



Individual differences in nostalgia proneness: The integrating role of the need to belong

Johannes Seehusen^{a,*}, Filippo Cordaro^{b,1}, Tim Wildschut^c, Constantine Sedikides^c, Clay Routledge^d, Ginette C. Blackhart^e, Kai Epstude^a, Ad J.J.M. Vingerhoets^f

^aUniversity of Groningen, The Netherlands

^bUniversity of Cologne, Germany

^cUniversity of Southampton, UK

^dNorth Dakota State University, USA

^eEast Tennessee State University, USA

^fTilburg University, The Netherlands

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ABSTRACT

Who is the nostalgia-prone person? The ‘sociality view’ sees an individual who frequently recalls meaningful memories rich in social content. The ‘maladaptation view’ sees an emotionally unstable, neurotic individual. In four studies, we integrated these contrasting views. We hypothesized that the link between neuroticism and nostalgia proneness arises because (a) neuroticism is associated with the need to belong and (b) the need to belong triggers nostalgia, with its abundant social content. Consistent with this hypothesis, Studies 1–2 found that the correlation between neuroticism and nostalgia proneness was eliminated when controlling for the need to belong. The need to belong predicted increased nostalgia proneness, above and beyond neuroticism. Specifically, Study 2 revealed that a deficit-reduction (rather than growth) belongingness orientation predicted increased nostalgia proneness. When the role of this deficit-reduction belongingness orientation was controlled, the positive correlation between neuroticism and nostalgia disappeared. Studies 3–4 showed that experimental inductions of a belongingness deficit augmented nostalgia, providing support for its compensatory role.

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1. Introduction

The capacity for mental time travel enables individuals to reflect on meaningful past experiences. The recollection of such distinctive, personal memories often elicits nostalgia. Adopting a prototype approach, according to which people’s understanding of nostalgia is shaped by repeated experience and becomes cognitively organized around a prototype (Rosch, 1978), Hepper, Ritchie, Sedikides, and Wildschut (2012) reported that laypersons conceptualize nostalgia as a predominantly positive, social, and past-oriented emotion. In nostalgic reverie, one remembers an event from one’s past—typically a fond, meaningful memory (e.g., childhood, close relationship). One often reflects on the memory through rose-tinted glasses, misses that time or person, and may even long to return to the past. Consequently, one feels sentimental, most often happy but with a tinge of longing. These lay concep-

tions of nostalgia dovetail with formal definitions; *The New Oxford Dictionary of English* (1998) defines nostalgia as “a sentimental longing or wistful affection for the past” (p. 1266). Experimentally-induced nostalgia increases positive affect, elevates self-regard, fosters social connectedness, and instils a sense of meaning in life (Routledge et al., 2011; Wildschut, Sedikides, Arndt, & Routledge, 2006). Whereas this evidence pertains to the psychological functions of momentary nostalgia (state nostalgia), the causes and consequences of individual differences in nostalgia proneness (trait nostalgia) are underexplored.

We distinguish between two contrasting views on nostalgia proneness. The ‘sociality view’ emphasizes the rich social repertoire of nostalgic memories. Content analyses revealed that nostalgic recollections typically involve meaningful interactions with close others, such as family members, partners, and friends (Wildschut et al., 2006). Also, linguistic analyses showed that nostalgic narratives (compared to ordinary autobiographical narratives) contain more first-person plural pronouns (e.g., “we”, “ours”) and social words (e.g., “mother”, “friend”) (Robertson, Wildschut, Sedikides, & Vingerhoets, in preparation). Furthermore, persons who are high (vs. low) in nostalgia proneness manifest a stronger preference for activities (Batcho, 1998) and song lyrics

* Corresponding author. Address: University of Groningen, Department of Psychology, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands. Tel.: +31 503632439.

E-mail address: j.seehusen@rug.nl (J. Seehusen).

¹ These authors contributed equally to this research.

(Batcho, DaRin, Nave, & Yaworsky, 2008) in which social relationships are central.

In contrast, the ‘maladaptation view’ entails that nostalgia proneness is a form of emotional instability or depression (for reviews, see: Sedikides, Wildschut, Arndt, & Routledge, 2006; Sedikides, Wildschut, & Baden, 2004). Scholars adopting this view advocate that nostalgia is a retreat into the past stemming from an inability to deal with the demands of adulthood. For example, Castelnovo-Tedesco (1980) described the nostalgia-prone person as enamoured with the past, unhappy with the present, and afraid of the future. Consistent with this view, research showed that neuroticism is positively linked with nostalgia proneness (Barrett et al., 2010). Definitions of neuroticism vary somewhat, but it is commonly understood to involve negative emotionality/affect and emotional instability (Hofstee, de Raad, & Goldberg, 1992; Widiger, 2009).

The primary objective of this article was to integrate the ‘sociality’ and ‘maladaptation’ views. This integration rests on two propositions. First, neuroticism is related to the need to belong (NTB). Baumeister and Leary (1995) defined NTB as a “need for frequent, nonaversive interactions within ongoing relational bonds” (p. 497). Leary, Kelly, Cottrell, and Schreindorfer (2006) subsequently developed the Need to Belong Scale (NTBS), which operationalized NTB as the strength of individuals’ concern with being accepted, and not being rejected, by others. A strong NTB, to the extent that it renders one susceptible to others’ approval or disapproval, should be related positively to neuroticism. This is because neuroticism, in its original meaning of emotional instability (Hofstee et al., 1992; Widiger, 2009), refers to whether one’s emotions depend strongly on external and therefore varying circumstances. Indeed, Leary et al. reported a positive correlation between neuroticism and the NTBS.

Our second proposition is that NTB triggers nostalgia. Deficiencies in social connectedness elicit a range of compensatory mechanisms. Gardner, Pickett, and Knowles (2005) made a distinction between direct and indirect compensatory strategies. Direct strategies are engaged when suitable interaction partners are available, and are geared toward forming or repairing relationships with these individuals. Indirect strategies are engaged when suitable interaction partners are not readily available, and rely on mental representations of social bonds as a source of social connectedness. We propose that nostalgia can serve as an indirect strategy for coping with belongingness deficits. Zhou, Sedikides, Wildschut, and Gao (2008) illustrated this restorative function of nostalgia. They found, first, that loneliness was associated with, and caused, decreased perceived social support. Second, loneliness was associated with, and caused, increased nostalgia. Third, nostalgia was associated with, and caused, increased perceived social support. Thus, whereas loneliness directly decreased perceived social support, it indirectly increased perceived social support via nostalgia. Nostalgia, with its fertile social content, thwarted the detrimental influence of belongingness deficits.

We attempted to integrate the ‘sociality’ and ‘maladaptation’ views of nostalgia proneness in four studies. Study 1 examined whether the correlation between neuroticism and nostalgia can be explained by their shared association with NTB. Study 2 differentiated between two facets of NTB: growth and deficit-reduction belongingness orientations (Lavigne, Vallerand, & Crevier-Braud, 2011). Specifically, this study tested the hypothesis that the deficit-reduction (but not growth) orientation accounts for the relation between neuroticism and nostalgia. Studies 3 and 4 evaluated the causal hypothesis that belongingness deficits trigger nostalgia.

2. Study 1

We administered validated measures of neuroticism, nostalgia proneness, and NTB. We expected that the positive correlation

between neuroticism and nostalgia would be reduced when controlling for NTB. We further expected that NTB would be positively correlated with nostalgia when controlling for neuroticism.

2.1. Method

2.1.1. Participants

Five hundred thirty-three members of the Dutch public (272 females) volunteered for an online survey ($M_{AGE} = 40.11$, $SD_{AGE} = 12.62$, range = 13–64). Materials were presented on a website hosted by Tilburg University. The sample was heterogeneous with respect to age, relationship status, and educational background. To adhere to strict space limitations on the survey, we used brief assessments. We obtained complete responses from 527 participants.

2.1.2. Procedure

We assessed nostalgia proneness with the Southampton Nostalgia Scale (SNS; Routledge, Arndt, Sedikides, & Wildschut, 2008). This scale consists of a definition of the word nostalgia (‘a sentimental longing for the past’) followed by five items that assess nostalgic tendencies (e.g., “How prone are you to feeling nostalgic?”; 1 = *not at all*, 7 = *very much*). We averaged the items to create a nostalgia index ($\alpha = .92$; $M = 4.75$, $SD = 1.47$). Routledge et al. (2008) provided evidence for the reliability and construct validity of the SNS.

We assessed neuroticism with a single item from the revised Ten Item Personality Inventory (TIPI-r; Denissen, Geenen, Selfhout, & van Aken, 2008). Participants rated themselves (1 = *extremely like the left adjective pair*, 7 = *extremely like the right adjective pair*) along a bipolar dimension ranging from *anxious, easily upset* to *calm, emotionally stable* ($M = 3.47$, $SD = 1.54$). Six participants did not complete this item. Denissen et al. provided evidence for the reliability and construct validity of the TIPI-r.

We assessed NTB using the NTBS (Leary et al., 2006). This scale comprises 10 items (e.g., “I try hard not to do things that will make other people avoid or reject me”; 1 = *strongly disagree*, 5 = *strongly agree*). We averaged the items to form a NTB index ($\alpha = .79$; $M = 3.12$, $SD = .67$). Mellor, Stokes, Firth, Hayashi, and Cummins (2008) provided evidence for the reliability and construct validity of the NTBS.

For practical reasons, the measures were presented in a single order (NTBS, SNS, neuroticism). Space limitations do not permit us to list additional measures included in the survey, but readers can obtain this information upon request.

2.2. Results and discussion

2.2.1. Zero-order correlations

Replicating previous findings (Barrett et al., 2010), neuroticism was positively correlated with nostalgia proneness ($r[527] = .14$, $p = .002$). Neuroticism was also positively associated with NTB ($r[527] = .40$, $p < .001$). Finally, as hypothesized, NTB was positively related to nostalgia proneness ($r[527] = .18$, $p < .001$). All correlations remained significant when we controlled for (partialled out) participant age and gender.

2.2.2. First-order partial correlations

Next, we tested the first-order partial correlations among neuroticism, nostalgia, and NTB. As anticipated, when controlling for NTB, the correlation between neuroticism and nostalgia was reduced and no longer significant ($pr[527] = .07$, $p = .102$). In contrast, the correlation between NTB and nostalgia remained significant when controlling for neuroticism ($pr[527] = .14$, $p = .002$), and the correlation between neuroticism and NTB

remained significant when controlling for nostalgia ($pr[527] = .38$, $p < .001$).

The diminution of the neuroticism–nostalgia correlation when controlling for NTB is mathematically equivalent to the ‘indirect effect’ of neuroticism on nostalgia via NTB (MacKinnon, Fairchild, & Fritz, 2007; by using the term ‘indirect effect’ we do not imply causation). Thus, we can evaluate the statistical significance of this diminution by calculating a 95% bootstrapped confidence interval (CI) for the ‘indirect effect’ (denoted as ab) using the PROCESS macro (Hayes, 2013; 5000 bootstrap samples). The diminution of the neuroticism–nostalgia correlation when controlling for NTB was significant, $ab = .06$, $SE = .02$, 95% CI = .02, .10.

These findings support the hypothesis that the association between neuroticism and nostalgia proneness arises because (a) neuroticism is positively associated with NTB and (b) NTB predicts increased nostalgia.

3. Study 2

In Study 2, we attempted to replicate and extend Study 1. By so doing, we answered recent calls for greater emphasis on replications (Simmons, Nelson, & Simonsohn, 2011). In addition to measuring NTB, we distinguished between two belongingness orientations identified by Lavigne et al. (2011). Whereas growth orientation involves genuine interest in interpersonal relationships without fear of rejection, deficit-reduction orientation involves a desire for social acceptance and a fear of rejection. Lavigne et al. reported that only the deficit-reduction orientation shared variance with neuroticism. We therefore expected that the deficit-reduction orientation would play a more important role in accounting for the relation between neuroticism and nostalgia. To be precise, we expected that the correlation between neuroticism and nostalgia would be reduced when controlling for NTB (in particular, the deficit-reduction orientation). We further expected that NTB (in particular, the deficit-reduction orientation) would be correlated with nostalgia when controlling for neuroticism.

3.1. Method

3.1.1. Participants

Participants were 488 undergraduates (384 females, 102 males, 2 unreported) from the University of Southampton ($n = 336$) and the University of Groningen ($n = 152$) ($M_{AGE} = 20.46$, $SD_{AGE} = 3.24$, range = 18–50). The results pattern did not differ as a function of gender or university affiliation.

3.1.2. Procedure and materials

We assessed nostalgia proneness with an extended version of the SNS (Barrett et al., 2010). In particular, we added two items to Routledge et al.’s (2008) original 5-item scale: “How significant is it for you to feel nostalgic?” and “How valuable is nostalgia for you?” (1 = *not at all*, 7 = *very much*).

We assessed neuroticism with the 8-item Neuroticism subscale of the Big-Five Inventory (BFI; John, Donahue, & Kentle, 1991; e.g., “I see myself as someone who gets nervous easily”; 1 = *strongly disagree*, 5 = *strongly agree*).

As in Study 1, we assessed NTB with the NTBS (Leary et al., 2006). To differentiate between growth and deficit-reduction orientations, we additionally administered the Belongingness Orientation Scale (BOS; Lavigne et al., 2011). This scale comprises two 5-item subscales, assessing the strength of growth (e.g., “My relationships are important to me because they allow me to learn about myself”) and deficit-reduction (e.g., “My relationships are important to me because they fill a void in my life”) orientations (1 = *strongly disagree*, 5 = *strongly agree*). Scales were administered

in one of two random orders (1: neuroticism, SNS, NTBS, BOS; 2: SNS, neuroticism, NTBS, BOS). No order effects emerged. A list of additional survey measures is available upon request.

3.2. Results

3.2.1. Zero-order correlations

We present descriptive statistics, reliability coefficients, and zero-order correlations in Table 1. All correlations in Table 1 remained significant when we controlled for (partialled out) participant age and gender. Replicating previous research and Study 1, neuroticism was positively correlated with nostalgia proneness. Neuroticism was also positively correlated with NTB and with the deficit-reduction orientation. We further obtained a significant negative correlation between neuroticism and growth orientation. (Lavigne et al. reported a non-significant negative correlation.)

The correlation between deficit-reduction and growth orientations was positive but moderate, indicating that the two orientations are related, yet distinct. NTB was more strongly correlated with the deficit-reduction than with the growth orientation ($z = 11.39$, $p < .001$), but both correlations were positive and significant. These results are also consistent with previous findings (Lavigne et al., 2011).

As hypothesized, NTB and the deficit-reduction orientation were positively correlated with nostalgia. Also, the relation between growth orientation and nostalgia was positive.

3.2.2. First-order partial correlations

Next, we tested the first-order partial correlations among the study variables (Table 2). As in Study 1, when controlling for NTB, the correlation between neuroticism and nostalgia was reduced and no longer significant (Table 2, Analysis 1). Further, the correlation between neuroticism and nostalgia was reduced and no longer significant when controlling for the deficit-reduction orientation (Table 2, Analysis 2), but not when controlling for the growth orientation (Table 2, Analysis 3).

As in Study 1, we used the PROCESS macro to evaluate the statistical significance of diminutions of the neuroticism–nostalgia correlations (Hayes, 2013; 5000 bootstrap resamples). There was a significant diminution of the neuroticism–nostalgia relation when controlling for NTB ($ab = .17$, $SE = .04$, 95% CI = .10, .26) and when controlling for the deficit-reduction orientation ($ab = .16$, $SE = .04$, 95% CI = .10, .24).

3.3. Discussion

Studies 1 and 2 provided converging evidence that the association between neuroticism and nostalgia is eliminated when the role of NTB (in particular, deficit-reduction orientation) is

Table 1

Descriptive statistics, reliabilities, and zero-order correlations among study variables: Study 2.

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Nostalgia	4.44	1.21	.94				
2. Neuroticism	2.94	0.66	.17***	.82			
3. Need to belong	3.52	0.64	.28***	.38***	.84		
4. BOS-deficit reduction	3.47	0.67	.29***	.34***	.72***	.80	
5. BOS-growth	3.85	0.63	.13**	–.11*	.22***	.25***	.77

Note: $N = 488$. Values on the diagonal are Cronbach’s alpha reliability coefficients. Values below the diagonal are zero-order correlations.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2
First-order partial correlations among study variables: Study 2.

Variable 1	Variable 2	Control Variable	First-order partial correlation between Variables 1 and 2
<i>Analysis 1</i>			
Nostalgia	Neuroticism	Need to belong	.07
Nostalgia	Need to belong	Neuroticism	.24***
Neuroticism	Need to belong	Nostalgia	.35***
<i>Analysis 2</i>			
Nostalgia	Neuroticism	Deficit reduction	.08
Nostalgia	Deficit reduction	Neuroticism	.25***
Neuroticism	Deficit reduction	Nostalgia	.31***
<i>Analysis 3</i>			
Nostalgia	Neuroticism	Growth	.19***
Nostalgia	Growth	Neuroticism	.15***
Neuroticism	Growth	Nostalgia	-.14***

Note: $N = 488$. Tabled values are first-order partial correlations between the variables listed in the 'Variable 1' and 'Variable 2' columns, controlling for the variable listed in the 'Control Variable' column.

*** $p < .001$.

controlled. Furthermore, NTB (in particular, deficit-reduction orientation) predicted increased nostalgia, and did so above and beyond neuroticism. These findings support the more general hypothesis that the association between neuroticism and nostalgia proneness arises because (a) neuroticism is associated with NTB (in particular, deficit-reduction orientation), and (b) belongingness deficits predict increased nostalgia.

In Studies 3 and 4, we proceeded to test experimentally the postulated triggering effect of belongingness deficits on nostalgia. Because the association between neuroticism and nostalgia was eliminated in the partial-correlation analyses of Studies 1–2, we did not give further consideration to neuroticism in Studies 3–4. We induced belongingness deficits with a validated experimental procedure in which participants receive false feedback regarding their future level of belongingness (Twenge, Baumeister, Tice, & Stucke, 2001), and we subsequently assessed in-the-moment nostalgia. The study protocols underwent ethical review and were approved by institutional review boards. We carefully debriefed participants upon study completion, and none voiced objections or expressed distress. Extensive prior research implementing similar belongingness-deficit inductions has not revealed adverse effects on participants' wellbeing (Blackhart, Nelson, Knowles, & Baumeister, 2009). Studies 3 and 4 do not seek to champion belongingness deficits as the sole trigger of nostalgia. We recognize that nostalgia is multiply determined (Sedikides, Wildschut, Arndt, & Routledge, 2008) and, in the present research, focus on isolating a specific trigger: belongingness deficits.

4. Study 3

4.1. Method

4.1.1. Participants and design

Participants were 84 (77 females) University of Southampton undergraduates ($M_{AGE} = 19.56$, $SD_{AGE} = 1.40$, range = 18–26). We randomly assigned them to experimental conditions: future alone versus future together. Due to the small number of male participants, we did not consider gender in the analyses.

4.1.2. Procedure and materials

At the start of the study, participants completed the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975). We administered the EPQ to set the stage for the experimental manipulation of belongingness deficits only. Participants received false feedback regarding their "personality type". To bolster the credibility of this feedback, the experimenter first provided participants with accurate information regarding their level of extraversion, as assessed by the EPQ. Participants then received randomly assigned false information regarding the implications of this extraversion score for their future belongingness. In the future-alone condition, the feedback indicated that participants would end up alone later in life (high belongingness deficit). In the future-together condition, the feedback indicated that participants would have rewarding relationships throughout life (low belongingness deficit). (For details, see: Twenge et al., 2001.) Next, participants completed a validated 3-item measure assessing state nostalgia (e.g., "Right now, I am feeling quite nostalgic"; 1 = *strongly disagree*, 6 = *strongly agree*; Wildschut et al., 2006; Zhou et al., 2008). We averaged the items to form a composite ($\alpha = .98$; $M = 4.43$, $SD = 1.43$). We did not provide a dictionary definition of nostalgia in Studies 3–4. In previous research, results were unaffected by the inclusion (vs. omission) of a dictionary definition prior to the assessment of state nostalgia (Wildschut et al., 2006).

4.2. Results and discussion

As hypothesized, participants in the future-alone condition ($M = 4.84$, $SD = 1.09$) reported significantly higher nostalgia than those in the future-together condition ($M = 4.08$, $SD = 1.60$), $F(1,82) = 6.20$, $p = .015$, $\eta_p^2 = .07$. This finding supports the postulated triggering effect of belongingness deficits on nostalgia. However, a potential limitation is that we contrasted a future-alone condition with a future-together condition rather than with a neutral baseline. This leaves open the possibility that, relative to a neutral baseline, belongingness deficits (as induced in the future-alone condition) do not increase nostalgia but, rather, that belongingness surfeits (as induced in the future-together condition) reduce it. We addressed this issue in Study 4 by contrasting the future-alone condition with a neutral control condition. We hypothesized that nostalgia would be higher in the future-alone condition.

5. Study 4

5.1. Method

Participants were 31 (16 females) East Tennessee State University undergraduates ($M_{AGE} = 19.23$, $SD_{AGE} = 1.12$, range = 18–22). We randomly assigned them to experimental conditions: future alone versus neutral. Study 4 was identical to Study 3, with one exception: we replaced the future-together condition with a neutral control condition. Participants in the neutral condition received accurate extraversion scores but did not receive information regarding their future belongingness. We excluded one participant from the final analyses, because he correctly identified the research hypothesis. Simmons et al. (2011) recently recommended that experiments should have at least 20 observations per condition. We did not meet this target due to exhaustion of the participant pool toward the end of the specified study period; this does not reflect interim data-analysis or a flexible termination rule.

5.2. Results and discussion

A Feedback (future alone vs. neutral control) \times Gender ANOVA of state nostalgia ($\alpha = .93$) revealed that participants in the fu-

ture-alone condition ($M = 3.02$, $SD = 1.47$) reported significantly higher levels of nostalgia than those in the neutral condition ($M = 2.24$, $SD = 1.11$), $F(1,26) = 5.28$, $p = .030$, $\eta_p^2 = .17$. There was also a marginal tendency for males ($M = 2.83$, $SD = 1.22$) to report higher levels of nostalgia than females ($M = 2.50$, $SD = 1.48$), $F(1,26) = 2.77$, $p = .108$, $\eta_p^2 = .10$. The Feedback \times Gender interaction, however, was not significant, $F(1,26) = 1.06$, $p = .313$, $\eta_p^2 = .04$. These findings provide support for the triggering effect of belongingness deficits on nostalgia.²

6. General discussion

Much recent evidence has highlighted the psychological benefits of experimental nostalgia inductions, but research on individual differences in nostalgia proneness is still in its infancy. The primary objective of this article was to integrate two contrasting views on nostalgia proneness. The ‘sociality view’ emphasizes the rich social content of nostalgia, whereas the ‘maladaptation view’ holds that nostalgia is a sign of emotional instability and depression.

The key to this integration was NTB. We formulated two propositions. First, neuroticism is related to NTB. Second, NTB triggers nostalgia. We then hypothesized that the association between neuroticism and nostalgia proneness can be explained by their shared relation with NTB. Studies 1–2 supported this hypothesis, revealing that the association between neuroticism and nostalgia proneness was eliminated when we controlled for NTB and, in particular, the deficit-reduction (but not growth) orientation (Study 2). Subsequently, in Studies 3–4, we evaluated the hypothesis that belongingness deficits trigger nostalgia. Consistent with this hypothesis, Study 3 found that, compared to participants who were told that they would have rewarding relationships throughout life, participants who were told that they would end up alone in the future reported higher nostalgia. Study 4, in which we compared the future-alone condition with a neutral control condition, provided further support for the hypothesis that belongingness deficits trigger nostalgia. Future research would do well to corroborate further this proposition using alternative belongingness-deficit inductions and nostalgia assessments.

The present studies, involving participants from three countries (The Netherlands, UK, and USA), bolster the notion that the association between neuroticism and nostalgia arises because nostalgia, with its rich social content, functions as a compensatory strategy in response to belongingness deficits (Sedikides et al., 2008; Wildschut et al., 2006; Zhou et al., 2008). By so doing, these studies take an important step in unifying experimental research that has highlighted the psychological benefits of state nostalgia and correlational research that, until now, had placed question marks on the psychological adaptiveness of trait nostalgia.

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² It is noteworthy that overall ratings of state nostalgia were higher among UK participants (Study 3; $M = 4.43$, $SD = 1.43$) than among US participants (Study 4; $M = 2.66$, $SD = 1.35$). We speculated that this difference is related to greater familiarity with the meaning of nostalgia among UK participants. We tested this possibility by asking UK ($n = 93$) and US ($n = 127$) undergraduates how familiar they were with the meaning of nostalgia (1 = not at all, 2 = somewhat, 3 = reasonably well, 4 = very well). UK participants ($M = 3.01$, $SD = 0.88$) indeed were more familiar with nostalgia's meaning than US participants ($M = 2.56$, $SD = 1.06$), $F(1,219) = 11.25$, $p < .0001$, $\eta_p^2 = .05$. In previous research with UK participants, results were unaffected by the inclusion (vs. omission) of a dictionary definition (Wildschut et al., 2006). The inclusion of a dictionary definition may be advisable, however, when participants are less familiar with the construct “nostalgia”.

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