we would like you to write about the nostalgic event. Immerse yourself into this nostalgic experience. Describe the experience and how it makes you feel.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Ordinary Condition

Please bring to mind an ordinary event in your life. Specifically, try to think of a past event that is ordinary. Bring this ordinary experience to mind. Immerse yourself in the ordinary experience and spend a couple minutes thinking about how it makes you feel.

Please write down four keywords relevant to this ordinary event (i.e., words that describe the experience).

Keywords that describe my ordinary experience:

_____
_____
_____
_____

[Next Page]

Using the space provided below, for the next few minutes, we would like you to write about the ordinary event. Immerse yourself into this experience. Describe the experience and how it makes you feel.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Self-Continuity

For the statements on the follow pages, indicate how thinking about the event you just wrote about makes you feel. Please do so by indicating the extent to which you agree with each statement.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

With this event in mind, I feel…

…connected with my past.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…connected with whom I was in the past.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…there is continuity in my life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…that important aspects of my personality remain the same across time.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Meaning in Life

For the statements on the follow pages, indicate how thinking about the event you just wrote about makes you feel. Please do so by indicating the extent to which you agree with each statement.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

With this event in mind, I feel...

…that life is meaningful.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…that life has a purpose.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…that there is a greater purpose to life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…that life is worth living.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Spirituality

For the statements on the follow pages, indicate how thinking about the event you just wrote about makes you feel. Please do so by indicating the extent to which you agree with each statement.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

With this event in mind, I feel…

…my spirituality answers my questions.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…that growing spiritually is important in my life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…my spirituality is central when I am faced with an important decision.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…that spirituality is a primary motive of my life, directing other aspect of my life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…my spirituality is an important factor in my personal growth.

1	2	3	4	5	6
Strongly disagree					Strongly agree

…my spiritual beliefs affect many aspect of my life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Manipulation Check

According to the Oxford English Dictionary, "nostalgia" is defined as "a sentimental longing for the past."

The following statements refer to how you felt while you wrote about the event from your past. How did you feel during that task? Please indicate your agreement or disagreement with each statement using the scale provided.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

During the task, I was feeling quite nostalgic.

1	2	3	4	5	6
Strongly disagree					Strongly agree

During the task, I was having nostalgic feelings.

1	2	3	4	5	6
Strongly disagree					Strongly agree

I was feeling nostalgic during the task.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Demographics

Appendix B   Materials used in Empirical Paper I

Please indicate your sex: ☐ Male   ☐ Female   ☐ Other

Please indicate your age: _____ years

Appendix C

Materials used in Empirical Paper II

C.1   Tasks and Questionnaires

Life-Uncertainty Condition

People face a lot of uncertainties in life. For instance, they are typically uncertain about their job or career, relationships, and financial stability.

In the space below, make a detailed list of the specific uncertainties you face in your life. (Do not explain each uncertainty. You'll do that on the following page.)

_____
_____
_____
_____

[Next Page]

We now want you to think a bit harder about the uncertainties that you listed on the previous page. Using the space below, please explain in detail your thoughts on these uncertainties and how they make you feel. Please spend around five minutes writing.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Life-Certainty Condition

People face a lot of certainties in life. For instance, they are typically certain about the hobbies they have, the types of food they generally eat and the friends they tend to see.

In the space below, make a detailed list of the specific certainties you have in your life. (Do not explain each certainty. You'll do that on the following page.)

_____
_____
_____
_____

[Next Page]

We now want you to think a bit harder about the certainties that you listed on the previous page. Using the space below, please explain in detail your thoughts on these certainties and how they make you feel. Please spend around five minutes writing.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Nostalgia Condition

According to the Oxford Dictionary, 'nostalgia' is defined as a 'sentimental longing for the past.'

Please think of a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic. Bring this nostalgic experience to mind. Immerse yourself in the nostalgic experience and spend a couple minutes thinking about it and how it makes you feel.

Now, please type four keywords relevant to this nostalgic event (i.e., words that describe the experience).

_____
_____
_____
_____

Yesterday Condition

Please bring to mind the activities of your day yesterday. Specifically, try to think of the series of events that took place throughout your day. Bring these to mind and spend a couple minutes thinking about them.

Please type four keywords relevant to the yesterday's activities (i.e., words that describe what you did yesterday).

_____
_____
_____
_____

Self-continuity

Please indicate the extent to which you agree with the following statements based on how you <u>currently</u> feel.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

1. I feel connected with my past.

1	2	3	4	5	6
Strongly disagree					Strongly agree

2. I feel connected with whom I was in the past.

1	2	3	4	5	6
Strongly disagree					Strongly agree

3. I feel there is continuity in my life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

4. I feel that important aspects of my personality remain the same across time.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Demographics

Please indicate your sex: ☐ Male   ☐ Female   ☐ Other

Please indicate your age: _____ years

Nostalgia (Southampton Nostalgia Scale)

According to the Oxford Dictionary, 'nostalgia' is a 'sentimental longing for the past.'

Please respond to each of the following items.

1. How valuable is nostalgia for you?

1	2	3	4	5	6	7
Not at all						Very much

2. How important is it for you to bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Not at all						Very much

3. How significant is it for you to feel nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

4. How prone are you to feeling nostalgic?

1	2	3	4	5	6	7
Not at all						Very much

5. How often do you experience nostalgia?

1	2	3	4	5	6	7
Very rarely						Very frequently

6. Generally speaking, how often do you bring to mind nostalgic experiences?

1	2	3	4	5	6	7
Very rarely						Very frequently

7. Specifically, how often do you bring to mind nostalgic experiences?

_____ At least three times a day

_____ One or two times a day

_____ Approximately once every two days

_____ Approximately twice a week

_____ Approximately once a week

_____ Once every two weeks

_____ Once a month or less

Appendix D

Materials used in Empirical Paper III

D.1   Tasks and Questionnaires in Study 1

Demographics

Please indicate your sex: ☐ Male   ☐ Female

Please indicate your age: _____ years

Positive Event Writing Task

Please bring to mind a positive event in your adulthood. Specifically, try to think of a past event that is positive. Bring this positive experience to mind. Immerse yourself in the positive experience and think about how it makes you feel. Spend at least 2 minutes doing so. After this time you may move on to the next screen when you are ready.

[Next Page]

Please write down **four keywords relevant to this positive event (i.e., words that describe the experience).**
_____
_____
_____
_____

[Next Page]

Using the space provided below, we would like you to write about the positive event. Spend at least 5 minutes on immersing yourself into this experience. Describe the experience and how it makes you feel. After this time you may move on to the next screen when you are ready.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Savouring

Please continue to think about the event that you just described, as you answer the following questions.

Select an option to indicate how much you personally agree or disagree with each statement about your feelings when the event occurred.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

When the event occurred, I felt that....

...I knew how to make the most of the good parts of the event

1	2	3	4	5	6
Strongly disagree					Strongly agree

...I found it hard to hang onto a good feeling.

1	2	3	4	5	6
Strongly disagree					Strongly agree

...I could prolong enjoyment of the event by my own effort.

1	2	3	4	5	6
Strongly disagree					Strongly agree

... I was my own worst enemy in enjoying the event.

1	2	3	4	5	6
Strongly disagree					Strongly agree

...I felt fully able to appreciate the good things about the event.

1	2	3	4	5	6
Strongly disagree					Strongly agree

... I couldn't seem to capture the joy of the happy moments.

1	2	3	4	5	6
Strongly disagree					Strongly agree

...I found it easy to enjoy myself when I wanted to.

1	2	3	4	5	6
Strongly disagree					Strongly agree

... I didn't enjoy the event as much as I should have.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Nostalgia

Please continue to think about the event you described. The following questions concern how you feel RIGHT NOW, while you think about this event.

According to the Oxford English Dictionary, nostalgia is a sentimental longing or wistful affection for the past.

Please rate how much you agree or disagree with each statement about the event you described.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

1. Thinking about the event I described leaves me feeling nostalgic.

1	2	3	4	5	6
Strongly disagree					Strongly agree

2. I feel nostalgic when I think about the event I described.

1	2	3	4	5	6
Strongly disagree					Strongly agree

3. The event I described is a nostalgic experience for me.

1	2	3	4	5	6
Strongly disagree					Strongly agree

D.2   Questionnaires in Study 2

Savouring

When You Were at the University of Southampton

Think back to your time at the University, and how you felt about and appreciated life **while you were there**.

During my time at university…	*Strongly disagree*					*Strongly agree*
I felt fully able to appreciate good things that happened to me.	1	2	3	4	5	6
I could not seem to capture the joy of happy moments.	1	2	3	4	5	6
I could make my enjoyment of good moments last longer by thinking or doing certain things.	1	2	3	4	5	6
It was hard for me to hang onto a good feeling for very long.	1	2	3	4	5	6

Nostalgia

Your Feelings Right Now

Think about your experience of **coming back to the University today**, and how it is making you feel.

Right now…	*Strongly disagree*					*Strongly agree*
I am feeling nostalgic about my time at the University of Southampton.	1	2	3	4	5	6
I am having nostalgic feelings about my time at the University of Southampton.	1	2	3	4	5	6

Optimism

Thinking about my time at the University, I feel…	*Strongly disagree*					*Strongly agree*
…optimistic about my future.	1	2	3	4	5	6
…hopeful about my future.	1	2	3	4	5	6

Demographics

About You

Age: _____

Gender: Male   Female

D.3   Questionnaires in Study 3 (Time 1)

Savouring

In your final year, did you consciously try to save the memories **in your mind** for later?

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

Demographics

Age: _____

Gender: Male   Female

Personal email address: _____

D.4   Questionnaires in Study 3 (Time 2)

Demographics

Please indicate your sex: ☐ Male   ☐ Female

Please indicate your age: _____ years

Nostalgia

Please rate how much you agree or disagree with each statement about your university life.

According to the Oxford English Dictionary, nostalgia is "sentimental longing or wistful affection for the past."

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

1. Thinking about my university life leaves me feeling nostalgic.

1	2	3	4	5	6
Strongly disagree					Strongly agree

2. I feel nostalgic when I think about my university life.

1	2	3	4	5	6
Strongly disagree					Strongly agree

3. My university life is a nostalgic experience for me.

1	2	3	4	5	6
Strongly disagree					Strongly agree

Optimism

Please rate how much you agree or disagree with each statement about your university life.

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

Thinking about my University life makes me feel…

... optimistic about my future.

1	2	3	4	5	6
Strongly disagree					Strongly agree

... ready to take on new challenges.

1	2	3	4	5	6
Strongly disagree					Strongly agree

List of References

Abeyta, A., Routledge, C., & Juhl, J. (2015). Looking back to move forward: Nostalgia as a psychological resource for promoting relationship goals and overcoming relationship challenges. *Journal of Personality and Social Psychology, 109*(6), 1029-1044. doi:10.1037/pspi0000036

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