RUNNING HEAD: Nostalgia

Odyssey's End: Lay Conceptions of Nostalgia Reflect Its Original Homeric Meaning

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Abstract

Nostalgia fulfills pivotal functions for individuals, but lacks an empirically-derived and comprehensive definition. We examined lay conceptions of nostalgia using a prototype approach. In Study 1, participants generated open-ended features of nostalgia, which were coded into categories. In Study 2, participants rated the centrality of these categories, which were subsequently classified as central (e.g., memories, relationships, happiness) or peripheral (e.g., daydreaming, regret, loneliness). Central (compared to peripheral) features were more often recalled and falsely recognized (Study 3), were classified more quickly (Study 4), were judged to reflect more nostalgia in a vignette (Study 5), better characterized participants' own nostalgic (vs. ordinary) experiences (Study 6), and prompted higher levels of actual nostalgia and its intrapersonal benefits when used to trigger a personal memory, regardless of age (Study 7). These findings highlight that lay people view nostalgia as a self-relevant and social blended emotional and cognitive state, featuring a mixture of happiness and loss. The findings also aid understanding of nostalgia's functions and identify new methods for future research.

Keywords: nostalgia, prototype, emotions, memory, self

Nostalgia is part of the fabric of everyday life. After centuries of scientific neglect, the construct has recently been the focus of burgeoning empirical and theoretical developments. According to Boym (2001), nostalgia is experienced by almost everyone. Indeed, 79% of undergraduates report experiencing nostalgia at least once a week (Wildschut, Sedikides, Arndt, & Routledge, 2006), as do over half of adults in every five-year age cohort from age 18 to 90 (Hepper, Wildschut, Sedikides, Routledge, & Arndt, 2011). Moreover, recent research suggests that nostalgia serves vital psychological functions (Sedikides, Wildschut, Arndt, & Routledge, 2008).

Despite emerging evidence for the functional relevance of nostalgia, the mechanisms by which it operates are poorly understood. A major reason for this is that there exists no coherent definition of nostalgia; in fact, its nature has long been the subject of debate. The purpose of the present research is to resolve this debate by uncovering conclusively what "nostalgia" means to people. In particular, we propose that lay persons' views of nostalgia have a prototype structure characterized by a core set of central features. In examining this proposal, we aim to clarify what contemporary scholars have been studying and to provide new directions and methods for studying nostalgia further.

Historical Conceptions of Nostalgia

The term "nostalgia" derives from the Greek words *nostos*, meaning return to one's native land, and *algos*, meaning pain or suffering: literally, suffering caused by longing to return home. However, the idea existed long before the word. In probably its first exploration in classical literature, the theme of nostalgia runs strongly through Homer's *Odyssey*, in which the hero Odysseus nurtures memories of Ithaca and his family throughout his long and arduous journey home from the Trojan War. Although Odysseus often laments being far from home, his memories sustain and galvanize him (Austin, 2010). Longing for his wife Penelope, Odysseus even declines the nymph Calypso's offer of immortality in exchange for an amorous relationship:

Full well I acknowledge Prudent Penelope cannot compare with your stature or beauty, for she is only a mortal, and you are immortal and ageless. Nevertheless it is she whom I daily desire and pine for. Therefore I long for my home and to see the

day of returning. (Homer, *The Odyssey*, trans. 1921, Book V, pp. 78-79)

In origin, then, the idea of nostalgia encapsulated a uniquely human ability to draw strength and motivation from memories of the past, especially memories relating to close others.

The poetic origins of nostalgia have been diluted, distorted, and obscured during its subsequent lifetime. The term itself was coined by physician Johannes Hofer (1688/1934) to describe physical and psychological symptoms among Swiss mercenaries fighting away from home. The view of nostalgia as a neurological disease prevailed throughout the 17th and 18th centuries (Scheuchzer, 1731). In the 19th century, people viewed nostalgia as a psychological disorder involving depression and melancholy (McCann, 1941; Rosen, 1975). Similarly, 20th century psychodynamic theorists and clinicians regarded it as a variant of mourning, depression, or psychosis (Castelnuovo-Tedesco, 1980; Frost, 1938; Sterba, 1940). These views were partly due to the perception that nostalgia equated with homesickness.

In the late 20th century, nostalgia developed an independent status and literature (Davis, 1979; Kaplan, 1987). The *New Oxford Dictionary of English* (1998) now defines *nostalgia* as "a sentimental longing or wistful affection for the past" (p. 1266) and *homesickness* as "a longing for one's home during a period of absence from it" (p. 877). Davis (1979), for instance, found that college students associated words such as *warm*, *old times*, and *yearning* more frequently with nostalgia than with homesickness, indicating that people naturally differentiate between the two. Indeed, the literature on homesickness now focuses on the psychological problems (e.g., separation anxiety) that may accompany young persons' transition beyond the home environment (Fisher, 1989; Stroebe, van Vliet, Hewstone, & Willis, 2002; van Tilburg & Vingerhoets, 2005).

Despite the emergence of nostalgia as a construct in its own right, a coherent and consensual approach to understanding it is still conspicuously lacking. Nostalgia is often described as an emotion by scholars and laypersons (Shaver, Schwartz, Kirson, & O'Connor, 1987), but it also has cognitive (e.g., recollection) and motivational (e.g., longing) underpinnings (Batcho, 1998; Stephan et al., 2011). Thus, nostalgia can be understood as a complex state comprising a blend of affective and cognitive processes. Other examples of such blended states are gratitude (Lambert, Graham, & Fincham, 2009), respect (Frei &

Shaver, 2002), and jealousy (Fitness & Fletcher, 1993). Perhaps as a result of this complexity, scholars have also espoused conflicting opinions on the nature and function of nostalgia. Davis (1979), a sociologist, theorized that nostalgia occurs because people yearn for positive memories when experiencing the vicissitudes of life. Marketing researchers (Holak & Havlena, 1992, 1998; Holbrook & Schindler, 1996, 2003; Marchegiani & Phau, 2010) highlight the utility of evoking nostalgia for predicting consumer behavior. Organizational psychologists (Gabriel, 1993; Ybema, 2004) focus on the role of nostalgia in facilitating organizational coherence, management, and change. Other scholars view nostalgia as a self-relevant or higher-order emotion (Sedikides, Wildschut, Arndt, & Routledge, 2008; Sedikides, Wildschut, & Baden, 2004).

As well as studying nostalgia from differing perspectives, scholars disagree on its etiology and valence. Some view nostalgia as primarily negative, involving grief for the loss of an irretrievable past (Best & Nelson, 1985; Hertz, 1990; Holbrook, 1993; Peters, 1985). For example, Hertz (1990) includes as a facet of nostalgia "an intense, almost unbearable longing" (p. 194), and Holbrook (1993) assesses nostalgia using items such as "Sometimes, I wish I could return to the womb." Others argue that nostalgia is primarily positive, based on affection for the past (Batcho, 1998; Davis, 1979; Sedikides et al., 2004). For example, Davis (1979) describes nostalgia as "positively toned" (p. 18) and "almost never infused with those sentiments we commonly think of as negative" (p. 14).

Still other authors frame nostalgia as ambivalent, resulting from comparing the present to a favored past (Cavanaugh, 1989; Frijda, 2007; Johnson-Laird & Oatley, 1989; Mills & Coleman, 1994; Socarides, 1977; Werman, 1977). For example, Frijda (2007, pp. 87-88) describes nostalgia as coactivation of positive and negative affect, "a true bittersweet emotion: pain because of pleasures past, or pleasure because of pleasures that have gone. The pleasure is not full; the pain not pungent." This view fits with evidence that mixed feelings feature in everyday autobiographical memory, with participants reporting both positive and negative affect in 6% of events (Ritchie, Skowronski, Walker, & Wood, 2006). Another emotion characterized by coactivation is poignancy: ambivalent feelings at the time of experiencing a meaningful event, especially for the last time (Ersner-Hershfield, Mikels,

Sullivan, & Carstensen, 2008). Thus, nostalgia could be considered part of a family of mixed emotions. However, the relative prominence of its pleasure and pain requires clarification.

Two investigations have examined the content of nostalgic narratives, shedding some light on the referents and emotional focus of nostalgia. Wildschut et al. (2006) used archival narratives from the periodical *Nostalgia* and a survey in which British nationals described a nostalgic event. Consistent with Sedikides et al.'s (2004) view, nostalgic memories featured the self in the context of social interactions (e.g., family holidays) or momentous events (e.g., graduation). Moreover, narratives expressed positive affect more than negative affect. Similarly, Holak and Havlena (1998) found that nostalgic narratives were judged to be affectively positive, and that nostalgic intensity increased with expressions of tenderness and elation. Although Holak and Havlena's narratives also expressed loss, Wildschut et al.'s finer-grained analyses showed that negative events were typically overridden by positive events in a redemptive sequence. These findings begin to clarify how people report a nostalgic experience and support the notion that nostalgia is affectively mixed, with a greater emphasis (in written narratives) on pleasure than pain. However, it is vital that researchers also seek to understand how people conceptualize and view nostalgia—including its affective, cognitive, and motivational components as well as its contextual elements (e.g., triggers and referents).

Despite the reconceptualization of nostalgia as distinct from homesickness, scholarly disagreement has also persisted on whether nostalgia is in essence healthy or unhealthy. Some view nostalgia as maladaptive. For example, Hertz (1990) describes nostalgia as a symptom of adapting poorly to life changes or trauma: "Continuous nostalgic manifestations might, therefore, indicate biological and social maladaptation" (p. 195). Frijda (1986) labels nostalgia "useless or damaging" (p. 475), an "entirely 'nonfunctional' emotion … which can be seen as vain only after it has occurred" (p. 477). On the other hand, some view nostalgia as natural and adaptive (Batcho, 1998). For example, Mills and Coleman (1994) suggest that nostalgia may contribute to a coherent sense of self and life story, and Sedikides et al. (2004) similarly argue that it is imbued with self-relevance and existential meaning. Kaplan (1987) even posits that nostalgia has potential to serve therapeutic benefits. Recent empirical

examinations of nostalgia in non-clinical populations have supported the latter perspective (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge et al., in press; Wildschut et al., 2006; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010), underlining the importance of understanding it better. We next elaborate on this evidence and reasoning.

Why Is It Important to Understand Conceptions of Nostalgia?

There is a growing body of evidence that nostalgia has a crucial role in people's lives. Its prevalence in daily life (Boym, 2001; Hepper et al., 2011; Wildschut et al., 2006) itself warrants further examination. Moreover, nostalgia serves pivotal psychological functions. Four such functions have been documented thus far.

The first function of nostalgia is *positive affect*. Wildschut et al. (2006) asked participants to list desirable features of nostalgia: the most frequently listed was positive mood. Indeed, participants who brought to mind a nostalgic (vs. ordinary) event reported higher levels of positive (but not negative) affect. Moreover, people recruit nostalgia to alleviate negative mood (Wildschut et al., 2006; see also Barrett et al., 2010; Batcho, 2007). The second function is *self-regard*. Waxing nostalgic increases self-esteem (Wildschut et al., 2006). It also increases accessibility of positive self-attributes and decreases defensive responses to self-esteem threat (Vess, Arndt, Routledge, Sedikides, & Wildschut, in press). Indeed, nostalgic memories are cherished and protected against threat (Zauberman, Ratner, & Kim, 2009). The third function is *social connectedness*. Nostalgia increases perceptions of social bonds, attachment security, interpersonal competence, and social support (Wildschut et al., 2006, 2010; Zhou, Sedikides, Wildschut, & Gao, 2008; see also Loveland, Smeesters, & Mandel, 2010). Further, nostalgia is triggered by, and repairs, feelings of loneliness. Inducing loneliness in participants increases nostalgia, and nostalgia attenuates the negative link between pre-existing or induced loneliness and perceived social support (Wildschut et al., 2006; Zhou et al., 2008). The fourth function is *existential meaning*. Nostalgia boosts perceptions of life as meaningful and buffers against death anxiety (Juhl et al., 2010; Routledge, Arndt, Sedikides, & Wildschut, 2008; Routledge et al., in press). People who view life as relatively meaningless (due to trait or experimental induction) are subsequently more likely to wax nostalgic in order to restore meaning (Routledge et al., in press).

Similarly, people induced with a bleak (vs. bright) future outlook report higher nostalgia (Godbole, Shehryar, & Hunt, 2006). Together, these findings make a compelling case that nostalgia has short-term and long-term benefits, and that people naturally recruit it as a resource to repair aversive states (Sedikides, Wildschut, Routledge, Arndt, & Zhou, 2009).

Given the growing evidence that nostalgia is a vital and often-used psychological resource, it is now crucial to resolve the disagreements on its nature. Rozin (2009) has argued convincingly that research describing a psychologically relevant phenomenon has a crucial role in advancing our field and should ideally precede rigorous hypothesis-testing regarding that phenomenon. Thus, it is perhaps overdue for research to examine whether the state of nostalgia is best characterized as predominantly positive (Batcho, 1998, Davis, 1979; Sedikides et al., 2004), predominantly negative (Best & Nelson, 1985; Hertz, 1990; Peters, 1985), or ambivalent (Cavanaugh, 1989; Frijda, 2007; Mills & Coleman, 1994; Werman, 1977). In particular, it is necessary to clarify lay people's understanding of the construct in order to interpret past findings. Given that most studies have asked participants to bring to mind a "nostalgic" experience or how often they feel "nostalgic," findings have relied on participants' intuitive or implicit definition of the construct. If scholars do not understand what participants are thinking when they respond to such instructions or items, it makes it difficult to interpret past results and to develop theories of nostalgia.

Finally, it is important to consider the way that nostalgia should be defined. There are flaws in past definitions offered by lay linguistics and scientific scholars. A good definition of any psychological phenomenon must satisfy two competing criteria: rigor and coverage (Gregg, Hart, Sedikides, & Kumashiro, 2008). Lay definitions (e.g., *New Oxford Dictionary of English*, 1998) lack scientific rigor. That is, they are not based on empirical evidence, do not fit a theoretical framework, and are not readily operationalized. Conversely, scholarly definitions (e.g., Batcho, 1998: "missing objects, events, or people from one's personal past," p. 423) lack coverage. That is, they do not capture the construct comprehensively or reflect the richness and diversity of people's experiences. Our point of departure is that nostalgia does not fit into a clear-cut category defined by a unifying set of attributes, but can be conceptualized as a fuzzy category involving many attributes that are more or less

representative (Rosch, 1978; Wittgenstein, 1953/1967). For example, defining nostalgia as *either* positive or negative is over-simplistic, but positive emotions may be more representative of nostalgic experiences than negative emotions. Moreover, a particular experience does not qualify as *either* nostalgic or non-nostalgic, but some experiences are more representative of nostalgia than others. In short, we propose that, despite the seemingly inherent complexity of nostalgia, lay conceptions are best represented in terms of a prototype.

A Prototype Approach to Understanding Nostalgia

A prototype approach to clarifying nostalgia can address many of the problems described above. A prototype is "a collection of the most typical or highly related features associated with a category" (Cantor & Mischel, 1977, p. 39). The prototype is activated (to a greater or lesser extent) when an individual encounters an exemplar that (more or less) resembles the construct. It is subsequently used to guide information-processing (e.g., speed of processing, interpretation, use of category names in language, memory; Mervis & Rosch, 1981; Rosch, 1978). Possessing a clear picture of a construct's prototype, then, allows researchers to predict and understand how people respond in more or less prototypical situations. The prototype also includes the diverse range of more or less representative elements involved. That is, it allows for a scientifically testable yet comprehensively rich understanding of lay views of a construct.

Building on its origins in object categories, prototype theory has proved fruitful for understanding people's experiences and conceptions of emotions and relevant blended states. As argued by scholars such as Averill (1980), the classical approach to definition (i.e., identifying necessary and sufficient features that distinguish category members from non-members; Markman, 1989) fails to capture adequately concepts like love, anger, and emotion (see Russell, 1991, for a review). Studies have shown that fuzzy boundaries and varying degrees of category resemblance better reflect the way that laypeople represent the concept of emotion (Fehr & Russell, 1984; Shaver et al., 1987). Prototype methods have further afforded insight into specific emotions and blended states such as love, commitment (Fehr, 1988), hate, anger, jealousy (Fitness & Fletcher, 1993), forgiveness (Kearns & Fincham, 2004), respect (Frei & Shaver, 2002), and gratitude (Lambert et al., 2009). Each of these

investigations identified a set of central and peripheral features of the construct based on lay conceptions and demonstrated that more versus less central features are treated differently in information-processing. We expect that the construct of nostalgia also has a prototypic structure and that understanding of nostalgia will profit greatly from revealing its prototype.

In summary, a prototype analysis of nostalgia will be of benefit in at least three ways. First, a definitional approach that balances scientific methods with comprehensive coverage will resolve long-held disagreements regarding the nature, functions, and context of nostalgia, as well as contribute to a common understanding among scholars that accurately mirrors that held by the participants they study. Despite promising findings suggesting that nostalgia serves important functions, clarifying the properties of a phenomenon is a vital and often neglected early step in the research process (Rozin, 2009). Note that a prototype approach differs from the classical dictionary-definition approach, and thus would not replace a dictionary entry. It would nevertheless inform both scholarly and lay descriptions of nostalgia. Second, understanding the nature and structure of lay conceptions of nostalgia will impel scholars to integrate it more systematically into research in a wide range of areas (e.g., emotion, life story, aging, autobiographical memory) and disciplines (e.g., psychology, sociology, organizational behavior, consumer research) by identifying commonalities and differences. Third, methodological advantages will be accrued both by clarifying the manipulation and measurement of nostalgia used in prior research and also by enabling future research to manipulate or measure nostalgia using prototypic features. In particular, providing participants a collection of layperson-accessible features of nostalgia instead of the word "nostalgia" would reduce conceivable demand characteristics and facilitate the study of nostalgia in different populations (e.g., those who speak different languages, children). This could also contribute to the design of therapeutic interventions (cf. Kaplan, 1987) by allowing clinicians to redress individual variation in conceptions and tailor interventions to focus on the most helpful elements of nostalgia.

The Present Investigation

The aim of the present investigation was to examine lay conceptions of nostalgia in order to develop and validate a prototype of the construct. Like other blended states (e.g.,

love, gratitude, respect; Frei & Shaver, 2002; Lambert et al., 2009), we expected the nostalgia prototype to contain a range of features: affective, cognitive, motivational, behavioral, and contextual. Based, in particular, on our literature review (Sedikides et al., 1998; Stephan et al., 2011; Wildschut et al., 2006), we expected the nostalgia prototype to showcase memory, the self, close others or relationships, and mixed affect.

We report seven studies. Studies 1 and 2 served to generate features of nostalgia by surveying laypeople's conceptions and soliciting centrality ratings, which were used to classify features as central or peripheral for operationalization purposes (Gregg et al., 2008; Hassebrauck, 1997). Studies 3 and 4 then examined automatic information-processing of central versus peripheral features adopting standard prototype methods (i.e., recall, classification speed). Studies 5 and 6 contributed ecological validity by examining the prototype in the context of autobiographical events (i.e., judgments of hypothetical vignettes, occurrence in participants' own events). Finally, Study 7 employed central versus peripheral features to trigger a personal event and examined resulting levels and functions of nostalgia.

Study 1

The objective of Study 1 was to generate a pool of prototypical features of nostalgia. We asked participants to list features of nostalgia in an open-ended format, coded the features into categories, and used the most frequent categories in subsequent stimulus materials.

Method

Participants. We recruited 232 native English speakers from the United States and United Kingdom. Undergraduates from Northern Illinois University ($N = 131$; 71% female; $M_{AGE} = 22.09$, $SD_{AGE} = 4.72$, $Range_{AGE} = 18\text{-}53$) participated in exchange for course credit. Most were Caucasian (77%), Hispanic (9%), or Black/African American (7%). Students, graduates, and staff from the University of Southampton ($N = 101$, 67% female; $M_{AGE} = 28.3$, $SD_{AGE} = 9.26$, $Range_{AGE} = 18\text{-}54$) participated voluntarily. Most were Caucasian (86%) or Asian (4%).

Materials and procedure. Participants completed identical materials on paper or online. They spent 5 minutes listing all characteristics and features that, in their opinion, describe and distinguish *nostalgia*. At the end of this and all studies, participants were

thanked and debriefed.

Results and Discussion

We parsed participants' responses into distinct exemplars ($N = 1752$, $M = 7.55$ per person). Distinct exemplars comprised either one item from a list, or one "unit of meaning" (Joffe & Yardley, 2004) from responses that contained multiple connected statements. The exemplars were coded separately by two independent coders (the first and second manuscript authors). This was achieved by (a) grouping identical exemplars, (b) grouping semantically related exemplars (e.g., "laughing" and "laughter"), (c) grouping meaning-related exemplars (e.g., "want" and "desire") into categories, and finally (d) grouping categories of common meaning (e.g., *yearning* and *longing*). We excluded exemplars that described a participant's idiosyncratic target of their own nostalgia (e.g., "hats with feathers in"), or that were irrelevant to the question (e.g., "Nostalgia is the name of a cinema"). The two coders met to resolve discrepancies and develop a coding scheme, which contained 40 categories. Two research assistants then applied the coding scheme to all exemplars, assigning each exemplar only one code. Inter-rater agreement was good (75.3%), and so the codes applied by the first research assistant were retained. As a result of this procedure, we combined five further pairs of categories that were conceptually similar or frequently confounded (e.g., somatic anxiety and emotional anxiety), resulting in a final 35 categories.

Table 1 presents the 35 categories with representative exemplars and frequencies. Consistent with the concept of nostalgia forming a prototype (as opposed to a classical definition), no single feature was listed by every participant, and only two features were listed by more than half of participants (i.e., "memory" and "the past"). It is interesting to note that many exemplars generated by participants were at a high level of abstraction (e.g., "feelings," "personal," "missing") and not concrete or specific. This likely reflects the abstract nature of the construct itself, and accounts for the fact that we obtained fewer features of nostalgia compared to emotion prototypes such as love (68; Fehr, 1988) and gratitude (52; Lambert et al., 2009), although similar to commitment (40; Fehr, 1988) and respect (31; Frei & Shaver, 2008).

The categories included themes related to memory, relationships, the self, and several

affective states. The most frequent features were memories and the past. In particular, memories were described as fond and rose-tinted, and focused on social relationships and childhood. These referents are consistent with the positive and social themes that featured in the content and triggers of nostalgia in past research (Holak & Havlena, 1992; Wildschut et al., 2006). Participants also described other triggers of nostalgia consistent with Wildschut et al.'s (2006) survey: memorabilia/keepsakes and familiar smells/sounds.

Participants described the state of nostalgia as involving remembering, reminiscing, thinking, and reliving the past. This is consistent with Davis' (1979) view that nostalgia is "more contemplative than active" (p. 7). Participants also viewed nostalgia as emotional and generated several specific emotions. The most frequent emotion was happiness, but other positive emotions (i.e., comfort/warmth, calm/relaxed) and negative emotions (i.e., sadness, pain/anxiety, loneliness, loss/missing) also emerged. These complement the emotions found in nostalgic narratives (i.e., tenderness, elation, serenity, loss; Holak & Havlena, 1998). They also support the view that nostalgia is associated with both positive and negative emotions (e.g., Frijda, 2007), although their relative prominence cannot be ascertained solely from open-ended lists. Indeed, a few participants explicitly mentioned the concept of mixed feelings, and many participants listed both positive and negative specific emotions.

In line with linguistic origins and existing definitions of nostalgia, many participants mentioned longing/yearning and the related concepts of wanting to return to the past and general wishing/desire. This finding is consistent with the argument that nostalgia entails both cognitive and motivational elements (Batcho, 1998; Sedikides et al., 2008; Stephan et al., 2011). Some participants mentioned homesickness, reflecting some overlap but not redundancy between the two constructs. Finally, hinting at the self-relevance of nostalgia (Routledge et al., in press; Sedikides al., 2008), a few participants mentioned personal meaning.

We examined whether participants from the UK and USA differed in their production of exemplars related to each of the 35 features. Using non-parametric (Mann-Whitney) comparisons due to skew, with Bonferroni correction ($\alpha = .05/35 = .0014$), frequencies of only three features differed across countries. Participants in the UK more often mentioned

memories ($z = 3.29$, $p = .001$) and fond memories ($z = 3.36$, $p = .001$), whereas those in the USA more often mentioned homesickness ($z = 3.89$, $p < .001$). The remaining 32 features were mentioned to a similar extent by participants in both countries, suggesting overall consistency in findings across the samples.

In all, lay conceptions depict nostalgia as a multifaceted blended emotion involving reflection on, and longing for, a fond and relational past. Far from reflecting the negative view of nostalgia that dominated much of its intellectual history, current lay conceptions return to the Homeric view that nostalgia entails deriving meaning and emotions from fond memories of relationships.

Study 2

The objective of Study 2 was to quantify the centrality of the 35 features of nostalgia generated in Study 1. We asked an independent sample to rate the centrality of each feature to nostalgia. Prototype researchers have used this method to define the representativeness of exemplars (Gregg et al., 2008; Hassebrauck, 1997; Rosch, 1975).

Method

Participants. A total of 102 members of the UK general public were recruited via a snowball technique and participated on a voluntary basis (75% female; $M_{AGE} = 23.21$, $SD_{AGE} = 7.80$, $Range_{AGE} = 18\text{-}55$).

Materials and procedure. Participants completed identical materials on paper or online. They saw a list of the 35 features in one of two random orders, each accompanied by up to three clarifying exemplars (e.g., *missing* was followed by "loss, missing someone or something"). Participants rated how closely each feature related to their view of nostalgia (1 = *not at all related*, 8 = *extremely related*).

Results and Discussion

We present mean ratings of each feature in Table 1 (right column). Following Hassebrauck (1997), we examined the intra-class correlation (ICC) of the transposed data treating the 35 features as cases and the 102 participants as items. Overall, participants' ratings of the features were exceptionally reliable (ICC = .95, 95% confidence interval = .89 to .99) (Fan & Thompson, 2001). Consistent with the construct of nostalgia having a

prototype structure, judgments of feature centrality showed many similarities with generation of features in Study 1. Although some features were emphasized more in Study 1 (e.g., sadness) and others ranked higher in Study 2 (e.g., personal meaning), there was notable consistency.

Following prior prototype research (Gregg et al., 2008; Hassebrauck, 1997; Kearns & Fincham, 2004), we conducted a median split based on the ratings and labeled the highest 18 features as *central* and the lowest 17 features as *peripheral* to nostalgia. However, we use this convention to aid design and analysis of experimental studies, and note that prototypicality of features is likely a continuum. Central features focused on fond, rose-tinted, and personally meaningful memories of childhood or relationships with others. The verbs of remembering, reminiscing, thinking, and reliving featured highly. Also, central features focused on positive more than negative emotions, though they contained longing, missing, and wanting to return to the past. Triggers of nostalgia (i.e., keepsakes, sensory cues) were also rated as central. In contrast, change (a trigger proposed by Davis, 1979), was rated peripheral. Homesickness was also rated peripheral to nostalgia, consistent with their postulated distinctness.

In sum, both open-ended generation and centrality ratings support the view of nostalgia as a primarily positive, reflective, social, and personally meaningful emotional state. The relevant negative emotion concepts are tones of missing and longing—not grief or depression. This emphasis is closer to the Homeric roots of nostalgia than to the prevailing view held between the 18th and 20th centuries. It also ties in with the affectively positive content of nostalgic narratives (Holak & Havlena, 1998; Wildschut et al., 2006) and the role of nostalgia in boosting self-regard and meaning in life (Routledge et al., in press; Vess et al., in press; Wildschut et al., 2006).

We next sought to examine the way that people *automatically* process central and peripheral features of nostalgia. We did so in Study 3 by examining relative recall of features, and in Study 4 by examining response latencies to categorizing features as relevant or not to nostalgia.

Study 3

The objective of Study 3 was to examine the influence of feature centrality on recall for features. According to prototype theory (Cantor & Mischel, 1977; Rosch, 1978), central features are more readily encoded than peripheral ones, and so are more accessible in memory. In addition, people are more likely to ascribe *falsely* central features in memory to an otherwise prototypical target. In Study 3, we presented participants with features of nostalgia and then gave them (a) a surprise recall test and (b) the opportunity to recognize features from a list. We expected that participants would show better recall and more frequent false recognition of central than peripheral features.

Method

Participants. High school students and their parents ($N = 99$; 79.8% female; $M_{AGE} = 30.39$, $SD_{AGE} = 15.70$, $Range_{AGE} = 17\text{-}63$) participated in groups at visit days at the University of Southampton.

Stimuli. To derive stimuli for presentation, we divided the 35 prototypical features of nostalgia into two quasi-random sets, each containing 9 central features and 8-9 peripheral features. Each participant viewed either set 1 or set 2. To activate participants' conceptions of nostalgia, we embedded each feature in a statement; for example, "Nostalgia is about childhood," "Nostalgia feels calm."

Procedure. Participants viewed the nostalgia statements one by one on a computer screen for 4 seconds each. Participants then spent 5 minutes completing a neutral distractor wordsearch task. Next, in a surprise recall task, they were given 3 minutes to list all features of nostalgia that they had seen earlier (i.e., *free recall*). Finally, participants were given a list of all 35 features and were instructed to circle all the features that they had seen earlier, yielding indices of both *correct recognition* and *false recognition*. We calculated proportions of central and peripheral features recalled and recognized.

Results and Discussion

We compared central to peripheral features statistically on the three dependent measures: free recall, correct recognition, and false recognition. Participants freely recalled a significantly higher proportion of central ($M = 40.09$, $SD = 15.31$) than peripheral ($M = 29.27$, $SD = 13.63$) features, $t(98) = 5.77$, $p < .0001$. Correct recognition of features was

uniformly high ($M_{CENTRAL}$ = 73.15, SD = 19.45; $M_{PERIPHERAL}$ = 70.56, SD = 18.74), t(98) = 1.14, p = .26. However, consistent with hypotheses, participants *falsely* recognized more central (M = 16.39, SD = 17.74) than peripheral (M = 8.94, SD = 12.89) features that they had not previously seen, t(98) = 4.67, p < .0001.

In summary, centrally prototypical features of nostalgia were both more readily recalled and more often falsely recognized than peripheral features of nostalgia. This finding bolsters the notion that prototypicality is reflected in information-processing of features of nostalgia, specifically in the memory system. The false recognition results may imply that people use a script-like filling-in process to generate details when the prototype of nostalgia has been activated. Next, we sought to investigate a different aspect of information-processing: speed of automatic classification.

Study 4

Study 4 examined the impact of feature centrality on speed of classifying features of nostalgia. When a prototype of a construct is activated, people are quicker to recognize and classify words that are central (vs. peripheral) to the prototype (Fehr, Russell, & Ward, 1982; Hassebrauck, 1997; Kintsch, 1980). Hence, people should be quicker to verify that central (vs. peripheral) features are related to nostalgia. Moreover, prototype constructs possess fuzzy boundaries, meaning that people show consensus that central features belong to a category but disagree on peripheral features (Fehr & Russell, 1984, 1991; Mervis & Rosch, 1981). Hence, some people might view peripheral features as unrelated to nostalgia. Thus, in Study 4, we tested two hypotheses. First, central (vs. peripheral) features would *more often* be verified as related to nostalgia. Second, when features were verified as related to nostalgia, responses for central (vs. peripheral) features would be *quicker*.

Method

Participants. University of Southampton undergraduates participated in exchange for course credit (N = 53; 74% female; M_{AGE} = 20.06, SD_{AGE} = 4.05, $Range_{AGE}$ = 18-44).

Stimuli. The words to be classified included the two most frequent exemplars from Study 1 for each of the 18 central and 17 peripheral features of nostalgia (e.g., for *happiness* the words presented were "happiness" and "enjoy"). This totaled 70 nostalgia-related words

or short phrases. In addition, we included 70 control words or phrases unrelated to nostalgia (e.g., "pencil," "washing machine").

Procedure. Participants learned that they would classify a series of words on computer as features or not features of nostalgia. They were instructed to respond to each word as quickly and accurately as possible, and completed 10 neutral practice trials. In the main experiment, the 140 features were presented in randomized order and appeared on the screen above the question, "Is this a feature of NOSTALGIA?" For each trial, participants clicked YES or NO. Each response and its speed (in *ms*) was recorded.

Results and Discussion

We first compared the percentage frequency with which central, peripheral, and control stimuli were verified as features of nostalgia (Table 2). To accommodate varying degrees of skew in the variables, nonparametric tests revealed that the main effect of feature type was significant, Friedman $\chi^2(2) = 104.04$, $p < .0001$. Moreover, central features were verified as nostalgic more often than peripheral features, Wilcoxon $Z(52) = 6.28$, $p < .0001$, and peripheral features more often than control features, $Z(52) = 6.34$, $p < .0001$.

Second, we compared verification speed for each feature type. Following conventions (Greenwald, Nosek, & Banaji, 2003), we recoded extremely fast (< 300ms) and slow (> 3000ms) responses to 300ms and 3000ms respectively and applied a logarithmic transformation. We then compared average speed for verifications (i.e., "yes" responses) of each feature type. The main effect of feature type was significant, $F(2, 41) = 14.85$, $p < .0005$. Moreover, participants were quicker to verify central than peripheral features, $t(52) = 5.23$, $p < .0001$, and quicker to verify peripheral than control features, $t(33) = 3.04$, $p < .005$.

In summary, when making rapid judgments, people more often judge central features as related to nostalgia than peripheral features, and also do so more quickly. Note that peripheral features are judged as related to nostalgia (i.e., more often and more quickly than control features). This pattern suggests that they should be regarded as part of the nostalgia prototype. We will return to this issue in the General Discussion in light of our cumulative findings.

In Studies 3 and 4, we have shown that central and peripheral features of nostalgia are

processed differently in memory and during automatic classification, when the features stand alone. To lend ecological validity to the prototype of nostalgia, we next examined processing of these features in a natural context: as part of an autobiographical event. If central (vs. peripheral) features are more prototypical of nostalgia, they should (a) convey more effectively a sense of nostalgia when used to describe someone's past experience, and (b) feature more prominently in people's own nostalgic experiences. Studies 5 and 6 addressed these questions respectively.

Study 5

When prototypically nostalgic features are used to describe an autobiographical event, they should convey a sense of nostalgia even if the word "nostalgia" is never used. In Study 5, we wrote short vignettes that described a character's autobiographical event using either central features, peripheral features, or no features of nostalgia. We instructed participants to read the vignettes in a within-subjects design and to rate each one's level of nostalgia. We expected that vignettes including central features would be perceived more nostalgic than those including peripheral features or no features.

Method

Participants. University of Southampton undergraduates participated in exchange for course credit ($N = 42$; 71% female; $M_{AGE} = 18.98$, $SD_{AGE} = 1.09$, $Range_{AGE} = 18\text{-}22$).

Stimuli. We wrote six short vignettes (Appendix A), each describing a target character who recalled an autobiographical event. We embedded two vignettes with central nostalgia features, two with peripheral nostalgia features, and two with no nostalgia features. Within each pair of vignettes, one target character was female and one male. The features contained in the two central vignettes were distributed at random while holding average centrality (cf. Study 2) and feature type approximately equivalent. We followed a corresponding practice with peripheral vignettes.

Procedure. Participants came to the laboratory for a study on "types of memory." They read the vignettes in randomized order on computer. For each vignette, participants rated the extent to which the character felt "pleasant," "unpleasant," and "nostalgic," and the extent to which the event was "important" and "nostalgic" to the character (1 = *not at all*, 6 =

extremely). We averaged the two key nostalgia ratings, $r(250) = .90$, $p < .0001$.

Results and Discussion

Given that each participant responded to two vignettes of each type, we analyzed nostalgia ratings using SPSS Mixed Linear Models (Table 2). We tested planned contrasts between (a) nostalgic (central/peripheral) versus control and (b) central versus peripheral. The main effect of vignette type was significant, $F(2, 123) = 205.09$, $p < .0001$. As hypothesized, vignettes embedded with nostalgic features were rated more nostalgic than control vignettes, $t(123) = 19.85$, $p < .0001$. Moreover, vignettes embedded with central features were rated more nostalgic than those embedded with peripheral features, $t(123) = 4.03$, $p < .0001$.

Central vignettes were also rated more important, more pleasant, and less unpleasant than peripheral vignettes (Table 2; contrast ts > 5.32, ps < .0001). However, the difference between central and peripheral vignettes in perceived nostalgia remained significant when controlling for any of these ratings (contrast ts > 2.77, ps < .007). Together, these results show that central (vs. peripheral) features more effectively convey a sense of nostalgia when embedded in an autobiographical context, and that this is not due to valence confounds. Study 5, though, was based on hypothetical vignettes. To build on these findings, Study 6 focused on idiographic events.

Study 6

In Study 6, we extended the ecological validity of the nostalgia prototype by studying participants' autobiographical events. If central features reflect prototypical nostalgia, then people's own nostalgic events should be better characterized by central than peripheral features. Moreover, central features should be more characteristic of nostalgic events than of ordinary events. To test these hypotheses, we instructed participants to bring to mind either a nostalgic or an ordinary past event and to rate it in terms of the 35 prototypical features.

Method

Participants. Fifty-six undergraduates (83% female; $M_{AGE} = 22.00$, $SD_{AGE} = 3.81$, $Range_{AGE} = 18\text{-}42$) from Northern Illinois University (84%) and the University of Southampton (16%) participated in exchange for course credit. Most were Caucasian

(74.6%) or African American (13.6%). The small number of UK students (n = 9) precluded meaningful comparisons between countries.

Materials and procedure. Participants completed the study online and were randomly assigned to one of two conditions. Half were asked to "bring to mind a nostalgic event in your life. Specifically, try to think of a past event that makes you feel most nostalgic." The other half were asked to "bring to mind an ordinary event in your life. Specifically, try to think of a past event that is ordinary." These instructions have been used successfully in past studies (Routledge et al., 2008, in press; Wildschut et al., 2006, 2010; Zhou et al., 2008).

After briefly describing the event, participants rated 35 statements about it, each corresponding to one prototypical feature of nostalgia (1 = *not at all*, 8 = *very much*). Examples include "This event is a fond memory," "When I think about this event I feel emotional or sentimental" (central); "This event involves achievements or successes," "When I think about this event I feel regret" (peripheral). We computed average ratings for central features (α = .92) and peripheral features (α = .79). Finally, participants completed a three-item scale assessing state nostalgia (adapted from Wildschut et al., 2006) (1 = *strongly disagree*, 8 = *strongly agree*): "Thinking about this event leaves me feeling nostalgic," "I feel nostalgic when I think about this event," "This is a nostalgic event for me" (α = .96).

Results and Discussion

The manipulation check confirmed that participants in the nostalgic-event condition felt significantly more nostalgic than those in the ordinary-event condition (Table 3). We then compared the extent to which events were characterized by central and peripheral nostalgic features. A 2 (event: nostalgic, ordinary) × 2 (feature type: central, peripheral) mixed ANOVA yielded a significant interaction, $F(1, 54)$ = 10.43, p < .002. As shown in Table 3, central features were rated higher than peripheral features for both types of event, suggesting that autobiographical events, in general, are more positive (vs. negative) and social (vs. isolated) (Thompson, Skowronski, Larsen, & Betz, 1996). However, central features were rated significantly more characteristic of nostalgic than of ordinary events, whereas peripheral features were not. The findings imply that it is central features that most

reliably distinguish nostalgic experiences from everyday experiences.

Finally, given that participants in the nostalgic-event (vs. ordinary-event) condition (a) rated the event as better characterized by central features, and (b) felt more nostalgic, the former might explain the latter. Thus, we examined whether prominence of central features mediated the effect of condition on state nostalgia. We regressed state nostalgia on condition (1 = *nostalgic*, -1 = *ordinary*) in Step 1 and ratings of central and peripheral features in Step 2. In Step 1, condition predicted state nostalgia, $\beta = .47$, $p < .0005$. However, in Step 2, state nostalgia was significantly predicted by central features, $\beta = .75$, $p < .0005$, but no longer by condition, $\beta = .13$, $p = .30$, nor by peripheral features, $\beta = -.04$, $p = .68$. We tested mediation using 1000 bootstrap resamples (Preacher & Hayes, 2004, 2008). As expected, the indirect effect of condition on state nostalgia through central features was significant ($B = .83$, 99% CI = [0.26, 1.71]), but the indirect effect through peripheral features was not ($B = -.03$, 99% CI = [-0.37, 0.17]). This suggests that participants in the nostalgic-event (vs. ordinary-event) condition felt more nostalgic because those events were better characterized by central features of nostalgia: because they were more *prototypically* nostalgic. This finding also implies that effects of the nostalgia manipulation, as used in past studies, are driven by prototypical nostalgia and not by unwanted factors such as demand characteristics.

Studies 5 and 6 illustrated that central (vs. peripheral) prototypical features better characterize nostalgia in the context of hypothetical (Study 5) and personal (Study 6) autobiographical events. With this in mind, we aimed to explore an application of the prototype: Can we induce the experience of nostalgia using only prototypical features? If so, does prototype-induced nostalgia fulfill the same psychological functions as have been documented in prior nostalgia research? We addressed these issues in the final study.

Study 7

In Study 7, we sought to induce the state of nostalgia experimentally using only the prototypical features. In particular, we presented participants with a list of either central or peripheral features and asked them to bring to mind an event characterized by those features. To compare to past research, we also included two further conditions asking participants to bring to mind a nostalgic event or an ordinary event, replicating Study 6 and past studies

(Routledge et al., 2008, in press; Wildschut et al., 2006, 2010; Zhou et al., 2008). We asked participants in all four conditions to report their level of state nostalgia and nostalgic functions (i.e., positive affect, self-regard, social connectedness, meaning in life). Our prototypical nostalgia manipulation differs in crucial ways from that used in Study 6 and extant research. For instance, providing prototypical features instead of the label "a nostalgic event" removes demand characteristics involving participants' prior conceptions of nostalgia (e.g., that they should feel emotional afterward), and is less dependent on familiarity with the term "nostalgia." In a further crucial extension to Studies 1-6, we recruited participants not only in young- and mid-adulthood, but also in older adulthood, to establish whether prototypical features induce nostalgia similarly across the lifespan.

Overall, we expected that participants in the central-prototype condition would feel equally nostalgic as those in the nostalgic-event condition. We also expected, based on results of Study 6, that those in the peripheral-prototype condition would feel equally *non-nostalgic* as those in the ordinary-event condition. Finally, we expected that participants in the central-prototype and nostalgic-event conditions would report higher levels of positive affect, self-regard, social connectedness, and meaning in life compared to those in the peripheral-prototype and ordinary-event conditions.

Method

Participants. In total, 193 UK residents were recruited by three methods: 76 University of Southampton undergraduates participated in the laboratory for course credit or payment; 71 members of an older adults' volunteer research database received and returned a booklet via post without compensation; and 46 adults of varying ages were recruited by opportunity-sampling in the community and completed the booklet at home for payment. Participants comprised two age groups. The "younger" group ($N = 100$; 68% female; $M_{AGE} = 22.29$, $SD = 4.35$, range 18-36) were primarily students (84%) and Caucasian (74%) or Asian (15%). The "older" group ($N = 93$; 68% female; $M_{AGE} = 68.94$, $SD = 10.12$, range 43-87) were primarily retired (75%) or working (23%) and most were Caucasian (92%).

Materials and procedure. Participants were recruited for a study on "memory and life experiences" and were randomly assigned to one of four conditions. The booklet front

page asked participants to think of an event from their life. The central-prototype and peripheral-prototype conditions provided a list of central or peripheral features respectively. Participants were instructed to "bring to mind an event in your life that is relevant to or characterized by at least five of these features… whereby at least five of the features either were *part* of the event, and/or describe your experience as you *think about* the event" (italics in original). Participants circled all the features that were relevant to their event. The nostalgic-event and ordinary-event conditions were identical to those of Study 6. All participants wrote a brief description of the event and their experience as they remembered it.

The following pages contained self-report items assessing the dependent measures (1 = *strongly disagree*, 6 = *strongly agree*). First, participants completed a validated 3-item scale assessing state nostalgia (Wildschut et al., 2006; e.g., "Right now, I am feeling quite nostalgic;" $\alpha = .96$). Next, they completed state measures of the documented functions of nostalgia. The measures, each containing 4 items (Appendix B), were expanded versions of scales previously validated by Wildschut et al. (2010) and Routledge et al. (in press). They assessed positive affect ($\alpha = .86$), self-regard ($\alpha = .92$), social connectedness ($\alpha = .88$), and meaning in life ($\alpha = .92$).

Results and Discussion

Analytic strategy. Table 4 displays descriptive statistics by condition. To test our hypotheses regarding the equality of the central-prototype and nostalgic-event conditions and of the peripheral-prototype and ordinary-event conditions, we used a set of three orthogonal contrasts in multiple regression models (Table 4). Contrast 1 tested central-prototype and nostalgic-event conditions versus peripheral-prototype and ordinary-event conditions. Contrast 2 tested central-prototype versus nostalgic-event, and Contrast 3 tested peripheral-prototype versus ordinary-event. Given that we expected both the central-prototype and nostalgic-event conditions to induce nostalgia to a similar degree, but we did not expect either of the other conditions to induce nostalgia, we hypothesized that Contrast 1 would be significant, but Contrast 2 and Contrast 3 would be non-significant, for all dependent measures. We entered these contrasts into Step 1 of the regression model. In Step 2, we entered a dummy variable representing age group (younger vs. older), and in Step 3, we

entered the interactions between age and each condition contrast. At each step, we examined the unique contribution of that set of predictors (i.e., ΔF) to obtain omnibus tests of main effects and the interaction. We excluded gender because it produced no significant main effects or interactions.

State nostalgia. The main effect of condition on state nostalgia was significant (Table 4). Contrast 1 was significant, whereas Contrast 2 was only marginally so ($p = .09$) and Contrast 3 was not significant ($p = .39$). That is, as expected, participants reported higher state nostalgia in the central-prototype and nostalgic-event conditions than in the peripheral-prototype and ordinary event conditions. Further, the central-prototype and nostalgic-event conditions did not differ significantly in state nostalgia. Also as expected, events induced with peripheral prototype features were no more nostalgic than ordinary events. These result patterns, which were not qualified by age (βs < |.07|, ps > .37), support our main hypothesis.

Psychological functions of nostalgia. The main effect of condition was significant for positive affect, self-worth, and social connectedness, and marginally significant for meaning in life (Table 4). Contrast 1 was significant for every criterion, including meaning in life. Contrast 2 did not reach significance for any criterion. Although the means were descriptively higher for the nostalgic-event condition than the central-prototype condition (Table 4), there were trends only for positive affect ($p = .096$) and self-worth ($p = .097$). Thus, a central-prototype event produced the functions of nostalgia to a similar extent as a "nostalgic" event and significantly more so than a peripheral-prototype or "ordinary" event.

Contrast 3 was significant only for two of the functions. That is, a peripheral-prototype event *decreased* positive affect and self-regard compared to an ordinary event. Thus, not only did a peripheral-prototype event not induce the feeling of nostalgia, but it behaved very differently from a nostalgic event in terms of intrapsychic consequences.

The only significant effect of age was that it moderated the effect of condition on social connectedness, $\Delta F(3, 183) = 3.16$, $p < .03$, and specifically Contrast 1 ($\beta = -.22$, $p < .01$, other interactions $\beta < .02$, ps > .87). Simple slopes showed that Contrast 1 was significant for younger participants, $\beta = .39$, $p < .001$, but not older participants, $\beta = -.04$, $p = .68$. That is, younger participants reported higher social connectedness in central-prototype

and nostalgic-event (compared to peripheral-prototype and ordinary-event) conditions, whereas older participants reported high social connectedness in all four conditions. Given the general decrease in social network activity in older adulthood (Victor, Scambler, Bowling, & Bond, 2005), perhaps older adults are able to derive feelings of social support from their memories, whatever type they may be. This result should, however, be replicated before drawing firm conclusions.

General Discussion

Like its earliest champion, Odysseus, nostalgia has undergone a long and arduous journey. First conceptualized by Homer (trans. 1921) as a uniquely human source of strength and guidance, the construct lost its way during the ensuing centuries, tainted by ideas of neurological disease, psychiatric disorder, or clinical symptomatology. Contemporary views of the emotional focus of nostalgia vary from positive (Batcho, 1998, Davis, 1979; Sedikides et al., 2004) to negative (Best & Nelson, 1985; Hertz, 1990; Peters, 1985) to ambivalent (Cavanaugh, 1989; Frijda, 2007; Mills & Coleman, 1994). Accordingly, scholars have not reached a consensus on how nostalgia should be defined, which hinders theory development, further hypothesis-testing, and communication with different audiences (Rozin, 2009). Moreover, definitions proffered by researchers (Batcho, 1998) or lay sources (*New Oxford Dictionary of English*, 1998) fail to balance scientific validation with comprehensive coverage. Given the growing evidence that nostalgia is common (Hepper et al., 2011; Wildschut et al., 2006) and serves pivotal psychological functions (Sedikides et al., 2008, 2009), it is now necessary to resolve the conceptual and definitional debates.

The present research aimed to contribute to such resolution by examining laypersons' understanding of nostalgia and uncovering its prototypical content and structure. Studies 1-2 solicited open-ended generation of features and ratings of centrality to identify a core set of central features of nostalgia. Studies 3-4 tested whether central features of nostalgia are processed differently than peripheral features in terms of memory and classification speed. Studies 5-6 examined the relative prominence of central and peripheral features in the relevant context of hypothetical and personal autobiographical events. Finally, Study 7 used central and peripheral features in a novel manipulation of nostalgia and tested whether events

triggered using them would provide the psychological benefits of nostalgia. In all, the findings indicate that laypersons view nostalgia in a way far more consistent with Homer's original galvanizing ideas than with later views of it as negative or unhealthy.

Does Nostalgia Have a Prototype Structure?

We reasoned that one cause of the lack of consensus among scholars past and present concerning the definition of nostalgia is its inherent "fuzziness." For example, no single defining feature, or set of features, unites every instance of nostalgia or distinguishes it from other types of memory or emotion. Similarly, belongingness in the category of nostalgia is not clear-cut: a particular experience does not qualify as either nostalgic or non-nostalgic. Instead, we proposed that nostalgia is amenable to a prototype analysis. That is, many features are related to the construct, with some more representative than others. Similarly, autobiographical experiences vary on a continuum, with some extremely prototypically nostalgic and others less so. The results of Studies 1-6 consistently supported this proposal.

In Study 1, participants generated a range of different features and no one feature was listed by every single participant, suggesting that nostalgia is not defined classically by a set of necessary or sufficient attributes. Similarly, in Study 2, the 35 features were rated as varying in their centrality to the construct of nostalgia, allowing us to operationally define a set of more central versus more peripheral features. In line with past research on prototypes of social and emotional constructs (e.g., Fehr, 2004; Fitness & Fletcher, 1993; Hassebrauck, 1997), our findings further demonstrated that people process central features of nostalgia differently from peripheral features. Specifically, compared to peripheral features, central features were more often freely recalled and falsely recognized (Study 3) and were automatically classified as related to nostalgia more often and more quickly (Study 4). In autobiographical context, central (vs. peripheral) features more effectively conveyed a sense of nostalgia when used to describe a hypothetical character's autobiographical experience (Study 5) and better characterized people's own nostalgic events, accounting for their level of state nostalgia (Study 6).

Further support for the prototypical structure of a construct is shown by convergence in different indices of feature centrality (Rosch, 1978). That is, if nostalgia is organized as a

prototype, its more central features should emerge as such consistently across samples and across measures. Table 5 shows the correlations between five centrality indices obtained from Study 1 (frequency of spontaneous generation), Study 2 (mean centrality rating), Study 4 (frequency and speed of rapid verification), and Study 6 (mean rating of own nostalgic events) for the 35 prototypical features. We could not include data from Study 3 (because different participants viewed different stimuli) or Study 5 (because participants responded to groups of features rather than individual features). All five indices intercorrelated positively and significantly, again supporting the prototype structure of nostalgia.

Finally, we showed that nostalgia and its benefits can be triggered using the prototype features alone (Study 7). Participants who brought to mind an event defined by centrally prototypical features felt nostalgic—and not significantly less so than participants who brought to mind a "nostalgic event." They also experienced the psychological benefits that nostalgia has been shown to have in past research. Together, these findings demonstrate that the nostalgia construct is indeed organized with a prototype structure.

What are Lay Conceptions of the Prototypical Nostalgic Experience?

Our findings identify lay views of the core prototypical nostalgic experience and integrate them with past theory and research. We found that nostalgia involves a complex blend of features (e.g., content, state, triggers, context). Nostalgia prototypically focuses on memories that are fond, personally meaningful, and imbued with a rosy glow. In particular, they often involve childhood and/or relationships with others. This type of memory reflects the content of nostalgic narratives in Wildschut et al.'s (2006) studies, supports Batcho's (1995) view that nostalgia is aided by positive judgments of the past, and cements Sedikides et al.'s (2004) perception of nostalgia as social and self-relevant. The relevance of nostalgic memories to positive experiences of the self and close others may go some way to explaining its ability to boost and repair self-regard and social connectedness (Vess et al., in press; Wildschut et al., 2006, 2010).

The state of nostalgia itself comprises a blend of both cognition and affect (Batcho, 1998; Wildschut et al., 2006). People view the notions of thinking and feeling as prototypical, along with reminiscence and a sense of reliving the past experience, which

involve a blend of cognitive and affective activity (Bryant & Veroff, 2007). A key question to clarify scholarly disagreements concerns the nature and valence of the specific emotions. On the one hand, nostalgia prototypically involves negatively toned affective components such as missing a lost aspect of the past, longing or yearning for it, and wishing to return to it. This echoes scholars' view of nostalgia as a mixed emotion (Frijda, 2007). Nonetheless, positive affect (e.g., happiness) features centrally in the prototypical nostalgic experience whereas pure negative affect (e.g., sadness, anxiety) features only peripherally. It seems that, despite a motivational longing for past experiences, people believe that nostalgia also contains a generous dose of joy. This affective signature supports the uplifting views of nostalgia painted by Batcho (1998) and Sedikides et al. (2004) and suggests that although nostalgia involves mixed feelings, the "bitter" is less potent than the "sweet." It may also explain how nostalgia can engender positive psychological states and motivation (Stephan et al., 2011; Wildschut et al., 2006). As such, the lay meaning of nostalgia better reflects the strengthening role conferred on it in Homer's *Odyssey* than the connotations of brain disease or psychological disorder subsequently attached to it (Hofer, 1688). Moreover, it seems that the negative views of several contemporary scholars (Best & Nelson, 1985; Hertz, 1990; Peters, 1985) do not reflect the experience of nostalgia endorsed by lay persons. As such, we have resolved a long-standing debate, at least from the standpoint of lay experience.

The final central aspect of nostalgia concerned triggers: keepsakes and familiar sensory cues (e.g., smells, music). Intriguingly, although both also emerged in Wildschut et al.'s (2006) studies, the catalyst most often implicated in prior research on nostalgia— loneliness—featured only as a peripheral element of the prototype (cf. Zhou et al., 2008). Perhaps lay persons do not explicitly connect the two states unless asked specifically to do so, or they view preceding loneliness not as part of nostalgia (unlike sensory triggers, which presumably feature in the memory itself as well as in the present).

One feature notably absent from the centrally prototypical nostalgic experience is homesickness. Consistent with Davis' (1979) survey, we found that homesickness related only peripherally to nostalgia in lay persons' conceptions. Being away from home is not a prototypical aspect of nostalgia. This finding establishes more firmly nostalgia as a separate

construct in its own right, and underlines the need to retain the two literatures as distinct. Researchers could clarify the distinction further by examine the aspects of nostalgia that overlap with homesickness, similar to Fitness and Fletcher's (1993) studies distinguishing love, hate, anger, and jealousy in marital relationships.

Should peripheral features be viewed as part of the nostalgia prototype? The findings of the present studies, on the whole, suggest that they should not. On the one hand, some participants in Study 1 spontaneously listed peripheral features when asked to describe "nostalgia." Further, in Study 4 peripheral features were automatically classified as related to nostalgia more often than control features, and in Study 5 peripheral-feature vignettes were rated more nostalgic than control vignettes. On the other hand, however, participants in Study 2 rated 11 of the 17 peripheral features below the scale midpoint, implying that they are considered effectively unrelated to nostalgia. Moreover, in Study 6 and 7, peripheral features did *not* characterize or trigger nostalgia in participants' own autobiographical events. This difference relates to the fact that, whereas Studies 1, 4, and 5 concerned cognitive representations of the construct of nostalgia, Studies 6 and 7 assessed its actual experience and consequences. Thus, although laypersons associate peripheral features with the *concept* of nostalgia, such features do not predominate or carry much influence when *personally experiencing the state* of nostalgia.

We suggest that central features occur frequently in personal nostalgic experiences, and thus come most readily to mind when describing nostalgia. However, when asked to generate numerous exemplars, people are also able to bring to mind occasional (i.e., peripheral) features of nostalgia. Consistent with this interpretation, supplementary analysis of Study 1 data indicate that participants tended to list central features earlier than peripheral features. That is, after log-transformation to reduce skew, mixed models analysis showed that central features were listed in earlier positions ($M = 3.31$ where 1 is listed first) than peripheral features ($M = 3.99$), $F(1, 471) = 8.86$, $p < .003$. Moreover, this difference remained significant controlling for the total number of features or proportion of central features listed. Taken together with the findings of Studies 6 and 7, these results imply that peripheral features, although sometimes emerging in nostalgic accounts, are not the active

ingredients that produce the benefits of nostalgia. Given that peripheral features were, on the whole, less positive than central features, this interpretation helps to reconcile the theoretical view that nostalgia contains mixed affect (Cavanaugh, 1989; Frijda, 2007; Mills & Coleman, 1994) with the extensive evidence that nostalgia serves adaptive functions (Routledge et al., in press; Wildschut et al., 2006; Zhou et al., 2008). Considering the relatively negative characteristics of peripheral features, their identification could help to shed light on why some individuals may benefit less from nostalgia than most: because their nostalgic experiences are less prototypical.

Implications

The present findings can inform definitional issues, theory, and future research. To begin with, we are now able to describe lay views of nostalgia in a way that balances the demands of scientific validation and comprehensive coverage. That is, we have identified a set of prototypical features that are empirically validated and readily operationalized, while reflecting the richness and diversity of laypersons' experiences. The *New Oxford Dictionary of English* (1998) definition of nostalgia contains three prototypical features ("sentimental," "longing," and "past") and touches on the *fond memory* feature ("affection"). However, that definition omits other prototypical features and assumes a standardized and classically defined nostalgic experience. The present empirical approach suggests that a clear-cut dictionary definition does not capture adequately the structure of nostalgia, and calls instead for a description that reflects the prototype better. In particular, we propose that nostalgia is a complex emotion that involves past-oriented cognition and a mixed affective signature, and is often triggered by encountering a familiar smell, sound, or keepsake, by engaging in conversations, or by feeling lonely. When waxing nostalgic, one remembers, thinks about, reminisces about, or dwells on a memory from one's past—typically a fond, personally meaningful memory such as one's childhood or a close relationship. One often views the memory through rose-tinted glasses, misses that time or person, longs for it, and may even wish to return to the past. As a result, one typically feels emotional, most often happy but with a sense of loss and longing; other less common feelings include comfort, calm, regret, sadness, pain, or an overall sense of bittersweetness.

In addition, viewing nostalgia as a prototype can help to generate hypotheses about its experience and functions. For example, a prototype is activated even when a person encounters only some of its features. This process might help to explain *how* particular events become construed as nostalgic over time and why people bring them to mind in times of loneliness or existential doubt (Juhl et al., 2010; Routledge et al., 2008, in press; Zhou et al., 2008). Future research could examine whether some of these processes take place when sharing past experiences in social interaction—a common antecedent of nostalgia in Wildschut et al.'s (2006) survey. This idea is consistent with findings that rehearsing autobiographical events socially fosters the maintenance of positive affect and the fading of negative affect (Ritchie, Skowronski, Wood et al., 2006; Skowronski, Gibbons, Vogl, & Walker, 2004).

Finally, the current findings shed light on how nostalgia is assessed and manipulated. For example, many prior studies have relied on the term "nostalgia" both to measure and induce the experience. Thus, results depended on participants having a clear and consensual understanding of the word, and, conceivably, were vulnerable to demand characteristics. The present research indicates that participants' view of centrally prototypical features is fairly consensual and compatible with recent scholarly treatises of nostalgia (Sedikides et al., 2004, 2008, 2009). Moreover, Study 6 showed that prominence of prototypical features accounts for effects of a "nostalgic event" manipulation, and Study 7 showed that comparable results obtain regardless of whether participants are given the word "nostalgia" or a set of central features, alleviating concerns about demand characteristics. Thus, the research supports and validates the continued use of measures and manipulations that include the word "nostalgia."

At the same time, the present research has identified a novel and less direct way to assess (cf. Study 6) or induce (cf. Study 7) the state of nostalgia using only prototypical features. This method might prove valuable for future research in three ways. First, most participants in the present studies and in past nostalgia research were adults, relatively highly educated, and fluent in English. A manipulation or measure using the set of prototypical features will be more accessible for children or those less familiar with the subtle meaning of the word "nostalgia" and more easily translated into different languages. For example,

researchers and practitioners working with individuals who are unfamiliar with the term nostalgia may use our features in a manner similar to how researchers use the Galton-Crovitz method in autobiographical recall (Crovitz & Schiffman, 1974; Galton, 1879). Such a cueing method could provide a relatively unbiased and covert means of prompting a person to wax nostalgic without defining the term nostalgia. Further, our efforts to translate nostalgic features have enabled us to conduct an ongoing investigation of the prototype of nostalgia across cultures, and will be invaluable for studying the functions of nostalgia in cross-cultural context in the future. Second, in future research with educated adult samples it may be desirable to conceal the purpose of a study and reduce demand characteristics (especially if participants are psychology students). Third, there are differences in the way that people experience nostalgia. For example, Iyer and Jetten (in press) found that feeling nostalgic about home when at university is associated with less adaptive outcomes if a student feels that he or she has not maintained links with home. Given that (centrally) prototypical nostalgia contains many of the positive features of nostalgia and drives its benefits, inducing nostalgia with the central features may encourage participants to focus on the adaptive elements of nostalgia and thus produce a consistently beneficial experience. It would be useful to examine whether implementing such a nostalgia induction repeatedly serves as an intervention for people who are lonely, ill, or elderly. For example, among older adults prototypical nostalgia may encourage "integrative" rather than "obsessive" reminiscence (Coleman, 2005).

Limitations and Future Research Directions

We view the present research as a crucial step in understanding nostalgia, but not the final one. A further development concerns the sequence of the features we have identified. Russell (1991) argued that, in order to analyze *events* relating to an emotion, one should incorporate its prototypical features into a causal sequence or *script*. Although we can hypothesize a causal sequence of features of nostalgia based on past studies (e.g., that remembering a past event precedes feeling happy; Wildschut et al., 2006), the prototype does not specify such a sequence. For example, *social relationships* has arisen in past research as both a content of nostalgic memories and a trigger of nostalgia (Wildschut et al., 2006).

Future research might examine the causal structure of nostalgia by coding nostalgic narratives or by studying laypersons' interpretations of scripts that contain equally prototypical features but differ in sequence. Similarly, research on mixed emotions shows that positive and negative affect can co-occur but may pertain to different referents (Schimmack, 2005). Our findings clarify that, in nostalgia, negative affect is prototypically a sense of loss or longing for the past, whereas positive affect is prototypically a sense of happiness at recalling a fond memory. Future studies could test whether these emotions are experienced simultaneously or sequentially during a nostalgic episode. The redemption sequences identified in Wildschut et al.'s (2006) narratives imply that negative affect precedes positive; this prediction could be tested directly using a method such as that introduced by Carrera and Oceja (2007) to assess the concurrent timeline of different emotions. Finally, it would be useful to study how nostalgic experiences differ as a function of *particular* prototypical features. For example, are there systematic differences between nostalgic experiences triggered by a familiar smell versus a social interaction, or between those focusing on a fond memory versus childhood? And are the ensuing consequences (for thought and action) different?

On a broader note, timely aims for future research concern the person-level and culture-level moderators of the prototypical nostalgic experience. At the person level, we included a wide range of ages in several of the reported studies. For instance, in Study 7, which contained a substantial older adult sample, only one age difference was observed. Nevertheless, the remaining samples did not include many participants aged over 60. Other data suggest that levels of proneness to nostalgia peak in both young adulthood and older adulthood (Hepper et al., 2011), and it is possible that across the lifespan the prototypical nostalgic experience varies in focus or primary function. For example, in young adulthood nostalgia may assist in coping with life transitions such as leaving the parental home (Davis, 1979), and so may focus on childhood, social groups, and ongoing relationships. In contrast, in older adulthood nostalgia may contribute to constructing or maintaining one's life story (McAdams, 2001), and so may focus more on young-adulthood, self-defining moments, and past relationships. Such ideas are consistent with research on the positivity bias in the memory of many older adults (Mather, 2006; Sedikides & Alicke, in press). Moreover,

although past research, along with our Study 7, has found no gender differences in the effects of nostalgia (Batcho, 1995; Wildschut et al., 2006; Zhou et al., 2008), the role of nostalgia for women versus men warrants further study. It will also be important in future to examine whether individual differences in traits such as neuroticism (Ritchie, 2008), attachment orientation (Wildschut et al., 2010), narcissism (Hart et al., 2011), and approach/avoidance motivation (Stephan et al., 2011) moderate a person's prototypical nostalgic experience. Finally, it would be valuable to examine correlates and consequences of proneness to nostalgia as a stable personality trait (cf. Batcho, 1998; Holbrook, 1993; Routledge et al., 2008), and to address the oft-posed question of whether nostalgia can be pathological in type or in excess (cf. Kaplan, 1987; Peters, 1985). The present findings raise the possibility that a persistent focus on relatively peripherally rather than centrally prototypical nostalgia might result in less adaptive outcomes.

At the cultural level, the research was conducted only in the USA and UK. Basic emotions (such as fear) are thought to be cross-culturally universal; however, subordinate or complex emotions are likely shaped by social and cultural influences (Shaver et al., 1987). Other findings on functions of nostalgia are conceptually consistent across the UK, USA, China, and The Netherlands (Hart et al., 2011; Routledge et al., 2008, in press; Wildschut et al., 2006; Zhou et al., 2008). Despite these promising forays, it is crucial to examine further whether prototypical nostalgia and its functions emerge in the same way across multiple cultures. For example, whereas self-relevance and personal significance were central in the current (Western, individualistic) samples, would group-relevance and communal significance feature more prominently in Eastern, collectivistic samples? To examine the generalizability of the nostalgia prototype, we are currently collecting ratings of the 35 nostalgia features from a range of cultures.

Although the present studies focused on personal nostalgia, other researchers have studied social nostalgia for events or objects collectively experienced by one's generation (Bellelli & Amatulli, 1997; Holbrook & Schindler, 1996), and "vicarious" nostalgia for historical eras not personally experienced (Davis, 1979; Holak & Havlena, 1992; Merchant & Ford, 2008). Future research could examine the extent to which those states overlap with or

diverge from prototypical personal nostalgia. This would be informative for researchers who wish to examine the mechanisms by which different types of nostalgia can predict consumer behavior (Holbrook & Schindler, 1996) or charity donations (Merchant & Ford, 2008; Zhou et al., 2011).

Concluding Remarks

Nostalgia is a psychological resource that has been the subject of much theoretical debate yet, until recently, little empirical investigation. In this research, we have revealed the content and prototypical structure of this resource as experienced by the people who draw on it. In so doing, we have advanced scholarly ability to interpret past findings, plan new research, and assess nostalgia. By casting light on lay conceptions of nostalgia this research has enabled a wandering construct to complete its intellectual odyssey and return to its Homeric home.

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Table 1

Features of Nostalgia, Sample Exemplars, Frequencies Generated in Study 1, and Ratings in Study 2

Feature	Exemplars Written by Participants	Study 1	Study 2	
		N	M	SD
Central				
Memory / Memories	Memory, past memories	120	7.10	1.17
The Past	Past, days gone by, old times	144	6.99	1.18
Fond memories	Fond memories, funny moments, good old days	62	6.73	1.28
Remembering	Remember, recall, looking back	82	6.63	1.41
Reminiscence	Reminiscence, reminiscing	55	6.54	1.41
Feeling	Emotions, feelings, sentimental	57	6.47	1.35
Personal meaning	Personal, values, special	18	6.39	1.68
Longing / Yearning	Longing, yearn, yearning for what was	71	6.32	1.55
Social Relationships	Friends, family, relationships, love, sharing	78	6.28	1.48
Memorabilia/Keepsakes	Keepsakes, old photos, memorabilia	57	6.04	1.71
Rose-tinted memory	Better days, rose-tinted, idealized	29	6.01	1.62
Happiness	Happy, positive, enjoy, smiles	99	5.95	1.63
Childhood / Youth	Childhood experiences, school, youth	67	5.88	1.68
Sensory triggers	Reminders, familiar smells, music	38	5.85	1.61
Thinking	Thought, thinking, introspect, contemplation	27	5.84	1.68
Reliving / Dwelling	Relive the past, dwelling, immerse in memories	20	5.75	1.82
Missing	Missing, miss someone, loss	40	5.70	1.70
Want to return to past	Want to go back in time, want to live in the past	18	5.68	1.81
Peripheral				
Comfort / Warmth	Comfort, warm glow, sense of security	44	5.59	1.65
Wishing / Desire	Wish, desire, wishful	15	5.42	1.68
Dreams / Daydreaming	Dreaming, daydream, staring into space	14	5.33	1.67
Mixed Feelings	Bittersweet, happiness and sadness at same time	13	5.04	1.94
Change	Change, moving on, future	16	4.78	1.80
Calm / Relaxed	Calm, peaceful, relaxed	13	4.64	1.66
Regret	Regret, remorse, missed opportunities	19	4.33	1.91
Homesickness	Homesick, homesickness, home-missing	41	4.06	1.92
Prestige / Success	Achieving, success, prestige	6	4.05	1.87
Ageing / Old people	Age, ageing, old people	14	3.99	2.06
Loneliness	Lonely, unloved, loneliness	16	3.76	1.90
Sadness / Depressed	Sad, cry, depressed, grief	76	3.58	1.94
Negative past	Bad times, past pain, sad events	2	3.33	1.94
Distortion / Illusions	Illusions, distorted view of past, false memories	12	3.30	1.99
Solitude	Introversion, solitary, withdrawn	6	3.22	1.64
Pain / Anxiety	Distress, anxiety, pain, nausea, heart-wrenching	51	3.03	1.84
Lethargy / Laziness	Apathy, lethargic, lazy, bored	19	2.46	1.61

Note. Features are listed in order of Study 2 centrality ratings, which used a scale from 1 (*not at all related to nostalgia*) to 8 (*extremely related to nostalgia*). Features rated above the median (5.68) were classified as central, and those below the median as peripheral.

Table 2

Study 4 and 5: Classification of Prototype Features and Ratings of Vignettes

	Feature Type					
	Central		Peripheral		Control	
Dependent Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*
Study 4						
Percent Verified	87.74	10.79	62.49	20.25	3.13	4.76
Response Speed (ms)	1226.99	188.98	1342.46	277.16	1602.92	602.42
Response speed (log)	3.07	0.06	3.10	0.08	3.16	0.17
Study 5						
Perceived Nostalgia	5.20_a	0.82	4.48_b	1.03	1.77_c	0.94
Important	5.07_a	0.82	4.33_b	1.05	1.25_c	0.56
Pleasant	4.52_a	0.98	1.83_c	0.74	2.80_b	1.16
Unpleasant	2.24_b	1.15	5.01_a	0.69	2.35_b	1.11

Note. In Study 5, all ratings were made on a scale from 1-6. Means within a row that do not share a subscript differed significantly in Bonferroni-corrected *t*-tests ($p < .001$),

Table 3

Study 6: Ratings of Prototype Features in Own Autobiographical Events by Condition

| | Event Type | | | | | |
| | Nostalgia | | Ordinary | | Difference | |
Rating of Event	*M*	*SD*	*M*	*SD*	$F(1, 54)$	*p*
State Nostalgia	5.95	2.00	3.71	2.31	14.96	.0003
Central Features	5.72	1.34	4.24	1.53	14.88	.0003
Peripheral Features	3.39	0.91	2.90	1.10	3.29	.075

Note. All scales ranged from 1 to 8. Central features were rated significantly more descriptive than peripheral features in both the nostalgia condition, $F(1, 54) = 114.77$, $p < .0001$, and the ordinary condition, $F(1, 54) = 37.76$, $p < .0001$.

Table 4

Study 7: State Nostalgia and Nostalgia Functions as a Function of Condition

Dependent Variable	Condition: Mean (SD)				Regression Analyses			
	Central-Prototype	Nostalgic Event	Peripheral-Prototype	Ordinary Event	F (effect of condition)[a]	β(C1)	β(C2)	β(C3)
State nostalgia	4.15 (1.37)	4.65 (1.32)	3.81 (1.60)	3.55 (1.50)	4.92**	.24***	-.12	.06
Positive affect	3.91 (1.28)	4.32 (1.07)	2.32 (1.30)	3.61 (1.18)	24.79***	.40***	-.10	-.31***
Self-regard	3.51 (1.29)	3.97 (1.37)	2.87 (1.48)	3.60 (1.48)	5.37**	.18*	-.12	-.17*
Social connectedness	3.75 (1.36)	4.07 (1.39)	3.61 (1.45)	3.16 (1.49)	3.15*	.18*	-.08	.11
Meaning in life	4.01 (1.31)	4.41 (1.43)	3.74 (1.49)	3.66 (1.58)	2.53[†]	.17*	-.10	.02

Note. Sample sizes in each condition: Nostalgia = 50, Central-Prototype = 52, Ordinary = 40, Peripheral-Prototype = 50. C1: Central-Prototype/Nostalgic-Event vs. Peripheral-Prototype/Ordinary-Event contrast. C2: Central-Prototype vs. Nostalgic-Event. C3: Peripheral-Prototype vs. Ordinary-Event.

[a] Total effect of condition indicates F of Step 1 in regression (combined effects of Contrasts 1-3).

[†]$p < .06$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 5

Correlations Among Indices of Prototypicality Across Studies

Measure	1	2	3	4	5
1. Frequency of feature generation (Study 1)	—	.58***	.51**	.63***	.59***
2. Centrality ratings (Study 2)	.68***	—	.77***	.62***	.86***
3. Frequency automatically verified (Study 4)	.61***	.79***	—	.62***	.57***
4. Speed of automatic verification (Study 4)[a]	.65***	.69***	.67***	—	.53**
5. Ratings of personal nostalgic event (Study 6)[b]	.61***	.85***	.59***	.59***	—

Note. Correlations above the diagonal are based on raw scores ($M = .643$); those below the diagonal are based on ranks ($M = .682$).

[a] Speed of automatic verification is scored so that higher numbers indicate faster responses, and is based on trials on which the feature was verified as related to nostalgia (i.e., "yes" responses).

[b] Ratings from the ordinary-event condition were excluded.

**$p < .01$, ***$p < .001$.

Appendix A

Study 5: Vignettes Embedded with Features

Vignette	Word Count	Read Ease	Grade Level
Central Features			
Sheena is reminiscing about an event from her past. She looks at a photo, a keepsake that reminds her of this event. The memory is a fond one and is very special to her. Sheena dwells on the memory and relives the event in her mind. She misses the event and wishes she could return to that time. Sheena feels emotional as she thinks about it.	66	75.1	5.5
Troy remembers a time from his childhood that was triggered by a familiar smell. As Troy thinks about the scent, he recollects the close relationships he had with his friends back then. Troy enjoys the rose-tinted memories that pop into his mind. He yearns for the good times which are long gone. Troy feels happy as he thinks about his memory.	61	76.5	5.6
Peripheral Features			
Chelsea thinks of her biggest past achievement. Her view of the event is distorted as she only recalls certain parts. At first, Chelsea feels relaxed and wistful as she remembers the event. But she has since moved away, and she begins to feel homesick. She regrets the opportunities she has missed in life. Chelsea now feels detached and lethargic. She just wants to be alone.	65	72.4	5.4
As Mark daydreams about an event from his past, at first, he feels a faint sense of comfort. As the memory lingers he begins to dwell on the negative aspects of the event. Mark realizes how much he has changed since then and has mixed feelings about this. Mark feels emotional pain and sadness. Mark's memory makes him feel lonely and reminds him that he is ageing.	67	77.0	5.8
Control (No Nostalgia Features)			
Marie thinks about an event which was fairly ordinary. She thinks about where she was and what she was doing at each time of the day. As she recalls the facts of the event, Marie does not really feel any emotions. She thinks that the event was pretty mundane and normal. She begins to think about what to have for dinner today.	62	78.2	5.4
Matthew recalls an event from his past and remembers who he was with and what he was doing. He notices that the event is a typical example of how his life was then. Matthew feels almost no emotion prompted by this event. He decides that the event is unimportant.	49	71.8	6.2

Note. Read Ease = Flesch Reading Ease (1-100, higher scores indicate easier readability; Farr, Jenkins, & Paterson, 1951). Grade Level = Flesch-Kincaid grade level (US school grade required to understand text). Both statistics were obtained using the readability tool in Microsoft Word 2003. Each vignette contained either 8 or 9 nostalgia features.

Appendix B

State Functions of Nostalgia Scale

Thinking about this event…

1. makes me feel happy*

2. puts me in a good mood*

3. makes me feel active

4. makes me feel calm

5. makes me value myself more*

6. makes me feel like I have many positive qualities*

7. makes me feel good about myself

8. makes me like myself better

9. makes me feel loved*

10. makes me feel connected to loved ones*

11. makes me feel protected

12. makes me feel I can trust others

13. makes me feel that life is worth living *

14. makes me feel life is meaningful

15. makes me feel life has a purpose

16. makes me feel there is a greater purpose to life

Note. Subscales: positive affect (item 1-4), self-regard (5-8), and social connectedness (9-12), all expanded from Wildschut et al. (2010), and meaning in life (items 13-16) expanded from Routledge et al. (in press). An asterisk indicates the items used in past research.