The Influence of Temporal Group Identities on Goal-Pursuit

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Abstract

In this paper, I examine the psychological and motivational consequences of highlighting

connections between past and present generations of an in-group. I hypothesize that connecting

the present generation to its collective past causes people to feel connected to something greater

than themselves, intensifies motivation to invest in the group, and increases the desire to leave a

legacy. I integrate previously unconnected literatures that examine temporal group identities and

offer a framework for interpreting their psychological dimensions. These dimensions involve the

inclusion of different generations in the group's identity, *transmission* of culture and events

through the group's history, and the *affection* felt towards past and future generations. I further

propose these three dimensions correspond to either a cognitive (inclusion, transmission) or

affective (affection) component of group identity.

    Keywords: Temporal group identities, Perceived Collective Continuity, Trans-

Generational, social identity, motivation, legacy, small self

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Dedication

I'd like to dedicate this to my parents, Sharon and Donnie Reinhard, for all of their encouragement and care.

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The Influence of Temporal Group Identities on Goal-Pursuit

When people think about the groups they belong to, different features of their group membership can be brought to mind. For example, a student at the University of Virginia (UVA) can think of the other students currently enrolled at the university, an employee can think of his or her coworkers, and an athlete can think of his or her teammates. People can also contrast their group membership with other out-groups: UVA to its rival Virginia Tech, companies in reference to others in their respective fields, and athletic teams in relation to their opponents. While these characteristics highlight the contemporary members that make up a group, many groups span multiple generations by having new people enter the group and fill positions others once had. This latter perspective highlights a temporal component of group membership: Students can think about themselves as the 190th class at UVA, a company as the current generation taking the reigns from its forefathers, and athletic teams in relation to the previous teams that came before them. In other words, people can not only think about groups as active members co-existing and behaving in parallel to each other, but can also think about the group's temporal continuity.

Groups evoking their temporal identities are found in many areas of life: UVA begins its bicentennial celebration on October 6, 2017 by commemorating the laying of the cornerstone for its first academic building. The celebration continues through January 2019 (for the bicentennial of the University's charter), May 2019 (for the graduation of the first alumni of the university's third century), and culminates in 2025 with a celebration for the arrival of the first UVA students. These celebrations show the great lengths the University is going through to emphasize the continuity and temporal links to the classes that previously attended UVA. Pointer Brand, an American workwear company based in Tennessee, advertises its temporal continuity by

highlighting the four generations of the King family that continue to own and operate the

company as well as the core values passed down and shared by each generation. Similarly, the

University of Michigan refers to each football team by its sequential place in history (e.g. the

2015 football team is referred to as "Team 136"). And, the athletic department celebrated its

150th year of existence by highlighting the different generations that went through Michigan

athletics and the traditions they share.

Until recently, psychological research has largely ignored this temporal component of

group identity, focusing instead on how people value the contemporary members of their in-

group and out-group (Condor, 1996). However, people often see groups as entities that exist

through time, extending into the past and future (Reicher & Hopkins, 2001). Different disciplines

have recently begun to examine temporal group identities from a psychological perspective, but

the literatures primarily exist in parallel to each other. Additionally, the various constructs focus

on different psychological dimensions of temporal group identities. One construct examines a

dimension concerning the perceived transmission of culture and events through the group's

history, others consider a dimension regarding the inclusion of different generations in the group

identity, and yet another focuses on a dimension concerning feelings of affinity between different

generations of the group. Building from an integrated view of these literatures and some of my

own preliminary empirical investigations, I hypothesize that connecting the present generation to

its collective past causes people to feel connected to something greater than themselves, thus

increasing motivation to invest in the group, and increases the desire to leave a legacy for future

groups.

Temporal Group Identities: Dimensions of the Constructs

Psychologically, temporal group identities are multifaceted and definitions of the various constructs differ depending on what dimension of the identity is examined. In particular, researchers have discussed temporal group identities in terms of *inclusion*, *transmission*, and *affection*. *Inclusion* refers to whether an individual represents different generations (i.e., past, present, and/or future generations) of a group as part of that group's identity. *Transmission* refers to the transmission of culture and events across different generations of the group. If one perceives a group's values to have been passed across generations and/or perceives causal relationships across a group's history, then transmission would be considered high. Finally, *affection* refers to an affective component of temporal group identities. If one feels an affinity for different generations, then affection would be considered high.

Despite the complementary features of the constructs examined by these different research areas, the literatures have largely not been connected to each other. I first review how temporal group identities are conceptualized on a dimension related to the transmission of culture and events across time by discussing Perceived Collective Continuity (PCC). I then discuss a dimension related to the inclusion of different generations in the group's identity by examining the constructs of Trans-generational (TG) group identity and intergenerational identification. I then review a construct with an affective dimension by discussing intergenerational affinity. Throughout, I consider how each construct relates to increasing connections between past and present generations of a group. Finally, I discuss how the constructs conceptually relate to each other and propose they correspond to either a cognitive or affective component of temporal group identification.

The Transmission Dimension: Perceived Collective Continuity

Although group-based temporal identities have not traditionally received as much attention in the psychological literature, psychologists have long believed that a core pillar of self-knowledge is the ability to experience oneself as a temporally extended entity (James 1890/1981; Neisser, 1988). The philosopher Charles Taylor best captures this notion by noting, "in order to have a sense of who we are, we have to have a notion of how we have become and of where we are going" (Taylor, 1989). Sani and colleagues (2007) laid the groundwork for empirically investigating temporal group identities by creating a questionnaire to measure the extent to which people perceive the groups they belong to as entities that have existed through time, what they refer to as "perceived collective continuity" (PCC). The PCC scale has two dimensions: Cultural and Historical continuity (see Appendix 1 for the full questionnaire). Cultural continuity refers to the idea that a group's core values, beliefs, and traditions are transmitted trans-generationally (e.g., "UVA students have passed on their traditions across different generations.") Historical continuity concerns whether people perceive events in the group's history as being causally interconnected to each other (e.g., "UVA history is a sequence of interconnected events"). In other words, different time periods and events in the group's history are linked to each other and this causal linkage creates a larger and more coherent narrative.

While it might seem strange to think of historical events as not being interconnected to each other, this perception may actually be a more recent advancement in human history. Sani and colleagues (2007) noted that the Greeks did not have "any notion that events, big and small, when told in proper time sequence, would result in an explanatory narrative…They recognized the continuity only of timeless ideals and virtues which the heroes of the past taught to the

people of the present" (Breisach, 1986). As they go on to explain, the quote also provides a

helpful example for differentiating between the two dimensions of PCC because the Greeks

endorsed cultural continuity (the gods gave humans timeless, enduring ideals to pass down to

future generations of people) but not historical continuity (previous events in history impacting

other present day or future events).

The Inclusion Dimension: Trans-Generational and Intergenerational Identification

Trans-generational group identification is another aspect of a temporal group identity and

refers to the extent that people include past, present, and future generations of group members in

their group identity (Kahn, Klar, & Roccas, 2017). Intra-generational (IG) identification, on the

other hand, only includes the current generation in the group identity. For example, UVA

students thinking about their UVA identity intra-generationally will only bring to mind the

undergraduates currently enrolled at the university. However, students thinking about UVA

trans-generationally will not only bring to mind the current generation of UVA students, but will

also think of the classes that have come before them (i.e. alumni) and future students that will

one day enroll. Students thinking about UVA trans-generationally would endorse statements

such as, "For me, UVA includes all the generations of group members that ever have and ever

will live", (see Appendix 2 for the full questionnaire). While TG identification focuses on

whether both past and future generations are included in the group identity, I focus only on past

generations. TG identification with past groups would be a necessary condition for highlighting

similarities between past and present generations of a group. If previous generations are not

considered to be part of the group identity, then highlighting similarities they have with the

present generation would likely be inconsequential.

Intergenerational identification refers to the perception or feeling of a common group identity with past and/or future generations (Wade-Benzoni, 2003). However, intergenerational identification has not been directly measured. Instead, it has been indirectly inferred from measures of intergenerational affinity, which I discuss next.

The Affection Dimension: Intergenerational Affinity

Affinity involves a combination of empathy, perspective taking, and perceived oneness with other people (Batson, 1995; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997) and intergenerational affinity refers to the extent these feelings apply to past and/or future generations of a group (Wade-Benzoni, 2008). Affinity is very related to the concept of interpersonal closeness in relationships (Aron & Aron, 1986; Aron, Aron, & Smollan, 1992; Aron, Aron, Tudor, & Nelson, 1991). However, increasing affinity with others does not require actually interacting with them. For example, simply knowing that someone is a member of one's group is enough to increase feelings of affinity (Wade-Benzoni, 2008). Intergenerational affinity has only been measured in reference to future generations. In that context, feeling empathic toward future generations, being able to visualize future generations, and understanding how one's actions would impact future generations would correspond to high levels of affinity. More specifically, intergenerational affinity has been operationalized using the following four items: "I felt empathetic toward future generations", "I was able to imagine future generations", "I felt an affinity toward future generations", "I understood the impact my decision would have on future generations", *1 = not at all and 7 = very much so.* Highlighting the similarity between past and present UVA generations may increase the amount of affinity contemporary UVA students feel to previous generations. As such, after drawing such connections UVA students may endorse

statements such as, "I feel an affinity toward previous generations of UVA students". However, none of my own research discussed below measured affinity with previous generations.

Conceptual Relationship Between Inclusion, Transmission, and Affection

In order for values and events to be transmitted temporally through a group's history, different generations need to exist and be included in the group identity. In other words, values and events can't be transmitted trans-generationally when only a single generation exists, unconnected to a past or future. Conceptually, PCC and TG are complementary group identity constructs that each has a temporal dimension. While PCC focuses on the cultural and historical continuity of the group, TG focuses on which generations of group members are included, or not, in the group. For example, a UVA student may perceive that the university has continuity through time (e.g., through the traditions passed down across different generations UVA students). However, this same student may not feel particularly connected to past (or future) generations of students and therefore does not include them in his or her own UVA identity. As such, this student may highly endorse PCC statements (e.g., "UVA students have passed on their traditions across different generations") but not endorse TG statements (e.g., "For me, UVA includes all the generations of group members that ever have and ever will live.") This distinction between transmission (i.e., PCC) and inclusion (i.e., TG identity) has been supported empirically as well, with one study finding the hypothesized three-component structure (Cultural Continuity, Historical Continuity, and TG identity) using a principle components analysis (Kahn, Klar, & Roccas, 2017).

As previously mentioned, intergenerational identity has not been measured directly. However, its definition (the perception or feeling of a common group identity with past and/or future generations) shares common features with both PCC and TG. Its definition directly

corresponds to the definition of TG identity, as TG explicitly refers to the extent people include past and future generations of group members in their identity (e.g., "When I think of UVA, I don't only think of the current generation of students, but also of all the generations of the group of the past", "When I think of UVA, I don't only think of the current generation, but also of all the generations of the group of the future"). PCC's culture subscale also maps onto the concept of sharing a common group identity with past and/or future generations, as passing down values, beliefs, and traditions trans-generationally is important for maintaining a common group identity. As such, intergenerational identification includes both inclusion and transmission dimensions.

Previous work has proposed that intergenerational identification and intergenerational affinity are highly related concepts (Wade-Benzoni &Tost, 2009). For instance, affinity towards others is one way to increase identifying with a collective group of people (Pratt, 1998) and creating a common in-group identity with others can increase feelings of affinity (Gaertner & Dovidio, 2005 and Dovidio, Gaertner, & Saguy, 2009). While the constructs likely covary, people may include past or future generations in their group identity for reasons other than feelings of affinity. For instance, a sense of duty or obligation to past/future generations could cause someone to include them in their group identity. Additionally, group members do not necessarily need to feel strong interpersonal connections toward each other in order to be included in a group identity (Tajfel, 1982), which suggests the inclusion dimension can be high while the affection dimension can be low.

Even learning about incidental similarities between people, such as sharing a birthday, can increase feelings of affinity between strangers (Burger, Messian, Patel, del Prado, & Anderson, 2004; Jiang, Hoegg, Dahl, & Chattopadhyay, 2010; Jones, Pelham, Carvallo, & Mirenberg, 2004). Additionally, sharing similar goals and interests between partners in more

established relationships strengthens the affection between them (Aron, Norman, Aron, McKenna, & Heyman, 2000; Aronson, 2004). As such, the intergenerational transmission of values, beliefs, and traditions may increase affinity between past and present generations. However, affection may not always arise from this transmission. The present generation may continue a tradition because of mere imitation or social modeling (e.g. social learning theory; Bandura & Walters, 1963) and pass it on to the next generation out of a sense of reciprocity. For instance, research on intergenerational decision-making finds that a contemporary generation will model behavior of the previous generation and reciprocate these behaviors to the future generation (Wade-Benzoni, 2002).

Cognitive and Affective Components of Temporal Group Identities

Tajfel (1972) initially conceptualized social identity as having both a cognitive and affective component, reflecting a person's knowledge of the group membership and the emotional significance attached to the group. Self-categorization theory primarily corresponds to the cognitive component of identity while social identity theory primarily corresponds to the affective component (as clearly articulated by Johnson, Morgeson, and Hekman, 2012). I propose temporal group identities can similarly be conceptualized with a cognitive component (e.g., knowledge of the group's heritage and generations through time) and an affective component (e.g., affinity towards past and/or future generations). I propose PCC, TG-identity, and intergenerational identification correspond to a cognitive component because they primarily focus on both the similarity of the identity between generations and the categorization of who is (or is not) included in the group identity. Intergenerational affinity corresponds to an affective component because it focuses on the emotional attachment people feel toward past or future generations. Highlighting connections between present and past generations should entail the

inclusion of previous generations in the group identity, a transmission of group identity through these generations, and a feeling of affection toward the previous generations. In other words, in order to successfully increase temporal group identification, there needs to be both cognitive (i.e., inclusion, transmission) and affective (i.e., affection) components. However, I only include the TG identity scale (inclusion) as a manipulation check in my empirical studies. As such, I cannot empirically validate whether highlighting connections between present and past generations increases feelings of transmission or affection.

Transmission, Inclusion, and Group Investment

People are motivated to invest in groups that are more eternal than themselves (Pyszczynski, Greenberg, & Solomon, 1999). For instance, Spanish citizens that perceived Spain as having high PCC (i.e. transmission) also reported increased levels of social well-being (Sani, Bowe, and Herrera, 2008). Social well-being is a multifaceted construct that not only includes contributing to the group, but also factors such as social acceptance, actualization, coherence, and integration (Keyes & Ryff, 1998). While this correlation is suggestive of a relationship between transmission and group investment, it is difficult to interpret (e.g., is the correlation driven by the relationship between PCC and contributing to the group or one of the other factors of social well-being?) Additionally, Sani, Bowe, and Herrera (2008) found that increased Collective Self-Esteem (CSE, Luhtanen & Crocker, 1992) indirectly mediated the relationship between PCC and social well-being. CSE contains four subscales, including feelings of worthiness as a member of one's group, private regard for one's group, the perception that one's group is well regarded by others, and the importance of the group to one's sense of self. As such, it is important to examine whether the relationship between transmission and investment remains after accounting for group identification.

Prediction #1: Awareness of Transmission, Inclusion Increases Group Investment

I designed Study 1 (see Appendix 4) to examine whether transmission predicted intentions to invest in the group above and beyond group identification. I used the PCC scale (Sani et al., 2007) to measure transmission. I used two scales to measure group identification: CSE – Importance to Identity Subscale (e.g., "In general, belonging to UVA is an important part of my self image") and the Private Regard scale (e.g., "I am happy that I am a member of UVA", adapted from Sellers et al., 1997). I included one measure of future-oriented group investment (operationalized as the desire to give back to UVA after graduation by donating money and networking with students) and one measure of present-oriented group investment (operationalized as participant's interest in getting more involved in the UVA community by participating in students groups and volunteering their time). This creates the opportunity to differentiate between investing while being an active member of the group (i.e., while being a student at UVA) compared to investing when that person is no longer actively around (i.e., as an alumnus of UVA). I also included measures of potential mediators between group identification and group investment, including measures of the small self (Piff et al., 2015) and Psychological Ownership (Pierce, Kostova, & Dirks, 2001).

I found a significant, positive relationship between UVA PCC and future-oriented group investment. Importantly, UVA PCC remained a significant predictor of future-oriented investment even when controlling for both measures of group identification. While PCC correlated with presented-oriented group investment intentions, this relationship became non-significant when controlling for the two measures of group identification. This suggests transmission may be more critical to investing in future (vs. contemporary) generations of the group. While the above evidence is suggestive of a relationship between transmission and group

investment, experimental evidence would help rule out third-variable explanations. The following study uses an experimental approach, but manipulates awareness of inclusion.

I designed Study 2 (see Appendix 5) to test whether highlighting connections between past and present generations of UVA students would increase intentions to invest in UVA after graduation. For this study, I used UVA's upcoming bicentennial as a cover story for presenting information about the different generations of UVA students. I recruited UVA students to complete a survey that either did or did not first remind them of their connections to previous generations of UVA students before measuring their intentions to invest in UVA after graduation. Specifically, one group of UVA students read about how previous generations of UVA students participated in similar activities as contemporary students (vs. a control condition that did not present any information about UVA). For example, participants read that volunteering in the community was a UVA tradition, read about the decades-long existence of various UVA student groups focused on community service, and looked at side-by-side images of past and present UVA students participating in various community service activities (see the "Procedure" section of Appendix 5 for more details on the experimental manipulation).

Participants also reported their UVA TG identity and identification with contemporary UVA students. The TG identity scale served as a manipulation check for inclusion and I included the contemporary identification measure to ensure the manipulation did not simply strengthen identification with contemporary group members. I predicted that highlighting connections between past and present generations of UVA students would increase future-oriented investment intentions. I also predicted highlighting these temporal connections would increase TG identity but would not influence contemporary identification.

Study 2 provides initial experimental evidence that highlighting connections between past and present generations of a group can increase future-oriented investment. Students that read about these temporal connections reported greater intentions to invest in UVA after graduation than the control condition. The manipulation also marginally increased the extent to which participants included past and future generations of students in their UVA identity (i.e., TG identification). Importantly, the manipulation did not significantly increase identification with contemporary UVA students, suggesting that highlighting temporal connections between past and present generations does not merely make people identify more strongly with contemporary group members. The marginal difference in TG identity may have occurred because the TG items contain references to both past and future generations of UVA students, while the temporal manipulation only focused on past generations. Finally, both group identity measures (TG scale and contemporary identification) indirectly mediated the effect on UVA investment, which suggests both types of identification can increase future-oriented group investment. However, because the control condition did not contain any information about a UVA identity, it is not clear if highlight connections between past and past generations would increase investment above and beyond highlighting connections *within* the contemporary generation. To test this, the next study includes a control condition that highlighted connections between members of the contemporary generation.

I designed Study 3 (see Appendix 6) as a follow up to Study 2 to also test whether highlighting connections between past and present generations of UVA students increases future-oriented investment intentions, but with a more stringent control condition. Whereas the control condition in Study 2 did not present any information about UVA, this study included information about contemporary UVA students. UVA's upcoming bicentennial once again served as the

cover story for the temporal condition while I told participants in the control condition that we were interested in learning about their perceptions of the connection between UVA students currently attending the university. I also changed the stimuli about UVA students so that all participants would be presented with the same information (instead of having participants select options they found personally meaningful). I did this to reduce the likelihood that information presented in the control condition would incidentally highlight connections to UVA's past. For example, the Rotunda was designed by Thomas Jefferson, built in 1826 on the university's original grounds, and is protected as a World Heritage Site by UNESCO. As such, thinking of the Rotunda may automatically bring connections to UVA's past to mind. I selected "The Corner" and "Volunteering and Service" as stimuli to use from Study 2 because their historical connection to UVA would most likely not automatically come to mind to UVA students. Identical to Study 2, I predicted that highlighting connections to past and present generations of UVA students would increase intentions to invest in UVA.

Contrary to expectations, highlighting connections between past and present generations of UVA students did not significantly increase investment intentions compared to the control condition that highlighted connections with the present generation (although the pattern was in the predicted direction). However, the temporal manipulation did significantly increase participant's UVA TG identification but did not significantly increase identification with contemporary UVA students, replicating the results from Study 2. Although the temporal (vs. contemporary) manipulation did not have a significant direct effect on investment intentions, I again examined both identification measures as indirect mediators to see assess their relative contributions to increased group investment (Rucker, Preacher, Tormala, & Petty, 2011).

Replicating the results of Study 2, both group identity measures (TG identity and contemporary identification) indirectly mediated the effect on UVA investment.

Study 4 (see Appendix 7) also examined whether highlighting the connection between past and present generations of UVA students increased investment inventions compared to highlighting only the present generation, but with a modified manipulation from Study 3. Study 4 examined a new mediator (concerns about leaving a legacy at UVA), which is discussed in more detail in the section below. Participants completed a similar experimental manipulation as Study 3. However, in addition to reading information about 1) The Corner and 2) Volunteering and Service, participants also read about 3) UVA Athletics and 4) Literature & Arts at UVA. I predicted thinking about past and present generations (vs. only the present generation) would increase investment intentions. Despite a revised manipulation that contained a greater number of connections between present and past generations of UVA students, this temporal (vs. contemporary) manipulation did not significantly increase investment intentions. While this study did not include an inclusion (i.e. TG identity) manipulation check, it utilized a similar experimental procedure that had prior success with doing so.

Inclusion and Legacy Concerns

While the previous studies focused on intentions to invest in the group, the following study examines whether inclusion can influence concerns about the long-term implications of their goals (i.e. legacy concerns). A legacy is an enduring impact that oneself has on others beyond their own existence. In other words, when someone leaves a legacy, they created an impact that will continue into the future and have an influence on others (Fox, Tost, & Wede-Benzoni, 2010). The legacy construct is similar to the concept of generativity. Generativity refers to the thoughts, motivations, and behaviors that facilitate helping future generations (Kotre,

1984; McAdams & de St. Aubin, 1992). Research on family PCC finds that increased

perceptions of family continuity (i.e. transmission) predicted greater generative concerns

(Herrera, Sani, & Bowe, 2011). In other words, perceiving one's family as having continuity

through time was related to increased desires to have a helpful impact on future generations.

Prediction #2: Awareness of Inclusion Increases Legacy Concerns

By thinking of the values and actions that have been passed down by previous

generations of groups members, people may in turn become concerned about how their own

values and behaviors will impact and be remembered by future generations of the group. In other

words, just as the values and actions of past group members still have meaning for contemporary

UVA students, how contemporary students think and act today will continue to be remembered

by future generations. This line of reasoning follows a similar logic to research regarding the

relationship between rivalry and legacy concerns (Converse & Reinhard, 2016). People

frequently bring up past contests as an important factor for wanting to beat their rival in the

present day competition. This psychological connection between past and present competitions

creates a feeling of "embeddedness" that makes rival competitions feel like they are part of a

larger, ongoing competitive narrative. This sense of "embeddedness" in turn increase concerns

about how the team's present day performance will contribute to their legacy. Connecting past

and present generations of a group may also create a sense of intragroup embededdness that

prompts concerns about one's legacy.

Another possible reason for temporal group identities increasing legacy concerns comes

from Terror Management Theory (TMT) which argues that one way people can reduce fears

about their eventual death is through investing in groups that exist through time (Pyszczynski,

Greenberg, & Solomon, 1999). This investment is seen as a way to gain a symbolic immortality,

a way to extend a piece of oneself through time. Consistent with this line of reasoning, people

reminded of death allocated greater resources to future (vs. contemporary) group members,

reversing the general present-oriented bias people have (Wade-Benzoni, Tost, Hernandez, &

Larrick, 2012). This effect was driven by the increased affinity felt toward the future others.

Therefore, death reminders increased the affinity felt toward future generations and this affinity

then increase intergenerational beneficence. While not as extreme as one's eventual death, being

reminded of past generations of a group that are no longer present (such as at UVA) may

increase thoughts about oneself eventually leaving the group. Because people are reminded that

their own time will eventually come to an end, people may choose to invest in the group as a way

to temporally extend oneself through time. This impact on future others could be due to a desire

to remain socially connected to the group or as a way to buffer anxiety about their time ending.

As previously mentioned, Study 4 (see Appendix 7) experimentally examined whether

highlighting the connection between past and present generations of UVA students (vs.

highlighting only the contemporary generation) increased investment inventions and whether this

effect was mediated by increased legacy concerns. Contrary to my prediction, the experimental

manipulation did not significantly influence legacy concerns.

Transmission, Inclusion, and the Self

People's sense of self often extends beyond the individual level and includes

representations of the social groups they belong to (Brewer & Gardner, 1996; Turner et al.,

1987). Additionally, people that strongly identify with an organization incorporate its values into

their own self-concept (Dutton, Dukerich, & Harquail, 1994). Previous work on PCC and the self

finds that higher PCC is related to increased levels of collective self-esteem (Sani, Bowe, &

Herrera, 2008). Additionally, people with higher PCC incorporated the group more in their sense

of self (Sani et al., 2007). The "small self" is another construct related to people's self-concept

and has two related, but distinct, dimensions (Piff, et al., 2015). One dimension involves the

feeling the presence of something vast vis-á-vis the self (e.g., "I feel the presence of something

greater than myself") while the other dimension refers to a sense of self-diminishment where

people's goals and priorities decrease in their importance (e.g., "I feel like my own day-to-day

concerns are relatively trivial").

Perceived vastness refers to anything that is viewed as being considerably larger than the

self (Keltner & Haidt, 2003). Vastness is often experienced in reference to objects of great

physical size (e.g. looking at a mountain range, a sprawling plain, a towering forest, etc.) but can

also be triggered by metaphorical cases of vastness such as realizing the many implications that

arise from solving a scientific problem, or meeting someone with great social power (e.g. a

famous celebrity or leader). Perceived vastness is one of the critical components of experiencing

the emotion awe (Keltner & Haidt, 2003) and experiencing awe has been linked to changes in

people's self-concept (e.g., the small self; Piff, et al., 2015). Specifically, after an awe induction

that involved exposure to perceptually vast stimuli (e.g., looking up at a grove of towering trees),

people reported feeling a greater sense of vastness vis-á-vis the self and self-diminishment.

Connecting present and past generations increases the temporal scope that the group is viewed

in, and this increased temporal scope could make the group feel more vast in relation to the self.

Prediction #3 Awareness of Transmission, Inclusion Increase Feelings of Vastness Vis-á-Vis the

Self

Study 1 (see Appendix 4) finds support for this prediction. Specifically, increased UVA

PCC (i.e. transmission) was correlated with greater feelings of vastness vis-á-vis the self.

Additionally, this association remained significant when controlling for the group identification

measures (Private Regard and CSE). While I did not have any predictions regarding the

relationship between UVA PCC and self-diminishment, it is worth noting that there was no

significant correlation between them. While traditional conceptions of the self-concept

emphasized its stability, contextual factors can shift how the self is construed (Turner, Oakes,

Haslam, & McGarty, 1994; for a recent overview see Packer & Van Bavel, 2014). I designed

Study 5 (see Appendix 8) to examine whether experimentally highlighting connections between

past and present generations of UVA students (vs. only the present generation) would increase

perceptions of vastness vis-á-vis the self. Participants completed a similar experimental

manipulation to Study 4. However, instead of reading about four UVA areas (The Corner,

Volunteering and Service, UVA athletics, and Literature & Arts), participants selected two of the

four areas that they found to be personally meaningful. I predicted highlighting past and present

generations (vs. only the present generation) of UVA students would increase perceptions of

vastness vis-á-vis the self. However, the experimental manipulation did not significantly affect

feelings of vastness vis-á-vis the self. Eliminating participants that may have completed the

manipulation too quickly strengthens the experimental effect on feelings of vastness vis-á-vis the

self, but the effect does not approach significance and should be interpreted with caution because

of its small sample size and exploratory nature.

Summary and Speculations

Despite the recent interest in temporal dimensions of group identity, the corresponding

literatures and concepts have not been integrated. I described the three dimensions of current

conceptualizations of temporal group identity constructs (inclusion, transmission, and affection)

and proposed that these dimensions correspond to either a cognitive component (inclusion,

transmission) or an affective component (affection). Through reviewing the present literature and

my own empirical work, I then examined how these temporal group identity dimensions influence group investment, legacy concerns, and the self-concept.

Overview of empirical work

In sum, I found mixed evidence regarding whether transmission and inclusion influence group investment, legacy concerns, and the self-concept. When controlling for group identification, Study 1 found increased transmission (i.e. PCC) predicted greater future-oriented group investment intensions (but not greater present-oriented investment intentions). Compared to a control condition that did not mention the contemporary group, highlighting connections between past and present generations increased future-oriented group investment intensions (Study 2). This pattern remained, but was not significant, when the control condition highlighted connections between contemporary group members (Study 3). Importantly, the manipulations in Studies 2 and 3 increased inclusion (i.e. TG identify), although these effects were small, but not group identification. This suggests highlighting temporal connections between past and present generations and increasing inclusion does not simply increase group identification. Additionally, TG identity and group identification both indirectly mediated the effect on future-oriented intentions in Study 2 and Study 3. Contrary to my prediction, highlighting connections between past and present generations (vs. the present generation) did not influence concerns about leaving a legacy (Study 4). Finally, increased transmission (i.e. PCC) predicted greater feelings of vastness vis-á-vis the self, even when controlling for group identification (Study 1). However, experimentally manipulating connections between past and present generations (vs. the present generation) did not significantly influence feelings of vastness vis-á-vis the self (Study 5). Below I speculate on the psychological processes that might be needed in order for connecting past and present generations to influence these motivational and psychological processes.

Intergenerational Awareness vs. Intergenerational Affinity

When highlighting similarities between past and present generations of UVA students, participants read more information about UVA in Study 4 than in Study 3 (by adding information about UVA Athletics and Literature & Arts), but this manipulation did not significantly increase students' concerns about leaving a legacy at UVA or their group investment intentions. Those four areas covered a wide spectrum of life at UVA including physical spaces (e.g., The Corner), values (e.g., Volunteering and Service), and diverse leisure interests (e.g., UVA athletics, Literature & Arts). Additionally, even though participants in Study 5 chose to read about domains they found personally meaningful, the manipulation did not impact their self-concept (via ratings of vastness vis-á-vis the self). Yet, participants in all studies consistently agreed that the information presented showed how these areas of life at UVA could provide connections between past and present generations of UVA students (i.e., participants rated relevant likert scale items significantly above the midpoint of a 7-point scale, with very large effect sizes—d's > 1.0). Despite presenting curated historical information about the group (e.g., photos of past group members, information about specific traditions, origins stories), these studies suggest that while simply being aware of the connection between past and present generations of a group may be a necessary condition to impact motivational and psychological processes, it may not be sufficient. Instead, one possibility is there needs to be some kind intergenerational social connection (e.g., affinity) needed to influence people's motivation to invest in the group, desire to leave a legacy, and self-concept. In other words, people need to have a cognitive component of the group (e.g., the knowledge of the group's history) and an affective one (e.g. affinity to past generations) to impact motivational and psychological processes. Previous work is consistent with this hypothesis, as feeling affinity to future others

mediates people's desire to invest resources in those future others (Wade-Benzoni, Tost, Hernandez, & Larrick, 2012). Just as affinity to future generations is necessary for influencing investment behavior, an affinity to (instead of only an awareness of) past generations may be necessary too. Similarity increases liking (Byrne, 1997) and because I highlighted similarities between past and present generations, one could argue that this manipulation may have increased feelings of affinity toward past generations. However, none of these studies assessed how much affinity participants felt with previous generations of UVA students. Adapting the Wade-Benzoni (2008) scale from affinity with future generations to past generations could be a fruitful next step. To my knowledge, no research has measured intergenerational affinity to past in-group generations or examined its consequences. If these manipulations did significantly increase affinity towards previous generations, it would suggest temporal social connections to the past might not provide a benefit above and beyond social connections between contemporary group members (at least, in a university setting on the concepts currently being investigated).

However, the interaction between the temporal (vs. contemporary) manipulation and race (white vs. non-white participants) in Study 4 provides evidence that not all participants responded similarly to the manipulation. This suggests the racial identity of UVA participants could be consequential when highlighting past and present generations. UVA has a checkered history regarding race (e.g., its founder Thomas Jefferson owned slaves, the university was partially built by slaves, the first black student was not admitted until 1950—125 years after the first class of students arrived at UVA) and this could dampen any benefits that connecting past and present generations may provide. While the temporal (vs. contemporary) manipulation did not significantly interact with race and change people's self-concept in Study 5, examining the means shows it followed a similar pattern to the interaction in Study 4. One possible reason the

Study 5 interaction was not significant could be because participants chose areas of UVA they found personally meaningful. In other words, non-white participants may have had an easier time identifying with the past in Study 5 because of the increased self-relevance of their selections. However, future research is needed to confirm these speculations.

The Need to Belong

The need to belong (i.e. feel social connections with others) is a fundamental human motive and feelings of belonging can greatly impact emotional and cognitive processes (Baumeister & Leary, 1995). Most work on belonging focuses on whether or not people feel social connections with others presently around them, but feelings of intergenerational belonging may be consequential too. Just as people feel like they may not belong with the group's contemporary generation, people may also feel disconnected from past generations of the group as well. Research has found that feelings of belonging in academic contexts are consequential for academic motivation, particularly for minority group members. For instance, physical markers of in-group belonging (e.g., the darkness of one's skin tone) predict increased academic engagement for minorities (Oyserman, Brickman, Bybee, & Celious, 2006). Similarly, feeling uncertain of whether or not one belongs at a university undermines academic motivation and achievement for minority students (Walton & Cohen, 2007). Interventions to increase belonging usually focus on increases contemporary social connections or changing the narratives people use to construe the threatening experiences. Increasing a sense of intergenerational belonging by increasing the affinity felt toward previous generations of a group could be consequential for impacting people's self-concept and motivation. For instance, while African-Americans were not admitted to UVA until long after its founding, since then there have been decades of African-Americans at the university. It is possible feeling connected to those previous generations could

still have an impact on psychological process (e.g., people's self-concept, legacy concerns) and

motivation (e.g., group investment, academic engagement).

Intergenerational belonging is likely important outside of the academic context too.

Communities often invest resources in preserving its past (e.g., historic buildings, information

about previous residents, traditional celebrations). Additionally, a new host of companies (e.g.,

ancenstory.com) offers services to help people access their family's genealogical and historical

records to learn about their heritage. People likely do these types of activities for a variety of

reasons, but one overarching motive may be to increase feelings of affinity to previous

generations and in turn a sense of intergenerational belonging.

Key Ingredients for Temporal Group Identification

An important direction for future research to examine is how the different dimensions of

temporal group identities (inclusion, transmission, and affection) combine and interact to

influence temporal group identification. Despite the conceptual overlap between these

dimensions, some may be more consequential than others for increasing temporal group

identification. Simply including different generations in one's identity may not be as impactful as

including these generations and feeling affection toward them. Similarly, merely recognizing the

transmission of values and event through a group's history may not impact identification unless

these values and events create feelings of affection toward the different generations.

Concluding Remarks

When people collectively organize around shared values, beliefs, and goals, they have

formed a group. Many of the groups that are most meaningful to people are not short lived, but

exist through time by having new generations replace those that came before them. When new

generations enter the group, they often do not forget the generations that preceded them, nor do

they ignore the future generations that will eventually come. Understanding how these temporal

group identities impact psychological processes and motivation is critical for capturing the

complexities of group membership, and this work offers a framework for doing so.

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Appendix 1: Perceived Collective Continuity (PCC) Questionnaire

Scale points: *Totally Disagree (1), Disagree (2), Slightly Disagree (3), Neither Disagree nor Agree (4), Slightly Agree (5), Agree (6), Totally Agree (7)*

1. UVa students have passed on their traditions across different generations.
2. UVa history is a sequence of interconnected events.
3. Shared academic values, beliefs and attitudes of UVa students have endurance across times.
4. Major phases in UVa history are linked to one another.
5. Throughout history UVa students have maintained their academic inclinations and mentality.
6. There is no connection between past, present, and future events at UVa.
7. UVa students will always be characterized by specific academic traditions and beliefs.
8. There is a causal link between different events in UVa history.
9. UVa has preserved its traditions and customs throughout history.
10. The main events in UVa history are part of an 'unbroken stream'.
11. UVa students have maintained their values across time.
12. There is no continuity between different ages in UVa history.

- Culture subscale: Items 1, 3, 5, 7, 9, 11
- History subscale: Items 2, 4, 6, 8, 10, 12
    - Items 6 and 12 are reversed scored.

Appendix 2: Trans-Generational (TG) Group Identification

Scale points: 7-point likert scale (*1 = Do not agree at all, 7 = Agree completely)*

1. For me, UVA includes all the generations of students that ever have and ever will live.
2. When I think of UVA, I don't only think of the current generation of students but also of all the generations of students of the past.
3. When I think of UVA, I don't only think of the current generation of students, but also of all the generations of students of the future.
4. Students of UVA in every generation share a common base that unite each other across the generations.
5. I don't believe that there is a UVA identity that we carry from generation to generation.

- *Note*: Item #5 is reversed scored.

Appendix 3: Legacy Concerns Questionnaire

Scale points: 7-point likert scale (*1 = Not at all, 7 = Very much so)*

1. I'm aware that my own time at UVa is fleeting.
2. It would be nice if I was remembered by some group/team/club at UVa after I graduate.
3. How to leave my mark on some group at UVa is something I sometimes think about.
4. I hope that in some way, part of me will live on at UVa after I leave.
5. I want to make a lasting impact on some group/team/club at this university.
6. I hope that when I graduate, I will feel as though I have made a difference to some other students.
7. I hope that I can make or create or change things that will have an impact on future students.
8. I hope that I will have done something that will survive after I graduate.
9. I hope that my contributions to this community will persist in some small way over time.

Appendix 4: Study 1

Method

Participants. I recruited participants from the psychology department's participant pool to participate in the study in exchange for course credit. Participants first completed an unrelated study before completing this study. 333 participants opened the study link. Two participants did not complete the survey and were excluded from analysis, the final analyzable sample is 331 participants (218 women, 113 men) [1].

Design. In a correlational design, the presentation order of all the questionnaires was randomized.

Procedure. The PCC questionnaire contained twelve items (see Appendix 1). The CSE questionnaire contained the following four items: "Overall, my being a member of UVa has very little to do with how I feel about myself", "Being a member of UVa is an important reflection of who I am", "Being a member of UVa is unimportant to my sense of what kind of a person I am", "In general, belonging to UVa is an important part of my self image", items were on a7-points liker scale, *Strongly Disagree (1), Disagree (2), Disagree Somewhat (3), Neutral (4), Agree somewhat (5), Agree (6), Strongly Agree (7)*. The Private Regard questionnaire contained the following seven items: "I feel good about UVa", "I am happy that I am a member of UVa", "I feel that members of UVa have made major accomplishments and advancements", "I believe that because I am a member of UVa, I have many strengths", "I often regret that I am a member of UVa", "UVa contributes less to society than other universities", "Overall, I often feel that members of UVa are not worthwhile"; *1 = Strongly disagree, 7 = Strongly agree*.

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[1] Degrees of freedom vary depending on the number of participants that answered each individual item.

To measure future-oriented investment, I asked participants about their intentions to invest in UVA after graduation: "After I graduate from UVa, I intend to give back to the university in some substantial way (e.g. with donations, networking with students, etc.)" To measure present-oriented investment, I asked participants about their intentions to get involved with the UVA community: "I am interested in getting much more involved in the UVa community (e.g. participating in student groups, volunteering my time, etc.)" Both investment items were on a 7-point likert scale, *Strongly Disagree (1), Disagree (2), Slightly disagree (3), Neither agree nor disagree (4), Slightly agree (5), Agree (6), Strongly Agree (7)*.

The small self questions contained two items from the vastness subscale ("I feel part of some greater entity", "I feel like I am part of a greater whole") and two items from the self-diminishment subscale ("I feel small relative to something more powerful than myself", "I feel insignificant in the grand scheme of things"). The Psychological Ownership questionnaire consisted of four items: "This is MY university", "I sense that UVA is our university", "I feel a very high degree of personal ownership for this university", and "I sense that this is MY university", *1 = Strongly Disagree, 7 = Strongly Agree*.

Results

Future-oriented investment. See Table 1 for correlations between donation intentions, PCC, private regard, and CSE. In a multiple regression predicting donation intentions, PCC was a significant predictor ($\beta = .13$, $p = .019$), private regard was a significant predictor ($\beta = .37$, $p < .001$), and CSE was marginal ($\beta = .10$, $p = .076$).

Table 1. Correlation between Donation Intentions, PCC, private regard, and CSE.

	Donate	PCC	Private Regard
Donate			
PCC	.30***		
Private Regard	.46***	.38***	
CSE	.31***	.37***	.45***

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

Present-oriented investment. See Table 2 for correlations between UVA involvement, PCC, private regard, and CSE. In a multiple regression predicting UVA involvement, PCC was not a significant predictor ($\beta = .05$, $p = .387$), Private Regard was a significant predictor ($\beta = .23$, $p < .001$), and CSE was significant ($\beta = .21$, $p = .001$).

Table 2. Correlation between UVA Involvement, PCC, Private Regard, and CSE.

	Involvement	PCC	Private Regard
Donate			
PCC	.21***		
Private Regard	.34***	.38***	
CSE	.33***	.37***	.45***

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

Small Self. I first averaged the two items measuring vastness vis-à-vis the self, $r(328) = .880$, $p < .001$ and the two items measuring self-diminishment, $r(326) = .419$, $p < .001$. See Table 3 for correlations between the small self, PCC, Private Regard, and CSE. Notably, there was a significant correlation between PCC and vastness vis-à-vis the self but no significant correlation between PCC and self-diminishment. In a multiple regression predicting vastness vis-à-vis the self, PCC was a significant predictor ($\beta = .12$, $p = .030$), Private Regard was a significant predictor ($\beta = .41$, $p < .001$), and CSE was not significant ($\beta = .03$, $p = .555$).

Table 3. Correlation between Large Self, PCC average, Private Regard, and Collective Self-Esteem (CSE).

	Vastness	Self-diminishment	PCC	Private Regard
Vastness				
Self-diminishment	.03			
PCC	.29***	-.06		
Private Regard	.47***	-.28***	.38***	
CSE	.26***	-.03	.37***	.45***

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

Psychological Ownership. I first averaged the psychological ownership items together

($M = 4.54$, $SD = 1.40$, $\alpha = .89$). See Table 4 for correlations between psychological ownership,

PCC, Private Regard, and CSE. In a multiple regression predicting psychological ownership,

PCC was not a significant predictor ($\beta = -.02$, $p = .709$), Private Regard was a significant

predictor ($\beta = .46$, $p < .001$), and CSE was significant ($\beta = .12$, $p = .029$).

Table 4. Correlation between psychological ownership (PO), PCC, Private Regard, and CSE.

	PO	PCC	Private Regard	CSE
Investment				
PCC	.20***			
Private Regard	.50***	.38***		
CSE	.32***	.37***	.45***	

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

Appendix 5: Study 2

Method

Participants. I recruited participants from an email list-serv consisting of UVA students that previously expressed interest in participating in research studies. Participants responded to an email to "…Complete a 5-minute online survey regarding their perceptions and attitudes about UVA." I offered participants the opportunity to be entered into a raffle for a $50 Amazon.com gift card as compensation. 192 participants opened the survey link. Five participants dropped out before finishing the study (4 in control, 1 in prime). I also excluded 26 participants that had graduated from UVA. The final analyzable sample is 161 participants (119 women, 42 men).

Design. I randomized the presentation order of a questionnaire highlighting connections between present and past generations of UVA students in a between-subjects design (condition: temporal vs. control). Presentation order of the TG scale and contemporary identification scale was also counterbalanced.

Procedure. In the temporal condition, participants first read that UVA would begin celebrating its Bicentennial in the Fall of 2017 and that we were interested in learning about their perceptions of the connection between the different generations of UVA students. Participants read that one way different generations of UVA students may feel connected with each other is through the traditions, values, and places that have been passed down through UVA's history from one class to the next. I then informed participants that I wanted to get their thoughts on some information that shows UVA traditions, values, and places from their past to the present day. Participants then selected three UVA traditions, values, and places that they found personally meaningful (the list to select from included The Rotunda, the Corner, football games,

painting Beta Bridge, the Good Old Song, UVA lingo, the Lawn, student self-governance,

volunteering and service, and 1st year opening convocation). Participants then read information

for each of their selections.

In general, the passages contained information describing the selection's past and present

as well as accompanying photographs. For example, if participants selected the Rotunda, a photo

taken in 1912 of students studying in the Dome Room was accompanied with the following text,

"Designed by Thomas Jefferson, the Rotunda was created to be the center for student life at

UVA. The building originally served as the university's library, study hall, as well as an area for

students to take classes." On the next page there was a photo of a student studying in the Dome

Room in 2016 along with the text, "After a major multi-year restoration, the Rotunda recently

returned to its place as the center of student life at the university. With new classrooms and

student study spaces added to the building, students can again experience the Rotunda as Mr.

Jefferson originally intended." At the end of each passage, participants rated their agreement

with the following statement, "Reading this information helps me see some connections between

students of past generations and students of today", (*1 = Not at all, 7 = Extremely*). I included

this statement to prompt people to actively think about connections between different generations

of UVA students and to ensure the validity of the passages.

To measure intentions to invest in UVA, participants rated their agreement with the

following three statements: "After I graduate from UVa, I intend to give back to the university in

some substantial way by....1) Making an annual donation. 2) Signing up to be an alumni contact

for networking with current students. 3) Getting involved with the nearest UVA Alumni Club.",

(*Strongly Disagree, Disagree, Slightly disagree, Neither agree nor disagree, Slightly agree,*

Agree, Strongly agree). Participants then completed two group identification measures (in

counterbalanced order). The trans-generational group identification scale included five items

(Kahn, Klar, & Roccas, 2017): "For me, UVA includes all the generations of students that ever

have and ever will live", "When I think of UVA, I don't only think of the current generation of

students but also of all the generations of students of the past", "When I think of UVA, I don't

only think of the current generation of students, but also of all the generations of students of the

future", "Students of UVA in every generation share a common base that unite each other across

the generations", "I don't believe that there is a UVA identity that we carry from generation to

generation" (1 = *Do not agree at all, 7 = Agree completely*). The contemporary identification

scale (adapted from Doosje, Ellemers, & Spears, 1995) contained the following four items: "I

identify with other current UVA students", "I see myself as a member of UVA", "I am glad to be

a member of UVA", "I feel strong ties with current UVA students", (1 = *Not at all*, 7 =

Extremely).

Participants then responded to a variety of demographic questions including their age,

year in school, and whether or not they had any family members who previously attended UVA

(*Yes* or *No*). Participants that reported having family members who previously attended UVA

then selected the corresponding family members from a list of options (select all that apply:

Sibling, Parent, Grandparent, Great grandparent, Other-free response). Participants then listed

their gender (*free response*) and race (*White/Caucasian, African American, Hispanic, Asian,*

Native American, Pacific Islander, Other-free response). Finally, participants entered their email

address for the raffle and whether they had any comments about the survey (*free response*).

Participants in the control condition first reported their intentions to invest in UVA,

answered the group identification measures (in counterbalanced order), read through the

temporal passages, and then answered the demographic questions.

Results

Connection ratings. I first averaged the intergenerational connection ratings together. Participants rated the connections between past and present generations significantly above the scale midpoint (midpoint = 4, $M = 5.23$, $SD = 1.13$), $t(160) = 13.82$, $p < .001$, $d = 1.09$.

Investment intentions. I first combined the three investment intention items into a single index ($\alpha = .70$). Participants reported significantly higher investment intentions in the temporal condition ($M = 4.69$, $SD = 1.15$) than the control condition ($M = 4.11$, $SD = 1.40$), $t(159) = -2.89$, $p = .004$, $d = .46$, 95% CI [0.14, 0.77]. This effect was not moderated by participant's gender, $F(1, 157) = .82$, $p = .368$; race (white vs. non-white), $F(1, 157) = 1.00$, $p = .318$; or year in school $F(1, 157) = 0.09$, $p = .767$.

TG scale. I first combined the five TG items into a single index ($\alpha = .80$). Participants reported marginally higher TG ratings in the temporal condition ($M = 4.68$, $SD = 1.20$) than the control condition ($M = 4.32$, $SD = 1.20$), $t(159) = -1.94$, $p = .055$, $d = .31$, 95% CI [-0.01, 0.62]. There was no significant effect of presentation order, $t(159) = -1.22$, $p = .224$. This effect was not moderated by participant's gender, $F(1, 157) = .65$, $p = .422$; race (white vs. non-white), $F(1, 157) = .24$, $p = .625$; or year in school $F(1, 157) = 0.12$, $p = .726$. Additionally, there was no significant difference between men and women, $t(159) = .60$, $p = .547$; race (white vs. non-white), $t(159) = .02$, $p = .987$; legacy students (legacy vs. non-legacy), $t(159) = -.15$, $p = . 879$; and no significant correlation with year in school, $r(159) = .033$, $p = .673$.

Contemporary identification scale. I first combined the four contemporary identification items into a single index ($\alpha = .92$). There was no significant difference in contemporary identification ratings in the temporal condition ($M = 5.43$, $SD = 1.08$) than the control condition ($M = 5.13$, $SD = 1.31$), $t(159) = -1.57$, $p = .118$, $d = .25$, 95% CI [-0.06, 0.56].

There was no significant interaction between condition and participant's gender, $F(1, 157) = .01$,

$p = .932$; race (white vs. non-white), $F(1, 157) = .11$, $p = .741$; or year in school $F(1, 157) = .52$,

$p = .472$. Additionally, there was no significant difference in contemporary identification ratings

between men and women, $t(159) = -.09$, $p = .932$; race (white vs. non-white) $t(159) = -1.09$, $p =$

.278; legacy students (legacy vs. non-legacy), $t(159) = -1.56$, $p = .$ 121; and so significant

correlation with year in school, $r(159) = -.052$, $p = .516$.

Correlations. See Table 5 for the simple correlations between investment intentions, TG

scale, and contemporary identification. In a multiple regression predicting investment intentions,

the TG scale is a significant predictor ($\beta = .20$, $p = .011$) as well as the contemporary

identification scale ($\beta = .48$, $p < .001$).

Table 5. Correlation between Investment intentions, TG scale, and Contemporary Identification.

	Investment Intentions	TG Scale	Contemporary Identification
Investment Intentions			
TG Scale	.46***		
Contemporary Identification	.59***	.56***	

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

Mediation. I next used a mediation analysis to determine the extent to which the two

group identification measures account for the experimental manipulation's effect on UVA

investment intentions. To estimate the indirect effects, we conducted a bootstrapping analysis

with 5,000 estimates for the construction of a 95% bias-corrected confidence interval (CI) of the

indirect effects of the TG scale and identification scale (using the SPSS macro provided by

Hayes, 2013; Preacher, Rucker, & Hayes, 2007). The CI did not include zero for the TG scale

[.001, .312], p = .048, or identification scale [.359, .670], p < .001 suggesting significant indirect

contributions of each. The CI did include zero for condition [-.014, .600], p = .061.

Appendix 6: Study 3

Method

Participants. I recruited participants from the psychology department's email listserv, consisting of UVA students that previously expressed interest in participating in paid research studies. Participants responded to an email to "…Complete a 5-minute online survey regarding their perceptions and attitudes about UVA." I offered participants the opportunity to be entered into a raffle for a $50 Amazon.com gift card as compensation. 352 participants opened the survey link. 21 participants dropped out before finishing the study (12 in the contemporary condition, 9 in the temporal condition). The final analyzable sample is 331 participants[2] (267 women, 61 men, 1 non-binary, and 2 did not report their gender).

Design. I randomly assigned participants to either reflect on connections between past and present UVA students (temporal condition) or connections between current UVA students (control condition) in a between-subjects design. Presentation order of the TG scale and contemporary identification scale was also counterbalanced between subjects.

Procedure. I presented participants in the temporal condition with the same cover story from Study 2 regarding UVA's Bicentential. Participants in the control condition instead read a cover study that emphasized connections between students presently at UVA. At the end of each passage in the temporal condition, participants rated their agreement with the following statement, "Reading this information helps me see how social spaces like The Corner [community service and volunteering] helps to provide a connection between current generations of UVA students and previous generations UVA of students", (*1 = Not at all, 7 = Extremely*). Participants in the control condition responded to a similar item, "Reading this information helps

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[2] Degrees of freedom differ between analyses based on the number of responses for each item.

me see how social spaces like The Corner [community service and volunteering] helps to provide

connections between students at UVA", (*1 = Not at all, 7 = Extremely*). Similar to Study 2, I

included these statements to prompt people to actively think about connections between UVA

students and to ensure the validity of the passages. The remainder of the study was identical to

Study 2: Participants rated their intentions to invest in UVA, responded to the trans-generational

group identification and contemporary identification scales (presented in counter-balanced

order), and then answered basic demographic questions (year in school, gender, race).

Results

      Connection ratings. I averaged the intergenerational connection ratings together within

the temporal condition and the contemporary connection ratings within the contemporary

condition. In the temporal condition, participants rated the connections between past and present

generations significantly above the scale midpoint (midpoint = 4, $M = 5.14$, $SD = 1.08$), $t(167) =$

13.67, $p < .001$, $d = 1.05$. In the contemporary condition, participants rated the connection

between contemporary UVA students significantly above the scale midpoint (midpoint = 4, $M =$

5.82, $SD = 1.15$), $t(162) = 9.10$, $p < .001$, $d = .71$.

      Investment intentions. I first combined the three investment intention items into a single

index ($\alpha = .75$). Contrary to expectations, there was no significant difference in investment

intentions in the temporal condition ($M = 4.42$, $SD = 1.20$) compared to the control condition (M

= 4.26, $SD = 1.32$), $t(329) = -1.15$, $p = .253$, $d = .13$, 95% CI [-0.09, 0.34]. There was no

significant interaction with gender, $F(1, 324) = 1.46$, $p = .228$; race (white vs. non-white), $F(1,$

326) = .33, $p = .566$; or year in school, $\beta = -.09$, $p = .575$.

      TG scale. I first combined the five TG items into a single index ($\alpha = .80$). Participants

reported significantly higher TG ratings in the temporal condition ($M = 4.73$, $SD = 1.08$) than the

control condition ($M = 4.47$, $SD = 1.24$), $t(329) = -2.03$, $p = .043$, $d = .22$, 95% CI [0.01, 0.44].

There was no significant effect of presentation order, $t(329) = .28$, $p = .778$. This effect was not

moderated by participant's gender, $F(1, 324) = .74$, $p = .392$; race (white vs. non-white), $F(1, 326) = 2.37$, $p = .125$; or year in school, $\beta = -.18$, $p = .246$. Additionally, there was no significant

difference between men and women, $t(326) = 1.47$, $p = .143$. There was a nearly significant

difference between races with white participants reporting higher TG ratings ($M = 4.70$, $SD = 1.19$) than non-white participants ($M = 4.44$, $SD = 1.11$), $t(328) = -1.94$, $p = .054$, $d = .22$, 95%

CI [0.00, 0.44]. There was no significant difference between legacy students (legacy vs. non-legacy), $t(329) = -.37$, $p = .715$, and no significant correlation with year in school, $r(329) = .029$,

$p = .601$.

Contemporary identification scale. I first combined the four contemporary

identification items into a single index ($\alpha = .92$). There was no significant difference in

contemporary identification ratings between the temporal condition ($M = 5.29$, $SD = 1.21$) and

the contemporary condition ($M = 5.19$, $SD = 1.32$), $t(329) = -.69$, $p = .492$, $d = .25$, 95% CI [-0.06, 0.56]. There was no significant interaction between condition and participant's gender, $F(1, 324) = .95$, $p = .330$; race (white vs. non-white), $F(1, 326) = .02$, $p = .884$; or year in school $\beta = -.21$, $p = .175$. Additionally, there was no significant difference in contemporary identification

ratings between men and women, $t(326) = .80$, $p = .422$. There was a significant difference

between races (white vs. non-white) such that white participants had higher ratings ($M = 5.51$, $SD = 1.22$) than non-white participants ($M = 4.79$, $SD = 1.22$) , $t(328) = -5.21$, $p < .001$, $d = .59$,

95% CI [0.37, 0.82]. There was no significant difference between legacy students (legacy vs.

non-legacy), $t(329) = -1.43$, $p = .153$, and so significant correlation with year in school, $r(329) = -.023$, $p = .676$.

Correlations. See Table 6 for the simple correlations between investment intentions, TG scale, and contemporary identification. In a multiple regression predicting investment intentions, the TG scale is a significant predictor ($\beta = .27, p < .001$) as well as the contemporary identification scale ($\beta = .34, p < .001$).

Table 6. Correlation between Investment intentions, TG scale, and Contemporary Identification.

	Investment Intentions	TG Scale	Contemporary Identification
Investment Intentions			
TG Scale	.48***		
Contemporary Identification	.50***	.63***	

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

Mediation. Although there was no significant direct effect of condition, I used a mediation analysis to determine the extent to which the two group identification measures to examine their indirect effects. To estimate the indirect effects, I conducted a bootstrapping analysis with 5,000 estimates for the construction of a 95% bias-corrected confidence interval (CI) of the indirect effects of the TG scale and identification scale (using the SPSS macro provided by Hayes, 2013; Preacher, Rucker, & Hayes, 2007). The CI did not include zero for the TG scale [.156, .411], $p < .001$, or identification scale [.222, .456], $p < .001$ suggesting significant indirect contributions of each. The CI did include zero for condition [-.178, .285], $p = .652$.

Appendix 7: Study 4

Method

Participants. I recruited participants from the psychology department's participant pool to participate in the study in exchange for course credit. 152 participants completed the study (96 women, 55 men, 1 did not report their gender).

Design. I randomly assigned participants to either reflect on connections between past and present UVA students (temporal condition) or connections between current UVA students (contemporary condition) in a between-subjects design.

Procedure. Participants first read that, "We are interested in learning more about your perceptions and attitudes about the University of Virginia, as well as your thoughts and feelings about your time here." Participants then completed the experimental manipulation. Next, participants answered questions regarding their desire to leave a legacy at UVA (questionnaire adapted from Wade-Benzoni, Sondak, & Galinksy, 2010), their intentions to invest in UVA after they graduate, and basic demographic information (year in school, gender, and race).

Results

Connection ratings. I averaged the intergenerational connection ratings together within the temporal condition and the contemporary connection ratings within the contemporary condition. In the temporal condition, participants rated the connections between past and present generations significantly above the scale midpoint (midpoint = 4, $M = 5.35$, $SD = .93$), $t(76) = 12.69$, $p < .001$, $d = 1.45$. In the contemporary condition, participants rated the connection between contemporary UVA students significantly above the scale midpoint (midpoint = 4, $M = 5.25$, $SD = .96$), $t(74) = 11.33$, $p < .001$, $d = 1.31$.

Investment intentions. I first combined the three investment intention items into a single index ($\alpha = .79$). Contrary to expectations, there was no significant difference in investment

intentions in the temporal condition (M = 4.68, SD = 1.40) compared to the contemporary

condition (M = 4.78, SD = 1.13), $t(149)$ = .50, p = .616. There was no significant interaction with

gender, $F(1, 146)$ = .11, p = .743; race (white vs. non-white), $F(1, 145)$ = .51, p = .478; or year in

school, β = -.10, p = .575.

Legacy Concerns. I first combined the nine legacy concern items into a single index (α =

.93). Contrary to expectations, there was no significant difference in legacy concerns in the

temporal condition (M = 5.33, SD = 1.10) compared to the contemporary condition (M = 5.35,

SD = 1.13), $t(149)$ = .08, p = .935. There was no significant interaction with gender, $F(1, 146)$ <

.001, p = .995; no significant interaction with year in school, β = -.25, p = .199; however, there

was a significant interaction with race (white vs. non-white), $F(1, 145)$ = 7.63, p = .006. For non-

white participants, legacy concerns were significantly lower in the temporal condition (M = 5.07,

SD = 1.26) than the contemporary condition (M = 5.79, SD = 1.02), $t(48)$ = 2.21, p = .032, d =

.63, 95% CI [.05, 1.19]. For white participants, legacy concerns were higher in the temporal

condition (M = 5.47, SD = .99) than the contemporary condition (M = 5.14, SD = 1.14), however

this difference was not statistically significant, $t(97)$ = 1.53, p = .129, d = .31, 95% CI [-.09, .70].

Overall, there was no significant difference in legacy concerns between white and non-white

participants, $t(147)$ = .56, p = .578. Women also had significantly higher legacy concerns (M =

5.60, SD = .90) than men (M = 4.88, SD = 1.30), $t(148)$ = 4.01, p < .001, d = .68, 95% CI [.34,

1.02]. Women were almost equally distributed between the temporal (N = 49) and contemporary

(N = 47) condition, so the lack of a significant experimental effect cannot be attributed to

unequal gender distribution between conditions.

Appendix 8: Study 5

Method

     Participants. I recruited participants from the business school's email listserv, consisting of UVA students that previously expressed interest in participating in paid research studies. Participants responded to an email to "…Complete a 5-minute online survey regarding their perceptions and attitudes about UVA." I offered participants the opportunity to be entered into a raffle for a $50 Amazon.com gift card as compensation. 100 participants completed the study (77 women, 23 men).

     Design. I randomly assigned participants to either reflect on connections between past and present UVA students (temporal condition) or connections between current UVA students (contemporary condition) in a between-subjects design.

     Procedure. Participants first read that, "We are interested in learning more about your perceptions and attitudes about the University of Virginia, as well as your thoughts and feelings about your time here." Participants then completed the experimental manipulation. I also added a timer (hidden to participants) that recorded how long participants spent reading each page that was part of the manipulation. Next, participants answered the five-item questionnaire measuring perceptions of vastness vis-á-vis the self (Piff et al., 2015): "I feel the presence of something greater than myself", "I feel part of some greater entity", "I feel like I am in the presence of something grand", "I feel like I am a part of a greater whole", "I feel the existence of things more powerful than myself", *1 = Nota at all true, 7 = Very true*. Participants then answered basic demographic questions (year in school, gender, race).

Results

     Connection ratings. I averaged the intergenerational connection ratings together within the temporal condition and the contemporary connection ratings within the contemporary

condition. In the temporal condition, participants rated the connections between past and present generations significantly above the scale midpoint (midpoint = 4, M = 5.35, SD = 1.20), $t(50)$ = 8.56, p < .001, d = 1.20. In the contemporary condition, participants rated the connection between contemporary UVA students significantly above the scale midpoint (midpoint = 4, M = 5.09, SD = 1.10), $t(48)$ = 6.93, p < .001, d = .99.

Vastness vis-á-vis the self. I first combined the five vastness items into a single index (α = .95). Contrary to expectations, there was no significant difference in vastness ratings between the temporal condition (M = 5.15, SD = 1.51) and the contemporary condition (M = 4.97, SD = 1.57), $t(98)$ = -.59, p = .557, d = .12 95% CI [-.27, .51]. In an exploratory analysis, I eliminated participants that averaged less than five seconds reading each manipulation-related page (N = 24). For the remaining participants, the effect of the manipulation is stronger (d = .20 95% CI [-.27, .51]) but there is still no significant between the temporal (M = 5.19, SD = 1.47) and contemporary (M = 4.89, SD = 1.66) condition, $t(74)$ = -.85, p = .399. Women reported marginally higher vastness ratings (M = 5.21, SD = 1.41) than men (M = 5.21, SD = 1.41), $t(98)$ = 1.78, p = .078. However, there were almost equal numbers of women in the temporal condition (N = 38) and the contemporary condition (N = 39), so adding gender as a covariate did not meaningful change the impact of the manipulation on vastness ratings.