

# Remembering the Real Me: Nostalgia Offers a Window to the Intrinsic Self

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Seven studies reveal that nostalgia, a sentimental affection for the past, offers a window to the intrinsic self-concept—who people think they truly are. In Study 1, state nostalgia was associated with higher authenticity and lower extrinsic self-focus (concern with meeting extrinsic value standards). In Study 2, experimentally primed nostalgia increased perceived authenticity of the past self, which in turn predicted reduced current extrinsic self-focus. Study 3 showed that nostalgia increased the accessibility of the intrinsic self-concept but not the everyday self-concept. Study 4 provided evidence for a moderator suggested by our theoretical analysis: Recalling a nostalgic event increased felt nostalgia and positive affect, but this effect was attenuated if participants were prompted to recognize external factors controlling their behavior during that event. Next we treated nostalgia as an outcome variable and a moderator to test whether nostalgia is triggered by, and buffers against, threats to the intrinsic self. Using a mediation approach, Study 5 showed that participants primed to feel blocked in intrinsic self-expression responded with increased nostalgia. In Study 6, intrinsic self-threat reduced intrinsic self-expression and subjective well-being for participants who were not given an opportunity to respond with nostalgia but not for participants who were allowed to reflect on a nostalgic memory. In line with the experimental findings, correlational data from Study 7 indicated that dispositional nostalgia positively predicted intrinsic self-expression and well-being. Understanding nostalgia as a window to the intrinsic self points to new directions for research on nostalgia's antecedents, moderators, and consequences for well-being.

*Keywords:* nostalgia, authenticity, intrinsic self, well-being, autobiographical memory

Nostalgia—a sentimental longing or affection for the past—is said to be a universal emotion (Boym, 2001; Fodor, 1950; McCann, 1941; Ruml, 1933). Although the term was not coined until the late 1600s, nostalgic themes emerged in historical works such as *The Odyssey*, the psalms of the Christian Bible, and Hippocrates's medical treatises (McCann, 1941). Nostalgia remains a common theme in modern classics. The main character in Daniel Defoe's *Robinson Crusoe* uses nostalgia to confront the despair caused by a shipwreck that left him stranded on a deserted island away from home. Marcel Proust's novel *Remembrance of Things Past* presents a vivid portrayal of nostalgia's subjective quality. Nostalgia continues to be a popular topic in contemporary film (e.g., *American Graffiti*, *Forrest Gump*), television (e.g., *That 70's Show*, the TV Land network) and radio (e.g., *A Prairie Home Companion*).

What is so special about nostalgia that it has remained a central and universal aspect of the human experience? Emerging research (detailed below) points to a provocative answer: Nostalgia pro-

motes psychological health and well-being. Studies show that people enjoy reflecting on nostalgic memories and find that they offer consolation from distressing experiences (e.g., loneliness, boredom). Experimentally induced nostalgia bolsters a number of positive self-perceptions and emotions, including meaning in life, self-esteem, and social connectedness.

We believe that the next step in this burgeoning line of research is to develop a theoretical account of nostalgia that can integrate these prior findings and generate novel directions in the study of nostalgia's psychological benefits. Our current account posits that nostalgia offers a window to the intrinsic self-concept—who people think they truly are—and in this way reflecting on nostalgic memories can bolster intrinsic self-expression and well-being. Before articulating this account and testing novel hypotheses, we review relevant findings regarding nostalgia's content, functions, and antecedents.

## Defining Nostalgia: From Disorder to Salve

Scientific study of nostalgia began with a medical dissertation by Swiss physician Johannes Hofer (1688/1934), who observed psychological incapacitation among Swiss soldiers due to their intense desire to return home. Building on these observations, medical discourse during the 18th and 19th centuries described nostalgia as “a species of melancholy, or a mild type of insanity, caused by disappointment and a continuous longing for home” (Wilson, 2005, p. 21). The emergence of psychiatry as a separate medical discipline, and a subsequent attention to nostalgia by clinicians, fueled this particular view (Batcho, 2013; Zwingmann, 1959). The most severe cases of nostalgia were viewed as psycho-

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sis and were often diagnosed postmortem as the cause of death (McCann, 1941).

Current conceptions of nostalgia have undergone a substantial shift. Contemporary theorists propose that nostalgia's content is rarely tied to specific geographic locations and focuses instead on psychologically comforting experiences (Boym, 2001; Davis, 1979). This view is echoed in formal definitions: The *Online Etymology Dictionary* (Nostalgia, n.d.) defines nostalgia as "a sentimental yearning for the happiness of a former place *or time*" (emphasis added). Recent qualitative research confirms that nostalgia is a positive, rather than pathological, experience. Systematic analyses of written narratives revealed that the majority of nostalgic memories were positive (Davis, 1979; Holak & Havlena, 1998; Wildschut, Sedikides, Arndt, & Routledge, 2006) and followed a redemptive trajectory, meaning that respondents viewed negative experiences as overshadowed or redeemed by positive ones (e.g., joy of seeing extended family at a loved one's funeral; Wildschut et al., 2006).

Additional evidence comes from a prototype analysis by Hepper, Ritchie, Sedikides, and Wildschut (2012), which revealed that lay conceptions of nostalgia's primary characteristics included fond memories, personal meaning, social relationships, keepsakes, happiness, and childhood. Secondary characteristics included comfort and security, wishing or desire, dreams, and goals. Similar to Wildschut et al.'s (2006) findings, descriptions of nostalgia were not completely free of negative experiences (e.g., homesickness, sadness, anxiety), but these were relatively infrequent.

### Prior Research: Nostalgia's Functions

Building on evidence that nostalgia is a positive experience for individuals, researchers have studied nostalgia's effect on specific psychological resources. One line of research shows nostalgia's benefits for social connectedness. Dispositional nostalgia was positively associated with trait and state levels of perceived social support (X. Zhou, Sedikides, Wildschut, & Gao, 2008), and individuals primed with a nostalgic (vs. nonnostalgic) memory felt more loved and protected, showed more secure attachment styles, and perceived themselves to have more interpersonal competence (Wildschut et al., 2006).

Other research has found that nostalgia boosts self-reported self-esteem (Baldwin & Landau, 2014; Cheung et al., 2013; Wildschut et al., 2006; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010). Nostalgia also increased implicit self-esteem as reflected in faster associations between self-relevant words and positively valenced words (Vess, Arndt, Routledge, Sedikides, & Wildschut, 2012). Inducing nostalgia also increased the feeling that life is meaningful and worth living (Routledge, Arndt, Wildschut, Sedikides, Hart, Juhl, et al., 2011; Routledge, Wildschut, Sedikides, Juhl, & Arndt, 2012). These findings have guided studies looking at the experiences that trigger nostalgic feelings, as discussed next.

### Nostalgia Is Triggered by Negative Experiences

Related lines of research have investigated the situations that trigger nostalgia. Correlational research showed that disruptive life events such as divorce, health problems, and changes in living conditions were positively related to feelings of nostalgia

(Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008). Feelings of insecurity also predicted higher nostalgia (L. Zhou, Wang, Zhang, & Mou, 2013). In qualitative research by Wildschut et al. (2006), people cited negative affect, and in particular feelings of loneliness, as the primary reason for their nostalgic episodes.

Experimental findings confirm that nostalgia is triggered by personally distressing experiences. Wildschut et al. (2006) found that participants in a negative mood condition reported higher nostalgia than participants in positive and neutral mood conditions. Nostalgia was also triggered by feelings of loneliness (Loveland, Smeesters, & Mandel, 2010; Wildschut et al., 2010; X. Zhou et al., 2008), threats to feelings of value and purpose (Routledge et al., 2011), awareness of one's own mortality (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010), and boredom (van Tilburg, Igou, & Sedikides, 2013).

### Nostalgia Buffers Threat

An additional line of research investigates nostalgia's potential to act as a psychological buffer that protects individuals from self-relevant threats. For example, nostalgia alleviated feelings of loneliness by increasing perceptions of social support and social connectedness (Wildschut et al., 2010; X. Zhou et al., 2008) and protected people against the negative effects of social exclusion (Loveland et al., 2010).

Nostalgia also protects against self-esteem threats. Vess et al. (2012) found that compensatory self-enhancement following negative performance feedback was attenuated for participants who additionally reflected on a nostalgic memory but not for those who reflected on a nonnostalgic memory. Nostalgia is a buffer against threats to meaning as well. Individuals who, by disposition, experienced high (vs. low) levels of nostalgia were less likely to exhibit increased accessibility of death-related thoughts after a reminder of their mortality (Routledge, Arndt, Sedikides, & Wildschut, 2008). Experimentally induced nostalgia (vs. a nonnostalgic memory) reduced the extent to which people derogated the author of an essay that challenged the significance of human life (Routledge et al., 2011) and preserved a sense of meaning after viewing absurd works of art that violated expectations about the visual world (Routledge et al., 2012).

### Summary

Nostalgia is a personally valued emotional experience that (a) bolsters a variety of psychological resources (b) is triggered by negative and distressing experiences, and (c) buffers the negative effects of those experiences. Taken together, the prior research points to nostalgia's broad positive impact on diverse indices of well-being and health (see Routledge, Sedikides, Wildschut, & Juhl, 2013).

This diversity of effects is impressive, but it also presents a limitation: The current literature may read as a catalogue or "laundry list" of individual effects of nostalgia on a range of outcomes related to personal well-being. However, other effects do not map on to the concept of well-being as clearly. For example, induced nostalgia increased altruism and empathy (X. Zhou, Wildschut, Sedikides, Shi, & Feng, 2012) and reduced prejudice (Turner, Wildschut, & Sedikides, 2012; Turner, Wildschut, Sedikides, & Gheorghiu, 2013). These outcomes are not as representative of the

“basic needs” or psychological resources typically associated with health and well-being.

One interpretation of this literature is that nostalgia, via several independent mechanisms, serves a variety of functions. However, we suggest that a more fruitful perspective would aim to develop an integrative theoretical framework that can account for nostalgia’s seemingly distinct functions under a single mechanism.

Evidence of mediating mechanisms has been found for some of nostalgia’s effects described above. For example, research has shown that nostalgia increased meaning in life by increasing social connectedness (Routledge et al., 2011). Other research reveals more complex processes. For instance, nostalgia’s effect on social connectedness resulted in increased self-esteem, which further increased optimism (Cheung et al., 2013). In another study, only self-esteem emerged as the mediator of nostalgia’s effects on growth-oriented outcomes when tested simultaneously with social connectedness and meaning in life (Baldwin & Landau, 2014).

Although these findings help to address some of the processes by which nostalgia promotes well-being, such accounts seem limited to explaining discrete findings. Furthermore, the effects of nostalgia on outcomes seemingly distinct from well-being or basic needs have their own set of mediating variables. For example, nostalgia reduced prejudice toward overweight people by increasing the extent to which the outgroup (i.e., overweight people) was included in the self-concept (Turner et al., 2012). The above findings do not isolate a single mechanism that can explain nostalgia’s diverse effects.

Some other attempts to understand nostalgia’s functions have been made by exploring unique cognitive markers of nostalgia compared to other forms of temporal thinking. Stephan, Sedikides, and Wildschut (2012) proposed that nostalgic memories involve abstract, complex, and higher level thought that distinguishes them from ordinary and positive memories. This distinction may explain how nostalgia bolsters meaning in life, which depends on abstract processing (see Trope & Liberman, 2010).

However, this account has limitations. For example, abstract processing is also indicative of increased temporal distance (Semin & Smith, 1999; Trope & Liberman, 2010), which has been shown to elicit contrast effects for judgments of the current self compared to past selves (Gebauer, Broemer, Haddock, & von Hecker, 2008). Considering that nostalgic memories represent important, positive, and self-relevant events (Wildschut et al., 2006), comparing the current self to the nostalgic self might be expected to produce *negative* outcomes to the extent that nostalgic memories are more distant, and more distance leads to contrast (Schwarz & Bless, 1992). Yet the majority of theoretical and empirical work suggests that people assimilate positive nostalgic memories into their current self-concept. For instance, regarding nostalgia’s influence on social connectedness, Wildschut et al. (2006) proposed that nostalgia assimilates positive memories of close relationships into current working models of the self and others, which bolsters current feelings of connectedness. In short, many assimilative effects of nostalgia cannot be explained by a purely cognitive account that relies on the abstractness of nostalgic memories.

The purpose of the current research is to propose and test a novel account of nostalgia’s function that integrates most (if not all) of the current findings with a single mechanism, and furthermore can situate nostalgia’s significance in the context of influential theories of self and identity.

## Nostalgia Offers a Window to the Intrinsic Self

We propose that nostalgia offers a window to the intrinsic self-concept, defined as a set of ideas, feelings, and beliefs about one’s core and authentic attributes. People can identify the attributes that reflect who they think they truly are, and they tend to rate those attributes more positively than other aspects of themselves (Harter, 2002). Furthermore, people can recall times that did and did not reflect their “true” selves, suggesting that people can distinguish their true self from the self that they may present to others (Lenton, Bruder, Slabu, & Sedikides, 2013).

From our perspective, nostalgia’s positive effects on important psychological resources and well-being emerge because these outcomes are linked to increased access to, and expression of, the intrinsic self-concept. For example, dispositional and experimentally induced accessibility of the intrinsic self (vs. other self-aspects) was associated with increased meaning in life (Schlegel, Hicks, Arndt, & King, 2009). In other work, dispositional authenticity—expressing the intrinsic self in daily activities—predicted the development and attainment of internalized, self-determined, and need-satisfying goals across time (Kernis & Goldman, 2005). We propose that nostalgia produces similar outcomes by bringing to mind past experiences in which controlling and extrinsic influences on one’s self were (or are perceived to have been) minimal and that highlight one’s core and authentic traits (Stern, 1992; Wilson, 2005). Thus nostalgic memories offer a clear picture of the intrinsic and authentic self, which is then assimilated into the current self-concept.

Consequently, nostalgia becomes particularly appealing when people feel confused about their intrinsic selves or feel unable to express their intrinsic self in their current lives. Consistent with this claim, Lenton et al. (2013) found that experiences for which participants felt *least* like their true selves were characterized by themes of personal and interpersonal insecurity (e.g., isolation, anxiety), disruptive events (e.g., difficulties, failing others), low meaning, and boredom (e.g., lack of excitement, pleasure, stimulation), all of which have been established as antecedents to nostalgia (Routledge et al., 2011, 2012; Sedikides et al., 2008; van Tilburg et al., 2013; L. Zhou et al., 2013). In short, people tend to reflect on nostalgic memories when they find themselves in situations that make it hard to know or express who they truly are.

More direct evidence that nostalgia offers a window to the intrinsic self comes from several lines of research on authenticity, reduced extrinsic focus, and psychological growth, as summarized next.

## Nostalgia Increases Authenticity

The hallmark of the intrinsic self-concept is authenticity: The expression of one’s central or core qualities. In Kernis and Goldman’s (2006) more elaborate characterization, authenticity is an awareness of one’s intrinsic goals and feelings, an unbiased understanding of one’s emotions and experiences, behaviors that align with personal needs and desires, and an orientation toward meaningful and honest relationships. Others state simply that an authentic person is not influenced by external demands, especially when those demands contradict intrinsic goals and values (Wood, Linley, Maltby, Baliousis, & Joseph, 2008). Focusing on state, as opposed to trait, authenticity, Lenton et al. (2013) characterized

authenticity as feelings of pleasure and contentment, high need satisfaction, and alignment between the intrinsic self and the ideal self.

Integrating this work with our proposed account, we would expect nostalgia to bolster felt authenticity. This hypothesis was supported in research by Stephan et al. (2012). Participants randomly assigned to reflect on a nostalgic memory (vs. a nonnostalgic memory) described their memory as more descriptive of their intrinsic self, or “the person you truly are.” Other research has documented the converse relationship: When prompted to describe an event during which they felt most (vs. least) like their true or real self, participants rated that experience as more nostalgic (Lenton et al., 2013).

### Nostalgia Reduces Extrinsic Focus

Focusing on one’s intrinsic self reduces personal concern with meeting external standards and expectations (Wood et al., 2008). For example, negative feedback from others is less likely to diminish self-worth when one’s core and valued self-concept is affirmed (Deci & Ryan, 1995; Kernis, 2003; Lobel & Teiber, 1994; Schimel, Arndt, Banko, & Cook, 2004; Sherman & Cohen, 2006).

Our account suggests that nostalgia will similarly reduce the negative impact of others’ evaluations on the self. Accordingly, Vess et al. (2012) found that participants responded defensively to negative feedback regarding their intelligence (i.e., attributing poor test performance to external factors), but not if they subsequently reflected on a nostalgic memory. An ordinary memory, in contrast, did not buffer the impact of negative performance feedback.

### Nostalgia Promotes Growth-Oriented Outcomes

Expressing the intrinsic self is associated with intrinsically motivated behavior—doing something for the enjoyment or challenge of the activity rather than by external rewards (Ryan & Deci, 2000). Along these lines, Fredrickson’s (1998) broaden-and-build theory posits that intrinsic motivation is characterized by positive emotions that orient self-perceptions and behavioral intentions toward exploration and growth. Thus, people who express their intrinsic selves engage in behaviors that interest them, stem from internalized values and beliefs, and promote psychological growth and exploration.

If nostalgia offers a window to the intrinsic self, as we claim, it should be positively associated with growth-oriented outcomes. Indeed, nostalgia was described using words that reflect growth tendencies (e.g., desire, future; Hepper et al., 2012). Furthermore, first-year college students primed to engage in nostalgia subsequently showed improved adaption to the challenging college transition, reporting high interest in engaging in unfamiliar experiences, especially when similarities between the nostalgic self and the current self were made salient (Iyer & Jetten, 2011). Related evidence shows that nostalgic (vs. nonnostalgic) reflection on the past increased growth-oriented self-perceptions and behavioral intentions (Baldwin & Landau, 2014).

### The Current Research

The lines of evidence just reviewed suggest, but do not directly test, the prediction that nostalgia offers a window to the intrinsic

self-concept and promotes intrinsic self-expression and well-being. The current studies examine this possibility more directly by testing a series of novel hypotheses derived from our theoretical analysis. The first part of the article explores the role of *state* nostalgia in prompting authenticity and intrinsic self-expression. First, in Study 1, we examined associations among self-reported state nostalgia and indices of intrinsic self-expression. We predicted that, when prompted to recall a past memory, participants’ self-reported nostalgia for the remembered event would be positively correlated with intrinsic self-expression, conceptualized as increased authenticity and reduced concern with meeting external standards of self-worth. Study 2 provided an experimental test of these relationships. On the basis of our current account—that nostalgia opens a window to the intrinsic self and encourages intrinsic self-expression—we predicted that experimentally induced nostalgia (vs. nonnostalgic reflection) would lead to perceptions that the past self was authentic and reduce current extrinsic self-focus. We employed a mediation approach to further test whether nostalgia reduced current extrinsic self-focus by means of increasing perceived past self-authenticity.

Study 3 tested whether experimentally induced nostalgia would increase the accessibility of the intrinsic self-concept but not the everyday self-concept. Study 4 tested a related hypothesis: If people enjoy nostalgic memories because they highlight intrinsic and authentic aspects of the self, then feelings of nostalgia and positive affect associated with nostalgic reflection should be attenuated if extrinsic and controlling influences during the recalled event are made salient.

In Studies 5 and 6, we considered state nostalgia as an outcome or moderating variable rather than a predictor. Study 5 tested the hypothesis that nostalgic feelings are more likely to emerge when people are reminded of difficulties expressing their intrinsic selves, and Study 6 examined whether nostalgia, induced after such reminders, can restore feelings of intrinsic self-expression.

Finally, in Study 7 we focused on *trait* nostalgia—how habitually nostalgic one feels about the past—as opposed to state nostalgia. Using a correlational design, we examined the associations among trait nostalgia, intrinsic self-expression, and well-being. We predicted that that trait nostalgia would be positively correlated with intrinsic self-expression and well-being.

### Study 1

In Study 1, we prompted participants to call up a memory and measured the extent to which they felt nostalgia for that memory. We tested the hypothesis that this *state* level of nostalgia would be positively correlated with authenticity and negatively correlated with extrinsic self-focus. Although prior research hints at a positive association between nostalgia and authenticity (e.g., Stephan et al., 2012), the current study employs a more established and reliable measure of authenticity than was used in prior research and considers naturally occurring feelings of nostalgia for an autobiographical memory.

We also explored whether nostalgia would be associated with reduced extrinsic self-focus. As discussed in the Introduction, this association is supported by prior evidence that nostalgia reduces defensive responses to negative performance feedback (Vess et al., 2012). We used an established measure of current extrinsic self-focus (i.e., extrinsic contingency focus; Williams, Schimel, Hayes,

& Martens, 2010) to test the prediction that self-reported state nostalgia would predict lower extrinsic self-focus.

## Method

**Participants.** Participants were 87 Amazon Mechanical Turk (MTurk) users who completed an online survey in exchange for \$1.00. MTurk samples are demographically diverse and produce data as reliable as those obtained in a typical laboratory setting (Buhrmester, Kwang, & Gosling, 2011).<sup>1</sup> A total of eight participants were excluded from analyses for indicating that they had done a similar survey in the past, leaving a final sample of 79 participants (51% male;  $M_{\text{age}} = 35$  years). Participants self-identified as White (77%), Asian (8%), Black (7%), Hispanic (3%), and “other” (1%). Three participants (4%) did not indicate their race.

**Materials and procedure.** After reading a brief consent form, participants were instructed to bring to mind one memory from their past and to think about it for a few moments. Instructions stated that “people have all sorts of memories so there are no rules for the kind of memory you think about.” After clicking to the next screen, participants were asked to describe their memory in detail in an essay text box.

Following the memory task, participants used a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*) to respond to several items about their recalled memory. Of primary focus were four items assessing state nostalgia that we created on the basis of prior theory and research (“This memory makes me feel nostalgic/wistful/sentimental/a longing for my past”; Hepper et al., 2012; Wildschut et al., 2006; Wilson, 2005). A composite nostalgia score was computed by averaging all four nostalgia items ( $\alpha = .88$ ).

Next, participants completed Kernis and Goldman’s (2006) Authenticity Inventory specifically with regard to their current self-concept (i.e., “Who you are today?”). The measure includes 45 items assessing perceived authenticity in one’s current life (e.g., “For better or for worse I am aware of who I truly am”; 1 = *strongly disagree*, 5 = *strongly agree*;  $\alpha = .94$ ).

Participants then completed the 20-item Extrinsic Contingency Focus Scale (Williams et al., 2010). The scale assesses the extent to which one is presently focused on meeting extrinsic contingencies of self-worth (e.g., “I work hard at things because of the social approval it provides”; 1 = *strongly disagree*, 5 = *strongly agree*;  $\alpha = .87$ ). Finally participants were asked to indicate how old they were in the memory they had recalled earlier and complete demographic information.

## Results and Discussion

Descriptive statistics and correlations can be found in Table 1. Considering that participants were allowed to reflect on any time in their past, we computed partial correlations controlling for the time (in years) between participants’ current age and their age in their recalled memory to account for any effects of temporal distance on felt nostalgia and current self-perceptions (results are very similar without this control).

As predicted, state nostalgia was significantly and positively correlated with current authenticity and negatively correlated with current extrinsic self-focus. These findings suggest that spontaneous, in-the-moment feelings of nostalgia are associated with self-perceptions that reflect intrinsic self-expression. Participants

Table 1

*Study 1: Descriptive Statistics and Correlations for Nostalgia, Authenticity, and Extrinsic Self-Focus*

Variable	<i>M</i>	<i>SD</i>	Correlations		
			1	2	3
1. Nostalgia	4.96	1.74	—	0.26**	−0.27**
2. Authenticity	3.66	0.54		—	−0.68***
3. Extrinsic Self-Focus	2.73	0.63			—

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

whose memory made them feel more nostalgic rated themselves as more authentic and were less concerned with meeting extrinsic standards of self-worth. The next set of studies utilizes experimental methods to test related hypotheses.

<sup>1</sup> All of the studies reported here relied on MTurk workers. Although there is evidence suggesting that MTurk samples produce reliable data, we also took efforts to reduce “noise” as best as possible in all seven studies. First, we aimed to ensure that all of the samples used across the seven studies were independent. When possible, links for separate studies were posted using the same task or “HIT” on MTurk. After data collection for one study was finished, we simply changed the study link on MTurk, which would direct a new set of participants to the new study (MTurk workers cannot complete the same HIT more than once). We also set up the survey software so that the same IP address could not be used to take the survey more than once. Of course, it is possible for workers to create several worker accounts or to use different devices. To address this possibility, we also included a single item at the end of each survey asking participants if they had done a similar study in the past. We made it clear to participants that their answers would not affect payment. We excluded any repeat users from analyses (as detailed in the Method sections). In no study did they exceed 10.

Second, for studies that included a writing task (i.e., nostalgia, self-description, and intrinsic threat manipulations; Studies 2–6) we examined participants’ entries to ensure that they all wrote a few words, at minimum, and that their entries followed instructions and accorded with their assigned condition. We excluded participants who did not meet these criteria (details regarding these exclusions can be found in the studies’ Method sections).

Third, we took steps to ensure that participants completed the survey in one sitting. The consent form made it clear to participants that they would have 30 min (for shorter surveys) to an hour (for longer surveys) to complete the survey. Each survey session was set to expire after the allotted time, after which participants could not submit their work to MTurk. Also, participants were not allowed to save the survey for completion at a later time. None of the participants spent an unreasonable amount of time working, meaning that all participants completed the dependent measures of interest either directly following, or shortly after, the experimental manipulations in Studies 2–6.

Finally, we examined the data to ensure that the majority of participants were attentive while responding to the primary dependent variables. We assessed the reliability of each dependent measure and paid particular attention to item-total correlations for reverse coded items. If participants were merely “clicking through” the items by choosing random numbers along the rating scales, then overall scale reliabilities would be low. If participants were “clicking through” the items by choosing the same number, then reverse coded items would appear to behave like the nonreversed items (i.e., positive interitem correlations). In all of the studies, overall scale reliabilities were adequate and reverse coded items were negatively correlated with the scale, suggesting that participants were generally attentive and appropriately responsive to the survey items. Starting in Study 4 we also included a single item asking participants whether they were distracted during the survey (a “yes”/“no” rating scale), and we excluded participants who indicated that they were distracted. We report the number of excluded participants—those who failed any of the checks mentioned above—in the introduction of each study.

## Study 2

In Study 2 we experimentally tested the hypothesis that nostalgia offers a window to the authentic self, which in turn orients current self-perceptions away from extrinsic concerns. Specifically, we predicted that the past self in nostalgic memories would be rated as more authentic compared to the past self in ordinary memories. We also predicted that reflecting on a nostalgic (vs. ordinary) memory would decrease extrinsic self-focus (again, one's concern with meeting extrinsic standards and demands in the present) and that this effect would be mediated by past self-authenticity.

## Method

**Participants.** Participants were 120 MTurk workers who completed the survey for compensation (\$0.50). A total of 10 participants were excluded from analyses for not following instructions during the memory writing task, leaving a final sample of 110 participants (51% male;  $M_{\text{age}} = 28$  years). Participants self-identified as White (63%), Black (13%), Hispanic (9%), Asian (7%), American Indian (2%), and "other" (6%).

**Nostalgia manipulation and check.** Participants were randomly assigned to recall a nostalgic or ordinary memory from their past. Participants in the Nostalgia condition received the following prompt used in prior research (Routledge et al., 2011; Wildschut et al., 2006):

Please bring to mind a nostalgic time in your life. Nostalgia is often defined as a sentimental longing or affection for the past. Specifically, try to think of a time that makes you feel most nostalgic. Please write down four keywords relevant to this nostalgic time from your past.

Participants typed their keywords into separate text boxes and then were asked to elaborate on their memory in an essay text box. Participants in the No Nostalgia condition received parallel instructions to write about an ordinary event from their past.

After they finished writing, participants responded to a single-item manipulation check: "Thinking about this memory makes me feel nostalgic" (1 = *strongly disagree*, 7 = *strongly agree*).

**Past self-authenticity.** Participants were then asked to reflect on the memory they had just written about (nostalgic or nonnostalgic) and to bring to mind a picture of who they were at the time of the recalled event. They were instructed to keep the image of their past self in mind while they completed an adapted version of Kernis and Goldman's (2006) Authenticity Inventory. In our adapted version, items were reworded to refer to the past self (e.g., "For better or for worse I was aware of who I truly was"; 1 = *strongly disagree*, 5 = *strongly disagree*;  $\alpha = .85$ ).

**Present extrinsic self-focus.** Finally, participants completed the 20-item Extrinsic Contingency Focus Scale (Williams et al., 2010) used in Study 1 ( $\alpha = .86$ ). Participants received explicit instructions to respond to these items specifically with regard to their current self-concept ("who you are today").

## Results

Participants in the Nostalgia condition reported feeling significantly more nostalgic than participants in the No Nostalgia condition ( $M = 3.88$ ,  $SD = 1.07$  vs.  $M = 2.70$ ,  $SD = 1.28$ ),  $t(101.69) = 5.22$ ,  $p < .001$ ,  $d = 1.00$ , 95% confidence interval

(CI)<sub>mean diff</sub> = [0.73, 1.62]. Nostalgia participants also expressed more positive affect compared to No Nostalgia participants ( $M = 3.27$ ,  $SD = 0.77$  vs.  $M = 2.80$ ,  $SD = 0.71$ ),  $t(108) = 3.38$ ,  $p = .001$ ,  $d = 0.63$ , 95% CI<sub>mean diff</sub> = [0.20, 0.76].

As predicted, Nostalgia participants rated their past selves as more authentic compared to No Nostalgia participants ( $M = 3.26$ ,  $SD = 0.42$  vs.  $M = 3.09$ ,  $SD = 0.32$ ),  $t(108.42) = 2.36$ ,  $p = .02$ ,  $d = 0.46$ , 95% CI<sub>mean diff</sub> = [0.03, 0.31]. Also as predicted, Nostalgia participants reported lower present extrinsic self-focus compared to No Nostalgia participants ( $M = 2.90$ ,  $SD = 0.73$  vs.  $M = 3.21$ ,  $SD = 0.46$ ),  $t(95.86) = 2.72$ ,  $p = .008$ ,  $d = 0.51$ , 95% CI<sub>mean diff</sub> = [0.08, 0.55].

**Mediation by past self-authenticity.** Table 2 lists correlations among the variables in the mediation model separately within Nostalgia and No Nostalgia conditions. It is important to note that we observed the predicted negative association between past self-authenticity (mediator) and current extrinsic focus (outcome) only in the Nostalgia condition ( $r = -.41$ ,  $p < .01$ ). Assuming this association would remain significant controlling for condition, as is the case in the mediation model, we moved forward with our planned mediation analysis.

We tested whether past self-authenticity mediated nostalgia's effect on present extrinsic self-focus. Using the PROCESS macro for SPSS (5,000 bootstrapped resamples; Model 4; Hayes, 2013), we regressed present extrinsic self-focus on Nostalgia (dummy coded: 0 = No Nostalgia and 1 = Nostalgia) and entered past self-authenticity as the proposed mediator. We also included positive affect as a potential mediator. This allowed us to test the alternative hypothesis that the effect of nostalgia on reduced extrinsic focus could be explained by nostalgia's effect on overall positive affect.

As seen in Figure 1, Nostalgia increased past self-authenticity, which in turn reduced present extrinsic focus. The confidence interval of the indirect effect through past self-authenticity did not include zero, *indirect effect* =  $-0.08$  (0.05), 95% CI =  $[-0.20, -0.01]$ . Nostalgia was also positively associated with overall positive affect, but positive affect was not associated with present extrinsic self-focus in the multivariate model. Consequently, positive affect was not a significant mediator, 95% CI =  $[-0.07, 0.09]$ .

## Discussion

We predicted and found that nostalgic (vs. nonnostalgic) reflection on the past increased perceived past self-authenticity, which

Table 2  
Study 2: Correlations Among Positive Affect, Past Self-Authenticity, and Present Extrinsic Self-Focus Within Nostalgia and No Nostalgia Conditions

Variable	1	2	3
No Nostalgia condition			
1. Positive Affect	—	0.07	0.13
2. Past Self-Authenticity		—	-0.01
3. Present Extrinsic Self-Focus			—
Nostalgia condition			
1. Positive Affect	—	0.30*	-0.14
2. Past Self-Authenticity		—	-0.41**
3. Present Extrinsic Self-Focus			—

\*  $p < .05$ . \*\*  $p < .01$ .

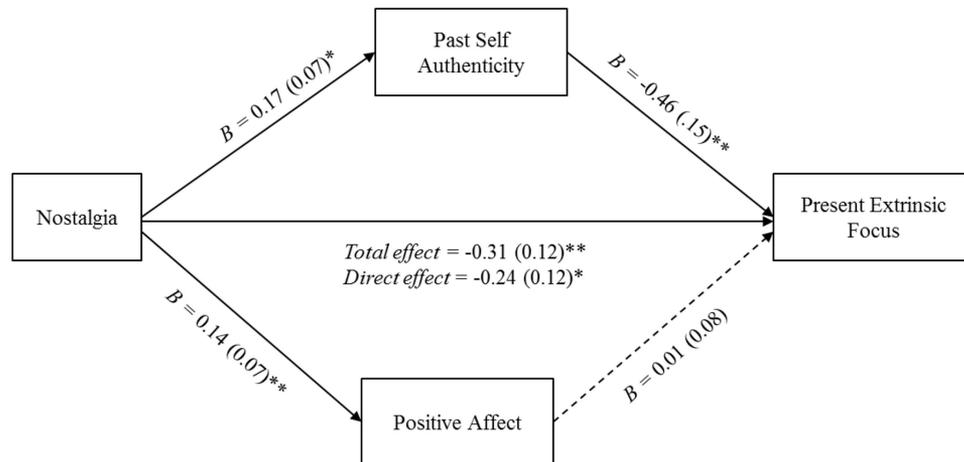


Figure 1. Study 2: Model of the indirect effect of Nostalgia on extrinsic focus through past self-authenticity. Nostalgia was dummy coded such that 0 = No Nostalgia and 1 = Nostalgia. All coefficients represent unstandardized regression coefficients. Dashed lines highlight nonsignificant relationships, and solid lines highlight significant relationships. \*  $p < .05$ . \*\*  $p < .01$ .

mediated the effect of nostalgia on reduced extrinsic self-focus. This process was not explained by nostalgia's influence on positive affect. Interestingly, the effect of past self-authenticity on current extrinsic focus emerged only among Nostalgia participants, suggesting that nostalgia can link together past and present self-perceptions when they are not typically associated (i.e., in the No Nostalgia condition). These experimental findings corroborate Study 1's correlational evidence that nostalgia is positively associated with present intrinsic self-expression. However, Study 2 also highlights the assimilative process that is prompted by nostalgia: By opening a window to the past, authentic aspects of one's self are assimilated into current self-perceptions, causing present extrinsic concerns to become less salient or less important. In Study 3 we explore whether nostalgia makes the intrinsic self-concept (vs. the everyday self-concept) more accessible.

### Study 3

Participants in Study 3 reflected on a nostalgic or nonnostalgic past event and then described their "intrinsic self" or their "everyday self." We predicted that the intrinsic self-concept would be more accessible for participants who reflected on a nostalgic memory compared to those who did not. We also predicted that nostalgia would lead to greater accessibility of the intrinsic self-concept, but not the everyday self-concept.

We operationalized self-accessibility in two ways. First, we relied on prior research suggesting that the accessibility of a concept manifests as an ability to generate more information about that concept (Novemsky, Dhar, Schwarz, & Simonson, 2007; Reber, Wurtz, & Zimmermann, 2004). Accordingly, we measured overall word count and total writing time for participants' self-descriptions and combined the two into a thought generation index. Greater intrinsic self-accessibility would be reflected in more thought generation for intrinsic self-descriptions.

Second, we considered research showing that the accessibility of a concept is expressed in greater cognitive elaboration of that concept (Reber et al., 2004). Accordingly, we measured participants' use of

cognitive words in their self-descriptions (e.g., *because, think, know*), which is a reliable index of the extent to which one's language reflects meaningful reflection, insight, and elaboration (Boals & Klein, 2005; Kross & Ayduk, 2008; Tausczik & Pennebaker, 2010). Greater intrinsic self-accessibility would be reflected in a higher proportion of cognitive words for intrinsic self-descriptions.

### Method

**Participants and design.** One hundred adults participated on MTurk for compensation (\$0.50). Eight participants were excluded from the analyses for indicating they had done a similar experiment in the past, having extreme thought generation values (greater than 3 SDs from the mean), or for not following instructions during the memory task. This left a final sample of 92 adults (46% male;  $M_{\text{age}} = 32$  years). Participants self-identified as White (75%), Hispanic (10%), Asian (8%), Black (4%), American Indian (1%), and "other" (2%). They were randomly assigned to conditions in a 2 (memory: Nostalgia vs. No Nostalgia)  $\times$  2 (self-description: Intrinsic Self vs. Everyday Self) between-subjects experiment.

**Nostalgia manipulation and check.** Participants were assigned to the same Nostalgia and No Nostalgia conditions as in Study 2 and completed the same single item manipulation check.

**Self-description manipulation.** Participants were next assigned to self-description conditions. Participants in the Intrinsic Self condition received the following instructions:

Now we would like to get a sense of who you are today. Please take some time to think about all the things that are important to you, such as your goals and aspirations. Also think about all the ways you would describe yourself. After taking some time to think about who you really are, please write your thoughts in the essay box on the following page.

Responses were made in a text box. Participants in the Everyday Self condition were asked to describe their current lifestyle—how they are in their day-to-day life. In both conditions instructions explicitly stated that participants should write about themselves for

as long as they would like. We also encouraged participants to be as honest and expressive as they would like.

**Self-accessibility.** As described above, our first measures of self-accessibility were total word count and writing time for self-descriptions. Word counts were obtained using the Linguistic Inquiry and Word Count Software (LIWC; Pennebaker, Francis, & Booth, 2007). Writing time was recorded as the time (in seconds) between participants' first mouse click in the self-description essay text box and the final button click to move on to the next page. We began the count at the first click in the essay box to factor out the time participants may have spent reading the instructions (or doing any number of unrelated things) prior to starting their self-description, and to control for the amount of time the page spent loading. This writing time measure therefore reflects just that—the time participants spent writing their self-descriptions. We standardized the total word count and writing time measures and combined them into a thought generation index. Our second measure of accessibility was the use of words reflecting cognitive elaboration (percent of total words), which we obtained using the “cognitive mechanisms” dictionary in LIWC.

## Results

Writing time and word count were significantly correlated ( $r = 0.47, p < .001$ ), supporting the use of a standardized thought generation index. Thought generation and cognitive elaboration were not significantly correlated ( $r = 0.10, p = .32$ ).

To test the effectiveness of the nostalgia manipulation, as well as to ensure that felt nostalgia did not differ between the self-description conditions (i.e., successful random assignment), we conducted a 2 (memory: Nostalgia vs. No Nostalgia)  $\times$  2 (self-description: Intrinsic vs. Everyday Self) analysis of variance (ANOVA) on the felt nostalgia manipulation check item. As expected, Nostalgia participants experienced more nostalgia than No Nostalgia participants ( $M = 6.36, SD = 1.18$  vs.  $M = 4.21, SD = 2.05$ ),  $F(1, 88) = 36.06, p < .001, \eta_p^2 = 0.29$ . Felt nostalgia did not differ between the self-description conditions nor was there an interaction between memory and self-description ( $ps > .78$ ).

**Accessibility in self-description task (thought generation).** Overall descriptive statistics for the primary dependent variables appear in Table 3. To test our primary hypotheses we submitted the thought generation index to the same 2  $\times$  2 analysis as above, but we included word count from participants' memories as a covariate to account for any influence of participants' amount of writing on the previous memory task (analysis of covariance [ANCOVA]). Accordingly, we report estimated marginal means and standard errors of the dependent variables across conditions. We observed

Table 3  
Study 3: Overall Descriptive Statistics for Writing Time and Word Count (Thought Generation) and Cognitive Words (Cognitive Elaboration)

Variable	<i>M</i>	<i>Mdn</i>	<i>SD</i>	Minimum	Maximum
Writing time (seconds)	123.80	99.64	85.23	16.32	439.12
Word count	70.46	58.00	44.24	15.00	237.00
Cognitive words (% of total)	3.44	2.78	3.26	0.00	13.04

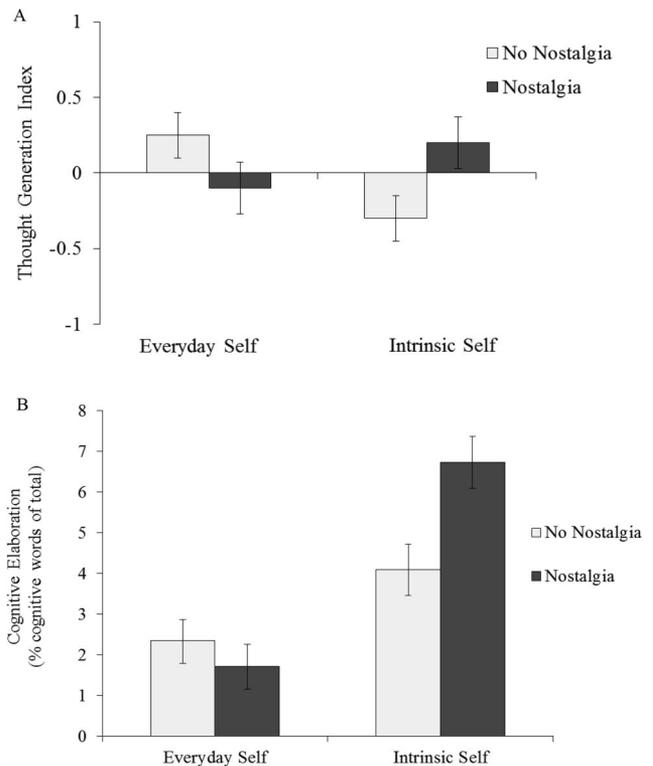


Figure 2. Study 3: Thought generation and cognitive elaboration across Memory (Nostalgia vs. No Nostalgia) and Self-Description conditions (Intrinsic Self vs. Everyday Self). Error bars represent standard errors of the estimated marginal means.

the predicted interaction,  $F(1, 87) = 6.74, p = .01, \eta_p^2 = 0.07$  (for main effects  $ps > .46$ ). Figure 2A depicts the pattern of results.

Looking within the Intrinsic Self condition, Nostalgia participants exhibited higher thought generation in their intrinsic self-descriptions compared to No Nostalgia participants ( $M = 0.20, SE = 0.17$  vs.  $M = -0.30, SE = 0.17$ ),  $F(1, 87) = 4.14, p = .05, \eta_p^2 = 0.05$ . In contrast, Nostalgia participants exhibited lower thought generation in their everyday self-descriptions compared to No Nostalgia participants ( $M = -0.10, SE = 0.15$  vs.  $M = 0.25, SE = 0.15$ ), although the effect only approached significance ( $p = .10$ ).

Viewed another way, when participants were prompted to reflect on an ordinary memory, they wrote less about their intrinsic self than their everyday self ( $M = -0.30, SE = 0.17$  vs.  $M = 0.25, SE = 0.15$ ),  $F(1, 87) = 5.76, p = .02, \eta_p^2 = 0.06$ . Conversely, participants primed with a nostalgic memory wrote more about their intrinsic selves compared to those not primed with nostalgia ( $M = 0.20, SE = 0.17$  vs.  $M = -0.10, SE = 0.15$ ), although the effect was not significant ( $p = .20$ ).

**Accessibility in self-description task (cognitive elaboration).** Next, we submitted cognitive words to the same 2  $\times$  2 ANCOVA. We included cognitive words from the previous memory task as a covariate to ensure that participants' elaboration of their self-descriptions was not due to elaboration of their memories. We also included overall writing time during the self-description task as a covariate, to ensure that differences in cognitive word counts were

not due the amount of time participants spent writing their self-descriptions. A marginal effect of memory was observed,  $F(1, 86) = 2.94, p = .09, \eta_p^2 = 0.03$ . Participants in the Nostalgia condition used more cognitive words in their self-descriptions compared to No Nostalgia participants ( $M = 4.22, SE = 0.42$  vs.  $M = 3.23, SE = 0.40$ ).

A significant main effect of self-description also emerged,  $F(1, 86) = 34.27, p < .001, \eta_p^2 = 0.29$ . Participants used more cognitive words in their intrinsic self-descriptions compared to their everyday self-descriptions ( $M = 5.42, SE = 0.44$  vs.  $M = 2.03, SE = 0.38$ ). These main effects were qualified by a significant interaction,  $F(1, 86) = 7.31, p = .008, \eta_p^2 = 0.08$  (see Figure 2B).

Looking within the Intrinsic Self condition, Nostalgia participants used more cognitive words to describe their intrinsic selves compared to No Nostalgia participants ( $M = 6.73, SE = 0.64$  vs.  $M = 4.10, SE = 0.62$ ),  $F(1, 86) = 8.46, p = .005, \eta_p^2 = 0.09$ . Conversely, Nostalgia participants used fewer cognitive words to describe their everyday selves compared to No Nostalgia participants ( $M = 1.71, SE = 0.55$  vs.  $M = 2.35, SE = 0.52$ ), although the effect was not significant ( $p = .40$ ).

The interaction was also driven by the fact that nostalgia-primed participants used more cognitive words when describing their intrinsic selves compared to their everyday selves ( $M = 6.73, SE = 0.64$  vs.  $M = 1.71, SE = 0.55$ ),  $F(1, 86) = 34.10, p < .001, \eta_p^2 = 0.28$ . For participants not primed with nostalgia, cognitive words were also higher for intrinsic self-descriptions compared to everyday self-descriptions ( $M = 4.10, SE = 0.62$  vs.  $M = 2.35, SE = 0.52$ ), although this effect was much smaller—approximately one-fifth of the effect size for nostalgia participants,  $F(1, 86) = 4.63, p = .03, \eta_p^2 = 0.05$ .<sup>2</sup>

## Discussion

Experimentally primed nostalgia increased the accessibility of the intrinsic self-concept. Operationalizing accessibility using converging measures of thought generation and cognitive elaboration, we found that nostalgia-primed participants generated more content and spontaneously employed more cognitive elaboration in their intrinsic self-descriptions. Attesting to the discriminant validity of this effect, nostalgia did not similarly increase the accessibility self-aspects unrelated to the intrinsic self-concept (i.e., everyday self-descriptions).

Still, a plausible alternative interpretation is that Nostalgia participants, after thinking about a past version of the intrinsic self, were more confused or unsure about their current intrinsic self and generated more content simply because they were having trouble developing a coherent self-description. This alternative is challenged by complementary evidence regarding Nostalgia participants' use of elaborative language—indicative of healthy, meaningful construal and insight (Boals & Klein, 2005; Kross & Ayduk, 2008; Tausczik & Pennebaker, 2010)—when describing their intrinsic selves.<sup>3</sup>

Thus, the findings of Study 3 support the hypothesis that nostalgia offers a window to the intrinsic self-concept and gives people a clear and elaborate picture of who they really are. In Study 4 we explored this hypothesis from a different angle, predicting that the affective consequences of nostalgic reflection (i.e., state nostalgia, positive affect) would be attenuated when participants are prompted to recall a nostalgic memory but are addition-

ally asked to think about extrinsic factors influencing their behaviors during the recalled event.

## Study 4

The previous studies suggest that nostalgic memories offer a window to the intrinsic self by highlighting authentic self-attributes, which are assimilated into the current self-concept. As a result, people become less concerned with meeting extrinsic standards of value (Study 2) and can more easily access their current intrinsic self-concept (Study 3). We claim that these factors contribute to nostalgia's positive affective tone. Based on this claim, we predicted in Study 4 that the typical affective signature of nostalgic memories (feelings of nostalgia, positive affect) and the enjoyment in reflecting on these memories would be attenuated when participants were additionally prompted to consider the influence of extrinsic factors on their behavior in the recalled event. We included a negatively valenced comparison condition to control for the alternative possibility that extrinsic reminders would make negative features of the recalled event more salient and that negativity in general, rather than external influences in particular, would cause the decrease in felt nostalgia, positive affect, and enjoyment.

<sup>2</sup> We also conducted a supplementary analysis of the effects of type of memory and type of self-description on first-person pronoun use (percent of total word count; e.g., *I, me, mine*) in the self-description task. Covariates included first-person pronoun use from the previous memory task as well as overall writing time during the self-description task. The Memory  $\times$  Self-Description interaction was significant,  $F(1, 86) = 3.98, p = .05, \eta_p^2 = .04$ . Self-references did not differ for Nostalgia and No Nostalgia participants when writing about the intrinsic self ( $p = .30$ ). In contrast, Nostalgia participants used marginally fewer self-references when writing about the everyday self compared to No Nostalgia participants ( $M = 8.92, SE = 0.93$  vs.  $M = 11.40, SE = 0.87$ ),  $F(1, 86) = 3.71, p = .06, \eta_p^2 = 0.04$ . Simple effects tests of self-description within the memory conditions indicated that among No Nostalgia participants, self-references did not differ for everyday and intrinsic self-descriptions ( $p = .52$ ). However, Nostalgia participants made fewer self-references when describing the everyday self compared to the intrinsic self ( $M = 8.92, SE = 0.93$  vs.  $M = 13.87, SE = 1.08$ ),  $F(1, 86) = 11.71, p = .001, \eta_p^2 = 0.12$ . This latter finding could indicate that Nostalgia participants attempted to distance themselves from typical or ordinary aspects of their self-concepts by making fewer first-person statements.

The finding that Nostalgia and No Nostalgia participants did not differ in self-references when describing the intrinsic self is less consistent with our hypothesis. One explanation for this null effect is that participants in both memory conditions were explicitly instructed to construct a detailed self-description, and therefore self-references were likely to be high overall. From this perspective, the thought generation and cognitive elaboration effects become more noteworthy. Although No Nostalgia and Nostalgia participants referenced the self to a similar degree when trying to describe the intrinsic self, the intrinsic self-descriptions of No Nostalgia participants were impoverished (i.e., lower thought generation and cognitive elaboration).

<sup>3</sup> As further evidence against this alternative, we did not observe any Memory  $\times$  Self-Description interactions for positive affect (measured after the two writing tasks) or negative word count in the self-descriptions (percent of total word count). If nostalgia-primed participants were more confused about their current intrinsic selves, we would expect positive affect to be lower and negative word counts to be higher, which was not the case.

## Method

**Participants.** Participants were 124 MTurk workers who completed the online survey for compensation (\$0.50). Seven participants were excluded from the analysis for failing to follow instructions during the memory writing task, leaving 117 participants in the final sample (46% male;  $M_{\text{age}} = 31$  years). They self-identified as White (69%), Black (10%), Hispanic (9%), Asian (7%), American Indian (1%), and “other” (5%).

**Nostalgia elaboration conditions.** Participants were first asked to write one or two sentences summarizing a nostalgic memory. Next they were randomly assigned to one of four elaboration conditions. In the Details condition participants elaborated on the details of the nostalgic memory they had just written about. The Details condition is similar to the nostalgia conditions used in Studies 2 and 3 and in prior research (e.g., Baldwin & Landau, 2014; Routledge et al., 2011; Wildschut et al., 2006).

In the Free condition, participants elaborated on how they were free from others’ expectations during the recalled event. Responses typically focused on perceived freedom from responsibilities. For example, one participant wrote: “I was just a kid at the time so I did not have to worry about having a job, schedule, or anything stressful. I got to just be a kid, and it was wonderful.”

Participants in the Negative condition elaborated on the unpleasant aspects of their surroundings during the recalled event. For example, one participant described an experience associated with a nostalgic memory of a new car: “After leasing the brand new car, the winter salt that gets put on the road every year would chip and deteriorate the paint very often. This made me feel upset . . . I also remember feeling angry about this as well.”

Finally, participants in the Not Free condition elaborated on how they were influenced by the pressures and demands of others during the recalled event. For example, one participant described his or her nostalgic experience as a new college student as constraining: “Being in college right out of high school was 100% based on the expectations of everyone around me. I had no idea what I wanted to study, but felt that taking time off to decide was not an option.”

**Nostalgia and positivity.** After describing their memories, participants responded to a single item measure of state nostalgia (“Thinking about this memory makes me feel nostalgic”) and four items assessing positive affect (e.g., “Thinking about this memory makes me feel happy”;  $\alpha = .80$ ). The positive affect items were obtained from the Functions of Nostalgia Scale (Hepper et al., 2012). Participants also indicated how much they enjoyed reflecting on their memory (e.g., “I enjoyed thinking about this memory”;

$\alpha = .93$ ). All items used a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*).

## Results

We conducted three planned comparisons to test our prediction that reminders of extrinsic influences during the recalled event would attenuate feelings of nostalgia, positive affect, and enjoyment associated with nostalgic reflection. Contrast 1 compared the Details and Free conditions. Because we hypothesized that nostalgic memories characteristically highlight one’s freedom from external influences, we did not expect these conditions to differ on any of the measured outcomes.

Contrast 2 compared the Details and Free conditions to the Negative condition. Because we hypothesized that nostalgia’s effects would be compromised by the salience of external influences, specifically, and not negative features of the memory in general, we did not expect these conditions to differ.

Contrast 3 compared Details, Free, and Negative conditions to the Not Free condition. Our primary prediction was that feelings of nostalgia, positive affect, and enjoyment would be lower in the Not Free condition compared to the other three conditions. We entered three orthogonal contrast codes representing these comparisons as predictors in separate multiple regression analyses for each outcome.

Descriptive statistics and significance tests are presented in Table 4. As predicted, Contrast 3 was significant for state nostalgia. Participants in the Not Free condition reported lower nostalgia compared to participants in the other three conditions. To confirm that the predicted null hypotheses were supported, we conducted supplementary Bayesian analyses to test the odds of the alternative models being true (that Contrasts 1 and 2 were greater than zero) over the predicted null models (that Contrasts 1 and 2 were zero). The odds of the alternative model being true over the null model for Contrast 1 (Details vs. Free) and Contrast 2 (Details and Free vs. Negative) were low (JZS [Jeffrey-Zellner-Siow Prior] Bayes Factors < 0.009).

Also as predicted, Contrast 3 was significant for positive affect. Participants in the Not Free condition reported lower positive affect compared to participants in the other three conditions. Again we conducted Bayesian analyses to confirm that the Details, Free, and Negative conditions did not differ. The odds of the alternative model being true over the null model for Contrast 1 (Details vs. Free) and Contrast 2 (Details and Free vs. Negative) were low (JZS Bayes Factors < 0.01).

Table 4

Study 4: Means and Standard Deviations Across Condition With Significance Tests of Predicted Orthogonal Contrasts

Dependent variable	Condition: $M$ ( $SD$ )				Regression analyses: $\beta$ ( $R^2$ )		
	Details	Free	Negative	Not Free	C1	C2	C3
Nostalgia	6.52 (0.81)	6.40 (1.04)	6.31 (0.85)	5.56 (1.58)	-0.04 (0.00)	-0.05 (0.00)	-0.32*** (0.10)
Positive affect	5.80 (0.80)	5.79 (0.95)	5.49 (0.84)	4.79 (1.50)	0.00 (0.00)	-0.11 (0.01)	-0.35*** (0.12)
Memory enjoyment	6.38 (0.82)	6.32 (0.94)	6.14 (1.04)	5.30 (1.15)	-0.02 (0.00)	-0.08 (0.01)	-0.36*** (0.13)

*Note.* Each row of the table reflects means and standard deviations, as well as a single regression analysis testing three contrasts for the dependent variable of interest. C1 = Details versus Free; C2 = Details and Free versus Negative; C3 = Details, Free, and Negative versus Not Free.

\*\*\*  $p < .001$ .

Finally, Contrast 3 was significant for enjoyment. Participants in the Not Free condition enjoyed thinking about their memory to a lesser degree compared to participants in the three other conditions. The odds of the alternative model being true over the null model for Contrast 1 (Details vs. Free) and Contrast 2 (Details and Free vs. Negative) were low (JZS Bayes Factors < 0.01).<sup>4</sup>

## Discussion

Study 4 tested the hypothesis felt nostalgia, positive affect, and enjoyment associated with nostalgic reflection would be attenuated when participants were prompted to think about external influences during the recalled event. We found no differences in nostalgia, positive affect, or enjoyment for participants who described the details of their nostalgic memories and those who described how they were free of external influences during their remembered event. These null findings are consistent with our claim that nostalgic memories are, by “default,” a window to the intrinsic self.

In contrast, and also as predicted, participants prompted to elaborate on the ways that they were subject to external influences showed significantly lower scores on all of the measured outcomes compared to participants in the other three conditions. This pattern of results suggests that feelings of nostalgia and positivity associated with reflecting on a nostalgic memory depend on the extent to which external influences are not salient in the memory. When those aspects of one’s memory are made salient, the picture of the intrinsic self is compromised and nostalgia becomes less enjoyable.

Importantly, we did not observe differences for nostalgia, positive affect, and enjoyment among participants who elaborated on unpleasant aspects of their surroundings in the recalled event (Negative) and participants in the Details and Free conditions. This suggests that feelings of nostalgia and the experience of positivity after recalling a nostalgic memory are not compromised by thinking about just any unpleasant aspects of the memory.

In Studies 5 and 6, we focused on nostalgia as an outcome variable or a moderator. This enabled us to test predictions about how nostalgia functions after people are reminded of the difficulties they have expressing their intrinsic selves.

## Study 5

Research shows that nostalgia is triggered by a variety of threatening experiences and self-relevant cognitions including mortality salience (Juhl et al., 2010), social exclusion (Loveland et al., 2010), identity discontinuity (Merchant, Ford, & Rose, 2011), disruptive life events (Sedikides et al., 2008), meaninglessness (Routledge et al., 2008), boredom (van Tilburg et al., 2013), and existential insecurity (L. Zhou et al., 2013). In line with our current hypotheses, we suggest that these are threatening because they undermine intrinsic self-expression and thus prompt nostalgia as a compensatory strategy to reconnect with the intrinsic self-concept.

We tested this hypothesis directly in Study 5 by measuring intrinsic self-expression, negative affect, and nostalgia as outcomes following a reminder of current difficulties in expressing the intrinsic self. We predicted that participants primed to consider those difficulties (vs. their typical daily life) would report lower intrinsic self-expression which would, in turn, increase negative

affect and nostalgia. Specifically, we predicted that lower intrinsic self-expression and increased negative affect, in sequence, would mediate increased feelings of nostalgia.

## Method

**Participants.** Participants were 132 MTurk workers who completed an online study for compensation (\$0.50). Five participants were excluded from analyses for indicating that they had completed a similar study in the past or for not following instructions during the writing task. The final sample consisted of 127 adults (44% male;  $M_{\text{age}} = 35$  years) who self-reported as White (72%), Asian (8%), Black (6%), Hispanic (3%), American Indian (1%), Pacific Islander (1%), and “other” (9%). One participant did not indicate race.

**Intrinsic self-threat manipulation.** Participants were assigned to one of two writing tasks. In the Intrinsic Self-Threat condition participants read the following narrative:

Many people feel that they have two sides to themselves. One side is the person that they show to other people; the other side is their true self—that is, the person who they truly are deep down.

They were then asked to write a few sentences describing the situations, experiences, and relationships that “make it difficult or impossible to feel like you are truly being you.” In the No Threat condition participants read the following narrative:

Many people feel that they have a daily routine. In a typical day, they usually do the same kinds of things at about the same time. Take a few minutes to think about the things in your life now that make up your daily routine.

They were then asked to describe the situations, experiences, and relationships that “occur during a typical day for you.”

**Intrinsic self-expression.** Following the threat manipulation, participants answered 12 items measuring perceived intrinsic self-expression (e.g., “I feel like I can pretty much be myself in my daily situations”); 1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha =$

<sup>4</sup> It is possible that the Not Free condition may have inadvertently directed attention away from the self and that this lack of self-attention could potentially explain the reduced levels of nostalgia and positivity. To rule out this possibility, we used LIWC to code participants’ memories in each condition and obtained counts for first-person pronouns (percent of total word count; e.g., I, me, mine). We analyzed first-person pronouns with the same regression analyses we used to test the effects of condition on the other dependent variables. The first contrast was significant and positive suggesting that first-person pronouns were higher in the Free condition compared to the Details condition ( $\beta = 0.20, p = .02$ ). Contrast 2 was also significant but negative, suggesting that first-person pronouns were lower in the Negative condition compared to the Details and Free conditions combined ( $\beta = -0.28, p = .001$ ). Finally, Contrast 3 was significant and positive, meaning that first-person pronouns were *higher* in the Not Free condition compared to the Details, Free, and Negative conditions ( $\beta = 0.31, p < .001$ ). Participants were as focused, if not more focused, on the self in the Not Free condition compared to the other conditions. As further assurance, we also included first-person pronouns as a covariate in the regression analyses testing the effect of condition on our primary dependent variables. Contrasts 1 and 2 remained nonsignificant, while Contrast 3 remained significant, in every model. Thus, it is highly unlikely that the findings of reduced nostalgia and positivity in the Not Free condition were due to participants’ lesser focus on the self.

.88). The full scale including item statistics can be found in the Appendix.

**Affect.** Next, participants indicated the extent to which they felt 20 positive and negative emotions (1 = *very slightly or not at all*, 5 = *extremely*; Positive and Negative Affect Schedule [PANAS]; Watson, Clark, & Tellegen, 1988). Ten items assessed positive affect and 10 items assessed negative affect ( $\alpha > 0.90$ ). Embedded within the positive and negative affect questionnaire were the four items assessing state nostalgia used in Study 1 (nostalgic, wistful, longing, sentimental;  $\alpha = 0.80$ ).

## Results

Descriptive statistics for intrinsic self-expression and affect appear in Table 5. As predicted, Threat participants reported lower intrinsic self-expression compared to No Threat participants,  $t(125) = 3.48$ ,  $p = .001$ ,  $d = 0.62$ , 95%  $CI_{\text{mean diff}} = [0.29, 1.05]$ . Threat participants also felt more negative affect,  $t(108.22) = 2.51$ ,  $p = .01$ ,  $d = 0.44$ , 95%  $CI_{\text{mean diff}} = [0.11, 0.92]$  and more nostalgia,  $t(125) = 2.36$ ,  $p = .02$ ,  $d = 0.17$ , 95%  $CI_{\text{mean diff}} = [0.09, 1.06]$ , compared to No Threat participants. Positive affect did not differ between the conditions ( $p = .36$ ).

**Mediation by intrinsic self-expression and negative affect in sequence.** Correlations among all of the variables in the mediation model appear in Table 6. We tested whether perceived intrinsic self-expression led to increased negative affect and accounted for the effect of Threat on felt nostalgia. Using the PROCESS macro for SPSS (5,000 bootstrapped resamples; Model 6; Hayes, 2013) we regressed felt nostalgia on Threat (dummy coded: 0 = No Threat and 1 = Threat) and entered intrinsic self-expression and negative affect as sequential mediators.

As seen in Figure 3, Threat decreased intrinsic self-expression, which in turn increased negative affect. Negative affect was positively associated with nostalgia. Consequently, the sequential indirect effect of Threat on nostalgia through intrinsic self-expression and negative affect was significant, *indirect effect* = 0.20 (0.07), 95%  $CI = [0.09, 0.37]$ . Furthermore, the two simple mediation pathways, one testing intrinsic self-expression as the mediator and the other testing negative affect as the mediator, were not significant in the multivariate model, 95%  $CI_s = [-0.09, 0.27]$  and  $[-0.09, 0.33]$ , respectively. Furthermore, switching the sequence of mediators in the model so that negative affect preceded intrinsic self-expression, resulted in a nonsignificant indirect effect, 95%  $CI = [-0.01, 0.11]$ .

Table 5  
Study 5: Descriptive Statistics and Comparisons Across Condition for Intrinsic Self-Expression and Affect Measures

Variable	Overall		No threat		Intrinsic self-threat	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Intrinsic self-expression	4.53	1.13	4.88 <sub>a</sub>	1.11	4.21 <sub>b</sub>	1.06
Negative affect	2.01	1.19	1.75 <sub>a</sub>	0.85	2.26 <sub>b</sub>	1.40
Positive affect	3.85	1.44	3.72 <sub>a</sub>	1.51	3.96 <sub>a</sub>	1.36
Nostalgia	2.89	1.41	2.58 <sub>a</sub>	1.30	3.16 <sub>b</sub>	1.45

Note. Subscript letters that differ between conditions are significantly different at  $p < .05$ .

Table 6  
Study 5: Correlations Among Nostalgia, Negative Affect, and Intrinsic Self-Expression

Variable	1	2	3
1. Nostalgia	—	0.55***	-0.37***
2. Negative affect		—	-0.51***
3. Intrinsic self-expression			—

\*\*\*  $p < .001$ .

## Discussion

Previous research has documented that nostalgia is triggered by a variety of threatening experiences and cognitions. We interpret these diverse threats as generally undermining intrinsic self-expression, which prompts people to react with nostalgia. Consistent with this interpretation, Study 5 showed that reminding participants of challenges they face expressing their intrinsic selves decreased intrinsic self-expression and increased negative affect, causing participants to respond with increased nostalgia.

The lack of a simple mediation pathway through intrinsic self-expression, controlling for negative affect, rules out the alternative amotivational account that the threat induction increased nostalgia simply by increasing the salience of challenges to current intrinsic self-expression, independent of variation in negative affect. If this were the case, then we would expect intrinsic self-expression to remain a significant mediator of the effect of Threat on nostalgia after controlling for negative affect in the model. This was not the case; rather, the findings support our interpretation that nostalgia was triggered by intrinsic self-threat and not simply the salience of challenges to intrinsic self-expression.

Furthermore, the lack of mediation by negative affect controlling for intrinsic self-expression means that the manipulation did not trigger nostalgia because it caused general discomfort. The “hit” participants felt to their intrinsic selves primarily accounted for the effect of negative affect on nostalgia. In this way, the data further support our hypothesis that nostalgia is prompted, specifically, by negative affect associated with low intrinsic self-expression.

These findings support our proposed account of nostalgia’s function by suggesting that participants turned to their nostalgic memories as a reminder of who they truly are in the face of circumstances that posed a threat to intrinsic self-expression. However, based on these findings alone we cannot rule out the alternative interpretation that participants turned to nostalgia as a means of *evaluating* their current selves after being reminded of uncertainties about their intrinsic self-concept. That is, participants led to consider their failures at true self-expression may not have engaged nostalgia as a psychological salve, as we claim; rather, they may have turned to their nostalgic memory as an encapsulation of their intrinsic self-concept that they could compare to their current self-concept and, in this way, interpret their current failures in intrinsic self-expression. This kind of nostalgia comparison is theorized to be common among people who are prone to ruminate and worry about present circumstances and problems (Verplanken, 2012). Although this alternative is unlikely considering evidence of assimilation between the nostalgic and current self in our prior studies, we did not assess the content or valence of participants’

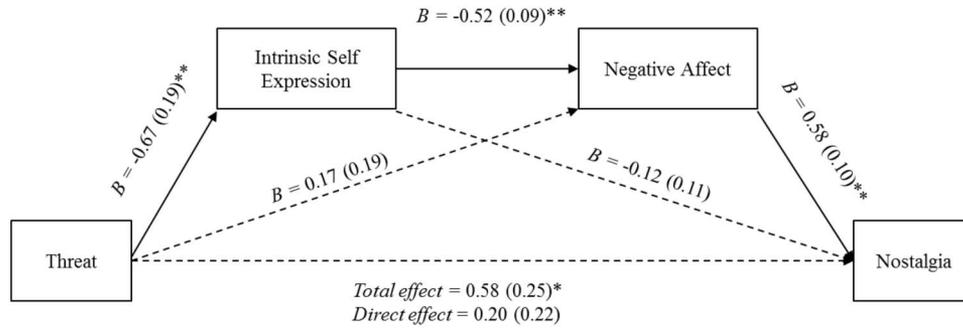


Figure 3. Study 5: Model of the indirect effect of Threat on nostalgia through intrinsic self-expression. Threat was dummy coded such that 0 = No Threat and 1 = Threat. All coefficients represent unstandardized regression coefficients. Dashed lines highlight nonsignificant relationships, and solid lines highlight significant relationships. \*  $p < .05$ . \*\*  $p < .001$ .

nostalgic memories or measure negative affect following the measure of nostalgia. To assess this alternative interpretation more directly, in Study 6 we *manipulated* nostalgia following the intrinsic self-threat.

### Study 6

We propose that people spontaneously engage in nostalgia as a reminder of their intrinsic self-concept when intrinsic self-expression is hindered. Based on this account, we predicted that participants given the opportunity to reflect on a nostalgic memory following a threat manipulation would continue to exhibit intrinsic self-expression at levels comparable to a no threat control. In contrast, we hypothesized that reduced intrinsic self-expression would follow an intrinsic self-threat (vs. a no threat condition) when no opportunity to engage in nostalgia was offered.

We test these hypotheses in Study 6. Following the same threat manipulation as in Study 5, participants were randomly assigned to reflect on a nostalgic memory or a nonnostalgic memory. Compared to a neutral control condition (no threat), we predicted that participants *not* allowed to reflect on a nostalgic memory, and instead asked to reflect on an ordinary memory, would show decreased intrinsic self-expression, replicating the effect found in Study 5. However, participants asked to reflect on a nostalgic memory following the threat (thereby simulating the spontaneous employment of nostalgia as in Study 5) would be reminded of their intrinsic self-concept and would show little to no change in intrinsic self-expression compared to participants in the no-threat condition.

We also measured happiness and life satisfaction to test whether reflecting on a nostalgic memory after self-threat preserves well-being. On the basis of prior research showing that well-being is undermined by failures to express the intrinsic self (Kernis & Goldman, 2006; Lenton et al., 2013), we predicted that threat in the absence of nostalgia would reduce happiness and life satisfaction but that this effect would be attenuated for participants given the opportunity to engage in nostalgia following the threat.

### Method

**Participants.** Participants were 161 MTurk workers who completed the study for compensation (\$0.50). Eight participants

were excluded from analyses for indicating that they had done a similar experiment in the past or for not following instructions during the writing tasks. The final sample included 153 adults (37% male;  $M_{\text{age}} = 35$  years) who self-reported as White (81%), Hispanic (6%), Black (3%), Asian (3%), American Indian (2%), and “other” (5%).

**Threat and nostalgia manipulations.** Participants were randomly assigned to one of three threat/memory conditions. In the No Threat/No Nostalgia condition, participants received the No Threat induction from Study 5 and then reflected on an ordinary memory from their past (same No Nostalgia induction from Studies 2 and 3). Participants in the Threat/No Nostalgia condition received the Threat induction from Study 5 and then also reflected on an ordinary memory from their past. Finally, in the Threat/Nostalgia condition, participants received the same Threat induction from Study 5 but then reflected on a nostalgic memory from their past (same Nostalgia induction from Studies 2 and 3). Following the manipulations we included the same single-item manipulation check of felt nostalgia used in Studies 2 and 3.

**Intrinsic self-expression.** After the threat/memory inductions and manipulation check, all participants completed the same 12-item intrinsic self-expression measure used in Study 5 ( $\alpha = 0.89$ ).

**Subjective well-being.** Finally, participants completed two measures of subjective well-being: The four-item Subjective Happiness Scale (e.g., “In general I consider myself”; 1 = *not a very happy person*; 7 = *a very happy person*; Lyubomirsky & Lepper, 1999) and the five-item Satisfaction with Life Scale (e.g., “I am satisfied with my life”; 1 = *strongly disagree*, 7 = *strongly agree*; Diener, Emmons, Larsen, & Griffin, 1985). Measures were presented in random order and showed high internal consistency ( $\alpha_s = 0.90$ ).

### Results and Discussion

Descriptive statistics are reported in Table 7. Tukey post hoc comparisons confirmed that participants in the Threat/Nostalgia condition felt more nostalgic than participants in the No Threat/No Nostalgia condition ( $p = .001$ , 95%  $CI_{\text{mean diff}} = [0.45, 2.05]$ ,  $d = 0.79$ , and the Threat/No Nostalgia condition,  $p < .001$ , 95%  $CI_{\text{mean diff}} = [0.53, 2.13]$ ,  $d = 0.77$ ).

A one-way ANOVA revealed a significant main effect of condition on intrinsic self-expression,  $F(2, 152) = 6.07$ ,  $p = .003$ ,  $\eta_p^2 = 0.08$ .

Table 7  
*Study 6: Means and Standard Deviations for Dependent Variables Across Conditions*

Dependent variable	No threat/no nostalgia		Threat/no nostalgia		Threat/nostalgia	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Nostalgia	5.00 <sub>a</sub>	1.76	4.92 <sub>b</sub>	2.01	6.25 <sub>a</sub>	1.38
Intrinsic self-expression	4.81 <sub>a</sub>	1.16	4.06 <sub>b</sub>	1.04	4.68 <sub>a</sub>	1.20
Subjective well-being						
Happiness	4.87 <sub>a</sub>	1.17	4.10 <sub>b</sub>	1.51	4.93 <sub>a</sub>	1.23
Life satisfaction	4.69 <sub>a</sub>	1.39	3.98 <sub>b</sub>	1.42	4.96 <sub>a</sub>	1.36

Note. Subscript letters that differ between conditions are significantly different at  $p < .05$ .

Replicating the threat effect from Study 5, participants not allowed to reflect on a nostalgic memory following the threat (Threat/No Nostalgia) reported significantly lower intrinsic self-expression compared to participants in the neutral control condition (No Threat/No Nostalgia),  $p = .004$ , 95%  $CI_{\text{mean diff}} = [0.21, 1.31]$ ,  $d = 0.68$  (see Table 7 for means).

Supporting our predictions, participants who were asked to reflect on a nostalgic memory following the threat (Threat/Nostalgia) showed higher intrinsic self-expression compared to participants whose nostalgia response was blocked (Threat/No Nostalgia),  $p = .02$ , 95%  $CI_{\text{mean diff}} = [0.09, 1.15]$   $d = 0.55$ . Furthermore, participants in the Threat/Nostalgia condition did not differ in intrinsic self-expression compared to participants in the No Threat/No Nostalgia condition ( $p = .82$ ; scaled JZS Bayes factor in favor of the null model = 5.64).

Next, we examined whether subjective well-being differed across the three conditions. We submitted the happiness and life satisfaction measures to separate one-way ANOVAs. The omnibus test of condition was significant for both happiness,  $F(2, 152) = 6.19$ ,  $p = .003$ ,  $\eta_p^2 = 0.08$  and life satisfaction,  $F(2, 152) = 7.98$ ,  $p = .001$ ,  $\eta_p^2 = 0.08$ . Tukey post hoc comparisons revealed that participants in the Threat/No Nostalgia (vs. No Threat/No Nostalgia) condition reported lower happiness ( $p = .01$ ), 95%  $CI_{\text{mean diff}} = [0.14, 1.39]$ ,  $d = 0.57$  and life satisfaction ( $p = .03$ ), 95%  $CI_{\text{mean diff}} = [0.04, 1.38]$ ,  $d = 0.51$ .

Also supporting our predictions, participants in the Threat/Nostalgia (vs. Threat/No Nostalgia) condition reported higher happiness ( $p = .004$ ), 95%  $CI_{\text{mean diff}} = [0.22, 1.44]$ ,  $d = 0.60$  and life satisfaction,  $p < .001$ , 95%  $CI_{\text{mean diff}} = [.34, 1.63]$ ,  $d = 0.70$ . Participants in the Threat/Nostalgia condition did not differ from participants in the No threat/No Nostalgia condition on happiness or life satisfaction,  $ps > .57$  (scaled JZS Bayes factors in favor of the null model  $> 4.06$ ).

The findings from Studies 5 and 6 converge to provide evidence that nostalgia can block the negative consequences of intrinsic self-threat. When participants reflected on current difficulties in expressing their intrinsic selves, and then were *not* given the opportunity to reflect on a nostalgic memory, they reported lower intrinsic self-expression and subjective well-being. However, when participants were given the opportunity to reflect on a nostalgic memory following the threat, which Study 5 suggests is the spontaneous response, the effects of threat on intrinsic self-expression and subjective well-being were eliminated.

The results of Study 6 also address the alternative explanation described earlier. Among participants given the opportunity to engage in nostalgia following a reminder of current impediments to intrinsic self-expression, perceived intrinsic self-expression and well-being remained at baseline levels. Thus, it is unlikely that nostalgia is employed to judge the current self *against* the nostalgic self—an upward comparison that would typically lead to contrast effects and negative self-evaluations.

## Study 7

Study 7 aimed to bolster the ecological validity of the previous experiments by investigating the natural covariation among *trait* nostalgia (habitual levels of nostalgic feelings for the past), intrinsic self-expression, and well-being. Trait nostalgia was assessed with the Batcho Nostalgia Inventory (Batcho, 1995), which measures how nostalgic people feel about several aspects of their personal past. We measured intrinsic self-expression using the same measure from Studies 5 and 6 and an adapted version of the Measure of Authenticity in Various Social Roles (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), which assesses perceived authenticity in a variety of social contexts. We combined the two measures into a standardized index of intrinsic self-expression.

Well-being was measured with the same happiness and satisfaction measures from Study 6 as well as an additional measure of psychological well-being. Psychological well-being is conceptualized as success in important life domains, such as relationships, purpose in life, and personal growth (see Diener et al., 2010; Ryff, 1989). We combined the three measures into a standardized index of well-being.

Finally, we controlled for mood and personality dimensions that might be linked to these constructs in order to isolate the unique relationships among nostalgia, intrinsic self-expressions, and well-being. On the basis of our previous findings, we predicted that trait nostalgia would be positively associated with intrinsic self-expression and well-being.

## Method

**Participants.** Participants were 204 MTurk workers who completed an online survey for compensation (\$0.50). Eleven participants were excluded from analyses for indicating that they had done a similar survey in the past. The final sample included 193 adults (64% male;  $M_{\text{age}} = 37$  years) who self-reported as White (75%), Black (11%), Asian (7%), Hispanic (5%), and “other” (2%).

**Materials and procedure.** After reading a consent statement, participants completed series of questionnaires for a study described as assessing memory and personality. Included in the questionnaires was a measure of trait nostalgia, two measures of intrinsic self-expression, and three measures well-being. We also assessed baseline mood at the beginning of the survey and the Big Five personality traits at the end of the survey.

**Baseline mood.** Prior to the primary measures, baseline mood was assessed with the PANAS (Watson et al., 1988;  $\alpha > 0.92$ ).

**Nostalgia.** Trait nostalgia was assessed with the Batcho Nostalgia Inventory (Batcho, 1995). Participants used a 7-point scale (1 = *not at all*, 7 = *very much*) to rate their typical nostalgic feelings for 20 aspects of their past (e.g., family, school;  $\alpha = 0.90$ ).

**Intrinsic self-expression.** Intrinsic self-expression was assessed with two measures. The first was the same as in Studies 5 and 6 (e.g., “I feel like I can pretty much be myself in my daily situations”;  $\alpha = 0.87$ ). The second was an adapted version of the Measure of Authenticity in Various Social Roles (Sheldon et al., 1997), which assesses perceived authenticity across a variety of contexts. In the current study, participants read the following short narrative:

A significant aspect of someone’s personality is how they think about themselves. Most everyone thinks about themselves as made up of a number of different “selves” that are related to different contexts or activities in their lives. For example, a man may think of himself as a father when he is around his children, while he thinks of himself as a son when he is around his parents. Similarly, a young adult may think of herself as a student while at school, while she thinks of herself as an athlete when she is working out.

Participants were then asked to type three “selves” that they express in their current lives into three separate text boxes (example responses included “father,” “teacher,” “Christian,” “friend,” etc.). Then they used a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*) to indicate their agreement with 5 statements regarding the authenticity they feel in expressing each of the three “selves” they recorded (e.g., “I experience this aspect of myself as an authentic part of who I am.”). The survey program reminded participants of the “selves” they had recorded as they filled out the questionnaire. Responses to these five items were internally reliable ( $\alpha = 0.87$ ).

**Well-being.** Well-being was assessed with three measures. As in Study 6, we measured happiness with Lyubomirsky and Lepper’s (1999) four-item Subjective Happiness Scale (e.g., “In general I consider myself”; 1 = *not a very happy person*; 7 = *a very happy person*;  $\alpha = 0.91$  and life satisfaction with Diener et al.’s (1985) five-item Satisfaction with Life Scale (e.g., “I am satisfied with my life”; 1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = 0.91$ ).

We also included the Flourishing Scale (Diener et al., 2010) as a measure of psychological well-being. The Flourishing Scale is an eight-item measure of the extent to which one is achieving success in a variety of life domains related to psychological well-being (e.g., “I lead a purposeful and meaningful life”; “My social relationships are supportive and rewarding”; 1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = 0.91$ ). Attesting to the measure’s construct validity, previous research confirms that the Flourishing Scale is appropriately correlated with other measures of psychological well-being (Diener et al., 2010).

**Personality.** Finally, personality was assessed with the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), which includes two items assessing each of the Big Five personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism). The measure includes the stem “I see myself as,” and participants indicate how much each characteristic describes them (e.g., “extraverted”; “critical”). Internal consistency of the scale is difficult to determine, considering that only two items assess each trait. However, each pair of trait items was significantly correlated, with  $r$ s ranging from 0.32 to 0.57. Despite relatively low internal consistency, Gosling et al. (2003) determined that the scale shows convergent and discriminant validity and is a reliable measure of Big Five dimensions.

## Results and Discussion

The two measures of intrinsic self-expression were significantly correlated ( $r = 0.42$ ,  $p < .001$ ) as were the three measures of well-being ( $r$ s  $> 0.61$ ,  $p$ s  $< .001$ ), supporting the use of standardized indices of each construct. As predicted, nostalgia was positively correlated with the intrinsic self-expression ( $r = .21$ ,  $p = .004$ ) and well-being ( $r = .25$ ,  $p = .001$ ) controlling for positive and negative mood and Big Five personality. Attesting to the construct validity of our indices, intrinsic self-expression was positively correlated with well-being ( $r = 0.45$ ,  $p < .001$ ).<sup>5</sup>

Overall, these patterns of association support our hypotheses and corroborate the findings from the experimental studies. Participants who were habitually nostalgic about their personal past reported greater intrinsic self-expression in their daily lives. Our measure of intrinsic self-expression included self-reported authenticity across many “selves,” suggesting that the positive association between nostalgia and intrinsic self-expression reflects the ability of nostalgia to realize one’s “core” self even across different social contexts. Study 7 also provided novel evidence of the association between nostalgia and well-being. Although nostalgia is *assumed* to be a positive psychological resource for health and well-being (see Routledge et al., 2013), our empirical findings are the first (that we know of) to highlight the covariation among dispositional nostalgia and established measures of well-being. Finally, by controlling for mood and broad personality traits, Study 7 was able to isolate the contribution of nostalgia to intrinsic self-expression and well-being over and above those other variables, thus providing a strong test of nostalgia’s unique contribution to positive psychological functioning.<sup>6</sup>

## General Discussion

Across seven studies, we have shown that nostalgia offers a window to the intrinsic self, is a response to low levels of intrinsic self-expression, and promotes intrinsic self-expression and well-being. In Study 1, we provided correlational evidence that state nostalgia for a remembered event was associated with higher authenticity and lower extrinsic focus. We conceptually replicated these associations in Study 2, providing experimental evidence that reflecting on a nostalgic memory, compared to an ordinary memory, highlighted the authentic qualities of the self and minimized

<sup>5</sup> Correlations among nostalgia, intrinsic self-expression, and well-being remained positive without the controls. However, the correlation between nostalgia and intrinsic self-expression became weaker and nonsignificant ( $r = 0.10$ ,  $p = .17$ ). The reduced association between nostalgia and intrinsic self-expression, in the absence of the controls, might reflect an opposing process that suppresses nostalgia’s positive function. Indeed, research suggests that nostalgia highlights discrepancies with the past self for some people (e.g., obsessive worriers; see Verplanken, 2012). Perhaps without accounting for differences in mood or personality, trait nostalgia’s true relationship with intrinsic self-expression may be obscured.

<sup>6</sup> These conclusions were supported when we obtained latent correlations among the primary variables using structural equation modeling. Latent correlations among nostalgia, intrinsic self-expression (using items from both scales as indicators of a latent “intrinsic self-expression” variable) and well-being (using items from all three scales as indicators of a latent “well-being” variable) remained statistically significant and were very close in size to the correlations in the reported analyses using aggregates of the observed variables. We report the “nonlatent” correlations for ease of presentation and readability.

extrinsic self-focus. Study 3 showed, as hypothesized, that nostalgia increased the accessibility of the intrinsic self-concept, but not the everyday self-concept.

Study 4 examined moderating factors suggested by our theoretical model. Findings show that nostalgic reflection increased felt nostalgia and positive affect unless participants were additionally prompted to recognize external factors controlling their behavior during the recalled event. Participants who were prompted to reflect on unpleasant aspects of their memories did not show the same effects. These findings suggest that a key feature of nostalgic memories is that they downplay external influences on the self.

Next we treated nostalgia as an outcome variable and a moderator to test whether nostalgia is triggered by, and buffers against, threats to the intrinsic self. Study 5 showed that reminders of current difficulties in expressing the intrinsic self decreased intrinsic self-expression and negative affect, which in turn prompted nostalgia. In Study 6, intrinsic self-threat reduced perceived intrinsic self-expression and subjective well-being for participants constrained to recall an ordinary memory following the threat. In contrast, the effects of the intrinsic self-threat were eliminated if participants had the opportunity to reflect on a nostalgic memory.

Finally, Study 7 corroborated the findings from the current experiments with correlational data showing that people high in trait nostalgia also display high intrinsic self-expression—even across a variety of social contexts—and report greater well-being as measured by happiness, satisfaction, and success in important life domains.

## Broader Implications

In stark contrast to historical definitions of nostalgia as a pathological disease associated with geographic relocation, modern day nostalgia is experienced as a wistful affection for important events in one's past and is associated with positive health and well-being (Routledge et al., 2013). Functional accounts have highlighted a variety of positive outcomes associated with nostalgia—from increasing meaning in life to reducing antifat prejudice. Cataloguing nostalgia's functions is an important step in understanding the role it plays in people's lives. However, as the list grows, it becomes increasingly important to develop a framework for integrating nostalgia's diverse functions.

The current research is a novel contribution along these lines. We suggest that nostalgia offers a window to the intrinsic self—who people think they truly are—and thus guides current self-perceptions and behavior toward authenticity and intrinsic self-expression. As a result, nostalgia is resource for mitigating threats to the intrinsic self and for promoting and maintaining well-being.

**Toward an integrative account of nostalgia's functions.** Our perspective can integrate a variety of existing findings, including the effects of nostalgia on outcomes including self-esteem, happiness, social connectedness, and meaning in life. Our perspective can also account for the fact that nostalgia is associated with different outcomes as a function of people's differing self-concepts. For example, research suggests that people high in narcissism (who are concerned with personal agency and independence but not communion) use nostalgia to bolster positive self-views but not to bolster feelings of social-connectedness (Hart et al., 2011). In other research, nostalgia served a social connectedness function for people low in attachment avoidance (who rely on

social bonds for comfort and security) but not for people high in attachment avoidance (Wildschut et al., 2010).

Considered separately, without a guiding framework, one might conclude that nostalgia serves two independent functions: A self-positivity function and a social connectedness function. However, we suggest that in both cases nostalgia connected people to their intrinsic selves. To the extent that the specific nature of the intrinsic self-concept differs across individuals, nostalgia's role in making that self-concept more accessible should produce outcomes that "match" the relevant self-concept. If a core characteristic of one's self-concept is high self-positivity but not communion with close others (e.g., narcissists), then nostalgic memories will be about positive self-attributes but not close relationships. On the other hand, if a core characteristic of one's self-concept is reliance on relationships for comfort (low avoidance) then nostalgic memories will be about close relationships.

Our account can integrate other isolated findings as well. Consider that nostalgia increases prosocial behavior. In one series of studies, Nostalgia participants (vs. No Nostalgia participants) were more likely to donate money to an ostensible charity organization (X. Zhou et al., 2012). The direct effect of Nostalgia on giving was consistently mediated by feelings of empathy but not personal distress. Similar effects have emerged outside of the context of organized charity—reflecting on a nostalgic memory (vs. non-nostalgic memory) made people more likely to help a researcher who had dropped a box of pencils in a staged mishap (Stephan et al., 2014). There is no evidence (thus far) that people are nostalgic for prosocial acts from their past, and it seems unlikely that participants were waxing nostalgic about the targets of their prosocial behaviors (the charities; the researcher who dropped the pencils).

Applying our account, we suggest that the prosocial behavior displayed in the studies above reflect the "self-transcendence" component of authenticity. As people express their authentic selves, they also become more concerned with the welfare of others and are capable of empathy (see Guignon, 2004; Koltko-Rivera, 2006). Empathy promotes altruism which is also considered to be a value of the authentic self (Batson, Duncan, Ackerman, Buckley, Birch, 1981; Batson & Coke, 1981; Koltko-Rivera, 2006; Ryff, 1989). Considering that nostalgia's effect on charitable giving was mediated by empathy and not distress, we view nostalgia's prosocial function in terms of nostalgia connecting people to their authentic selves.

Self-transcendence, along with increasing empathy and altruism, is also characterized by more cognitive flexibility, reduced stereotyping, and reduced rigidity in adhering to social norms and standards, which can lead to a more inclusive attitude about others (Koltko-Rivera, 2006; Maslow, 1971; Ryff, 1989). Along these lines, there is evidence that nostalgia is associated with indices of social inclusion. For example, Stephan et al. (2014) found that Nostalgia (vs. No Nostalgia) led people to arrange two seats closer together in preparation for an interaction with an ostensible research partner. Conceptually similar effects emerged in research by Turner et al. (2012) who prompted people to reflect on a nostalgic experience they had with someone who was overweight. Nostalgia (vs. No Nostalgia) led to significantly lower antifat attitudes, which was mediated by (a) inclusion-of-the-outgroup-in-the-self, (b) increased perceptions of a shared ingroup identity with the overweight person, and (c) reduced intergroup anxiety. Similar

patterns of reduced prejudice and inclusion were found regarding attitudes toward targets of mental health stigma (Turner et al., 2013). Our current account offers a compelling framework for interpreting these diverse findings.

**Nostalgia can regulate authenticity.** Self-determination theory (Ryan & Deci, 2000) posits that there is a set of basic needs that, when satisfied, allow people to develop and maintain a sense of authenticity in their lives. Evidence to support this claim comes from correlational research showing that daily levels of autonomy, relatedness, and competence are positively related to feelings of authenticity (Heppner et al., 2008; Kernis & Goldman, 2006). Qualitative analyses of participants' descriptions of authentic and inauthentic experiences corroborate and expand these associations. Experiences that represented participants' true (vs. false) selves were characterized by personal achievement and creativity (i.e., competence) and interactions with close others (i.e., relatedness; Lenton et al., 2013).

However, it is less clear how people maintain a sense of authenticity in contexts that do not afford these needs, such as controlling work environments. Our current findings suggest that nostalgia is one resource on which people can rely when faced with circumstances that do not provide adequate resources for expressing the intrinsic self. When participants thought about their current difficulties in expressing their intrinsic self they responded with increased nostalgia (Study 5) and nostalgia effectively mitigated the negative effects of these reminders on current intrinsic self-expression (Study 6). Study 7 supplemented these experimental findings with correlational data showing that people who are dispositionally high in nostalgia tend to be more authentic in their daily lives, even across a variety of social roles.

**Is nostalgia a bridge between freedom and fear?** The current research also addresses a long-standing irony in human motivation—that two fundamental human needs for growth and security can oppose one another. Stepping out of the “comfort zone” to achieve personal growth may be undermined by feelings of uncertainty and anxiety which prompt people to turn back to their established worldviews for security and comfort. A few attempts to integrate theories of growth and security claim that a person is constantly balancing between these two motives (Landau, Sullivan, & Solomon, 2010; Pyszczynski, Greenberg, & Goldenberg, 2003; Pyszczynski, Solomon, & Greenberg, 2003).

Our current research suggests the possibility that nostalgia is a resource for balancing these opposing needs. Because nostalgia reminds people of who they “truly” are, it minimizes the need to meet extrinsic standards of value (our current Study 1) and “frees” people to explore and grow (see Baldwin & Landau, 2014) without experiencing anxiety associated with the need for extrinsic security. Perhaps this dynamic downplaying of security while also highlighting growth is why nostalgia gives people a sense of hope and optimism for the future (Cheung et al., 2013).

### Limitations and Future Directions

It is worth mentioning a few limitations that could be addressed in future research. First, the cross-sectional nature of the current research limits our ability to generalize our findings to ways nostalgia is related to intrinsic self-expression over time. Future research should utilize daily diary methods and longitudinal data analysis techniques to elucidate the association between nostalgia

and authenticity over the course of several weeks for instance. Utilizing longitudinal methods would allow researchers to address the *self-concept consistency* component of authenticity (see Kernis & Goldman, 2006; Sheldon et al., 1997). If nostalgia is a window to the intrinsic self which serves as a guide for the current self-concept across various social contexts (as our current Study 7 suggests), daily nostalgia should be associated with stability of self-reported attitudes, self-perceptions, and behaviors over time.

Second, although the present studies utilize a variety of conceptually similar and well-validated measures of intrinsic self-expression, our definition of the intrinsic self is heavily influenced by perspectives that highlight the importance of self-reflection, autonomy, and personal growth (Baumeister, 1991; Guignon, 2004). Furthermore, our perspective is informed by evidence from Western contexts that the authentic self is a source of meaning (Schlegel et al., 2009) and a paragon of moral goodness (Newman, Bloom, Knobe, 2014).

Research should investigate the link between nostalgia and the self in different cultural contexts that may define the authentic self in different terms. For instance, in many non-Western settings, the true self can take on many forms depending on the social context, as opposed to being a core self that is consistent across contexts (English & Chen, 2007; Kanagawa, Cross, & Markus, 2001; Kashima et al., 2004). Furthermore, collective cultures tend to define the self as existing between people as opposed to within people, as is the case for independent cultures (Markus & Kitayama, 1991). To the extent that nostalgia is a window to the true self, it is likely that differences in nostalgia content across cultures will reflect differences in the way the true self-concept is understood in those cultures. Cross-cultural research along these lines would both clarify current understandings of nostalgia's functions and also advance theories of self and identity.

### Conclusion

Nostalgia . . . means a longing and need to ‘come home’ to selfhood from the foreign land of self-alienation.

—Mario Jacoby, *Longing for Paradise: Psychological Perspectives on an Archetype*

Scholarly interest in the functions of nostalgia is mounting as research sheds light on the positive benefits of nostalgia for individuals. The account of nostalgia's function that we provide here offers a novel and integrative framework for understanding the diversity of those benefits in terms of a single mechanism. We feel that our account is timely: In a modern society that is more concerned with meeting extrinsic goals than developing intrinsic value (Twenge, Campbell, & Freeman, 2012) people may find themselves in a land of self-alienation. The cure may be as simple as looking (nostalgically) to the past.

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## Appendix

### Intrinsic Self-Expression Items (Studies 5–7)

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. I feel like I am free to decide for myself how to live my life.</li> <li>2. In my daily life, I frequently have to do what I am told (R).</li> <li>3. I feel like I can pretty much be myself in my daily situations.</li> <li>4. I feel as though people will respect me whether I am a success or failure.</li> <li>5. I feel as though people like me less when I make mistakes (R).</li> <li>6. My self-worth depends on what others think of me (R).</li> <li>7. Sometimes I feel that I am not really the person that I appear to be (R).</li> <li>8. In general, I have a clear sense of who I am and what I am.</li> </ol> | <ol style="list-style-type: none"> <li>9. I spend a lot of time wondering about what kind of person I really am (R).</li> <li>10. I feel like I have neglected, or given up on, my true self (R).</li> <li>11. I feel like I have betrayed who I really am (R).</li> <li>12. I wish I could get my true self back (R).</li> </ol> |
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*Note.* Items 1–3 are from the Authenticity Index (Kernis & Goldman, 2006), 4–6 are from the Extrinsic Contingency Focus Scale (Williams et al., 2010), and 7–9 are from the Self-Concept Clarity Scale (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996). Items 10–12 were created by the authors. (R) indicates items that were reverse-scored.

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