Looking Back to Move Forward: Nostalgia as a Psychological Resource for Promoting

Relationship Goals and Overcoming Relationship Challenges

Andrew A. Abeyta*

Clay Routledge

North Dakota State University

Jacob Juhl

University of Southampton

Author Note

Andrew A. Abeyta and Clay Routledge, North Dakota State University, Fargo, ND, USA. Jacob Juhl, University of Southampton, UK.

Correspondence concerning this article should be addressed to Andrew A. Abeyta, Department of Psychology, North Dakota State University, Fargo, ND.

Contact: andrew.abeyta@ndsu.edu

Abstract

Previous research has shown that nostalgia is a highly social emotion that provides a sense of social connectedness. In the present research, we tested a social motivational function of nostalgia. Specifically, across 7 studies we found converging evidence that nostalgia mobilizes social goals. In Study 1, nostalgia increased the importance people assigned to relationship goals and how optimistic they felt about achieving these goals. In Study 2, nostalgia increased intentions to pursue goals of connecting with friends. In Study 3, experimentally-induced pessimism about achieving relationship goals instigated nostalgia. In Study 4, we found evidence that it is the interpersonal nature of nostalgia that is associated with striving to connect with others. Specifically, nostalgia about aspects of the past that were high in sociality was associated with intentions to interact with others, whereas nostalgia for aspects of the past that were low in sociality was not. In Study 5, nostalgic reflection increased friendship-approach goal striving relative to reflecting on ordinary social memories, but did not increase friendship-avoidant goal striving. Finally, in Studies 6 and 7, we found evidence that social-efficacy mediated the effect of nostalgia on striving to connect with others and striving to overcome interpersonal challenges. Together, these findings establish nostalgia as catalyst for social goal pursuit and growth.

Keywords: Nostalgia, Social goals, Social Approach, Motivation, Social-Efficacy

Looking Back to Move Forward: Nostalgia as a Psychological Resource for Promoting

Relationship Goals and Overcoming Relationship Challenges

Human beings have a need to belong and are motivated by this need to form and maintain

stable social relationships (Baumeister & Leary, 1995). Gardener, Pickett, and Knowles (2005)

asserted that belongingness needs can be met directly or indirectly. Direct strategies are efforts to

meet belongingness needs by actually connecting with other people. However, opportunities for

direct social interaction are not always available. Gardner and colleagues (2005) suggested that

when social contact is unavailable, people look to meet their belongingness needs with indirect

strategies. One way people can meet belongingness needs indirectly is by seeking out reminders

of a meaningful social bond (e.g., a photograph of a close friend). These reminders reassure

people that they belong and have meaningful social relationships. Gardner and colleagues (2005)

refer to this indirect strategy as "social snacking", because the reminders help people meet

belongingness needs quickly, but can only temporarily satisfy the need to belong. Nostalgic

reflection is one way of indirectly satisfying belongingness needs (for a review, see Sedikides et

al., 2015). Research indicates that nostalgic reflection is a potent reminder of social relationships

which reassures people that they are connected with others (Abeyta et al., 2015; Sedikides et al.,

2015; Wildschut, Sedikides, Arndt, & Routledge, 2006). In the present research, we investigate

whether nostalgia is merely a "social snack" that helps people temporarily appease the need to

belong, or if nostalgia also promotes more enduring means of satisfying this need. Specifically,

we examined whether nostalgia motivates goals to connect with others. Additionally, we tested

whether nostalgia promotes goals to connect with others, in part, by fostering a sense of social-

efficacy.

Nostalgia

Nostalgia is a predominantly positive emotional experience that entails revisiting cherished memories of persons and events. Dictionaries define nostalgia as "a sentimental longing or wistful affection for the past" (Pearsall, 1998, p. 1266) and the "pleasure and sadness that is caused by remembering something from the past and wishing that you could experience it again" (Merriam-Webster online dictionary). Lay conceptions of nostalgia are consistent with dictionary definitions. Specifically, Hepper, Ritchie, Sedikides, and Wildschut (2012) adopted a prototype approach to identify the central and peripheral features of laypersons' conceptualization of nostalgia. Essentially, laypersons consider nostalgia to be a mostly positive experience with elements of loss and the desire to relive or return to the past. Further, laypersons conceive nostalgia as a revisiting of fond and personally significant memories that are primarily about childhood and/or social relationships. Hepper and colleagues (2012) prototypical features were based on data from the United States and the United Kingdom. However, further research has demonstrated that lay views of nostalgia are similar around the world (assessed in 18 countries across five continents; Hepper et al., 2014), and that nostalgia is frequently experienced by children, teenagers (Zhou, Sedikides, Wildschut, & Gao, 2008) and adults of all ages (Wildschut et al., 2006). Nostalgia is a universal experience.

Nostalgia is universally and frequently experienced in part because it plays an important role in psychological health and well-being (Routledge, Wildschut, Sedikides, & Juhl, 2013). To begin, nostalgic memories prominently feature the self and often contain themes of agency, self-growth, and personal accomplishments (Abeyta et al., 2015; Wildschut et al., 2006; Hart et al., 2011). Nostalgic memories can contain elements of sadness and loss, but when they do they tend to follow a redemptive narrative sequence, whereby negative events give way to positive personal outcomes (e.g., acceptance or personal growth; Wildschut et al., 2006). Thus, it appears

that nostalgia highlights what is good about the self. Consistent with this, research has indicated

that engaging in nostalgic reflection benefits self-views. Specifically, nostalgia bolsters self-

esteem (e.g., Wildschut et al., 2006), increases the accessibility of positive self-attributes (Vess,

Arndt, Routledge, Sedikides, & Wildschut, 2012), and facilitates continuity between one's past

and present self (Sedikides, Wildschut, Routledge, & Arndt, in press). Nostalgic memories also

feature personally meaningful life events like weddings and birthdays (Hepper et al., 2012;

Wildschut et al., 2006). Thus, it appears that nostalgic reflection highlights the meaningful

aspects of one's life. Consistent with this, research has indicated that nostalgia helps manage

existential concerns and provides a sense of meaning in life. Specifically, nostalgia bolsters a

sense of personal meaning (Routledge et al., 2011) and buffers existential threats (e.g., death;

Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010; Routledge, Arndt, Sedikides, &

Wildschut, 2008; Routledge, Juhl, Abeyta, & Roylance, 2014).

Even though nostalgic memories prominently feature the self, the self is nearly always

placed within a social context. That is, when people are nostalgic, they are typically nostalgic

about events and time periods in which they are surrounded by close others (Wildschut et al.,

2006). Moreover, nostalgic narratives contain references to close interpersonal relationships and

focus on themes of love and belongingness (Abeyta et al., 2015), and laypersons consider

memories of social events and relationships to be a central feature of nostalgia (Hepper et al.,

2012). Thus, nostalgic memories are highly social. Consistent with this, research has indicated

that nostalgia serves a social function by promoting perceptions of social connectedness (i.e., a

sense of acceptance, belongingness, and support). Specifically, Wildschut and colleagues (2006)

found that research participants who reflected on a nostalgic event reported feeling more loved

and protected (Study 5), as well as more secure (i.e., less anxious and avoidant) about their

relationships (Study 6) than research participants who reflected on an ordinary past event. Further, Juhl, Sand, and Routledge (2012) demonstrated that nostalgic reverie promotes satisfaction in romantic relationships. Research has also illustrated that nostalgia is useful when a sense of belonging is threatened or in doubt. Specifically, loneliness and social exclusion trigger nostalgia and nostalgia serves to restore a sense of belonging and bolsters a sense of social support (Seehusen et al., 2013; Zhou et al., 2008). Finally, nostalgia is primarily an interpersonal resource, since research indicates that the self and existential benefits of nostalgia appear to be downstream consequences of nostalgia's capacity to meet belongingness needs. Specifically, social connectedness mediates nostalgia's effect on self-esteem (Cheung et al., 2013) and meaning in life (Routledge et al., 2011).

Nostalgia Promotes Social Goals

As outlined above, there are direct and indirect strategies that people utilize to meet belongingness needs (Gardner et al., 2005). While direct strategies involve proactively seeking to interact and connect with others, indirect strategies rely on mental representations of social relationships to foster a sense of social connectedness. The research reviewed above demonstrates that nostalgia is an indirect strategy for satisfying belongingness needs. That is, this work shows that nostalgia can help people meet the need to belong without directly interacting with others. In particular, people naturally turn to nostalgic reverie when they feel that their belongingness needs are not being met (Seehusen et al., 2013; Zhou et al., 2008), and nostalgic reflection makes people feel connected with others (Wildschut et al., 2006). Further, feeling connected with others in turn benefits self-esteem and meaning in life (Cheung et al., 2013; Routledge et al., 2011). However, beyond being an indirect strategy, or "social snack", nostalgia may also promote direct strategies of satisfying belongingness needs. Building from recent

research that has demonstrated that nostalgia has motivational implications (Stephan et al., 2014), we propose that nostalgia serves a social motivational function by inspiring people to adopt and pursue social goals.

Specifically, recent research by Stephan and colleagues (2014) suggests that nostalgia has implications for motivation. A number of converging theoretical perspectives make a distinction between two independent yet opposing motivations; approach and avoidance (e.g., Carver, 2006; Higgins, 1997; Elliot & Church, 1997; Miller, 1944). Approach motivation energizes appetitive behaviors toward realizing positive end states, whereas avoidance motivation energizes aversive behaviors achieved by avoiding negative end states. Stephan and colleagues (2014) proposed and tested a regulatory model, whereby avoidance motivation triggers nostalgia, and nostalgia, in turn, promotes approach motivation. Using the behavioral inhibition and activation system (BIS/BAS) scales, Stephan and colleagues (2014) found that avoidance motivation (BIS) predicted nostalgia, and nostalgia, in turn, predicted greater approach motivation (i.e., fun seeking and drive dimensions of BAS). Finally, and most relevant to the current research, Stephan and colleagues (2104) found that recalling a nostalgic memory increased approach motivation and approach behaviors.

Stephan and colleagues' (2014) research suggests that nostalgia brings on line approach motivation, but does not provide support that nostalgia inspires the adoption and pursuit of specific goals. The hierarchical model of approach-avoidance motivation (Elliot & Church, 1997) suggests that goals are central components of the motivational process. According to this model, goals are cognitive representations of a future object or outcome to which the individual is committed. In the hierarchical model, motivation works through goals to predict outcomes or end states. In the first part of the model, approach and avoidance motivation, which originate

from dispositional tendencies that are chronically accessible or brought online by situational

variables, predict the adoption of distinct goals. In the second part of the model, goals then direct

action toward desired end states, leading to goal relevant consequences (Elliot, 2006; Elliot &

Church, 1997). In support of the first part of the model, Elliot and Church (1997) found that the

fear of failure (a dispositional avoidance tendency) predicted adoption of goals related to

avoiding poor academic performance, whereas the *motivation to achieve* (a dispositional

approach tendency) predicted goals related to academic mastery. Supporting the second part of

the hierarchical model, Elliot and Church (1997) found that goals of avoiding poor academic

outcomes predicted worse course grades and reduced intrinsic motivation, whereas goals of

academic mastery predicted intrinsic motivation. Of relevance to the current research, the

hierarchical model of approach-avoidance motivation has also been applied to social motivations

(Gable, 2006; Gable & Impett, 2012). Gable (2006) found that greater *hope for affiliation* (a

dispositional approach tendency) predicted the adoption of short-term social approach goals such

as the desire to make new friends, whereas greater *fear of rejection* (a dispositional avoidance

tendency) predicted the adoption of short-term avoidance goals such as avoiding being left out of

social activities. Further, Gable (2006) found that approach and avoidance goals predicted

different interpersonal outcomes. Consistent with Elliot and Church's (1997) findings, approach

goals where associated with more positive interpersonal consequences (higher relationship

satisfaction and less loneliness) and avoidance goals with more negative interpersonal

consequences (relationship anxiety, negative attitudes about relationships, and greater

loneliness).

Taken together, nostalgia brings on line approach motivation (Stephan et al., 2014) and

approach motivation predicts the adoption of social approach goals like meeting new friends and

deepening relationships (Gable, 2006; Gable & Impett, 2012; Elliot, Gable, & Mapes, 2006).

Further, nostalgic memories are primarily social in nature; nostalgic memories typically feature

cherished social experiences and meaningful social relationships (Abeyta et al., 2015; Wildschut

et al., 2006). Therefore, nostalgia should be especially suited to inspire goals of connecting with

others. Research has provided some indirect support for this proposition. For example, nostalgia

has been found to promote positive attitudes about future encounters with stigmatized outgroups

(overweight individuals, Turner, Wildschut, & Sedikides, 2012; individuals with mental illness,

Turner, Wildschut, Sedikides, & Gheorghiu, 2013) and increase intentions to donate to charity

(Zhou, Wildschut, Sedikides, Shi, & Feng, 2012). The present research provides a direct test of

the proposition that nostalgia inspires goals of connecting with others. We predicted that

nostalgia would inspire social goal strivings such as meeting new people, deepening existing

social relationships, and overcoming interpersonal challenges.

Nostalgia Increases Social Goals through Social-Efficacy

A secondary aim of the current research was to investigate a potential pathway through

which nostalgia inspires striving for social goals. We propose that nostalgia should promote

striving for social goals in part by bolstering a sense of social confidence or efficacy. As

previously stated, research has shown that when people are nostalgic, they bring to mind positive

and cherished social experiences (e.g., family holidays, trips with friends, weddings) and/or

meaningful social relationships (e.g., friends, grandparents; Abeyta et al., 2105; Wildschut et al.,

2006). Nostalgic memories also tend to be more positive than negative (Abeyta et al., 2015).

When nostalgic memories do contain negative emotions or experiences, people tend to not dwell

on them and instead focus on how negative experiences have led to positive outcomes

(Wildschut et al., 2006). Thus, nostalgic memories are potent reminders of meaningful social

experiences in which one has attained social belongingness or achieved mastery in the social domain. Research indicates that experiencing personal mastery bolsters perceptions of efficacy, defined as beliefs that one is capable of executing a course of action toward a desired outcome (Bandura, 1982; Bandura, 1977). Nostalgia should thus boost a sense of confidence in one's social abilities or social-efficacy. Indeed, Wildschut and colleagues (2006) found that nostalgic reflection increased perceived social competence, relative to non-nostalgic autobiographical reflection.

In boosting social-efficacy, nostalgia should encourage people to connect with others. Theoretical perspectives suggest that perceptions of self-competencies play a major role in goal pursuit. For example, Bandura (1977) posited that perceived self-efficacy mediates the relation between motivation and action. Specifically, Bandura (1977) posited that motivations will most likely lead to successful actions when people have positive perceptions of self-efficacy. Research has demonstrated that self-efficacy predicts behavioral change, persistence, and performance in a number of domains. For example, high self-efficacy predicts academic achievement (Multon, Brown, & Lent, 1991), athletic performance (Moritz, Feltz, Fahrbach, & Mack, 2000), positive health-related outcomes (Holden, 1992), performance at work (Sadri & Robertson, 1993), and effective coping with psychological trauma (Luszczynska, Benight, & Cieslak, 2009). Further, the hierarchical model of approach–avoidance motivation proposes that personal competency beliefs and expectancies should influence goal striving. Specifically, Elliot and Church (1997) found that having confidence in one's academic abilities was positively associated with the adoption of academic approach and mastery goals. Taken together, a sense of efficacy or confidence in one's abilities predicts goal striving, and in particular approach oriented

performance and achievement goals. Therefore, bolstering social-efficacy should be one route

through which nostalgia inspires goals of connecting with others.

Overview of the Present Research

Across seven methodologically diverse studies, we explored the proposition that

nostalgia promotes direct efforts to connect with other people by inspiring social goal pursuits.

We began in Studies 1 and 2 by testing the effect of nostalgic reflection, relative to non-nostalgic

autobiographical reflection, on social goal striving. In Study 1, we examined the effect of

nostalgia on the perceived importance of social goals and the perceived likelihood of achieving

these goals in the future. Does nostalgia inspire people to prioritize social goals and does it make

them feel more confident that they will accomplish these goals in the future? In Study 2, we

tested the effect of nostalgia on friendship-approach goal striving. Does nostalgia encourage

people to deepen their friendships? In Study 3, we investigated whether people turn to nostalgia

when efforts to connect with others are undermined. Do people naturally turn to nostalgia when

they feel that their aspirations of connecting with others are in doubt? In Study 4, we investigated

the assumption that it is the social nature of nostalgia that leads people to strive to connect with

others. Does the strength of the relation between nostalgia and striving to pursue social

connections depend on nostalgia's sociality? In Study 5, we sought to differentiate nostalgia

from pleasant, but less meaningful social memories and also test the effect of nostalgia on

friendship-avoidance goals. Does reflecting on a nostalgic social memory increase friendship-

approach goal striving relative to reflecting on a satisfying, but less meaningful, social

experience? And is this effect specific to social approach goal strivings, or does nostalgia also

influence social avoidant goal strivings? In Studies 6 and 7 we tested whether nostalgia inspires

social goal striving through social-efficacy. Does nostalgia instill confidence in social abilities

which in turn energize people to connect with others? In Study 6, we explored the impact of

nostalgia on social-efficacy and tested whether nostalgia boosts social-efficacy which in turn

inspires social goal strivings. Finally, in Study 7, we tested the conceptual replicability of the

findings in Study 6 using a different assessment of social goal striving. Specifically, we

examined whether or not the effect of nostalgia on striving for social goals is powerful enough to

inspire the confidence needed to pursue goals of connecting with others even when people are

facing interpersonal conflict. For all studies, we tested all participants who responded within a

designated data collection period. However, we did place a requirement that the number of

observations per condition be at least 20 (Simmons, Nelson, & Simonsohn, 2011), but in all

Studies, we secured many more than 20 observations per condition.

Study 1

The purpose of Study 1 was to investigate the impact of nostalgia on attitudes about

relationship goals. Therefore, we first evoked nostalgia by having participants bring to mind a

nostalgic memory or a recent ordinary memory. We then measured participants' attitudes about

relationship goals, as well as goals in other domains (wealth, fame, image/appearance, personal

growth, community involvement, and health), using Kasser and Ryan's (1996) Aspirations

Index. This scale measures the extent to which participants believe each goal is important (i.e.,

goal importance), the extent to which they have already accomplished each goal (i.e., goal

accomplishment), and how likely it is that they will achieve the goal in the future (i.e.,

achievement likelihood). We hypothesized that nostalgia would promote relationship aspirations,

such that it would increase the perceived likelihood of attaining relationship goals as well as the

perceived importance of relationship goals. We did not anticipate that nostalgia would increase

the extent to which relationship goals have already been attained. That is, we did not expect that

nostalgia would bias perceptions of past goal achievement. Our predictions were less certain regarding aspirations in non-social domains. Even though nostalgia is primarily a social emotion, previous research has demonstrated that it serves non-social functions, such as promoting a sense of meaning in life (Routledge et al., 2011) and inspiring positive self-views (Wildschut et al., 2006). Further, nostalgia has been found to instigate general perceptions of optimism (Cheung et al., 2013).

A secondary aim was to further test the claim that nostalgia is a highly social experience. Although prototype analyses have revealed that relationships are central to people's conceptualization of nostalgia (Hepper et al., 2014; Hepper et al., 2012) and narrative analyses have shown that nostalgic memories contain more references to meaningful social relationships and stronger themes of love and belongingness than non-nostalgic autobiographical memories (Abeyta et al., 2015; Wildschut et al., 2006), we sought to further test the social character of nostalgia by coding participants' writings of nostalgic and ordinary memories with text analysis software. Consistent with previous research, we expected that the nostalgic writings would contain more references to social relationships than ordinary writings.

Method

Participants. Eighty-four (34 females) undergraduates from North Dakota State University (NDSU) participated in the study ($M_{age} = 20.01$, $SD_{age} = 4.20$). Data from these participants were collected at two time periods. The first collection took place in the fall of 2007 ($n = 43$). The second collection took place in the winter of 2015 ($n = 41$). Analyses revealed no significant differences between these two groups. Therefore, all analyses reported below are conducted from the entire sample.

Procedure and Materials. First, participants were randomly assigned to a nostalgic past or ordinary past condition. In the nostalgic past condition, participants read a dictionary definition of nostalgia (i.e., *"According to the Oxford Dictionary, 'nostalgia' is defined as 'a sentimental longing for the past'"*) and then wrote about a nostalgic memory. In the ordinary past condition, participants wrote about a recent ordinary memory (Wildschut et al., 2006).

After the nostalgia or ordinary memory induction, participants completed the Aspirations Index (Kasser & Ryan, 1996). The Aspirations Index assesses the strength of three extrinsic aspirations (i.e., wealth, fame, image), three intrinsic aspirations (i.e., relationships, personal growth, community), and the aspiration of good health, which is not considered to be intrinsic or extrinsic. Each type of aspiration contains five specific goals. For each goal, participants are instructed to indicate how important the goal is (goal importance), the extent to which they have already accomplished the goal (goal accomplishment), and how likely it is that they will achieve the goal in the future (achievement likelihood) on a 7-point scale (1 = *not at all*, 7 = *very*). For each type of goal, we computed separate goal importance, goal accomplishment, and achievement likelihood scores by taking the mean of the five goals within each goal-type. See Table 1 for reliability and descriptive statistics. Finally, participants completed a brief demographics survey which included gender and age items.

Social content coding. We used the Recursive Inspection of Text (RIOT) Scan software program to analyze the social content of the memories participants wrote about as a part of the experimental induction (Boyd, 2012-2105). RIOT Scan is an open-source content coding software that analyzes text using a number of existing coding schemes and dictionaries. We selected the Social Ties dictionary (Pressman & Cohen, 2007), which measures the frequency of references to 11 types of social roles (i.e., child, partner/spouse, parent, relative, close friend,

student, neighbor, worker, volunteer, religious group member, and social group member). Social

Ties measures the centrality of these social roles and relationships to the writings. Its scores

represent the sum of the social role terms used divided by the number of total words in the text.

Validating the Social Ties dictionary, Pressman and Cohen (2007) found that, similar to

perceptions of belongingness, the Social Ties scores of autobiographies predicted longevity.

Results and Discussion

  Primary analyses. We conducted separate independent t-tests (nostalgia vs. ordinary) to

test whether nostalgia influences goal importance, achievement likelihood, and goal

accomplishment for each of the seven types of goals (i.e., wealth, fame, image, relationships,

personal growth, community, health). These analyses revealed that within relationship goals,

participants in the nostalgic past condition evinced greater goal importance, $t(82) = 2.47$, $p = .02$,

$d = .54$, 95% CI [0.09, 0.79] and greater achievement likelihood $t(82) = 2.54$, $p = .01$, $d = .56$,

95% CI [0.10, 0.81] than those in the ordinary past condition. However, participants in the two

conditions did not differ in the extent to which they believed that they had already accomplished

the relationship goals, $t(82) = 1.50$, $p = .14$, 95% CI [-0.14, 1.01]. Additionally, within the other

goal types, participants in the nostalgia and ordinary conditions did not significantly differ on

goal importance, goal achievement, and achievement likelihood ($ps > .23$). See Table 1 for a

complete breakdown of descriptive statistics. Gender and age did not moderate nostalgia's

effects.

  Social content of memories. In support of the proposition that the nostalgic memories

are highly social, an independent t-test revealed a marginally significant difference between the

nostalgic past and ordinary past conditions on social content, $t(82) = 1.87$, $p = .066$, $d = .41$,

95% CI [-0.05, 1.17]. Nostalgic memories contained a higher percentage of social references (M

= 1.82, *SD* = 2.58) than ordinary memories (*M* = 0.99, *SD* = 1.25). Gender and age did not moderate nostalgia's effect on relationship content.

The results of Study 1 suggest that nostalgia promotes goals of connecting with others. Nostalgia increased the extent to which participants felt that they will attain their relationship goals and the importance they place on relationship goals. The results also suggest that nostalgia does not simply bias people's views of the past, since nostalgia did not influence beliefs regarding the extent to which participants have already attained relationship goals. The findings that nostalgia did not have a significant impact on the importance of or confidence in achieving any of the non-social goals demonstrated that nostalgia does not simply promote goals, but specifically promotes social goals. Finally, congruent with previous research, nostalgic memories contained more references to social roles and relationship than ordinary memories. However, the difference was only marginally significant. Text analysis software typically require large samples (Pennebaker, 2011), and thus our sample may have been too small to detect a significant difference in social content between nostalgic and non-nostalgic narratives. We address this limitation in subsequent studies by utilizing larger sample sizes.

Study 2

The primary aim of Study 2 was to replicate the effect of nostalgia on goals to connect with others using a different measure and a much larger sample. Specifically, we used the Elliot and colleagues' (2006) measure of friendship-approach goals. We hypothesized that nostalgic reflection, relative to non-nostalgic autobiographical reflection, would increase friendship-approach goal striving.

In Study 2, we also sought to address an affective explanation of the observed effect. That is, the effect may simply be due to the affectively positive tone of nostalgia. Previous

research has shown that nostalgia increases positive affect relative to reflecting on ordinary

events (Wildschut et al., 2006) and that content of nostalgic memories are richer in affectively

positive content than are ordinary memories (Abeyta et al., 2015). Therefore, we included a

positive memory control condition in addition to the nostalgic memory and ordinary memory

condition used in Study 1, and measured positive affect to rule out this alternative explanation.

Finally, we further tested the assumption that nostalgic memories are more social in

nature compared to non-nostalgic autobiographical reflections. In Study 1, we found that

writings of nostalgic memories contained more references to social roles and relationships than

writings of ordinary memories. However, this difference was only marginally significant, which

may be due to a relatively smaller sample of writings. In Study 2, we collected data from a much

larger sample.

Method

Participants. Three hundred-thirty eight (208 females) adults recruited from Amazon's

Mechanical Turk (AMT) participated in the study (M_{age} = 37.12, SD_{age} = 12.71). AMT is a valid

and reliable source for psychological research (Burmester, Kwang, & Gosling, 2011; Paolacci,

Chandler, & Ipeirotis, 2010; Shapiro, Chandler, & Mueller, 2013). AMT samples are comparable

to traditional samples (e.g., college, community, and clinical samples) on demographic measures

(Paolacci et al., 2010), personality characteristics (Burhmester et al., 2011), cognitive biases

(Paolacci et al., 2010), and mental health measures (Shapiro et al., 2013). Participants completed

all materials in an online questionnaire.

Procedure and materials. First, the participants were randomly assigned to a nostalgic

past, an ordinary past, or a positive past condition. The nostalgic and ordinary past conditions

were identical to those described in Study 1 (Wildschut et al., 2006). As previously mentioned,

the positive past condition was added to test the possibility that the differences between the

nostalgic past and ordinary past conditions in Study 1 were driven by fluctuations in positive

affect. In the positive past condition participants brought to mind and wrote about a past event in

which they experienced luck.

After the experimental induction, participants completed a three item measure of state

nostalgia meant as a manipulation check (e.g., "Right now I am feeling quite nostalgic; $1 =$

strongly disagree, $6 =$ *strongly agree; M* $= 4.09, SD = 1.47$; Hepper et al., 2012; Wildschut et al.,

2006; Cronbach's $\alpha = .98$), as well as two items assessing positive affect (i.e., "I feel…"

"happy," and "in a good mood"; $1 =$ *strongly disagree,* $6 =$ *strongly agree; M* $= 4.92, SD = 1.27$;

Hepper et al., 2012; Cronbach's $\alpha = .96$).

Next, participants completed a state version of the friendship-approach subscale of Elliot

and colleagues' (2006) friendship-approach/avoidance goal scale. The measure is based on

Gable's (2006) hierarchical model of social approach/avoidance motivation. This model defines

social goals as, "lower-level cognitive representations that direct individuals towards potential

positive relational outcomes or away from potential negative relational outcomes" (Elliot et al.,

2006, p. 379). The measure has two subscales: a subscale measuring friendship-approach goals

and a subscale measuring friendship-avoidance goals. In the present study, participants only

completed the approach subscale. Specifically, they indicated the extent to which they agree with

four items (e.g., "I feel that I want to move toward growth and development in my friendships")

based on how they currently feel ($1 =$ *strongly disagree,* $6 =$ *strongly agree; M* $= 4.30, SD =$

1.37; Cronbach's $\alpha = .96$). Finally, participants completed a brief demographics survey which

included gender and age items.

Social content coding. Once again, we used the RIOT Scan software program (Boyd, 2012-2105) with the Social Ties dictionary (Pressman & Cohen, 2007) to analyze the social content of the memories.

Results and Discussion

Manipulation check. A one-way (nostalgia vs. ordinary vs. positive) Analysis of Variance (ANOVA) revealed that the nostalgia manipulation was successful, $F(2, 335) = 47.73$, $p < .001$, $\eta_p^2 = .22$. Specifically, Fisher's Least Significant Difference (LSD) pairwise comparisons revealed that participants in the nostalgic condition reported greater levels of nostalgia ($M = 4.97$, $SD = 1.00$) than participants in the ordinary past ($M = 3.34$, $SD = 1.46$) and positive past ($M = 3.91$, $SD = 1.41$) conditions ($ps < .001$). Interestingly, participants in the positive past condition reported greater levels of nostalgia than participants in the ordinary past condition ($p = .001$).

Primary analyses. A one-way (nostalgia vs. ordinary vs. positive) ANOVA revealed significant differences between the conditions on friendship-approach goal striving, $F(2, 335) = 5.01$, $p = .007$, $\eta_p^2 = .03$. Follow-up Fisher's LSD pairwise comparisons revealed that participants in the nostalgic past condition reported significantly greater friendship-approach goal striving ($M = 4.62$, $SD = 1.14$) than did participants in the ordinary past ($M = 4.16$, $SD = 1.39$) and participants in the positive past ($M = 4.10$, $SD = 1.52$) conditions ($ps < .01$). There was no significant difference between the ordinary past condition and the positive past condition ($p = .72$). Age and gender did not moderate the effect of nostalgia on friendship-approach goal striving. However, female participants did reported greater friendship-approach striving ($M = 4.46$, $SD = 1.31$) than males ($M = 4.05$, $SD = 1.44$), $t(336) = 2.69$, $p = .008$.

Positive affect. With respect to positive affect, a one-way ANOVA revealed significant differences between the conditions, $F(2, 335) = 6.90$, $p = .001$, $\eta_p^2 = .04$. Follow-up Fisher's LSD pairwise comparisons revealed that participants in the positive past condition reported feeling more positive ($M = 5.26$, $SD = 0.92$) than participants in the ordinary past ($M = 4.64$, $SD = 1.40$) and participants in the nostalgic past ($M = 4.90$, $SD = 1.32$) conditions ($ps < .05$). There was no significant difference between the nostalgic past condition and the ordinary past condition ($p = .11$). We additionally conducted a one-way (nostalgia vs. ordinary vs. positive) Analysis of Covariance (ANCOVA) on friendship-approach goal striving in which we entered positive mood as a covariate. The differences in friendship-approach goal strivings between the nostalgia, ordinary past, and positive past conditions remained significant, $F(2, 334) = 7.54$, $p = .001$, $\eta_p^2 = .04$.

Social content of memories. Supporting the proposition that social experiences are central to nostalgic memories, a one-way (nostalgia vs. ordinary vs. positive) ANOVA revealed significant differences between the conditions on social content, $F(2, 334) = 6.47$, $p = .002$, $\eta_p^2 = .04$. Fisher's Least Significant Difference (LSD) pairwise comparisons revealed that nostalgic memories contained a higher percentage of social references ($M = 1.78$, $SD = 1.92$) than ordinary memories ($M = 1.16$, $SD = 1.88$) and positive memories ($M = 0.95$, $SD = 1.49$) respectively ($ps < .05$). Gender and age did not moderate the content findings.

The results of Study 2 provide further evidence that nostalgic reflection inspires people to connect with others. Participants who reflected on a nostalgic memory reported stronger intentions to pursue goals of connecting with their friends than did participants who reflected on a positive or ordinary memory. The results of Study 2 also demonstrated that the effect of nostalgia on the motivation to connect with others is not due to positive affect. Nostalgia

increased friendship goal striving relative to a positive memory. However, reflecting on a

positive memory increased positive affect relative to nostalgia. Moreover, when controlling for

positive affect, the effect of nostalgia on friendship goal striving was not affected. Finally,

content analyses in Study 2 provide further evidence that nostalgic memories are highly social.

Nostalgic memories contained more references to social roles and relationships than positive and

ordinary memories.

<div align="center">**Study 3**</div>

Humans' social lives are complex and like any goal pursuit, people often experience

setbacks when pursuing relationship aspirations. For example, a disagreement between friends

may make them feel pessimistic about their abilities to maintain close friendships. Similarly, a

negative interaction with a new acquaintance may make people inclined to feel that we are not

capable of making new connections. Because, as Studies 1 and 2 indicated, nostalgia encourages

social goal strivings, we proposed that people might turn to nostalgia when they feel pessimistic

about accomplishing social goals. As previously discussed, nostalgia is triggered by

belongingness deficits and nostalgia restores perceptions of social connectedness when

belongingness needs are undermined (Seehusen et al., 2013; Zhou et al., 2008). Therefore, in

Study 3, we induced pessimism about achieving relationship goals and measured nostalgia. We

hypothesized that inducing pessimism about achieving social goals, relative to non-social

pessimism, would increase nostalgia.

Method

Participants. Sixty-two (42 females) adults recruited from AMT participated in the study

($M_{age} = 24.53$, $SD_{age} = 2.84$). Participants completed all materials in an online questionnaire.

Procedure and materials. First, participants were randomly assigned to a relationship pessimism condition or a pessimism control condition. In the relationship pessimism condition, participants were told that they were completing a task that measures their perspective taking ability. Participants read a short passage arguing that there is little reason for people to be optimistic about finding reliable and fulfilling relationships. Then, participants were asked to adopt the writer's perspective and write down five reasons why people should feel pessimistic about their future relationships. In the pessimism control condition, participants read a parallel passage about future technology and wrote five reasons why people should feel pessimistic about future technology.

After the pessimism induction, participants completed the three item measure of state nostalgia used in Study 2 ($M = 2.84$, $SD = 1.53$; Cronbach's $\alpha = .97$; Hepper et al., 2012; Wildschut et al., 2006). Finally, participants completed a brief demographics survey which included gender and age items.

Results and Discussion

To test whether relationship pessimism evoked nostalgia, we conducted an independent t-test (relationship pessimism vs pessimism control). This analyses revealed that participants in the relationship pessimism condition reported significantly greater levels of nostalgia ($M = 3.23$, $SD = 1.31$) than participants in the pessimism control condition ($M = 2.47$, $SD = 1.63$), $t(60) = 2.02$, $p = .048$, $d = .51$, 95% CI [0.01, 1.52]. Thus, adopting a pessimistic attitude about future relationship goals led people to feel more nostalgic than adopting a pessimistic attitude about future technology. The effect of pessimism on nostalgia was not moderated by age or gender.

Study 3 demonstrated that challenging relationship aspirations engenders nostalgia. This is consistent with findings that loneliness and lack of belonging trigger nostalgia (Seehusen et al.,

2013; Zhou et al., 2008). In addition to encouraging people to pursue social goals, as illustrated in Studies 1 and 2, people naturally turn to nostalgia when one's ability to accomplish these goals is in doubt.

Study 4

Studies 1 and 2 found that nostalgic memories were more centrally focused on social roles and relationships than were non-nostalgic memories and that nostalgia inspired goals of connecting with others. The purpose of Study 4 was to provide convergent support for the link between nostalgia and social goal striving using a distinct operationalization of nostalgia, while also investigating the role that nostalgia's social nature plays in this relation. To do this, we measured nostalgia and social goal striving. We specifically measured nostalgia for a variety of past people, places, objects, and feelings using the Nostalgia Inventory (Batcho, 1995). We chose this measure of nostalgia because it allowed us to capitalize on naturally-occurring differences in the sociality of people's nostalgia. That is, by assessing nostalgia for distinct aspects of one's past, this instrument provided us with a means of determining if the association between nostalgia and social goal striving is stronger when nostalgia is identifiably high in sociality.

Method

Participants. One hundred ten (62 females) adults recruited from AMT participated in the study ($M_{age} = 35.24$, $SD_{age} = 11.61$). Participants completed all materials in an online questionnaire.

Procedure and materials. First, participants completed the Nostalgia Inventory (Batcho, 1995). Specifically, they indicated how nostalgic they felt about 20 different aspects (e.g., "family," "vacations," "places") of their past (1 = *not at all nostalgic,* 5 = *very nostalgic*). The Nostalgia Inventory was scored two different ways. First, and consistent with previous research

(e.g., Batcho, 1995; Wildschut et al., 2006), an overall score was computed by averaging all 20 items. Next, we scored the nostalgia inventory by grouping and computing averages for aspects of the past that are high and low in sociality. Two trained coders independently categorized the 20 items of the Nostalgia Inventory into aspects of the past high in sociality and aspects of the past low in sociality. Aspects of the past were categorized as high in sociality if they are strongly associated with interpersonal relationships or social contexts. The coders agreed on 85% of the aspects, Kappa = .70, *p* = .002. Discrepancies were resolved by coders and the authors. Items high in sociality included: "my family," "vacations I went on," "someone I loved," "my friends," "the way people were," "my heroes/heroines," "my school," "having someone to depend on," "my pets," and "my church/religion." Items low in sociality included: "places," "music," "things I did," "my childhood toys," "feelings I had," "not having to worry," "not knowing sad or evil things," "TV shows/movies," "the way society was," and "my family house."[1] See Table 2 for a summary of descriptive statistics, including information on internal reliability.

Next, participants completed a measure of social striving. Participants were under the impression that one of the purposes of the study was to gauge their interest in, and to promote, future research studies. Specifically, participants read the following:

Thank you for completing this study. We have a number of forthcoming studies available for you to participate in. Below is a description of a few studies. Indicate how interested you are in each study and whether or not you would be interested in participating.

Next, participants read a description of four studies in which they could participate in the future. Two of the research studies were social in nature and focused on connecting with or interacting with other people, whereas the other two research studies were not. The two social research

studies were titled "Personality and Social Interaction" and "Solving Problems with Others".

Both of the social research studies involved meeting and getting to know a new person. Below is

the description the participants read for the "Personality and Social Interaction" study:

> This study investigates the process of meeting a new person. Research
>
> participants will be matched with and chat with another participant whom they
>
> do not know. The two participants will be given a number of topics to discuss.
>
> Some of these topics will delve into personal beliefs, opinions, and experiences.
>
> We are specifically interested in recruiting people with excellent social skills,
>
> who feel comfortable meeting new people and discussing various topics to
>
> participate in this study.

In contrast, the two non-social research studies made no mention of working with or meeting

others, as they described studies where individuals would work alone to complete the study. The

non-social research studies were titled "Cognitive Problem Solving" and "Personality and

Opinions about Music". Below is the study description the participants read for the "Personality

and Opinions about Music" study:

> This study investigates personality and opinions about music. Participants will
>
> test out a new web application designed to give people suggestions for music
>
> based on their personality. Participants will complete a survey designed to assess
>
> their personality. Participants will listen to music that has been selected for them
>
> based on their personality. Participants will then provide feedback on the music
>
> chosen for them. We are specifically interested in people who like and appreciate
>
> music.

The study descriptions were presented in the same order for each participant, but presented on the same page so that participants could view all of the studies at the same time. The descriptions were presented in the following order: "Personality and Social Interaction" (social research study 1), "Cognitive Problem Solving" (non-social research study 1), "Problem Solving with Others" (social research study 2), and "Personality and Opinions about Music" (non-social research study 2). For each study, participants indicated (1) how interested they would be to participate in the study (1 = *not interested*, 7 = *very interested*), (2) whether or not they would like to learn more information about the study (1 = *definitely no*, 7 = *definitely yes*), and (3) whether or not they would participate in the study (1 = *definitely no*, 7 = *definitely yes*). We averaged responses to the three items to create intentions to participate scores for each study. We also created scores for participants' overall intentions to participate in social and non-social research studies by averaging the responses to the two social and two non-social studies respectively. Descriptive statistics are presented in Table 2. Finally, participants completed a brief demographics survey which included gender and age items.

Results and Discussion

To determine the relation between nostalgia and intentions to participate in social research studies, we computed correlations between the overall nostalgia, nostalgia high in sociality, nostalgia low in sociality, intentions to participate in the social research studies, and intentions to participate in the non-social research studies (see Table 2). The more nostalgic people were (overall nostalgia score), the more they wanted information about and to participate in both of the social research studies. However, the sociality of nostalgia mattered. Nostalgia for aspects of the past high in sociality was positively correlated with wanting to learn more about and participate in social research studies. However, nostalgia for aspects of the past low in

sociality was not significantly correlated with wanting to learn more about and participate in social research studies. Finally, overall nostalgia, nostalgia high in sociality, and nostalgia low in sociality were not significantly correlated with wanting to learn more about and participate in the non-social research studies. Significant correlations remained after controlling for age and gender and gender and age did not moderate any of the significant associations.

Consistent with Studies 1 and 2, the results of Study 4 suggest that nostalgia is associated with social goal strivings. Greater levels of nostalgia corresponded with greater intentions to participate in research studies that involved meeting with and getting to know another person. However, Study 4 builds on the previous studies by providing evidence that nostalgia's social nature plays a major role in inspiring goals of connecting with others. While nostalgia about aspects of the past that were high in sociality was associated with greater intentions to participate in future research studies that involved meeting and getting to know a new person, nostalgia for aspects of the past that were low in sociality was not. It is important to note, however, that we cannot be sure that nostalgia for aspects coded as low in sociality did not involve social references. For example, someone might indicate being nostalgic for a childhood toy because it brings back fond memories of sharing the toy with a childhood friend. In fact, previous research (Abeyta et al., 2015; Hepper et al., 2012; Wildschut et al., 2006), suggests that it is quite rare for a nostalgic experiences to not involve other people. Critically, what was important for our analysis was that the relation between nostalgia and social striving was strongest when we singled out the aspects of one's past that are highly social in nature.

The results in Study 4 are also consistent with those in Study 1. Specifically, in Study 1, nostalgia did not have a significant effect on striving for non-social goals. Similar to this, in Study 4, nostalgia was not associated with non-social strivings. Specifically, nostalgia was not

related to a desire to participate in research studies that did not contain a social element, even

though participants expressed a general interest in participating in the research studies regardless

of whether they were social or non-social (i.e., interest scores for each study were above the

midpoint of the response scale) and participants generally found the non-social studies more

desirable, $t(109) = 7.27$, $p < .001$, $d = .69$, 95% CI [0.87, 1.52]. Nostalgia appears to be suited to

promote strivings specifically in the social domain.

Study 5

Based on the findings of Studies 1 and 2, nostalgic memories are highly social and as

Study 4 indicates nostalgia's social nature appears to play an important role in its capacity to

foster goals of connecting with others. An unresolved issue, however, is whether the effect of

nostalgic reflection on social goal pursuit differs from the effect of simply reflecting on social

experiences more generally. That is, does reflecting on a nostalgic social memory increase social

goal striving compared to reflecting on a positive but ordinary social memory? Our goal in Study

5 was to address this question.

To begin, there is reason to believe that nostalgia would affect social goal striving above

and beyond reflecting on other social memories. In short, nostalgia represents the most

cherished/personally meaningful memories, and therefore, relative to ordinary social memories,

nostalgia should be a powerful strategy for meeting belongingness needs. Indeed, studies

analyzing the content of nostalgic memories indicate that nostalgic memories focus on

meaningful social relationships and momentous life events (Wildschut et al., 2006). Further,

experimental research indicates that nostalgic memories foster a sense of meaning in life

(Routledge et al., 2011). In Study 5, we sought to verify that nostalgia represents the most

cherished memories and test whether reflecting on these memories increases social goal striving

relative to reflecting on ordinary social memories. To do this, we instructed participants to reflect on a cherished social memory or an ordinary positive social memory. Then, we measured friendship-approach goal striving and assessed how nostalgic the cherished or ordinary social memory made participants feel. We hypothesized that participants in the cherished memory condition would report feeling more nostalgic than participants in the positive social experience condition. Additionally, we hypothesized that reflecting on a cherished memory, relative to an ordinary positive social experience, would increase friendship-approach goal striving.

A secondary aim of Study 5 was to investigate whether nostalgia also encourages avoidance-goal striving. Studies 1-4 focused exclusively on approach oriented social goals (e.g., connecting with others and meeting new friends). However, people also maintain belongingness using avoidance goals (e.g., trying to avoid relationship conflict). Based on past research, it seems unlikely that nostalgia promotes avoidance goals. Stephan and colleagues (2014) found evidence that nostalgia functions to counteract avoidance motivation and increases approach tendencies. Research supporting the hierarchical model of approach-avoidance suggests that approach tendencies lead to the adoption of approach goals, while avoidance tendencies lead to the adoption of avoidance goals (Elliot & Church, 1997; Gable, 2006). Nostalgia precipitates approach motivation and as a result should inspire people to adopt goals that satisfy approach motivation and not goals that run counter to it. Nonetheless, we also assessed friendship-avoidance goal striving.

Method

Participants. Two hundred-twenty five (113 females, 1 unidentified) adults recruited from AMT participated in the study ($M_{age} = 34.17$, $SD_{age} = 12.58$). Participants completed all materials in an online questionnaire.

Procedure and materials. First, the participants were randomly assigned to a cherished social memory or an ordinary positive social experience condition. In the cherished memory condition, participants were instructed to bring to mind one of their most cherished memories that involves other people. Specifically, participants read the following:

> Please bring to mind one of your most cherished memories from the past that involves other people. This should be a special social memory that you are particularly fond of and would describe as truly meaningful. This should be a memory from your past that you are sentimental about and enjoy reliving. Revisit this cherished memory and reflect on how this memory makes you feel.

Participants then wrote about the cherished social memory they brought to mind. In the ordinary positive social experience condition, participants were instructed to bring to mind an ordinary satisfying social experience. Specifically, participants read the following:

> Please bring to mind a recent ordinary/normal experience that involved other people. This should be a satisfying social experience that happened recently (e.g., within the last week). This should not be an experience that you are especially fond of or one you would describe as momentous. This should not be an experience that you are overly sentimental about. Revisit this social experience and reflect on how it makes you feel.

Participants then wrote about the experience they brought to mind.

Next, participants completed Elliot and colleagues' (2006) friendship-approach/avoidance goal measure. Specifically, participants indicated their intentions to pursue four friendship-approach goals used in Study 2 ($M = 4.55$, $SD = 0.89$; Cronbach's $\alpha = .84$) and four friendship avoidance goals (e.g., "I want to avoid disagreements and conflicts with my

friends; *M* = 4.85, *SD* = 0.86; Cronbach's α = .83) based on how they currently feel (1 = *strongly disagree,* 6 = *strongly agree*). Next, participants were presented with the definition of nostalgia used in Study 1, and were asked to bring to mind the instance they wrote about and indicate how nostalgic it made them feel (1 = *not at all nostalgic,* 6 = *very nostalgic*). Participants also completed a three item state nostalgia measure (e.g., "I feel nostalgic at this moment; 1 = *strongly disagree,* 6 = *strongly agree*; Hepper et al., 2012; Wildschut et al., 2006). The four nostalgia items formed a reliable index (Cronbach's α = .97). Therefore, we averaged the four items to compute state nostalgia scores (*M* = 4.06, *SD* = 1.60). Finally, participants completed a demographics survey which included gender and age items.

Results and Discussion

     Manipulation check. An independent t-test revealed that the cherished memory condition was a successful manipulation of nostalgia, $t(223) = 9.63$, $p < .001$, $d = 1.28$, 95% CI [1.37, 2.08]. Participants in the cherished memory condition reported greater levels of nostalgia (*M* = 4.92, *SD* = 1.06) than participants in the ordinary positive social experience condition (*M* = 3.20, *SD* = 1.58).

     Primary analyses. We conducted separate independent t-tests (cherished memory vs. ordinary positive social experience) to test whether nostalgia influences friendship-approach and friendship-avoidance goal striving. These analyses revealed that participants in the cherished memories condition reported greater friendship-approach goal striving (*M* = 4.68, *SD* = 0.86) than participants in the positive social experience condition (*M* = 4.42, *SD* = 0.90), $t(223) = 2.25$, $p = .03$, $d = .30$, 95% CI[.03, .50]. However the participants in the two conditions did not differ on friendship-avoidance goal striving, $t(223) = 0.98$, $p = .33$, 95% CI [-0.11, 0.33]. Gender and age did not moderate these effects.

Consistent with studies 1, 2, and 4, the results of Study 5 demonstrate that nostalgia promotes social goal strivings. Critically, Study 5 builds on these previous studies by providing evidence that socially oriented nostalgic memories increase goals of connecting with others relative to ordinary positive social memories. Clearly, nostalgia is much more than a reminder of a satisfying social experience. Nostalgia involves revisiting cherished and personally meaningful social memories, and is thus especially suited to inspire the pursuit of social-approach goals. Additionally, the results of Study 5 demonstrated that nostalgia does not increase social-avoidant goals. This finding is consistent with previous research indicating that nostalgia regulates avoidance motivation and brings on line approach motivation (Stephan et al., 2104) and with the hierarchical model of approach-avoidance of social motivation (Gable, 2006; Gable & Impett, 2012).

Study 6

We originally proposed that nostalgia should inspire social goal striving in part by fostering a sense of social-efficacy. As previously mentioned, experiencing personal mastery increases perceptions of efficacy (Bandura, 1982; Bandura, 1977) and nostalgia is a potent reminder of having attained belongingness (Abeyta et al., 2015; Wildschut et al., 2006). In support of this, Wildchschut and colleagues (2006) found that nostalgia, relative to a control condition, increased perceptions of social competence. Because research indicates that confidence in one's abilities predicts the adoption of short term approach-oriented goals (Elliot & Church, 1997), we hypothesized that social-efficacy should positively predict goals to connect with others. In Study 6, we tested whether nostalgia boosts a sense of social-efficacy, which in turn inspires social goal striving. We induced nostalgia, measured social-efficacy, and assessed

social goal striving.[2] We hypothesized that nostalgia would make people feel more confident about their social abilities, which would in turn inspire them to pursue social goals.

A secondary aim was once again to test the assumption that nostalgia is a social-rich experience. In Study 6, we used a novel nostalgia induction. Nostalgia was induced by having research participants listen to a nostalgic or non-nostalgic song. Participants then wrote about how the song made them feel. If nostalgia is primarily a social experience, then nostalgic song writings should contain more references to social relationships than non-nostalgic song writings.

Method

Participants. One hundred sixty-two (73 females) adults recruited from AMT completed the study ($M_{age} = 33.56$, $SD_{age} = 9.61$). Participants completed all materials in an online questionnaire.

Procedure and materials. First, participants were randomly assigned to nostalgia or control condition. In the nostalgia condition, participants conducted a YouTube search for a song that made them feel nostalgic. Participants listened to the song and then wrote about how the song made them feel. In the control condition, participants conducted a YouTube search for a song that they liked and recently discovered, and wrote about how the song made them feel. Previous research suggests that music is a powerful source of nostalgia and music/song lyrics have been reliably used to evoke nostalgia in previous studies (e.g., Barrett et al., 2010; Routledge et al., 2011).

Second, participants completed a six item measure of social-efficacy. The measure of social-efficacy was created for this study and modeled after similar domain-specific self-efficacy scales (Bandura, 2006). Specifically, participants read the following stem, "Rate your confidence in your ability to…" and then responded to the following six items: "…establish successful

social relationships", "…maintain social relationships", "…resolve conflicts in relationships",

"…communicate effectively in social relationships", "…open up to others in social

relationships", and "…approach people I don't know and strike up a conversation" (1 = *cannot*

do at all, 10 = *highly certain can do*; $M = 7.45$, $SD = 1.81$; Cronbach's $\alpha = .93$).

Third, participants completed a measure of social goal striving. Specifically, participants

were asked to list a social goal that they would like to achieve and responded to three items that

assessed their intentions to pursue the listed goal. These items were: "How motivated are you to

pursue this goal?" (1 = *not all motivated*, 7 = *very motivated*), "How much effort will you

dedicate to attaining this goal?" (1 = *none*, 7 = *a great deal*), and "How much time will you

dedicate to attaining this goal?" (1 = *none*, 7 = *a great deal*; $M = 4.92$, $SD = 1.15$; Cronbach's α

$= .86$).

Fourth, participants completed a three item measure of state nostalgia as a manipulation

check (e.g., "Right now I am feeling quite nostalgic; 1 = *strongly disagree,* 6 = *strongly agree;*

$M = 4.09$, $SD = 1.38$; Hepper et al., 2012; Wildschut et al., 2006; Cronbach's $\alpha = .96$). Finally

participants completed a brief demographics survey that included items on age and gender.

Social goal content. Two trained coders read and categorized the social goals that

participants' listed as approach oriented or avoidance oriented. Approach oriented goals tended

to be focused on things such as establishing new social connections (e.g., "I would like to make

some new friends who like to play soccer"), deepening relationships with others (e.g., "I would

like to strengthen my relationships with my current friends"), and reconnecting with old friends

(e.g., "One social goal I would like to accomplish is to catch up with my childhood friends").

Avoidance oriented goals tended to be focused on things such as avoiding interpersonal conflict

(e.g., "My only possible goal would be keeping things that way they are- avoiding social

missteps or screw-ups…"), escaping social anxiety (e.g., "I'd like to be less jittery when meeting people"), and trying to prevent the loss of close relationships (e.g., "Making sure I don't lose all my friends in Texas"). The coders agreed on 93.82% of the goals, Kappa = .35, $p < .001$. Discrepancies were resolved by coders and the authors. The goals were overwhelmingly approach oriented. Of the 162 social goals, 157 of them were categorized as approach oriented and 5 were categorized as avoidance oriented.

> **Social content coding.** As in Studies 1 and 2, we used the RIOT Scan software program (Boyd, 2012-2105) with the Social Ties dictionary (Pressman & Cohen, 2007) to analyze the social content of the song writings.

Results and discussion

> **Manipulation check.** One participant indicated not completing the song listening task. This participant was dropped from the final analyses leaving a sample of 161 participants. Verifying the effectiveness of the song induction task, participants in the nostalgia condition reported greater levels of nostalgia ($M = 4.62$, $SD = 1.03$) than participants in the control condition ($M = 3.62$, $SD = 1.48$), $t(159) = 4.94$, $p < .001$, $d = .78$, 95% CI [0.60, 1.40].

> **Primary analyses.** To test the hypotheses that nostalgia would increase intentions to pursue relationship goals and that feelings of social-efficacy would mediate this relationship, we conducted a number of linear regression analyses and tested the significance of the indirect pathway using a resampling bootstrap methodology with 95% confidence intervals (1,000 bootstrap samples; Hayes, 2013). Participants in the nostalgia condition reported greater intentions to pursue relationship goals than participants in the control condition, $b = 0.38$, $SE = 0.18$, $t(159) = 2.15$, $p = .03$, 95% CI [0.03, 0.74]. Verifying the causal effect of nostalgia on perceptions of social-efficacy, participants in the nostalgia condition also reported significantly

higher social-efficacy than participants in the control condition, $b = 0.59$, $SE = 0.28$, $t(159) =$ 2.08, $p = .04$, 95% CI [0.03, 1.15]. A third regression revealed that social-efficacy was significantly associated with stronger intentions to pursue relationship goals, $b = 0.27$, $SE = 0.05$, $t(159) = 5.87$, $p < .001$, 95% CI [0.18, 0.36], and that when accounting for this relationship, the effect of nostalgia on intentions to pursue relationships became marginally significant, $b = 0.23$, $SE = 0.16$, $t(159) = 1.38$, $p = .17$, 95% CI [-0.10, 0.55]. The test of the indirect effect confirmed a positive indirect effect of nostalgia on intentions to pursue relationship goals through social-efficacy, $M_{indiret} = 0.16$, $SE = .08$, 95% CI [0.02, 0.37]. Controlling for gender and age did not change the significance of these effects and the effects of nostalgia were not moderated by gender or age.

Social content. In support of the proposition that nostalgia is social, an independent t-test revealed that participants' writings about nostalgic songs ($M = 1.03$, $SD = 1.54$) evinced more references to social roles and relationships than participants' writings about non-nostalgic songs ($M = 0.35$, $SD = 0.93$), $t(158) = 3.39$, $p = .001$, $d = .41$, 95% CI [0.28, 1.07]. Gender and age did not moderate these findings.

The results of Study 6 provide further evidence using a distinct manipulation that nostalgia inspires social goal strivings. Participants in the nostalgic music condition reported stronger intentions to pursue a social goal than participants in the control music condition. The results also establish that nostalgia bolsters social-efficacy. Participants in the nostalgic music condition reported feeling more confident in their social abilities than participants in the control music condition. Further, the results of this study provide evidence for the proposed indirect pathway. Specifically, nostalgia increased social-efficacy, and social-efficacy in turn predicted social goal striving. Finally, the content analyses of Study 6 provided further support for

nostalgia's interpersonal nature. Nostalgic songs were more strongly connected with social relationships than non-nostalgic songs.

Study 7

In Study 7, we tested whether or not nostalgia promotes the pursuit of relationship goals when people experience relationship challenges. Might nostalgia help people push through interpersonal setbacks? We induced nostalgia and assessed attitudes about overcoming an imagined conflict with a close friend. We also wanted to replicate the indirect effect observed in Study 6, so we also measured feelings of social-efficacy. We hypothesized that nostalgia, relative to a control condition, would increase optimism about solving an imagined conflict with a friend and would increase proactive intentions to solve the conflict. We also predicted, that in bolstering a sense of social efficacy, nostalgia would inspire more optimism about overcoming an imagined conflict with a friend and also lead to more proactive intentions to resolve the conflict.

Method

Participants. Ninety-seven (41 females) NDSU undergraduate students participated in the study ($M_{age} = 19.35$, $SD_{age} = 2.62$). Participants completed all materials in an online questionnaire.

Procedure and materials. First, participants were randomly assigned to a nostalgia or control condition using the same music search task described in Study 6.

Second, participants completed the six item measure of social-efficacy described in Study 6 ($M = 9.55$, $SD = 1.74$; Cronbach's α = .93; Bandura, 2006).

Third, participants completed a friendship conflict task. In the friendship conflict task participants were asked to think about their best friend and then read the following:

Now imagine that you and your close friend got into a disagreement. You and

your friend have tried to resolve this conflict, but things just are not the same.

You have noticed that since the disagreement you hang out less often. When you

do see your friend he/she seems a bit cold and distant. Sure, your friend is nice

enough and you get along, but it is clear that this disagreement has driven a

wedge between you.

After imagining the conflict, participants responded to three items measuring how optimistic

they feel that the conflict would be resolved (e.g., "I would feel optimistic that my close friend

and I could completely resolve this conflict"; 1 = *strongly disagree*, 6 = *strongly agree*; *M* =

4.73, *SD* = 0.93; Cronbach's α = .74) and three items on their intentions to be proactive about

resolving the conflict (e.g., "I would dedicate myself to solving this conflict"; 1 = *strongly*

disagree, 6 = *strongly agree*; *M* = 4.39, *SD* = 0.72; Cronbach's α = .85). Finally, participants

completed a brief demographics survey that included items on age and gender.

Social content coding. Once again, we used the RIOT Scan software program (Boyd,

2012-2105) with the Social Ties dictionary (Pressman & Cohen, 2007) to analyze the social

content of the song writings.

Results and Discussion

Optimism about resolving the conflict. To test the predictions that nostalgia would

increase optimism that the friendship conflict would be resolved and that feelings of social-

efficacy would mediate this relation, we used the same set of analysis used in Study 6. As

predicted, participants in the nostalgia condition reported greater optimism that the conflict

would be resolved than participants in the control condition, *b* = 0.73, *SE* = 0.37, *t*(95) = 2.01, *p*

= .048, 95% CI [0.008, 1.46]. Participants in the nostalgia condition also reported significantly

higher social-efficacy than participants in the control condition, $b = 0.78$, $SE = 0.37$, $t(95) = 2.12$,

$p = .04$, 95% CI [0.05, 1.51]. A third regression revealed that social-efficacy predicted increased

optimism that the conflict would be resolved, $b = 0.19$, $SE = 0.05$, $t(94) = 4.08$, $p < .001$, 95% CI

[0.10, 0.29], and that when accounting for this relation, the effect of nostalgia on optimism about

resolving the conflict became non-significant, $b = 0.22$, $SE = 0.18$, $t(94) = 1.25$, $p = .22$, 95% CI

[-0.13, 0.57]. The test of the indirect effect confirmed a positive indirect effect of nostalgia on

optimism that the conflict would be resolved through feelings of social-efficacy, $M_{indiret} = 0.15$,

$SE = .08$, 95% CI [0.01, 0.34].

Proactive intentions to resolve the conflict. We again used the same set of analyses to

test the hypotheses that nostalgia would increase intentions to be proactive in resolving the

friendship conflict, and that feelings of social-efficacy would mediate this relation. As predicted,

participants in the nostalgia condition reported that they would be more proactive in resolving

the conflict than participants in the control condition, $b = 0.40$, $SE = 0.17$, $t(95) = 2.41$, $p = .02$,

95% CI [0.07, 0.73]. As reported above, participants in the nostalgia condition also reported

significantly higher social-efficacy than participants in the control condition. A third regression

revealed that social-efficacy predicted increased intentions to resolve the conflict proactively, $b =$

0.14, $SE = 0.04$, $t(94) = 3.15$, $p = .002$, 95% CI [0.05, 0.23], and that when accounting for this

relation, the effect of nostalgia on intentions to resolve the conflict proactively became

marginally significant, $b = 0.29$, $SE = 0.16$, $t(94) = 1.79$, $p = .08$, 95% CI [-0.03, 0.61]. The test

of the indirect effect confirmed a positive indirect effect of nostalgia on intentions to be

proactive in resolving the conflict through feelings of social-efficacy, $M_{indiret} = 0.11$, $SE = .06$,

95% CI [0.02, 0.25].

Controlling for gender and age did not change the significance of these effects and gender did not moderate the effect of nostalgia on the social-efficacy or the two goal striving outcomes. However, females reported greater social-efficacy than males, $t(95) = 2.63$, $p = .01$, 95% CI [0.24, 1.70]. Age did significantly moderate the effects of nostalgia on social-efficacy, optimism about resolving the conflict, and intentions about resolving the conflict proactively, respectively ($ps < .05$). We conducted a Johnson-Neyman regions of significance test to follow-up each significant interaction. These tests revealed that the effect of nostalgia became significant around the age of 19 and continued to get stronger with age. It is possible that older people have more nostalgic memories to draw upon and therefore get more out of reflecting nostalgically on the past. However, it is important to note that this was the only study in which age moderated any effects. Given the restricted age range of the sample (18 to 29), these results should be interpreted with caution.

Social content. In support of the proposition that nostalgia is social, an independent t-test revealed that participants' writings about nostalgic song ($M = 1.59$, $SD = 2.06$) evinced more references to social roles and relationships than participants' writings about non-nostalgic songs ($M = 0.67$, $SD = 1.28$), $t(96) = 2.62$, $p = .01$, $d = .54$, 95% CI [0.22, 1.62].

Taken together, the findings of Study 7 suggest that nostalgia promotes strivings to connect with others even when facing challenges. Specifically, nostalgia fostered optimism that an imagined conflict with a friend would be resolved and also increased goals to be proactive in resolving the conflict. Additionally, the results of this study conceptually replicated the indirect effect in Study 6, providing further evidence that nostalgia promotes goals to connect with others by bolstering a sense of social-efficacy. That is, reflecting nostalgically on the past makes people

feel confident in their social abilities which in turn inspires a more positive outlook towards and

greater motivation to pursue social goals, even when people experience interpersonal challenges.

General Discussion

The current research expands the understanding of the social benefits of nostalgia.

Previous research has demonstrated that nostalgia helps people meet belongingness needs

indirectly. That is, nostalgia serves as a reminder of meaningful social connections and thus

bolsters a sense of social connectedness (e.g., Wildshchut et al., 2006). The current studies

provide the first evidence of a social motivational function of nostalgia. Specifically, we found

consistent evidence that nostalgia promotes direct strategies to meet belongingness needs by

inspiring goals of connecting with others. Nostalgic reflection, relative to non-nostalgic

reflection, increased the perceived importance of social goals as well as the optimism that one

will accomplish these goals (Study 1). Nostalgic reflection, relative to non-nostalgic reflection,

also increased the extent to which people indicated striving for goals of connecting with others

(Studies 2, 5, and 6) and fostered optimism about resolving a relationship conflict as well as the

drive to do so (Study 7). Nostalgia was associated with intentions to participate in research

studies that involved meeting and interacting with others (Study 4). We also found evidence that

people naturally turn to nostalgia when they feel like their potential to connect with others is in

doubt. Specifically, inducing pessimism about one's ability to find meaningful future

relationships increased nostalgia (Study 3).

The current research also provides further evidence that nostalgia is an experience

engrained in sociality. Participants were more likely to reference social roles and relationships

when they wrote about a nostalgic memory or nostalgic song than they were when they wrote

about an ordinary memory (Studies 1 and 2), a positive memory (Study 2), or a non-nostalgic but

enjoyable song (Studies 6 and 7). Further, the results indicate that the link between nostalgia and

social goal striving is strongest when nostalgia is highly social. Nostalgia high in sociality was

associated with greater intentions to participate in research studies that required participants to

interact with others, whereas nostalgia low in sociality was not (Study 4). The results also

establish that nostalgia is uniquely suited to inspire social goal striving. Participants who

reflected on a cherished social memory reported feeling more nostalgic and had stronger

intentions to pursue friendship-approach goals compared to people who reflected on a positive

ordinary social experience (Study 5).

The results also confirm that fostering social-efficacy is one route through which

nostalgia mobilizes social goal pursuits. As a highly social experience, nostalgia serves as a

reminder of having attained belongingness, which in turn gives people the confidence to pursue

social goals. In the current research, nostalgia increased peoples' confidence in their social

abilities (Studies 6 and 7). Social-efficacy, in turn, predicted the pursuit of social goals (Study 6)

and intentions to resolve interpersonal conflict (Study 7).

In the present research, we focused specifically on social goals. We believed that

nostalgia's motivational effects would be particularly potent for relationship goals because past

research indicates that nostalgia is largely a social emotional experience (Abeyta et al., 2015,

Hepper et al., 2012, Wildschut et al., 2006). Indeed, nostalgia did not increase the importance of

or confidence in achieving non-social goals in Study 1 and was not associated with desire to

participate in non-social research studies in Study 4. Research has shown that nostalgia has a

more general impact on well-being, but does so as a downstream consequence of meeting

belongingness needs (see Routledge et al., 2013; Sedikides et al., 2015). For example, Routledge

and colleagues (2011) found that nostalgia increases perceptions of meaning in life and that this

effect is mediated by social connectedness. Nostalgia might be able to inspire goals in other domains by first satiating belongingness needs. Consistent with this possibility, theoretical perspectives suggest that goals such as maintaining self-esteem are contingent on achieving a sense belonging (for a detailed perspective on this see, Baumeister & Leary, 1995). In support of the notion that nostalgia could promote non-social goals by first meeting belongingness needs, Cheung and colleagues (2013) found that nostalgia promotes a general sense of optimism because it affirms a sense of social connectedness which in turn enhances feelings of self-worth, allowing people to imagine a brighter future. In Study 1, we did not measure feelings of belonging and this may have limited our ability to detect an effect of nostalgia on non-social goals (i.e., indirectly through social belonging). Indeed, omitting a powerful mediator can often hide a significant effect of an independent variable on a dependent variable (e.g., Rucker, Preacher, Tormala, & Petty, 2011).

The current research suggests that while nostalgia promotes direct strategies for connecting with others, it may not inspire strategies to maintain social connections via more avoidant goals (e.g., trying to avoid being hurt by others). In Study 5, reflecting on a cherished memory that was rated as highly nostalgic did not increase friendship-avoidance goal striving relative to an ordinary positive memory that was rated as less nostalgic. Nonetheless, future research should further consider the potential for nostalgia to promote avoidance goals. For example, research has indicated that relational contexts that typically activate approach tendencies (e.g., being asked to think about positive aspects of a relationship) paradoxically trigger avoidance tendencies for individuals high in attachment related anxiety (Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010). Might nostalgia inspire avoidance goals among anxiously attached individuals? More broadly, there may be a number of other variables that influence

nostalgia's effect on goals of connecting with others. For example, Wildschut, Sedikides, Routledge, Arndt, and Cordaro (2010) found that nostalgia increases perceptions of social connectedness among those low, but not high, in attachment-related avoidance. Thus, nostalgia may not inspire avoidantly attached individuals to pursue goals of connecting with others. Instead, nostalgia may inspire personal achievement goals for highly avoidant individuals, because nostalgic memories of individuals high in attachment avoidance are more strongly focused on personal success and competence than they are on meaningful social relationships (Abeyta et al., 2015). Similarly, because recent research indicates that the nostalgic memories of highly narcissistic people are also more agentic than communal, nostalgia might inspire agentic goals among people high on the personality trait narcissism (Hart et al., 2011). Clearly, more work is needed to understand individual differences and situational variables that may affect the relation between nostalgia and motivation to pursue different types of personal goals.

The current research gives critical insight into how nostalgia influences the social motivational process at the level of goals and intentions. Further, by establishing social-efficacy as a pathway through which nostalgia promotes goals, the current research suggests that nostalgia might be a powerful experience that bears positive social outcomes. As previously mentioned, a large body of research has demonstrated that perceptions of efficacy is a powerful predictor of behavioral change, persistence, and performance in a number of domains (e.g., Holden, 1992; Luszczynska et al., 2009; Moritz et al., 2000; Multon et al., 1991; Sadri & Robertson, 1993). However, because the present research is cross-sectional, it can only hint at nostalgia's ability to promote efforts and behaviors to connect with others across time and it does not speak to whether nostalgia leads to successful social interactions. Future research should consider using longitudinal and/or daily diary methods to track the association between nostalgia

and connecting with others across time, as well as the association between nostalgia and other interpersonal outcomes. For example, are people more likely to reconnect with old friends on days when they are feeling nostalgic? Could a daily nostalgia affirmation inspire behaviors geared towards making new friends? Does engaging in nostalgia predict positive interpersonal outcomes across time (e.g., enduring relationship satisfaction)? Nostalgia may be a means to promote more lasting efforts of satiating the need to belong, but future research is needed.

      The current studies also suggest that nostalgia may be a powerful social motivator when relationship goals are in doubt. In Study 3, participants naturally turned to nostalgia when they were pessimistic about accomplishing their future relationship goals. Chronic loneliness is characterized by the intense desire for affiliation, coupled with the inability to motivate oneself to achieve affiliative aspirations (Hawkley & Cacioppo, 2010; Weiss, 1974). As a result, people suffering from chronic loneliness become increasingly pessimistic about relationships and tend to adopt unproductive avoidance strategies aimed at maintaining affiliation rather than seeking out social bonds (Gable, 2006). Previous research has demonstrated that nostalgia mitigates loneliness by bolstering a sense of social connectedness (e.g., Zhou et al., 2008). The current research suggests that nostalgia inspires goals to seek social bonds. Thus, nostalgia should also mitigate loneliness by inspiring lonely people to adopt more approach related strategies for meeting belongingness needs. Future research should explore this possibility and more broadly investigate whether a nostalgia intervention can alleviate loneliness and the negative health consequences of chronic loneliness. A wealth of research has documented that chronic loneliness has a negative impact on psychological and physical health (Hawkley & Cacioppo, 2010) and that the risk of loneliness-related health complications increase with age (e.g., Ong, Rothstein, & Uchino, 2012; Pennix et al., 1997; Shanker, McMunn, Banks, & Steptoe, 2011). Therefore, a

nostalgia intervention aimed to reduce loneliness may have implications for physical and

psychological health in general and in populations at greater risk for the negative health

consequence of loneliness (e.g., aging populations).

Finally, the current research provides the first direct evidence that nostalgia may have

practical utility in helping people overcome interpersonal challenges and conflicts. In Study 7,

nostalgia increased a sense of confidence in one's social abilities, which in turn motivated more

optimism and intentions for resolving a relationship conflict. Future research should consider

other pathways through which nostalgia might motivate productive social problem solving. For

example, research indicates that interpersonal trust is an important factor for maintaining healthy

relationships. Trust is especially critical in "strain test" situations where conflict arises when one

partner's outcome is dependent on another partners actions and those actions promote the acting

partner's interests, but not the dependent partner's (e.g., relocating for one partners career

advancement; Simpson, 2007). Reflecting nostalgically on one's relationship may bring to mind

examples of relationship security and reaffirm a sense of trust, which could in turn motivate

conflict resolution efforts. Future research should also examine the impact of nostalgia on

overcoming relationship challenges in real and applied settings. For example, many adults find

themselves in situations in which they must provide care for an ill or disabled loved one. Despite

a caregiver's positive intentions, caregiver relationships can become strained, which is

detrimental for the health of the caregiver and the person being cared for (e.g., Shulz & Beach,

1999). Nostalgia might offer a means to boost a sense of social confidence and help caregivers

navigate the difficulties of their situation to maintain their goals of providing for the person they

are caring for.

The current research demonstrates that nostalgia is much more than a "social snack" or simple belongingness reminder. Nostalgia is an autobiographical emotional experience engrained with sociality that appears to mobilize the social self. In this way, nostalgia is not merely relevant to one's social past. It has important implications for one's social future.

<div align="center">References</div>

Abeyta, A. A., Routledge, C., Roylance, C., Wildschut, T., & Sedikides, C. (2015). The relationship between attachment-related avoidance and the social and agentic content of nostalgia. *Journal of Personal and Social Relationships, 32,* 406-413.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares, & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307-337). Greenwich, CT: Information Age Publishing.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37,* 122-147.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in Social Psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Barrett, F. S., Grimm, K. J., Robins, R. W., Wildschut, T., Sedikides, C., & Janata, P. (2010). Music-evoked nostalgia: Affect, memory, and personality. *Emotion, 10,* 390-403.

Batcho, K. I. (1995). Nostalgia: A psychological perspective. *Perceptual and Motor Skills, 80,* 131-143.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motive. *Psychological Bulletin, 117,* 497-529.

Boyd, R. (2012-2015). Recursive inspection of text (RIOT) Scan [Computer software]. Retrieved from riot.ryanb.cc

Buhrmester, M., Kwang, T., & Gosling, S. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high quality, data? *Perspective on Psychological Science, 6,* 3-5.

Carver, C. S. (2006). Approach, avoidance, and the self-regulation of affect and action. *Motivation and Emotion, 30,* 105-110.

Cheung, W-Y., Wildschut, T., Sedikides, C., Hepper, E. G., Arndt, J., & Vingerhoets, A. J. J. M. (2013). Back to the future: Nostalgia increases optimism. *Personality and Social Psychology Bulletin, 39,* 1484-1496.

Elliot, A. J. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion, 30,* 111-116.

Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72,* 218-232.

Elliot, A. J., Gable, S. L., & Mapes, R. R. (2006). Approach and avoidance motivation in the social domain. *Personality and Social Psychology Bulletin, 32,* 378-391.

Gable. S. L. (2006). Approach and avoidance social motives and goals. *Journal of Personality, 74,* 175-222.

Gable, S. L., & Impett, E. A. (2012). Approach avoidance motives and close relationships. *Social and Personality Psychology Compass, 6,* 95-108.

Gardner, W. L., Pickett, C. L., & Knowles, M. L. (2005). Social "snacking" and social "shielding": The satisfaction of belongingness needs through the use of social symbols

and the social self. In K. Williams, J. Forgas, and W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 227-241). New York: Psychology Press.

Hart, C. M., Sedikides, C., Wildschut, T., Arndt, J., Routledge, C., & Vingerhoets, A. J. J. M. (2011). Nostalgic recollections of high and low narcissists. *Journal of Research in Personality, 45,* 238-242.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine, 40,* 218-227.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression based approach.* New York: The Guilford Press.

Hepper, E. G., Ritchie, T. D., Sedikides, C., & Wildschut, T. (2012). Odyssey's end: Lay conceptions of nostalgia reflect its original Homeric meaning. *Emotion, 12,* 102-119.

Hepper, E. G., Wildschut, T., Sedikides, C., Ritchie, T. D., Yung, Y.-F., Hansen, N., …, & Zhou, X. (2104). Pancultural nostalgia: Prototypical conceptions across cultures. *Motivation and Emotion, 14,* 733-747.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52,* 1280-1300.

Holden, G. (1992). The relationship of self-efficacy appraisals to subsequent health related outcomes: A meta-analysis. *Social Work in Health Care, 16,* 53-93.

Juhl, J., Routledge, C., Arndt, J., Sedikides, C., & Wildschut, T. (2010). Fighting the future with the past: Nostalgia buffers existential threat. *Journal of Research in Personality, 44,* 309-314.

Juhl, J., Sand, E. C., & Routledge, C. (2012). The effects of nostalgia and avoidant attachment on relationship satisfaction and romantic motives, *Journal of Social and Personal Relationships, 29,* 661-670.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin, 22,* 280-287.

Luszczynska, A., Benight, C. C., & Cieslak, R. (2009). Self-efficacy and health-related outcomes of collective trauma: A systematic review. *European Psychologist*, *14*, 51-62.

Mikulincer, M., Shaver, P. R., Bar-On, N., & Ein-Dor, T. (2010). The pushes and pulls of close relationships: Attachment insecurity and relational ambivalence. *Journal of Personality and Social Psychology, 98,* 450-468.

Miller, N. (1944). Experimental studies of conflict. In J. M. Hunt (Ed.), *Personality and the behavior disorders* (pp. 431-465). New York, NY: Ronald Press.

Moritz, S. E., Feltz, D. L., Fahrbach, K. R., & Mack, D. E. (2000). The relation of self-efficacy measures to sport performance: A meta-analytic review. *Research Quarterly for Exercise and Sport, 71,* 280-294.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analysis investigation. *Journal of Counseling Psychology, 38,* 30-38.

Nostalgia. (n.d.). In *Merriam-Webster's online dictionary* (11th ed.). Retrieved from http://www.merriam-webster.com/dictionary/nostalgia

Ong, A. D., Rothstein, J. D., & Uchino, B. N. (2012). Loneliness accentuates age differences in cardiovascular responses to social evaluative threat. *Psychology and Aging, 27,* 190-198.

Paolacci, G., Chandler, J., & Ipeirotis, P. (2010). Running experiments on Amazon Mechanical

    Turk. *Judgment Decision Making, 5,* 411-419.

Pearsal, J. (Ed.). (1998). *The New Oxford Dictionary of English.* Oxford, UK: Oxford University

    Press.

Pennebaker, J. W. (2011). *The secret life of pronouns: What our words say about us.* New York:

    Bloomsbury Press.

Pennix, B. W. J. H., van Tilburg, T., Kriegsman, D. M. W., Deeg, D. J. H., Boeke, A. J. P., &

    van Eijk, J. T. M. (1997). Effects of social support and personal coping resources on

    mortality in older age: the Longitudinal Aging Study Amsterdam. *American Journal of*

    Epidemiology, 146, 510-519.

Pressman, S. D., & Cohen, S. (2007). Use of social words in autobiographies and longevity.

    Psychosomatic Medicine, 69, 262-269.

Routledge, C., Arndt, J., Sedikides, C., & Wildschut, T. (2008). A blast from the past: The terror

    management function of nostalgia. *Journal of Experimental Social Psychology, 44,* 132-

    140.

Routledge, C., Arndt, J., Wildschut, T., Sedikides, C., Hart, C. M., Juhl, J., Vingerhoets, A. J. J.

    M., & Schlotz, W. (2011). The past makes the present meaningful: Nostalgia as an

    existential resource. *Journal of Personality and Social Psychology, 101,* 638-652.

Routledge, C., Juhl, J., Abeyta, A., & Roylance, C. (2014). Using the past to promote a peaceful

    future: Nostalgia mitigates existential threat induced nationalistic and religious self-

    sacrifice. *Social Psychology, 45,* 339-346.

Routledge, C., Wildschut, T., Sedikides, C., & Juhl, J. (2013). Nostalgia as a resources for

    psychological health and well-being. *Social and Personality Psychology Compass, 7,*

    808-818.

Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in

    social psychology: Current practices and new recommendations. *Social and Personality*

    Compass, 5, 359-371.

Sadri, G., & Robertson, I. T. (1993). Self-efficacy and work-related behavior: A review and

    meta-analysis. Applied Psychology: An International Review, 42,139 –152.

Schulz, R., & Beach, S. R. (1999). Caregiving as a risk factor for mortality: The caregiver health

    effects study. *The Journal of the American Medical Association, 282,* 2215-2219.

Sedikides, C., Wildschut, T., Routledge, C., & Arndt, J. (in press). Nostalgia counteracts self-

    discontinuity and restores self-continuity. *European Journal of Social Psychology*.

Sedikides, C., Wildschut, T., Routledge, C., Arndt, J., Hepper, E., & Zhou, X. (2015). To

    nostalgize: Mixing memory with affect and desire. *Advances in Experimental Social*

    Psychology, 51, 189-273.

Seehusen, J., Cordado, F., Wildschut, T., Sedikides, C., Routledge, C., Blackhart, G. C., Epstude,

    K., & Vingerhoets, A. J. J. M. (2013). Individual differences in nostalgia proneness: The

    integrating role of the need to belong. *Personality and Individual Differences, 55,* 904-

    908.

Shankar, A., McMunn, A., Banks, J., & Steptoe, A. (2011). Loneliness, social isolation, and

    biological health indicators in older adults. *Health Psychology, 30,* 377-385.

Shapiro, D. N., Chandler, J., & Mueller, P. A. (2013). Using Mechanical Turk to study clinical

    populations. *Clinical Psychological Science, 1,* 213-220.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosing flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science, 22,* 1359-1366.

Simpson, J. A. (2007). Psychological foundations of trust, *Current Directions in Psychological Science, 16,* 264-268.

Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than meditational analyses in examining psychological processes. *Journal of Personality and Social Psychology, 89,* 845-851.

Stephan, E., Wildschut, T., Sedikides, C., Zhou, X., He, W., Routledge, C., & Vingerhoets, A. J. J. M. (2014). The mnemonic mover: Nostalgia regulates avoidance and approach motivation. *Emotion.* Advance online publication. http://dx.doi.org/10.1037/a0035673

Turner, R. N., Wildschut, T., & Sedikides, C. (2012). Dropping the weight stigma: Nostalgia improves attitudes toward persons who are overweight. *Journal of Experimental Psychology, 48,* 130-137.

Turner, R. N., Wildschut, T., Sedikides, C., & Gheorghiu, M. (2013). Combating the mental health stigma with nostalgia. *European Journal of Social Psychology, 43,* 413-422.

Vess, M., Arndt, J., Routledge, C., Sedikides, C., & Wildschut, T. (2012). Nostalgia as a resource for the self. *Self and Identity, 11,* 273-284.

Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation.* Cambridge, MA: The MIT Press.

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006). Nostalgia: Content, triggers, functions. *Journal of Personality and Social Psychology, 91,* 975-993.

Wildschut, T., Sedikides, C., Routledge, C., Arndt, J., & Cordado, F. (2010). Nostalgia as a

    repository of social connectedness: The role of attachment-related avoidance. *Journal of*

    Personality and Social Psychology, 98, 573-586.

Zhou, X., Sedikides, C., Wildschut, T., & Gao, D. (2008). Counteracting loneliness: On the

    restorative function of nostalgia. *Psychological Science, 19,* 1023-1029.

Zhou, X., Wildschut, T., Sedikides, T., Shi, K, & Feng, C. (2012). Nostalgia: The gift that keeps

    on giving. *Journal of Consumer Research, 39,* 40-50.

Footnotes

[1]Even though the item, "my family house", makes a specific reference to family, both coders grouped it in the low sociality group. However, because of the explicit reference to "family", one could argue that this item should be grouped with the high sociality items. Grouping "my family house" with the high sociality items did not have a have a substantial impact on the strength or statistical significance of the correlations reported. Therefore, we reported the findings as originally categorized by the coders.

[2]Researchers have voiced concerns over the measurement-of-mediation model (Baron & Kenny, 1986) used in this study. For example, Spencer, Zanna, & Fong (2005) proposed an experimental-causal-chain method of establishing mediation as an alternative approach, whereby the mediator is experimentally manipulated to test its causal effect on the dependent variable. To our knowledge, no research has established that experimentally heightening social-efficacy increases social goal pursuit. Thus, we conducted a supplemental study to establish the causal effect of social-efficacy on social goals. Seventy-eight undergraduate participants were randomly assigned to a social-efficacy or academic-efficacy (control) condition. Experiencing personal success is a potent way to boost perceptions of efficacy (Bandura, 1977). Therefore, participants in the social-efficacy condition brought to mind a social success, whereas participants in the control condition brought to mind an academic success. Participants then completed measures of friendship-approach goal striving (Elliot et al., 2006), social-efficacy (Bandura, 2006), and state nostalgia (Hepper et al., 2012; Wildschut et al., 2006). The social-efficacy manipulation successfully increased efficacy relative to the control condition ($p = .01$). Critically, the social-efficacy manipulation increased friendship-approach goal striving relative to the control condition ($p = .01$). There were no significant differences between the conditions on nostalgia (p

= .18). Taken together, this experiment establishes a causal effect of social-efficacy on social

goals.

Table 1

Social and Non-Social Aspirations as a Function of Manipulated Nostalgia

Outcome variable	Ordinary		Nostalgia		Total		
	M	*SD*	*M*	*SD*	*M*	*SD*	α
Relationship Importance	6.20	1.03	6.64	0.51	6.42	0.84	.89
Relationship Likelihood	5.86	0.91	6.32	0.73	6.09	0.85	.87
Relationship Accomplishment	4.73	1.19	5.16	1.45	4.95	1.34	.87
Community Importance	5.69	0.91	5.75	1.18	5.72	1.05	.91
Community Likelihood	5.43	0.98	5.45	1.49	5.44	1.08	.90
Community Accomplishment	4.35	0.94	4.38	1.33	4.36	1.14	.88
Growth Importance	6.08	0.85	6.27	0.62	6.17	0.74	.76
Growth Likelihood	5.72	0.87	5.91	0.68	5.82	0.78	.75
Growth Accomplishment	4.69	0.93	4.76	1.02	4.72	0.97	.76
Wealth Importance	4.74	1.38	5.05	1.20	4.89	1.29	.90
Wealth Likelihood	4.78	1.28	4.82	1.00	4.80	1.14	.89
Wealth Accomplishment	3.33	1.43	3.23	1.26	3.28	1.34	.90
Fame Importance	3.61	1.25	3.70	1.05	3.65	1.15	.81
Fame Likelihood	3.46	1.22	3.42	1.04	3.45	1.13	.82
Fame Accomplishment	2.88	0.98	2.74	1.10	2.81	1.04	.81
Image Importance	4.26	1.33	4.12	1.34	4.19	1.33	.84
Image Likelihood	4.30	1.14	4.19	1.19	4.25	1.16	.80
Image Accomplishment	3.93	1.01	3.75	1.39	3.84	1.21	.80
Health Importance	6.32	0.91	6.35	0.68	6.34	0.80	.82
Health Likelihood	5.77	0.91	5.89	0.87	5.83	0.89	.77
Health Accomplishment	5.26	1.01	5.10	1.21	5.18	1.11	.80

Table 2

The Relations Between Nostalgia High and Low in Sociality and Intentions to Participate in Social and Non-Social Research Studies

	Measure	1	2	3	4	5	6	7	8	*M*	*SD*	α
1	Total Nostalgia	—								4.34	1.16	.91
2	High Sociality Nostalgia	.95**	—							4.27	1.23	.84
3	Low Sociality Nostalgia	.95**	.81**	—						4.41	1.21	.84
4	Social Study 1	.25*	.29*	.19	—					4.85	1.98	.94
5	Social Study 2	.20*	.23*	.16	.76**	—				4.56	2.29	.98
6	Total Social Study	.24*	.26*	.18	.93**	.95**	—			4.71	2.01	.95
7	Non-Social Study 1	.05	.07	.02	.42**	.48**	.48**	—		5.67	1.94	.98
8	Non-Social Study 2	.06	.09	.03	.43**	.33**	.40**	.38**	—	6.03	1.62	.97
9	Total Non-Social Study	.06	.10	.02	.51**	.49**	.53**	.86**	.80**	5.85	1.48	.90

Note. $^{**}p < .001., ^{*}p < .05$