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Limited time perspective, values, and greed: Imagining a limited future reduces avarice in extrinsic people

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ABSTRACT

We explored the adage that “at the end of life nobody wishes they’d made more money”, by inducing a limited-time perspective (LTP) in some participants. In Study 1, participants in the LTP condition who were high in extrinsic value orientation (EVO) became less greedy in a raffle-ticket-taking task, making them as generous as intrinsic participants. Study 2 replicated this effect and demonstrated the effect was robust to alternative explanations. Study 3 examined value reports directly, finding that LTP participants evidenced reduced EVO and were less proself in a decomposed prisoner’s dilemma. Results are considered via an integration of multiple lines of research including humanistic, life-span, social-cognitive, and existential perspectives, with the conclusion that a LTP can facilitate in certain individuals a reassessment and realignment of their value systems and behaviors.

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1. Introduction

We are all familiar with the idea that peoples’ thinking and valuing may change when they perceive time as more limited or more precious, as expressed by the adage that “at the end of life, nobody wishes they had made more money”. In other words, considerations of limited time remaining may inspire a reordering of life-priorities such that individuals come to view other-centered endeavors and altruistic motives as more important than self-centered endeavors and materialistic motives (Midlarsky & Kahanna, 1994). In terms of the above adage, when individuals view their time as limited, they may turn away from satisfying materialistic needs so they can focus on more intrinsically meaningful pursuits.

The purpose of the present research was to test this idea by inducing a ‘limited time perspective’ (LTP) in experimental participants, based largely on relevant humanistic theory (Rogers, 1951, 1964), as well as human life-span theory (Carstensen, 1995; Erikson, 1963), existential theories (Cozzolino, 2006; Greenberg, Pyszczynski, & Solomon, 1986), and social-cognitive theory (Trope & Liberman, 2003). We expect to show that LTP has a positive effect, specifically for those who are currently more materialistically oriented, such that a LTP can facilitate in certain individuals a reassessment and realignment of their value systems and behaviors. There is reason to be concerned about individuals who value extrinsic more than intrinsic pursuits. Considerable research demonstrates

that such individuals experience less well-being (Kasser & Ryan, 1993), less interviewer-rated adjustment (Kasser & Ryan, 1996), lesser quality of social relations (Kasser & Ryan, 2001), and less cooperation in social dilemmas (Sheldon & McGregor, 2000), among many other indices of sub-optimal functioning (see Kasser, 2002, for a review). In contrast, this research shows that people who place more value on the pursuit of intrinsic goals are often less competitive, materialistic, anxious, insecure, and frustrated.

How might a LTP effect be explained, should it emerge as expected? We based our work on a series of relevant theories, with a particular emphasis on the humanistic theorizing of Rogers (1951, 1964) who conceived of an ‘organismic valuing process’ (OVP) by which individuals could make growth-enhancing decisions and choices. Rogers conceived of the OVP as an inherent ability to evaluate one’s experiences and actions, to determine whether they are fulfilling and actualizing; if as a result of this process an individual comes to realize that they are not pursuing personally meaningful goals, then he or she can become motivated to correct the situation. Rogers (1951) suggested that individuals may become committed to false self-concepts or goals which may inhibit their access to their own OVP. However, Rogers also suggested that a variety of factors can activate a dormant OVP, helping individuals to better “listen to themselves”, including transformative experiences of many kinds (e.g., therapy, a new personal relationship, a moving work of art, literature, or music, an encounter with death). We theorize that inducing a LTP is one such way to activate the OVP, leading to a reassessment of current value pursuits as well as a reflective inspection of past pursuits.

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A second explanation for our expected LTP effect comes from human life-span theory. Specifically, our expectation of normative positive change in personality as a function of limited time is consistent with Erikson's theory of life-span development (1963), which states that as individuals age and enter the final phase of life (i.e., as their time becomes more limited) they become more concerned with the welfare of others (i.e., generativity) and with understanding their true nature and their place in the ultimate scheme of things (i.e., ego integrity; see Sheldon & Kasser, 2001 for recent support of this model). Additionally, research supporting socioemotional selectivity theory (Carstensen, 1995; Carstensen, Isaacowitz, & Charles, 1999) has shown that the manner in which individuals perceive time (either as open-ended or as limited) directly relates to the pursuit of goals. When individuals perceive that time is ending, the theory states, they are more apt to pursue emotionally-focused goals; conversely, when individuals consider their future as expansive they are much more likely to structure their goals around novel experiences that enable them to achieve in relevant future – often extrinsic – domains such as in school or on the job (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000). Research shows that participants who perceive an ending is near, and who have a limited time to interact with someone, more often choose to spend that time with emotionally-significant friends or loved ones, whereas those participants who perceive an expansive future more often choose to spend their time with a lesser-known person with whom the transfer of knowledge is possible (e.g., Fung, Carstensen, & Lutz, 1999). Thus, in the context of avarice, we might expect to observe similar shifts in goal pursuits – from extrinsic to intrinsic – after individuals face a LTP induction.

To that end, we conducted three studies to explore the effects of LTP on behavior and self-reported values among extrinsically-oriented individuals. In the first two studies, the primary dependent measure was greed, which we operationalized as the tendency to take much of a communal resource for oneself while apportioning less of this resource to others. Research has shown that greed and acquisitiveness are fruitful constructs to study when attempting to elucidate the causes and consequences of individual needs and values (Cozzolino & Snyder, 2008; Cozzolino, Staples, Meyers, & Samboceti, 2004; Kasser & Sheldon, 2000), in part because of their important implications for social-level outcomes (e.g., Sheldon & McGregor, 2000; Sheldon, Sheldon, & Osbaldiston, 2000). Our prediction for Studies 1 and 2 was that a LTP would induce less greed, particularly in extrinsically-oriented participants. Study 3 attempts to show that value reports can be directly influenced by LTP; additionally, Study 3 examines whether LTP affects individuals' level of cooperativeness in a social dilemma. Together, the three studies were designed to demonstrate that LTP really does generate an organismic reorganization of values and behaviors in the service of personal growth and intrinsic needs.

2. Study 1

We started with the hypothesis that when considering an open-ended future, participants with a high extrinsic orientation would evidence greater levels of greed than would participants with a low extrinsic orientation; conversely, we predicted that considering a limited future would diminish that avaricious tendency among highly extrinsic participants. Put in statistical terms, we expected to see an interaction such that there would be a positive relationship between extrinsic value orientation and greed in the open-ended time condition, and a significant attenuation of that relationship in the LTP condition. To experimentally manipulate these different construals, we adapted a scenario technique used in previous research (Cozzolino et al., 2004); specifically, we asked participants to read and to imagine themselves experiencing a

specific, pleasant event, either tomorrow or in the future when their time left would be limited, and then we asked them to respond to an open-ended question designed to induce a reflective inspection of their lives. Prior to the manipulation, in order to assess participants' pre-existing value orientations, we used Kasser and Ryan's (1993, 1996, 2001) Aspirations Index. This scale asks respondents to rate the importance of 30 future aspirations, assessing the relative importance participants attach to 'intrinsic' values (e.g., intimacy, community, personal growth) compared to 'extrinsic' values (e.g., money, fame, and beauty). To measure greed we counted the number of raffle tickets taken by participants in a limited-resource situation, as done in previous research (e.g., Cozzolino & Snyder, 2008; Cozzolino et al., 2004).

2.1. Method

2.1.1. Participants

Forty introductory psychology students (32 women and 8 men), ranging in age from 17 to 47 ($M = 21.88$, $SD = 6.15$) participated in the study to fulfill a course requirement. Most of the sample was Caucasian (55%), followed by Asian (20%), African-American (10%), and Latino (8%), with the remaining participants' ethnicity unknown.

2.1.2. Materials

The 30-item Aspirations Index (based on Kasser & Ryan, 1996) assessed the participants' value orientation. Fifteen of the index's items represent three domains of an extrinsic orientation, specifically money ("I will be financially successful"), fame ("I will be recognized by lots of different people"), and beauty ("My image will be one others find appealing"). The remaining 15 items address three domains of an intrinsic orientation, specifically self-acceptance ("I will know and accept who I really am"), affiliation ("I will have good friends that I can count on"), and community feeling ("I will work for the betterment of society"). Participants respond to each statement using a scale ranging from 1 (*not at all important*) to 9 (*very important*). Our sample generated a coefficient alpha of .82 for the intrinsic subscale, and .91 for the extrinsic subscale.

2.1.3. LTP manipulation

For our time perspective manipulation, participants were asked to read and imagine themselves experiencing the events described in a scenario and then to answer an open-ended question as if the events actually occurred. In the scenario, participants imagined spending the day sightseeing and shopping with a family member, before heading back to the family member's apartment for dinner and bed. To manipulate the perspective of time, half of the participants were randomly assigned to the "tomorrow condition" in which they imagined their scenario as if they were experiencing it "tomorrow" instilling a sense of an open-ended future; the remaining participants were randomly assigned to the LTP condition in which they imagined their scenario as if they were experiencing it "in the future at the age of 75". After reading the scenario, participants responded to an open-ended question that differed only in its reference to the time perspective manipulation: "Imagining an event like the one described did happen to you (tomorrow/at the age of 75), describe the life you led up to that point". This question was designed in part to enhance our time manipulations in that it required participants to place themselves in the appropriate time frame. After completing the question, participants responded to a demographic sheet. Finally, we assessed greed by counting the number of raffle tickets taken by participants in a limited-resource situation (see below).

2.1.4. Procedure and dependent measure

Participants were placed in individual rooms and provided with study packets. After completing the Aspirations Index and some filler scales, students encountered a request to read their scenario slowly, imagining they were actually experiencing the event. After responding to the open-ended question and completing the demographics sheet, students encountered an instruction page designed to look different from the previous study materials. This flyer contained the cover story regarding raffle tickets (good for a \$100 gift certificate to the school bookstore) that were used as our dependent measure of greed, a methodology that has previously been used to assess avarice (Cozzolino & Snyder, 2008; Cozzolino et al., 2004). The instructions told students that they were in the fourth wave of participants to complete our study and that as more students participated, the more the number of tickets in the envelope would diminish. Participants were instructed to “feel free to take as many tickets as you’d like, leaving those that you do not take for future participants”, and they were told that each ticket was a potential winner. The instructions added that if the envelope was empty, students would receive one ticket for the raffle. The instructions directed participants to count the number of tickets that remained in the envelope after the presumed previous three students had taken theirs. All of the envelopes contained 22 tickets despite the cover story that we were not keeping track of the number of tickets. Thus, greed was operationalized as the number of raffle tickets participants took from the envelope. Participants were left alone to take their tickets and were debriefed before leaving.

2.2. Results

2.2.1. Content analysis

Again, we theorized that our LTP manipulation would activate psychological processes suggestive of the OVP. As a type of manipulation check, we examined whether LTP participants were thinking about that which is meaningful, other-centered, and psychologically positive. Two coders, blind to condition, categorized the open-ended responses. Specifically, they coded for references to one of three content categories relevant to the OVP: *generativity* (“I was a helpful person” and “A woman who loved to help people”), *personal growth* (“I had such insight on life” and “My life would have been full of meaning”), and *positive affect* (“I think my life is a happy one” and “I lived a happy life”). For each category the raters used a binary “yes/no” system to code if the participants’ responses to the open-ended question related to the category. To assess inter-rater reliability of the content coding, we calculated a Cohen’s kappa for each of the categories; the kappas were .80 for generativity, .72 for personal growth, and .64 for positive affect.¹ All disagreements were resolved via discussion.

We then conducted chi-square tests to determine if there were differences in content between the conditions, based on the percentage of participants in each condition who made reference to each theme. These analyses revealed that significantly more participants in the LTP condition made reference to generativity themes (35%) than did participants in the tomorrow condition (6%), $\chi^2(1) = 4.50, p < .05$. Additionally, themes of personal growth were significantly more likely among LTP participants (24%) than among tomorrow participants (0%), $\chi^2(1) = 4.53, p < .05$. Finally, participants were marginally more likely to refer to experiences of posi-

tive affect in the LTP condition (47%) compared to students in the tomorrow condition (18%), $\chi^2(1) = 3.36, p = .07$.

2.2.2. Primary hypothesis test

We first explored our raffle ticket greed data for the presence of outliers, as the distributions of tickets in both conditions were positively skewed. We split the data file based on time perspective (open-ended or LTP) and regressed the number of tickets taken by each participant onto their EVO score, saving Mahalanobis distance values for each case in the file. As recommended by Meyers, Gamst, and Guarino (2006), we evaluated these distances with a chi-square critical value ($df = 1$, the number of independent variables) at $\alpha = .01$, which is 6.64. Because none of the distance values equaled or exceeded that criterion (all distances < 3.09), we concluded there were no multivariate outliers in either condition.

To test our prediction of an interaction between time perspective (open-ended vs. limited) and value orientation (low vs. high extrinsic values) on our dependent measure of greed, we used a hierarchical moderated multiple regression procedure, centering all variables (Aiken & West, 1991). In the first block of the analysis we regressed the number of raffle tickets taken by each participant onto their centered intrinsic value orientation score. In the second block we entered centered extrinsic value orientation scores, the time perspective variable (coded -1 for open-ended, 1 for LTP), and the interaction term of these main effects into the analysis. The regression analysis revealed a significant interaction between time perspective and extrinsic value orientation, while controlling for intrinsic value orientation, $\beta = -.27, b = -.005, p < .05$, with an effect size (f^2) of .13, which Cohen (1988) considered moderate in magnitude. The simple slopes of the significant interaction can be seen in Fig. 1. Analysis of the slopes revealed that the relationship between EVO and greed was significant for participants in the open-ended condition ($t = 2.52, p < .05$), whereas the relationship between EVO and greed for participants in the LTP condition was not significantly different from zero ($t = -0.53, p = .60$). To validate further our prediction that the effects would occur as a function of extrinsic value orientation, in particular, we ran a second regression using extrinsic values as the covariate in block one, and intrinsic values, time perspective, and the interaction of these two main effects in block two. As expected, this analysis revealed no main or interactive effects of intrinsic value orientation on the number of tickets taken.

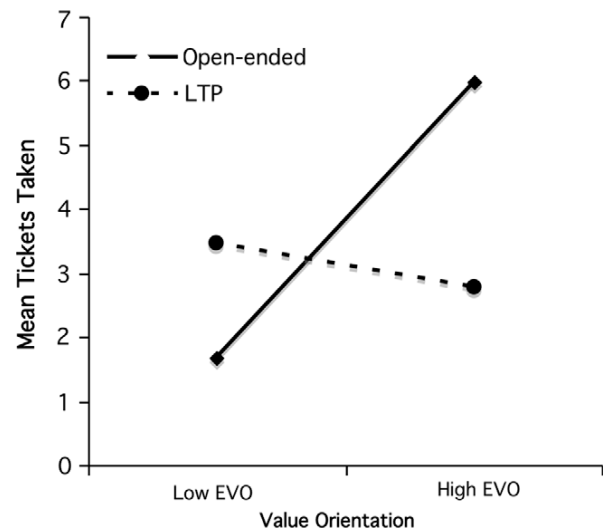


Fig. 1. Study 1: Mean number of tickets taken as a function of time perspective and extrinsic value orientation, controlling for intrinsic value orientation (high EVO = +1 SD, low EVO = -1 SD; time coded, -1 = open-ended, 1 = limited).

¹ The content analysis for Study 1 was performed on 34 cases, rather than the total number of 40 cases in the study, as open-ended data sheets were misplaced for 3 participants in the “tomorrow” condition and 3 participants in the LTP condition. The main EVO X LTP hypothesis analyses reported for the full sample remain significant when tested on these 34 cases.

2.3. Study 1 discussion

We predicted that in the open-ended future condition, participants with a high EVO would demonstrate greater levels of greed than would participants with a low EVO, replicating typical results concerning the EVO measure. However, we predicted that when high EVO participants were induced to consider a scenario as it would occur for them at the age of 75 – thus instilling a sense of a limited future – they would be less greedy, which the results confirmed. This reduction in greed among high EVO/LTP participants supports our inference that limited time can change peoples' behavioral priorities, especially among people whose priorities are currently unfulfilling or overly self-centered (e.g., Kasser, 2002). Further supporting this inference is the content analysis revealing that participants in the LTP condition wrote about more themes of generativity, personal growth, and positive affect.

Despite our inference that it was a limited time perspective that led to behavioral change among extrinsic individuals in Study 1, there is an alternative explanation that needs to be tested. In particular, the effect might have had more to do with concerns of mortality than with maximizing a limited future; asking college undergraduates to imagine themselves at the age of 75 may be analogous to asking them to think about death. Thus, we felt it was important to show that LTP effects observed in Study 1 were due to the consideration of a limited future, rather than due to subtle reminders of mortality. To that end, we designed Study 2.

3. Study 2

Research based on terror management theory (Greenberg et al., 1986) has shown that reminding individuals of their mortality-related insecurities can reinforce many of the attitudes and behaviors that would be classified as negative and defensive. Kasser and Sheldon (2000), for example, showed that individuals asked to think about death via a mortality salience manipulation expected to be worth more money in the future, to spend more money for pleasure, and showed a greater propensity for greed. This finding was replicated by Dechesne et al. (2003; Study 2), but only among men. Using similar techniques, Cozzolino et al. (2004; Study 3) reported higher levels of greed as a result of mortality salience, but only among participants classified as high EVOs; participants classified as low EVOs in this research were unaffected by mortality salience.

With this in mind, we predicted that high EVO participants would evidence greater levels of greed than would low EVO participants when responding to a standard, "time unspecified" mortality salience manipulation. Additionally, we predicted that responding to a mortality salience manipulation framed in the future, thus creating a limited time perspective, would generate an organismic realignment of value-based behavior among high EVOs evidenced as lower levels of greed. In short, in Study 2 mortality was made salient for all participants; what varied was whether the time of death was unspecified as in typical mortality salience manipulations (in which greed among high EVOs was predicted) or specified to be impending due to limited time (in which a low level of greed among high EVOs was predicted). To find that the latter condition differs from the former would support our contention that LTP is something more than conventional mortality salience.

3.1. Method

3.1.1. Participants

Fifty-eight introductory psychology students (46 women and 12 men), ranging in age from 17 to 47 ($M = 21.90, SD = 6.71$) participated in the study to fulfill a course requirement. Most of the sample was Caucasian (53%), followed by Asian (21%), Latino (10%), and African-American (3%), with the remaining participants' ethnicity unknown.

3.1.2. Materials

To assess the participants' value orientation, we administered the same 30-item Aspirations Index (based on Kasser & Ryan, 1996) that was used in Study 1. This sample generated a coefficient alpha of .82 for the intrinsic subscale and .94 for the extrinsic subscale.

3.1.3. Manipulations

To assess the effect of time perspective on mortality salience effects, participants were randomly assigned to answer one of two open-ended questions after completing the Aspirations Index. Participants in the 'open-ended future' (i.e., standard) mortality salience condition responded to this question: "In as many words and in as much detail as possible, please describe the thoughts, feelings, and emotions you experience when thinking about death" (Cozzolino et al., 2004). Participants in the LTP mortality salience condition responded to this question: "Imagine it is now the future and that you are 75 years old. Although you are healthy, you do realize your life is in its final stage. In as many words and in as much detail as possible, please describe the thoughts, feelings, and emotions you would experience at this age when thinking about death". Thus, the LTP condition included two additional sentences prior to the mortality salience manipulation, which placed them in a late stage of life with limited time remaining. After responding to the open-ended question, and filling out a demographic sheet, participants were exposed to the same flyer from the first study informing participants about the raffle tickets, which we again used to assess greed.²

3.1.4. Procedure

In the same manner as Study 1, we ran participants through this study in individual rooms. After participants completed all of the packet scales and the open-ended questions and then took their raffle tickets they were debriefed. Following data collection, we randomly selected a single raffle ticket so we could award a student the gift certificate.

3.2. Results

3.2.1. Content analysis

Based on the Study 1 results, we expected that our LTP manipulation would lead to more consideration of what is meaningful, contributory, and psychologically positive, compared to students reflecting on death without a LTP. Two coders categorized the open-ended responses from participants into the same three content categories used in Study 1, namely, generativity, personal growth, and positive affect. To assess inter-rater reliability of the content coding, we calculated a Cohen's kappa for each of the categories; the kappas were .86 for generativity, .71 for personal growth, and .70 for positive affect. All disagreements were resolved via discussion.

We then conducted chi-square tests to determine if there were differences in content between the conditions. These analyses revealed that significantly more participants in the LTP mortality condition (37%) made reference to generativity themes than did participants in the open-ended mortality condition (7%), $\chi^2(1) = 7.26, p < .05$. Additionally, themes of personal growth were significantly more likely among LTP participants (47%) than among

² Typically, mortality salience effects are thought most likely to occur if the dependent measures are assessed after a short delay from the time participants complete the manipulations. Replicating the raffle/greed procedure of Cozzolino et al., (2004) and Cozzolino and Snyder (2008), the process of completing the demographic sheet, receiving the raffle instructions, reading the lengthy instructions, and addressing any questions the participants might have regarding the raffle, satisfied this standard mortality salience delay.

open-ended participants (4%), $\chi^2(1) = 14.03, p < .05$. Finally, participants were significantly more likely to refer to experiences of positive affect in the LTP condition (60%) compared to students in the open-ended condition (14%), $\chi^2(1) = 12.86, p < .05$.

3.2.2. Primary hypothesis test

We explored our raffle ticket greed data for the presence of outliers, as the distributions of tickets in both conditions were again positively skewed. Thus, we split the data file based on time perspective and regressed the number of tickets taken by each participant onto their EVO score, saving Mahalanobis distance values. As recommended by Meyers et al. (2006), we evaluated these distances with a chi-square critical value ($df = 1$, the number of independent variables) at alpha $p = .01$, which is 6.64. Because none of the distance values equaled or exceeded that criterion (all distances < 4.78), we concluded there were no multivariate outliers in either condition.

To analyze the interactive effects of time perspective (open-ended vs. limited) and value orientation (low vs. high EVO) on our dependent measure of greed, we again used a hierarchical moderated multiple regression procedure, centering all variables (Aiken & West, 1991). In the first block of the analysis we regressed the number of raffle tickets taken by each participants onto their centered intrinsic value orientation score. In the second block we entered centered extrinsic value orientation scores, the time perspective variable (coded -1 for open-ended, 1 for LTP), and the interaction term of these main effects into the analysis. The regression revealed a significant interaction between time perspective and extrinsic value orientation, while controlling for intrinsic value orientation, $\beta = -.23$ ($b = -.04$), $p < .05$, with an effect size (f^2) of .14, which Cohen (1988) considered moderate in magnitude. The simple slopes of this interaction can be seen in Fig. 2. Analysis of the slopes revealed that the positive relationship between EVO and greed was significant for participants in the open-ended mortality salience condition ($t = 2.72, p < .05$), whereas the relationship between EVO and greed for participants in the LTP mortality salience condition was not significantly different from zero ($t = -1.23, p > .20$). A second regression using extrinsic values as the covariate in block one, and intrinsic values, time perspective, and the interaction of these two main effects in block two revealed

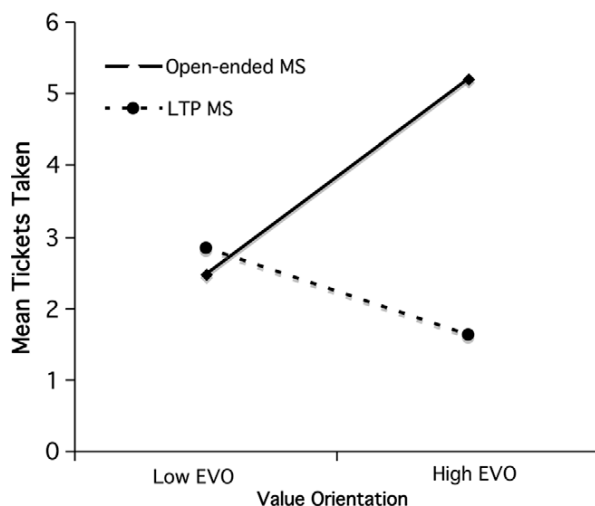


Fig. 2. Study 2: Mean number of tickets taken as a function of time perspective and extrinsic value orientation, controlling for intrinsic value orientation (high EVO = +1 SD, low EVO = -1 SD; time coded, -1 = open-ended, 1 = limited). MS = mortality salience.

no main or interactive effects of intrinsic value orientation on the number of tickets taken.

3.3. Study 2 discussion

We predicted that participants classified as high EVOs, in response to a standard, open-ended mortality salience manipulation, would evidence greater levels of greed than would participants classified as low EVOs, conceptually replicating typical mortality salience effects (Cozzolino et al., 2004; Kasser & Sheldon, 2000). More important, we predicted that asking participants to respond to a mortality salience manipulation as if they had a limited future would lead to lower levels of greed among high EVOs. The results of Study 2 support both of these predictions and suggest that the LTP effects observed in Study 1 among high EVOs were not driven by concerns of mortality, at least as primed via a conventional mortality salience manipulation; in fact, Study 2 suggests that the effects of a LTP can attenuate the avaricious pursuits of highly extrinsic individuals that are amplified by mortality salience manipulations. To be clear, the design of Study 2 precludes further discussion of the effects of mortality salience on greed, as all participants were exposed to a question regarding death, and thus there was no non-mortality control group for comparison. The matter of concern, however, was whether the reduction of greed observed in Study 1 after exposure to a LTP was the result of LTP acting as a subtle manipulation of mortality; the effects of Study 2 seem to address this issue clearly, as pairing a LTP with mortality salience attenuated greed, relative to a standard mortality salience condition, rather than heightening the need to take more tickets.

Standard mortality salience manipulations ask participants to think about death without any specific mention of time remaining; thus, although participants are considering death, they are probably not imagining that it is imminent. In contrast, our LTP manipulation instructed participants to imagine their own impending death in a way that brings it much closer, inducing a sense of limited time. These effects also support recent theorizing that predicts differential effects of abstract, time-nonspecific considerations of death (i.e., conventional mortality salience) compared to considerations of a specific, individuated death (Cozzolino, 2006; Cozzolino et al., 2004; for related effects see Kosloff & Greenberg, 2009). Whereas this previous work has relied upon dramatic visualizations of actual death scenarios to induce value-related shifts in behavior, Study 2 demonstrates that even subtle frames of LTP are capable of generating non-defensive behavior after mortality salience.

Still unaddressed, however, is the concern that our LTP manipulations thus far have asked participants to project themselves into the distant future. How can we show that a limited time factor is the active ingredient, independent of a distant time factor? We conducted Study 3 in part to address this concern.

4. Study 3

Another potential explanation for the value-based behavior changes as a function of LTP observed in the first two studies comes from Trope and Liberman's (2003) construal level theory. According to construal level theory, individuals change their mental representations of events as a function of the temporal distance between the present and future events. Specifically, Trope and Liberman assert that individuals rely on 'high-level' construals to represent distant-future events, whereas individuals rely on 'low-level' construals to represent near-future events. Low-level construals are thought to consist of representations that are concrete, unstructured, incoherent, superficial, subordinate, and goal irrelevant. High-level construals are thought to consist of representations that are abstract, structured, coherent, primary or core,

superordinate, and goal relevant; thus, a temporally distant perspective allows individuals to see the big picture. The processes underlying construal level theory seem broadly consistent with our proposed effect – individuals induced to imagine events in the distant future rely on mental models that enable them to extract the perceived essence of the events. To be clear, construal level theory does not necessarily assume that future-focused people change *what* they value (e.g., extrinsic goals today, but intrinsic goals in the future), only that their cognitive representations of a particular attitude object change, as a function of temporal focus; despite this, construal level theory provides yet another framework for us to explore the value-based effects of LTP.

We designed Study 3 to approach the research issues in a manner different from the first two studies, by evaluating the effects of LTP upon value endorsements themselves. In other words, whereas Studies 1 and 2 assessed values *prior* to the manipulation and then evaluated the moderating effect of time perspective on value-relevant behavior, in Study 3 we assessed values *after* the manipulation, to see whether the manipulation of time perspective might affect self-reported values directly. We expected that it would, given our assumption that taking a LTP causes people to refocus their attention away from extrinsic distractions, in favor of what is most important and meaningful. The current study may be thought of as testing whether inducing a LTP can serve as a beneficial manipulation that shifts people away from extrinsic values (Sheldon, Arndt, & Houser-Marko, 2003).

To manipulate LTP without a clear reference to a distant future (as in the first two studies), we asked participants to respond to the value items while either imagining that they have at least 50 years to live (i.e., open-time perspective) or that they only have 6 months to live (i.e., limited time). Thus, both of these manipulations put participants in the present rather than the future, with either a long time or a short time left to live. We hypothesized that participants facing LTP would imagine themselves weighting extrinsic values less than would open-time students.

As a second way of testing the idea that LTP activates a positive valuing process, we also assessed social value orientation (Messick & McClintock, 1968; Van Lange & Kuhlman, 1994), which is based on prisoner's dilemma theory. In this methodology, participants choose between different combinations of point-allotments to self and to an imagined paired other. Those who use a "maximize own gain, regardless of the other's allotment" decision algorithm are classified as individualists; those who use a "maximize own gain relative to the other's allotment" algorithm are classified as competitors; and those who use a "maximize the joint gain of self and other" algorithm are classified as cooperators (Van Lange & Kuhlman, 1994). Individualists tend to take the most possible points for themselves, regardless of how many the other person gets; competitors tend to take less than the maximum possible points because they are more focused on exceeding the other person's points by the greatest amount; and cooperators tend to take less than the maximum because they want a more equal apportionment between self and other.

4.1. Participants and procedure

Initial participants were 222 students in an introductory psychology course, 137 men and 85 women, who took part to help satisfy a course requirement. However, we restricted the study to the 189 participants who were classifiable on the Social Value Orientation measure (see below). Participants ranged from 18 to 24 in age, and were 85% Caucasian, 8% African-American, 3% Asian, 3% Latino/Latina, and 1% 'other'. The time perspective and values manipulations were embedded in a larger questionnaire. Participants completed one of two different versions of the questionnaire.

4.2. Manipulation and measures

4.2.1. LTP manipulation

Eighty-four of the 189 participants read the following instruction, which was our LTP manipulation: "The questions below ask you to rate the importance of various future goals. In answering these questions, please imagine that you have only six months to live. That is, you have received a diagnosis of a terminal disease that makes it unlikely you will survive more than a few months. In this case, what goals would be most important to you?" In contrast, 105 of the participants were asked to rate the importance of various future goals with the following instruction, which was the open-ended time perspective manipulation: "Imagine that you have a full 50 years to live. That is, imagine that you could know, for sure, that you have at least 50 more years of life. In this case, what goals would be most important to you?" Of course, the latter condition represents the actual state of affairs for nearly all of these college student participants, and thus it serves as an excellent baseline and control condition.

4.2.2. Extrinsic values measure

Participants then responded to the 30 statements of the Aspirations Index (based on Kasser & Ryan, 1996), the same measure used in Studies 1 and 2. Alphas were .94 for the intrinsic items and .90 for the extrinsic items.

4.2.3. Social value orientation measure

We used the nine-item measure of social value orientation that was used by Van Lange, De Bruin, Otten, and Joireman (1997). Each item of this measure presents participants with three pairs of points that could be allotted to self and other. Participants are asked to choose which of the three pairings they prefer, for whatever reason. One of the pairings represents a cooperative allocation (both self and other receive equal amounts). Another of the pairings represents a competitive allocation (the self receives much more than the other). The third pairing represents an individualist allocation (the self receives the most in absolute terms, irrespective of what the other participant receives). Participants are typed as cooperators, competitors, or individualists if they make at least five out of nine choices consistent with that particular orientation. While completing the measure, participants were asked to continue imagining that they had either 50 years or only six months to live. Only 189 of the 222 participants were classifiable as one of the three social value orientation types (this non-classifiability rate is typical for social value orientation research, and probably reflects some participants' inattention and inconsistency in responding to the scenarios).³

4.3. Results

To test our hypothesis that LTP would have positive effects upon peoples' hypothetical value endorsements, we conducted an independent samples *t*-tests for each of the six value domains assessed with the Aspirations Index: community, intimacy, growth, money, beauty, and fame (coefficient alphas for the six subscales ranged from .72 to .92). We then examined mean differences in these domains as a function of time perspective, using *t*-tests. These analyses revealed highly significant differences in all three extrinsic values (all three *ps* < .001) such that hypothetical extrinsic scores for limited-time participants were lower than the scores for open-ended participants (Cohen's *ds* = .52, .40, and .29 for money, beauty, fame). The analyses also revealed no significant

³ Van Lange et al. (1997) reported non-classification rates of 20%, 11%, and 14% across three studies, in line with the 15% rate in our Study 3.

differences among the three intrinsic values (all $ps > .26$) as a function of time perspective. This provides clear support for our starting assumption that LTP provides a way to reduce self-centered concerns.

The social value orientation data were analyzed next. Table 1 contains the number of participants classified as cooperators, competitors, and individualists in each condition. A chi-square test revealed a significant omnibus difference by time perspective condition [$\chi^2(2) = 6.10, p < .05$, Cohen's $w = .39$]. These differences were focused in the individualist category; as illustrated in Table 1, only 18 participants were classifiable as individualists in the LTP condition, whereas 40 participants were classifiable as individualists in the open-time condition. We conducted a second chi-square test simply contrasting individualists against non-individualists; this test was also significant [$\chi^2(1) = 6.09, p = .01$, Cohen's $w = .39$]. In addition, we conducted a third chi-square test contrasting "proselfs" (individualists or competitors) against "prosocials" (cooperators; see Van Lange & Semin-Goossens, 1998). This test was also significant [$\chi^2(1) = 5.07, p = .02$, Cohen's $w = .38$].

4.4. Study 3 discussion

In Study 3, we shifted our focus from the prediction of greed as a function of values and LTP to the prediction of imagined values themselves as a function of LTP. We reasoned that if taking a LTP truly activates processes that allow for reassessing and recalibrating values, then it should directly affect what people assume they would value given their limited time. Results indicate that thinking about having only six months to live does not change peoples' endorsements of intrinsic values, which were relatively high in both conditions. However, imagining that they only had six months to live strongly reduced peoples' hypothetical endorsement of extrinsic values. Notably, extrinsic values are generally endorsed less favorably than intrinsic values by people of all ages, ethnicities, and cultures (Kasser, 2002). What Study 3 reveals is that extrinsic values are rendered even more unattractive when people imagine that their time is limited. Thus, conceptually replicating the effects of Studies 1 and 2 – in that only extrinsic values and not intrinsic values were implicated in the process – Study 3 provides clear support for our starting assumption that LTP provides a way to reduce specifically self-centered concerns.

Study 3 also provided a second type of new evidence for our presumptions about LTP, by showing that people adopting a LTP were less likely to make proself choices in a decomposed prisoner's dilemma. That is, they were less likely to favor the options that gave themselves the most possible points, instead tending toward options that gave themselves and others equal points. Given that social dilemmas are best resolved when people take a cooperative approach (Axelrod, 1984; Sheldon, 1999), this suggests that taking a LTP can even help people resolve social dilemmas.

5. General discussion

These three studies provide strong evidence for the effects of limited time perspective on greed, value reports, and social cooperation. Specifically, we have shown that inducing a sense of limited time can attenuate greed among those individuals most inclined to

take more than their fair share, and can diminish the importance placed on extrinsic values in general. Moreover, we observed these effects reliably across several different manipulations of LTP. In Study 1 we asked participants to project themselves far into the future, creating an imagined perspective of limited time; in Study 2 we demonstrated that mortality salience combined with a LTP induced less greed than a conventional mortality salience manipulation; and in Study 3 we employed the most direct manipulation of LTP, largely independent of future time perspective, and found that the manipulation could lead to decreases in both hypothetical extrinsic and individualist social values. Thus, manipulating LTP in multiple ways demonstrated consistent results on a range of dependent measures, including behavioral greed, content covered in open-ended writings, social cooperation, and hypothetical value endorsement; all of this in support of our inference that among individuals who are predominately focused on satisfying extrinsic goals, a LTP can move them away from extrinsic pursuits.

5.1. Relevant theories

5.1.1. Organismic valuing process

As stated earlier, we based our work on a series of relevant theories, with an emphasis on the theorizing of Rogers (1951, 1964). Rogers posited that people have an innate ability to detect what is meaningful to them and to realize what is essential for a more fulfilling life. The OVP, according to Rogers, is a mindful process of people evaluating their experiences and actions to determine whether they are actualizing; if as a result of this process individuals come to realize that they are not pursuing personally meaningful goals, they can become motivated to correct the situation. Rogers also suggested that people can be 'out of touch' with their OVP such that they are not aware of their own true feelings and growth impulses. Such people often live in 'false selves' in that they are wedded to inaccurate self-concepts that do not represent who they really are, at a deeper level; our research suggests that taking a LTP is just one way for individuals to activate a dormant OVP. Furthermore, Rogers suggested that non-contingent positive regard from important others could help such people to reactivate or re-establish contact with their OVP. Indeed, this assumption is the basis of nearly all forms of person- or client-centered therapy – by listening in an open and non-judgmental manner, the skilled therapist helps the client to reconsider who he or she is, and what is most important to him or her. Moreover, Joseph and Linley (2005, 2006) have made strong use of the OVP concept recently to discuss its utility in clinical practice, especially focusing on psychological well-being and growth after the experience of adversity.

5.1.2. Socioemotional selectivity theory

Closely related to a humanistic perspective on value change as a function of LTP is research supporting socioemotional selectivity theory (Carstensen, 1995; Carstensen et al., 1999). Socioemotional selectivity theory posits that people pursue goals for one of two basic reasons, either for the pursuit of knowledge or for the regulation of emotions. More important, the theory predicts that the manner in which individuals perceive time (either as open-ended or as limited) directly relates to the pursuit of these goals. Research supporting socioemotional selectivity theory has focused mainly on cross-sectional designs comparing the responses of young participants to the responses of older participants, but it has also demonstrated similar results with experimental techniques designed to instantiate a sense of limited-time in young participants (Carstensen et al., 2000; Fung & Carstensen, 2004). The most common dependent measure employed by socioemotional selectivity theorists is the choice of an interaction partner made by participants after imagining themselves in a scenario. More recent work has demonstrated so-called "positivity effects" related to

Table 1
Study 3: effects of LTP upon social value orientation classifications.

| | 50 Years to live | 6 months to live |
|---------------------|------------------|------------------|
| # Of cooperators | 61 | 62 |
| # Of competitors | 4 | 4 |
| # Of individualists | 40 | 18 |

socioemotional selectivity theory, such that older participants exhibited enhanced cognitive performance for emotional information compared to non-emotional information, particularly when that emotional content was positive rather than negative in nature (Carstensen & Mikels, 2005).

There is clear overlap between the LTP effects reported in this paper and predictions that would be derived from socioemotional selectivity theory. Socioemotional selectivity theory posits that goals are always set in a temporal context and that when constraints on time are perceived, goals are reorganized. When time is perceived as limited, the theory states, priority is placed on emotionally-meaningful goals (often demonstrated in the choice of spending time with a familiar or loved interaction partner); conversely, when time is perceived as open-ended, individuals focus more on goals that expand horizons or result in informational advantages. Although we did not assess emotionally-focused interaction goals, per se, those sorts of values are inherent in the intrinsic subscale of the aspirations index used in all of our studies (i.e., community and intimacy).

5.1.3. Existential theories

Research supporting terror management theory (Greenberg et al., 1986) has demonstrated how an overwhelming fear of death motivates individuals to behave in a manner that serves the function of assuaging that fear. Terror management research shows that when mortality is made salient, individuals become more likely to adhere to external demands and to defend their cultural worldviews. Additionally, this research shows that previously adopted values as well as beliefs are likely to become viewed as more meaningful after reminders of mortality.

It should be noted that evidence supporting terror management theory in the domain of positive value shifts is not entirely clear. On the one hand, Kasser and Sheldon (2000) and Dechesne et al. (2003; Study 2) have shown that reminders of death via a traditional mortality salience manipulation can generate in participants a greater propensity for extrinsic valuing and for greed. Additionally, Cozzolino et al. (2004) demonstrated effects similar to those presented in Study 2, in that a standard mortality salience manipulation generated increased avarice among those who were more likely to value wealth in general. On the other hand, Joireman and Duell (2005) showed that proself participants, who typically take as much as possible for themselves in a social dilemma without regard for others, were especially likely to endorse self-transcendent issues (e.g., world at peace, protecting the environment, and social justice) after mortality was made salient, compared to a proself control group. Similarly, Cozzolino et al. (2004) employed a variation on the typical mortality salience manipulation (i.e., death reflection) and observed significant decreases in greed among extrinsically-oriented participants. Although more work is needed to disentangle the underlying processes of these different methods of death awareness, when taken together, the positive effects observed by Joireman and Duell (2005, 2007), the growth-related tendencies observed by Cozzolino et al. (2004), and the effects reported in our Study 2, suggest that there are situations and contexts in which individuals can face mortality and refocus their desires from the selfish to the prosocial.

5.1.4. Construal level theory

In addition to humanistic, life-span, and existential accounts of our limited time perspective, we also can understand these effects via the cognitive framework, construal level theory (Trope & Liberman, 2003). As stated earlier, the theory posits that individuals refocus their attention to different features of events as a function of the temporal distance between the present and future events; individuals induced to imagine events in the distant future rely on more abstract mental models (i.e., considering “the big picture”)

to represent those events and as a result they construe the future in more meaning-based terms. By and large, construal level theorists have explored the effects of time construal on cognitive phenomena such as categorization processes, the complexity of event descriptions, and peoples' predictions about future events (Liberman & Trope, 1998; Trope & Liberman, 2003). Despite our focus on the values that individuals endorse (i.e., extrinsic values) and the behaviors that manifest those values (i.e., greed), rather than on cognitive processes, the basic postulates of construal level theory (i.e., that future events are construed differently than present events) are generally consistent with our conception of the effects of LTP. Clearly, future research is needed to understand how the processes underlying our humanistic perspective overlap with the cognitive predictions of construal level theory, as well as how the two perspectives may differ.

5.2. Implications and limitations

The current studies present a limited time perspective manipulation that has the potential to evoke a reassessment of values and behaviors, especially among individuals who are currently focusing most intently on extrinsic values. Although more research is needed to elucidate the underlying properties and mechanisms of the effect, and to distinguish – when possible – among the relevant theories incorporated in this paper, we believe the effect is quite useful for understanding peoples' ability to make generally adaptive choices, given supportive conditions. People do not simply choose randomly, or in a vacuum – instead, they have at least potential access to accurate internal state information which can supply positive guidance (Kuhl & Baumann, 2000). More work is clearly needed to demonstrate that such OVP activation takes place and to show that the process is a function of attending to internal cues, as predicted by Rogers (1951), rather than a process of attending to external cues such as social schemas of what is expected. Future research should also explore the scope of the effect, to determine what other outcomes may be affected by a LTP (e.g., volunteering and resolving interpersonal conflict).

One important question not answered by the current data is: Do the positive growth-inducing effects of LTP persist over time, and if so, for how long? In other words, was the reduced greed observed in extrinsic participants the beginning of a long-term change toward intrinsic behavior, or rather simply a short-term reaction to a compelling manipulation? Although previous work (Sheldon et al., 2003) has shown that initial positive value changes can remain stable for up to three months, obviously, longitudinal follow-ups to the studies reported herein would be desirable. It is likely that for lasting change to occur, people would have to continue taking a LTP following the experimental session, so that it became habit (Lyubomirsky, Sheldon, & Schkade, 2005). There is evidence that such ‘positive mental exercises’ can indeed be made habitual by some participants, to their own benefit (Sheldon & Lyubomirsky, 2006).

Across all three studies there is the potential that demand characteristics played a role in the decisions made by participants. This explanation, however, requires that our manipulations only “pulled” for less greed in the LTP condition and only from those high in EVO in the first two studies. It is unclear to us a) why high EVOs would be more susceptible to those demands, and b) how asking them to imagine themselves at age 75 would alert them to modify their behavior in order to appease our expectations of LTP. Additionally, it is possible that LTP participants in Study 3 may somehow have felt “pushed” to reduce their extrinsic value reports. However, the fact that these same participants did not increase their intrinsic value reports, compared to open-ended participants (which could be seen as a more desirable behavior), suggests to us that the effect of LTP was a genuine attenuation in the value placed

on extrinsic pursuits, as predicted. Although there is no way to rule out this concern with certainty, we believe the effects reported herein are best explained by our theory-based expectations of value reassessment as a function of LTP.

In terms of our measure of avarice, it is true that any operational definition of a construct as complex and potentially value-laden as “greed” may fall short or may tap other constructs besides the target construct. In response to this we can only point to the face validity of using a behavioral measure of excessive taking for oneself as a measure of greed, and the record of published work that has employed this measure (Cozzolino et al., 2004; Cozzolino & Snyder, 2008). No doubt other operations of greed need to be employed in future research to validate further the inferences made in this paper; in this light, our Study 3 finding that limited time perspective effects a different measure of greed (choosing more points for self in a social dilemma), does provide alternative support for our thesis.

Finally, future research will need to explore the effects of LTP on more diverse samples than those used in our studies. In the context of university students, similar research should be conducted on non-psychology students (e.g., business students); it may be that, compared to other populations, psychology students are especially likely to endorse intrinsic values. It should be noted that Vansteenkiste, Duriez, Simons, and Soenens (2006) have shown that placing too much emphasis on extrinsic values is just as detrimental for business students as it is for non-business students. Future research will also need to explore the effects of LTP using methods other than experimental, and on a non-University student sample. Experimental manipulations such as those presented herein can only go so far to explain processes of growth and value change. As socioemotional selectivity researchers have done, it will be necessary to explore psychological reassessments of extrinsic valuing and related behavior as a function of limited time in samples that compare participants of varying age.

5.2.1. Conclusion

We began this article considering the adage that peoples' values change when time is limited. The data presented in this paper indicate that this notion is more than just an adage – inducing a LTP can indeed lead to behavioral changes (i.e., less greed) among those who start out with more extrinsic and materialistic values. Moreover, inducing a LTP can directly affect peoples' hypothetical value endorsements themselves, shifting people away from extrinsic and self-centered values. Thus, it appears that taking a LTP can help people to optimize their own potentially limited time, making the most meaningful choices now, instead of in some unspecified future.

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References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science*, 4, 151–156.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181.
- Carstensen, L. L., & Mikels, J. A. (2005). At the intersection of emotion and cognition: Aging and the positivity effect. *Current Directions in Psychological Science*, 14, 117–121.
- Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselrode, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology*, 79, 644–655.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Cozzolino, P. J. (2006). Death contemplation, growth, and defense: Converging evidence of dual-existential systems? *Psychological Inquiry*, 17, 278–287.
- Cozzolino, P. J., & Snyder, M. (2008). Good times, bad times: How personal disadvantage moderates the relationship between social dominance and efforts to win. *Personality and Social Psychology Bulletin*, 34, 1420–1433.
- Cozzolino, P. J., Staples, A. D., Meyers, L. S., & Samboceti, J. (2004). Greed, death, and values: From terror management to “transcendence management” theory. *Personality and Social Psychology Bulletin*, 30, 278–292.
- Dechesne, M., van Knippenberg, A., Pyszczynski, T., Arndt, J., Sheldon, K. M., Ransom, S., et al. (2003). Literal and symbolic immortality: The effect of evidence of literal immortality on self-esteem striving in response to mortality salience. *Journal of Personality and Social Psychology*, 84, 722–737.
- Erikson, E. (1963). *Childhood and society*. New York: Norton.
- Fung, H. H., & Carstensen, L. L. (2004). Motivational changes in response to blocked goals and foreshortened time: Testing alternatives to socioemotional selectivity theory. *Psychology and Aging*, 19, 68–78.
- Fung, H. H., Carstensen, L. L., & Lutz, A. M. (1999). Influence of time on social preferences: Implications for life-span development. *Psychology and Aging*, 14, 595–604.
- Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of the need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 189–212). New York: Springer-Verlag.
- Joireman, J., & Duell, B. (2005). Mother Teresa versus Ebenezer Scrooge: Mortality salience leads proselves to endorse self-transcendent values (unless proselves are reassured). *Personality and Social Psychology Bulletin*, 31, 307–320.
- Joireman, J., & Duell, B. (2007). Self-transcendent values moderate the impact of mortality salience on support for charities. *Personality and Individual Differences*, 43, 779–789.
- Joseph, S., & Linley, P. A. (2005). Positive adjustment to threatening events: An organismic valuing theory of growth through adversity. *Review of General Psychology*, 9, 262–280.
- Joseph, S., & Linley, P. A. (2006). Growth following adversity: Theoretical perspectives and implications for clinical practice. *Clinical Psychology Review*, 26, 1041–1053.
- Kasser, T. (2002). *The high price of materialism*. Cambridge, MA: MIT Press.
- Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology*, 65, 410–422.
- 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.
- Kasser, T., & Ryan, R. M. (2001). Be careful what you wish for: Optimal functioning and the relative attainment of intrinsic and extrinsic goals. In P. Schmueck & K. M. Sheldon (Eds.), *Life goals and well-being: Towards a positive psychology of human striving* (pp. 116–131).
- Kasser, T., & Sheldon, K. M. (2000). Of wealth and death: Materialism, mortality salience, and consumption behavior. *Psychological Science*, 11, 348–351.
- Kosloff, S., & Greenberg, J. (2009). Pearls in the desert: Death reminders provoke immediate derogation of extrinsic goals, but delayed inflation. *Journal of Experimental Social Psychology*, 45, 197–203.
- Kuhl, J., & Baumann, N. (2000). Self-regulation and rumination: Negative affect and impaired self-accessibility. In W. Perrig & A. Grob (Eds.), *Control of human behavior, mental processes, and consciousness: Essays in honor of the 60th birthday of August Flammer* (pp. 283–305). Mahwah, NJ, US: Lawrence Erlbaum Associates, Inc.
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75, 5–18.
- Lyubomirsky, S., Sheldon, K., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111–131.
- Messick, D. M., & McClintock, C. G. (1968). Motivational bases of choice in experimental games. *Journal of Experimental Social Psychology*, 4, 1–25.
- Meyers, L. S., Gamst, G., & Guarino, A. J. (2006). *Applied multivariate research: Design and interpretation*. Thousand Oaks, CA: Sage.
- Midlarsky, E., & Kahana, E. (1994). *Altruism in later life*. Thousand Oaks, CA: Sage.
- Rogers, C. R. (1951). *Client-centered therapy; its current practice, implications, and theory*. Boston: Houghton Mifflin.
- Rogers, C. R. (1964). Toward a modern approach to values: The valuing process in the mature person. *Journal of Abnormal & Social Psychology*, 68, 160–167.
- Sheldon, K. M. (1999). Learning the lessons of tit-for-tat: Even competitors can get the message. *Journal of Personality and Social Psychology*, 77, 1245–1253.
- Sheldon, K. M., Arndt, J., & Houser-Marko, L. (2003). In search of the organismic valuing process: The human tendency to move towards beneficial goal choices. *Journal of Personality*, 71, 835–869.
- Sheldon, K. M., & Kasser, T. (2001). Getting older, getting better? Personal strivings and psychological maturity across the life span. *Developmental Psychology*, 37, 491–501.
- Sheldon, K. M., & Lyubomirsky, S. (2006). How to increase and sustain positive emotion: The benefits of expressing gratitude and visualizing best possible selves. *The Journal of Positive Psychology*, 1, 73–82.
- Sheldon, K. M., & McGregor, H. A. (2000). Extrinsic value orientation and “the tragedy of the commons”. *Journal of Personality*, 68, 383–411.
- Sheldon, K. M., Sheldon, M. S., & Osbaldiston, R. (2000). Prosocial values and group-assortation within an N-person prisoner's dilemma. *Human Nature*, 11, 387–404.

- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110, 403–421.
- Van Lange, P. A. M., De Bruin, E. M. N., Otten, W., & Joireman, J. A. (1997). Development of prosocial, individualistic, and competitive orientations: Theory and preliminary evidence. *Journal of Personality and Social Psychology*, 73, 733–746.
- Van Lange, P. A., & Kuhlman, D. M. (1994). Social Value Orientations and impressions of partner's honesty and intelligence. A test of the might versus morality effect. *Journal of Personality and Social Psychology*, 67, 126–141.
- Van Lange, P. A. M., & Semin-Goossens, A. (1998). The boundaries of reciprocal cooperation. *European Journal of Social Psychology*, 28(5), 847–854.
- Vansteenkiste, M., Duriez, B., Simons, J., & Soenens, B. (2006). Materialistic values and well-being among business students: Further evidence of their detrimental effect. *Journal of Applied Social Psychology*, 36, 2892–2908.