

EXTRINSIC AND INTRINSIC VALUES, FORECASTS, AND EXPERIENCES: AN
EXPERIMENTAL APPROACH

A Thesis presented to the Faculty of the Graduate School
University of Missouri

In Partial Fulfillment
Of the Requirements for the Degree

Master of Arts

by

CHARLES P. NICHOLS

Dr. Kennon M. Sheldon, Thesis Supervisor

JULY, 2009

The undersigned appointed by the Dean of the Graduate School, have examined the thesis
entitled

EXTRINSIC AND INTRINSIC VALUES, FORECASTS, AND EXPERIENCES: AN
EXPERIMENTAL APPROACH

Presented by Charles P. Nichols

A candidate for the degree of Master of Arts

And hereby certify that in their opinion it is worthy of acceptance.

Professor Kennon M. Sheldon

Professor Laura A. King

Professor Denis M. McCarthy

Professor Daniel B. Turban

ACKNOWLEDGEMENTS

Thanks to my advisor Ken Sheldon, the members of my committee, Laura King, Dan Turban, and Denis McCarthy, and the participants in the University of Missouri's Social and Personality Psychology Area Seminar, who offered valuable feedback and suggestions.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	iv
ABSTRACT.....	v
Chapter	
1. INTRODUCTION.....	1
Values	
Forecasts	
The present study	
2. HYPOTHESES.....	8
3. METHODS.....	10
Participants	
Roadmap of Measures and Manipulations	
4. RESULTS.....	16
Preliminary Analyses	
Tests of Hypotheses	
5. DISCUSSION.....	21
6. FUTURE DIRECTIONS.....	23
7. CONCLUSION.....	28
APPENDIX	
1. TABLES.....	31
REFERENCES.....	37

LIST OF TABLES

Table	Page
1. Descriptive statistics for primary study variables.....	31
2. Correlations.....	33
3. Descriptive Statistics for Giving to Another and Getting for Self Groups.....	35

EXTRINSIC AND INTRINSIC VALUES, FORECASTS, AND EXPERIENCES: AN EXPERIMENTAL APPROACH

Charles P. Nichols

Dr. Kennon M. Sheldon, Dissertation Supervisor

ABSTRACT

A study was conducted wherein participants with different values were provided with either a value-congruent or a value incongruent experience in the form of a chance to choose an Apple Itune song download, which they were either told that they could send to themselves or that they could send to some other person of their choice. By measuring participants' values, measuring their affective forecasts regarding a hypothetical extrinsic or intrinsic experience and then providing them with the experience, this study allowed for the testing of a number of different hypotheses: (1) that a typical intrinsic experience (e.g., giving to another) will tend to boost happiness more than an equivalent extrinsic experience (e.g., getting something comparable for oneself), and (2) that people in general will forecast that getting something for themselves will make them happier than giving something comparable to someone else, (3) that relatively more extrinsic (high-REVO) people will be more likely than less extrinsic (low-REVO) people to forecast that getting something for themselves will make them happier than giving something comparable to someone else, and (4) that high-REVO people will be more likely than low-REVO people to overestimate the benefits of getting something themselves relative to giving something to someone else. Results provided mixed support for these hypotheses.

Introduction

Prospection (Buckner & Carroll, 2007; Gilbert & Wilson, 2007) is a cognitive/affective process whereby humans use mental simulation to predict what future occurrences will feel like. Recent research on this process, often termed “affective forecasting” (Wilson & Gilbert, 2003, 2005), has shown that humans experience a great deal of difficulty accurately predicting the emotional consequences of future occurrences. This is important because people use such affective forecasts to inform the choices they make (Kermer, Driver-Linn, Wilson, & Gilbert, 2006)—and if their forecasts are mistaken, then decisions that rely on these faulty forecasts may also suffer. One of the most important choices we have to make is how to live our lives, i.e. what overarching aspirations or life goals we should strive toward, day in and day out. The present document proposes an attempt to extend affective forecasting inquiry into this important domain, that of how we choose our values/life goals.

Values

Everyone has values (Rokeach, 1973; Schwartz, 1992), which Schwartz (1994) defines as, “desirable transsituational goals...that serve as guiding principles in the life of a person...” (pp. 21). Kasser and Ryan (1993, 1996) modified and extended self determination theory’s (Deci & Ryan, 1985, 2000) traditional focus on extrinsic and intrinsic dimensions of motivation to provide a framework for understanding people’s values and their relation to individual well-being. What Kasser and Ryan called “intrinsic” values, aspirations, or life goals (e.g., personal growth, intimacy, and community) were conceptualized as efficient means of satisfying basic psychological

needs for competence, relatedness, and autonomy, whereas “extrinsic” values, aspirations, or life goals (e.g., financial success, popularity, and attractiveness) were viewed as at best peripheral to, and at worst detrimental to, satisfaction of basic psychological needs. Kasser and Ryan (1993, 1996, 2001) indeed found, and much subsequent research (e.g., Grouzet et al., 2005; Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999; Schmuck, Kasser, & Ryan, 2000; Sheldon, 2005; Sheldon, Arndt, & Houser-Marko, 2003; Sheldon & Kasser, 1998, 2001; Sheldon, Ryan, Deci, & Kasser, 2004; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Williams, Cox, Hedberg, & Deci, 2000) has confirmed, that people who endorse “extrinsic” values more highly relative to “intrinsic” values tend to be less happy and less psychologically healthy.

Placing high importance on extrinsic relative to intrinsic values thus seems to be a poor route to happiness maximization. Yet while a majority of people rate intrinsic values as relatively more important to them than extrinsic values, a still sizable number of (generally less happy) people say that extrinsic values are equally or more important to them than intrinsic ones. A question this raises is: why? Why do these people (but not others) think it is so important to be financially successful, popular, and attractive? Certainly there are pervasive forces in society (e.g., the consumer marketing and advertising industries) advancing the message that money, looks, and popularity are essential to happiness. But on the other hand, a frequent theme in pop culture (movies, books, etc.) involves a fictional hero achieving redemption through learning (often the hard way) the emptiness of extrinsic aspirations. Likewise, a number of popular cultural expressions point to the false promises of extrinsic aspirations (e.g., “Money can’t buy

you love.”). Additionally, teachings from many different religious traditions exalt essentially intrinsic values as normatively superior to extrinsic ones. In sum, a mixed set of messages can be found in our culture, and while extrinsic propaganda likely exerts a baleful influence, the mere exposure to propaganda cannot by itself explain why some people value extrinsic aspirations so highly. After all, many people are exposed to extrinsic propaganda, but only some end up with relatively high extrinsic values. Research so far has uncovered two causal influences that do seem to push people to value extrinsic values more highly relative to intrinsic values: emotional insecurity (Sheldon & Kasser, 2008) and a developmental history characterized by one or more of the following: conditional valuation, economic poverty, and low social support (Kasser, Koestner, & Lekes, 2002; Kasser, Ryan, Zax, & Sameroff, 1995).

Forecasts

The presently proposed study will explore an additional factor that may contribute to people’s choice of values: their forecasts of how good they would feel if they successfully acquired a particular end or ends. That is to say, people may value certain ends and pursue them as goals, in part, because they think that pursuit and/or acquisition of such ends will lead to happiness (or will prevent unhappiness). For example, a person who thinks that having more money makes people happier may naturally tend to place greater value on making money than would someone who thinks that wealth doesn’t lead to happiness. In the same way that understanding the principles of finance and the risks and payouts of various financial investment options can be essential to making sound investment decisions, an accurate understanding of the affective consequences of various possible goal pursuits may be an essential ingredient to the making of sound goal choices.

If people's causal models of what leads to happiness are inaccurate, this could lead them to pursue suboptimal goals, resulting in diminished well-being.

In fact, there is a rapidly growing literature documenting the various ways in which people systematically err in their affective forecasts (Gilbert, 2006; Gilbert, Morewedge, Risen, & Wilson, 2004; Gilbert, Pinel, Wilson, Blumberg, Wheatley, 1998; Gilbert & Wilson, 2007; Loewenstein & Schkade, 1999; Kermer, Driver-Linn, Wilson, & Gilbert, 2006; Mallett, Wilson, & Gilbert, 2008; Mellers & McGraw, 2001; Mellers, Schwartz, & Ritov, 1999; Wilson & Gilbert, 2003, 2005). In brief, we tend to overestimate the intensity and duration of the emotional consequences of future events and behaviors, both negative and positive (Gilbert, Driver-Linn, & Wilson, 2002; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 2002). When forecasting future affect, we tend to place undue weight on certain salient factors (Buehler & McFarland, 2001; Dunn, Wilson, & Gilbert, 2003; Morewedge, Gilbert, & Wilson, 2005; Schkade & Kahneman, 1998; Wilson, Wheatley, Meyers, Gilbert, & Axson, 2000), often failing to account for other potentially important determinants of our future feelings. We are biased by current feelings in predicting future feelings (Loewenstein, O'Donoghue, & Rabin, 2003). And we tend not to account for the ways in which our "psychological immune system" works to attenuate strong affect by making sense of events (Wilson, Centerbar, Kermer, & Gilbert, 2005) and, particularly in the case of highly negatively valenced events, by rationalizing and positively reinterpreting the events (Gilbert et al., 1998; Gilbert, Lieberman, Morewedge, & Wilson, 2004; Kermer et al., 2006). So while our capacity to predict future feelings generally provides us with reasonably accurate forecasts of our affective futures, the system is not without flaws. And because people often rely heavily

on affective forecasts in decision-making, misforecasting the consequences of future events can result in poor goal choices (Kermer et al., 2006). Could forecasting errors be leading some people to pursue less salubrious (i.e., more extrinsic) life goals, ultimately impairing their well-being?

Unfortunately, there is evidence suggesting that many people's lay theories of what results in happiness may be leading them astray in just this way. In a recent set of studies, Sheldon, Gunz, Nichols, and Ferguson (in press) found correlational evidence that people's relative extrinsic value orientation (REVO; measured with Kasser and Ryan's (1996) Aspirations Index) is related to their forecasts of the affective consequences of *extrinsic* (but not *intrinsic*) goal progress. While both extrinsically and intrinsically oriented individuals think that pursuing intrinsic goals will lead to happiness, they disagree about extrinsic goals: High REVO people think extrinsic goals lead to as much happiness as intrinsic goals, but low REVO people think extrinsic goals are significantly less likely to produce happiness than intrinsic goals. Furthermore, compared to more intrinsic individuals, more extrinsic individuals think that extrinsic goals will lead to significantly greater satisfaction of their basic psychological needs for competence, relatedness, and autonomy. Moreover, beliefs about whether extrinsic goals lead to the experience of competence and autonomy significantly mediated the association between extrinsic value orientation and beliefs about the hedonic benefits of extrinsic goals.

In another study, Sheldon, Gunz, Nichols, and Ferguson (in press) randomly assigned participants to write down three specific goals of either an extrinsic or intrinsic nature that they would be willing to set for themselves and pursue over the next few

weeks. Examples of goals from the extrinsic condition in this study would be: “get a new haircut,” or “get a part time job to have more spending money.” Examples of goals from the intrinsic condition were: “get to know the people who sit near me in class” and “go to meetings for Amnesty International.” They were then asked to pursue their three goals for a period of four weeks. In this experiment, rated goal attainment predicted improvement in well-being over the four weeks only among participants assigned to pursue intrinsic goals. Moreover, participants’ initial forecasts of how large a boost in happiness their assigned goals would give them were accurate, but only in the intrinsic goal condition. In contrast, people in the extrinsic goal condition misforecasted the hedonic effect of their goals (their forecasts were actually marginally *less* accurate than random chance). This condition by forecast accuracy interaction was not moderated by REVO. While this study broke new ground by experimentally manipulating type of *goal pursuit* (extrinsic versus intrinsic) and then measuring change in well-being and the accuracy of forecasts, no published studies to date have measured participants’ values and affective forecasts regarding intrinsic and extrinsic experiences, then experimentally manipulated type of *experience* (intrinsic/extrinsic) by assigning participants to have either an intrinsic or extrinsic experience.

The Present Study

Experimentally manipulating the type of experience (extrinsic or intrinsic) offers a particularly methodologically “clean” way to test whether relatively extrinsic people in particular are significantly more inaccurate in their affective forecasts of extrinsic experiences. The present study does just this; by first assessing participants’ forecasts regarding how they would feel after certain experiences (including receiving an iTunes

song download oneself and getting to give an iTunes song download to someone else) and then assessing their extrinsic/intrinsic values using the Aspirations Index (Kasser & Ryan, 1996), the stage was set for a strong test of forecast accuracy. Experimentally manipulating extrinsic/intrinsic experience by unexpectedly providing participants with the opportunity to send an iTunes song download either to themselves or to some other person of their choice (based on random assignment) provides an advantage over previous methods used to examine accuracy of affective forecasts about the consequences of different goals. Namely, this design circumvents the potential confounds inherent in designs that do not sufficiently control for ways in which participants' different value orientations may impact their choice of goals (such as designs in which participants are allowed self-select the type of goals they will pursue) or their goal progress (such as when participants are merely assigned to pursue one or another type of goal and diligence of goal pursuit may both influence reported affect and be influenced by initial REVO). Positive and negative affect were measured twice: shortly after the participants arrived at the lab to begin the experimental session (but before the participants received the iTunes manipulation,), and then shortly after they received the experimental manipulation. Meaning in life (Steger, Frazier, Oishi, & Kaler, 1996) was also measured twice, in the mass pretest at the beginning of the semester and again shortly after the experimental manipulation. Subjective happiness (Lyubomirsky & Lepper, 1999) was measured following the manipulation. Finally, and most importantly, three well-being items corresponding closely to the wording of the affective forecast items asked earlier in the semester, were used to measure the accuracy of participants' affective forecasts. In the present study, participants' values, as measured by Kasser and Ryan's (1996) Aspirations

Index, served to indicate the extent to which participants endorsed the overarching goals of helping others and achieving personal financial success.

Dunn, Aknin, and Norton (2008) in three studies demonstrated that the more money people spend on someone else relative to themselves, the happier they tend to be. Importantly for present purposes, Dunn et al.'s Study 3 featured an experimental design quite similar to the design of the present study. Participants were asked to complete some questionnaire items assessing current affect. Then, based on random assignment, they were given an envelope containing either a \$5 or \$20 bill and asked to spend the money by 5PM that evening either on themselves or someone else (a friend, a charity, etc.). Participants were then called on the telephone that evening and asked some additional questions about their current affect. Results showed that those spending money on someone else or a charitable organization were happier afterwards than those assigned to spend on themselves, and the amount of money (\$5 or \$20) did not moderate this effect. Dunn et al. apparently did not measure participants' different values or life goals, so it was unclear from their study whether spending on someone else was more beneficial for people who highly value helping and giving to others or whether it benefited everyone roughly equally regardless of their values. Additionally, Dunn et al. failed to examine participants' affective forecasts regarding their expenditures and therefore could not relate these in a systematic way to other variables. The presently proposed study design should allow for a replication of and a substantial expansion upon Dunn et al.'s exciting initial findings. Study hypotheses are as follows.

Hypotheses

The study's first hypothesis is that a typical intrinsic experience (e.g., giving to another) will tend to boost happiness more than an equivalent extrinsic experience (e.g., getting something comparable for oneself), thus replicating the findings of Dunn, Aknin, and Norton (2008).

The study's second hypothesis is that people in general will forecast that getting something for themselves will make them happier than giving something comparable to someone else.

The study's third hypothesis is that, confirming the findings of Sheldon, Gunz, Nichols, and Ferguson (in press), relatively more extrinsic (high-REVO) people will be more likely than less extrinsic (low-REVO) people to forecast that getting something for themselves will make them happier than giving something comparable to someone else

The fourth hypothesis is that high-REVO people will be more likely than low-REVO people to overestimate the benefits of getting something themselves relative to giving something to someone else.

Notably, hypotheses three and four predict that people's affective forecasts will differ based on their relative extrinsic value orientation, a measure of personal values. This is noteworthy because the affective forecasting literature has tended to treat affective forecasting and patterns of errors in such forecasting as general phenomena, affecting everybody more or less equally. Apparently, only one paper to date (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007) has examined ways in which personality differences between individuals may moderate affective forecasts and affective forecasting errors. Dunn et al. (2007) examined the individual difference variable of

emotional intelligence (EI; Mayer, Salovey, & Caruso, 2004) and found that people who rated higher on a behavioral measure of EI tended to be more accurate in their affective forecasts in different domains. This is a relevant finding in the present context because it implies that those with a generally better grasp of human emotions (both their own and others') are able to make more accurate affective forecasts. Other research has shown that East Asians and older people may commit fewer affective forecasting errors than Westerners and younger folks, respectively (Lam, Buehler, McFarland, Ross, & Cheung, 2005; Wilson, Gilbert, & Salthouse, 2001)—offering further suggestive evidence that affective forecasting (and attendant errors) should not necessarily be considered a completely general or universal process that works essentially the same in everybody.

Methods

Participants

Undergraduate students enrolled in the course, General Psychology, at the University of Missouri were recruited online to participate in the study in exchange for partial fulfillment of a course requirement. The study was described online as involving answering survey questions about attitudes, particularly attitudes about the natural environment. A hundred and twelve students participated in the study. Participants were invited to arrive at an appointed time (one participant per session) and informed that participation would take a half hour. When they arrived, participants first provided their informed consent, then were asked to begin responding to a survey. Following completion of the first survey, they were administered the Itune manipulation by the

experimenter. Following that, they were asked to complete a second survey. Then they were debriefed and shown the door. Before arriving for the study, the majority of participants had already completed an online survey (the “mass pretest survey”) at an earlier time point (at the beginning of the semester) that provided some additional baseline data used in the analyses to follow.

Roadmap of Measures and Manipulations

Pretest measures. Measures in the mass pretest survey administered at the beginning of the semester included the five-item Presence subscale of the Meaning in Life Questionnaire (Steger et al., 2006) and six affective forecast items. Three affective forecast items asked respondents: “If you just got a free iTunes song download for yourself, how happy/pleased/satisfied would you be?” Three other affective forecast items asked respondents: “If you just got to give a free iTunes song download to a friend, how happy/pleased/satisfied would you be?” Over a thousand people completed the mass pretest measures, only a small portion of whom ended up participating fully in the present study by volunteering to engage in a lab session. However, the mass pretest responses of nonparticipants to the Itune forecast items ultimately were used in an ANOVA analysis to provide an additional test of Hypothesis Four (See the Results section and Footnote 1 for more details on how this was done).

Baseline measures. Participants were brought to the research laboratory to participate in a research session. Measures in the lab session’s initial questionnaire included some basic demographic questions (sex, race, age, etc.), the Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003), the 20-item Positive and Negative Affective Scale (PANAS; Watson, Clark, & Tellegen, 1988), and the 30-

item Aspirations Index (Kasser & Ryan, 1996). Also included in this initial lab survey were two scales measuring respondents' environmental attitudes. These scales—the Connectedness to Nature Scale (Mayer & Frantz, 2004) and the Anthropocentrism Scale (Chandler & Dreger, 1993)—were included as filler, in order to take participants' minds off the forecasting items and to support the cover story told the participants, which was that the study aimed to better understand participants' environmental and social attitudes.

Manipulation. After participants completed the initial survey, the Itune manipulation was administered, with each participant being assigned to one of two conditions based on random assignment. The manipulation took the form of the researcher informing the participant one of two things. The participant was told that, in gratitude for his/her participation in the study, either (a) he/she could choose a song to download from the Itunes website and send to themselves by email, or (b) he/she could choose a song to download from the Itunes website and send to a person of their choice (e.g. a friend, family member, etc....but not to oneself) by email. Participants were assisted by the experimenter in navigating the Apple Itunes website and given time to choose a song to send to themselves or to someone else (based on assigned condition).

Follow-up measures. Immediately after receiving the Itune song download manipulation, participants were asked to fill out another questionnaire. This questionnaire included three items asking participants, "How happy/pleased/satisfied do you feel right now?" These three items were designed to correspond closely to the affective forecast questions asked during the mass pretest. This questionnaire also included the PANAS, the subjective happiness scale, and the 5-item presence of meaning in life scale,

Debriefing. Participants were debriefed by the experimenter, who read a prepared statement describing the true purposes of the study, the hypotheses guiding it, the reasons why participants could not be informed of all aspects of the study from the beginning, and some additional pedagogical information designed to advance participants' understanding of experimental social psychological research methodology.

Measures

Aspirations/Values. An intrinsic aspirations score was created by taking the mean of the the Aspiration Index's (Kasser & Ryan, 1996) 15 intrinsic aspiration items. The reliability of these 15 items was high (see Table 1 for α statistics and other descriptive statistics for study variables). An extrinsic aspirations score was created by taking the mean of the 15 extrinsic aspiration items. The reliability of these 15 extrinsic aspiration items was also high. A relative extrinsic value orientation (REVO) score was then created by subtracting participants' average intrinsic aspiration score from their average extrinsic aspiration score. After creating reverse coded variables for each of the fifteen intrinsic items, an additional reliability analysis was run on all 30 aspiration items together. Reliability was high.

Forecasts and "Positive Feelings" Items to Test Forecast Accuracy. In the mass pretest that most participants took at the beginning of the semester, three questions were asked concerning how the respondents thought they would feel if they were given an iTunes song download of their choice ("If you just got a free iTunes song download for yourself, how happy/pleased/satisfied would you be?"). Three questions were also asked concerning how the respondents thought they would feel if given the chance to send an iTunes song download to some other person of their choice, but not to themselves ("If you

just got to give a free iTunes song download to a friend, how happy/pleased/satisfied would you be?”). These items were measured using a 1 (not at all) to 7 (very) scale. The three self prediction items and the three other person prediction items each exhibited high inter-item reliability, so they were combined to create self prediction and other prediction composite scores. There was a high correlation between participants’ predictions of how they’d feel if they got the Itune themselves and how they’d feel if they got to give it to someone else.

After the manipulation was administered during the study session, participants were asked the same three questions, minus the hypothetical conditional wording (i.e. “How would...if given the chance...”). Specifically, participants were asked, “How happy/pleased/satisfied do you feel right now?” Because a reliability analysis of these three items indicated that they seemed to reliably measure the same construct, they were combined to create a composite score called *positive feelings*.

Self-biased Predictions. In order to test hypothesis four, a self-biased prediction score was created to measure the extent to which a participant believed that getting for oneself will lead to more happiness than getting for someone else. This score was computed by subtracting each participant’s prediction for giving an Itune to someone else from his/her prediction for getting an Itune oneself. Negative scores indicate that the participant believed that giving to someone else would result in greater positive feelings than giving to oneself.

Affective Forecast Accuracy. In order to create a measure of accuracy of affective forecasts, a difference score was created. Participants’ scores for their forecasts of how happy they would be in the situation (giving to other versus getting for self)

corresponding to the one they ultimately were assigned to were subtracted from their positive feelings scores (reflecting how happy/pleased/satisfied they actually were immediately after receiving their manipulation) to create a score reflecting how much their forecasts overestimated their actual reality. This variable was labeled *overestimation*, and higher scores on it indicate greater overestimation, whereas negative values indicate underestimation.

As a result of the way the overestimation variable was computed, scores do not range from most to least accurate, but rather from largest overestimation to largest underestimation. Moreover, perfect forecast accuracy would be reflected by an overestimation score of 0, a score located right in the center of the distribution. In order to create an alternate measure of forecast accuracy, one that reflects the degree of difference between forecast and reality without regard for whether the estimate was short or long of the mark, the absolute value of participants' overestimation scores was used as a different accuracy variable. This new variable was labeled inaccuracy.

Meaning in life. The five-item presence of meaning in life scale (Steger et al., 2006) had a response scale of 1 (Not at all true) to 7 (Very True) and was measured at two time points. It was initially measured at the beginning of the semester in the mass pretest. It was measured again in the lab session following the delivery of the experimental manipulation.

Positive and negative affect. The 20-item positive and negative affect (PANAS; Watson et al., 1988) scale had a response scale of 1 (Not at all) to 9 (Extremely). It was administered at the beginning of the lab session and again following the manipulation. The ten-item positive and ten-item negative affect subscales were computed separately at

each time point. Pre-manipulation positive affect and post-manipulation positive affect both exhibited high reliability. Pre-manipulation negative affect and post-manipulation negative affect also exhibited good reliability. Composite scores were computed to measure pre-manipulation and post-manipulation positive affect and pre-manipulation and post-manipulation negative affect. Post-manipulation negative affect was somewhat non-normally distributed ($skew = 1.60$, $kurtosis = 3.00$), apparently due to a floor effect. Pre-manipulation negative affect was more normally distributed, for whatever reason ($skew = 1.22$, $kurtosis = 1.16$). The correlations between pre and post-manipulation negative affect ($r = .82$) and pre and post affect positive affect ($r = .87$) were both quite high (See Table 2 for a correlation matrix).

Happiness. The four-item subjective happiness scale (Lyubomirsky & Lepper, 1999) was administered after the manipulation. It was measured using a response scale of 1 to 7. Analysis showed a strong reliability for the four-item scale.

Results

Preliminary Analyses

Analyses were conducted using SPSS (Version 16.0). First, the data was screened to check for outliers and to determine whether the assumptions of regression analysis were met. A total of 112 individuals participated in the study, 56 in each condition. Two participants in the getting for self condition refused the offer of an Itune song download, and two participants in the giving to other person condition refused the offer to send an Itune song to someone else. As a result of the failure to deploy the manipulation during

their experimental sessions, these four participants' data were excluded from analyses. This left a total of 54 participants remaining in each condition. Next a dummy-coded vector was computed to represent assigned condition (other person = 0, self = 1).

Tests of Hypotheses

Hypothesis One. The first study hypothesis held that giving something to someone else will lead to a larger boost in happiness than getting something oneself. To test the first hypothesis, independent t-tests were conducted to examine the effect of condition upon the various measures of well-being administered after the manipulation (See Table 3 for variable means, SDs, and Ns separated by group). Participants in the someone else condition were no different than those in the self condition on positive feelings, the variable created by combining the three well-being items worded to correspond with the forecast items ($t(106) = -.52, p = .60$). Participants in the someone else condition were not significantly higher than those in the self condition in subjective happiness ($t(106) = -1.36, p = .18$).

There was also no significant difference between the other person condition and the self condition on post-manipulation positive affect ($t(106) = .09, p = .93$). Likewise, there was no significant difference between the other person condition and the self condition on post-manipulation negative affect ($t(106) = -.34, p = .74$). Examining positive affect using a within (time: pre/post) by between (condition: self/other) subjects ANOVA resulted in a nonsignificant effect of the condition x time interaction ($F(1,106) = .96, p = .33$), a significant effect of time ($F(1,106) = 21.76, p < .001$) and a nonsignificant effect of condition on positive affect ($F(1,106) = .03, p = .87$). Examining negative affect using a within (time: pre/post) by between (condition: self/other) subjects

ANOVA resulted in a nonsignificant effect of the condition x time interaction ($F(1,106) = .50, p = .48$), a significant effect of time ($F(1,106) = 47.22, p < .001$) and a nonsignificant effect of condition on negative affect ($F(1,106) = .30, p = .59$).

Notably, those in the giving to another person condition reported significantly higher meaning in life than those in the getting for self condition ($t(106) = -2.14, p < .05$). Because meaning in life was also measured earlier in the semester during the mass pretest, an ANCOVA was run to test for group differences in meaning in life while controlling for earlier reported meaning in life. This analysis showed that people who gave an Itune to somebody else reported significantly more meaning in life than those who got an Itune for themselves ($F(1,70) = 4.18, p < .05$), suggesting that giving something leads to higher meaning in life compared to receiving something comparable.

Hypothesis one also held that that the relative benefits of giving something to someone else compared to getting something for oneself will not be moderated by REVO. Power issues deriving from this study's relatively small sample size prevented a true test of this hypothesized null finding. However for exploratory purposes, a test was run to check for the presence of moderation by regressing (in turn) the various well-being variables on (1) the dummy-coded condition variable, on (2) the relative extrinsic value orientation (REVO) variable, and on a condition x REVO interaction variable. It was expected that the condition x REVO interaction would not be significant.

Because meaning in life was the only dependent variable that significantly differed by condition, meaning was tested first to see if REVO moderated the effect of condition on it. The condition x REVO interaction ($\beta = -.32, p = .17$) did not significantly predict meaning in life. The same model (condition + REVO + Condition

by REVO) was tested on each remaining dv: positive feelings, positive affect, negative affect, subjective happiness. In no case was the condition by REVO interaction a significant predictor.

Hypothesis Two. The second hypothesis held that people in general would tend to think that getting something for themselves would make them happier than giving something comparable to someone else. Participants who completed the mass pretest questionnaire ($N = 75$) did tend to forecast that getting a free Itune song download for themselves ($M = 5.21, SD = 1.40$) would make them happier than getting to send an Itune song download to a friend ($M = 4.87, SD = 1.26, t(74) = 3.14, p < .01$).

Hypothesis Three. The third study hypothesis held that relatively more extrinsic (high-REVO) people will be more likely than less extrinsic (low-REVO) people to forecast that getting something for themselves will make them happier than giving something comparable to someone else. To test this relationship, a “self-biased forecast” score was computed by taking the average of participants’ three prediction items regarding giving an Itune to someone else and subtracting that score from the average of their three predictions regarding getting an Itune for themselves. This self-biased forecast score was found to be significantly predicted by REVO ($\beta = .27, p < .03$), providing support for the supposition that more relatively extrinsic individuals are more likely to predict that getting something for themselves will make them happier than giving something to someone else. When intrinsic and extrinsic aspirations were examined separately as predictors of self-biased forecasts, intrinsic aspirations proved not to be a significant predictor ($\beta = -.10, ns$), whereas the extrinsic aspirations variable did significantly predict self-biased forecasts ($\beta = .23, p < .05$).

Hypothesis Four. The fourth study hypothesis held that the effect of condition on accuracy of affective forecasts will be moderated by REVO. More specifically, high-REVO people were expected to be more likely than low-REVO people to overestimate the benefits of getting something themselves relative to giving something to someone else. This hypothesis was tested by regressing the overestimation variable on the dummy-coded condition variable, on REVO, and on a condition x REVO interaction variable. This overall model was not even close to significant ($F(3,71) = .19, p = .90$). Neither condition ($\beta = .05, p = .67$) nor REVO ($\beta = -.03, p = .82$) nor their interaction ($\beta = -.18, p = .55$) significantly predicted overestimation of forecasts. Next, the same model was used to predict the alternate measure of forecast accuracy, labeled “inaccuracy” and derived by taking the absolute value of the overestimation scores. This overall model also was far from significant ($F(3,71) = .99, p = .40$). Neither condition ($\beta = .18, p = .14$) nor REVO ($\beta = -.11, p = .35$) nor their interaction ($\beta = -.09, p = .76$) significantly predicted forecast inaccuracy.

Adopting an analytical strategy used by Gilbert et al. (1998), forecast accuracy was tested another way. The mass pretest responses of individuals who did not participate in the present experiment were used to assemble two additional independent samples of forecasts for self and others, respectively, to test against participants actual experiences.¹ Forecast scores for these two samples were tested in conjunction with scores on the positive feelings variable for people actually in the present study in a 2 (situation: forecast vs. actual) X 2 (recipient: self vs. other) ANOVA. This resulted in a significant effect of situation, with reality proving more rewarding than predicted state, $F(1,1759) = 6.26, p < .02$. However, neither the main effect of recipient, $F(1,1759) = .48,$

$p = .49$, nor of the interaction of situation \times recipient, $F(1,1759) = 2.26$, $p = .13$, was a significant predictor of positive feelings.

Discussion

This study was designed to test whether giving to another tends to make people happier than getting for oneself, whether relative extrinsic value orientation (REVO) moderates the relationship between giving/getting and happiness, whether high and low REVO people systematically differ in their affective forecasts of the happiness that results from giving/getting, and whether high and low REVO people ultimately differ in the accuracy of their affective forecasts. Results showed that, compared to getting something, giving something did provide people with an improved sense of meaning in life, and this effect remained significant even when controlling for earlier reported meaning in life. However, failing to replicate the findings of Dunn et al. (2008), the manipulation did not result in significant differences by group on subjective happiness, positive affect, negative affect, or any other recorded measures of well-being. Condition failed to interact with REVO to predict any well-being outcomes. Interestingly, while the groups did not differ by condition, there was a significant time effect on positive and negative affect for both groups examined separately. Participants in each condition experienced increased positive affect and diminished negative affect after their respective manipulations.

While people in general, and high REVO people in particular, forecasted that receiving something would make them happier than giving something, both giving and

receiving something ended up making people happier, to a roughly equal extent. And this was true regardless of people's values. Moreover, giving had the added advantage of leading to higher levels of meaning in life. This is particularly interesting in that meaning in life is a relatively trait-like, global construct, with typical item wordings such as, "I have discovered a satisfying life purpose," and "I understand my life's meaning." The fact that it can be significantly boosted by the giving of a gift with a market value of \$1 is rather surprising.

Setting aside forecasts for a moment, one interpretation consistent with the pattern of results found is that giving to someone else and getting for oneself result in equal levels of hedonic well-being (i.e., affect, happiness, etc.) but that giving results in higher levels of eudaimonic well-being (i.e. meaning in life). Eudaimonic well-being is very important in its own right. Previous research has found that engaging in meaningful (i.e., eudaimonic) behavior is associated with more sustained well-being (both hedonic and eudaimonic) over time, but engaging in merely pleasurable behavior is not associated with more sustained well-being over time (Steger, Kashdan, & Oishi, 2008). If participants from the giving condition experienced increased meaning in life in the present study because they perceived giving to be a more meaningful behavior than getting something, then this raises interesting possibilities. Perhaps a modified study design where an experimental group is prompted to give repeatedly over time would result in participants from this group experiencing increases in both meaning and hedonic well-being over time. Future tests will be needed to determine the merits of such speculations.

The study shed little light on why high and low REVO people tend to differ in the value they place on giving relative to getting. If it could have been demonstrated that high and low REVO participants differed on their forecasts of the benefits of giving relative to getting *and* that high REVO participants' forecasts were less accurate than low REVO participants', this would have constituted fairly strong evidence that high REVO people value getting more highly relative to giving, at least in part, because of faulty predictive models. Ultimately, while the former proposition, that REVO was associated with thinking that getting would lead to more happiness than giving, was supported, the second proposition was not. Neither REVO nor its interaction with condition predicted forecast accuracy. So the study failed to provide strong support for the theory that extrinsic people have faulty models of what leads to happiness.

Future Directions

In research, as in life, things sometimes fail to go as planned. After the initial disappointment passes and is replaced by resignation and determination to make the best of the present situation, at some point the question presents itself: does it make sense to attempt a renewed foray down the same path, or should one just call it a day and move on? After all, lessons have been learned, insights gained. Perhaps the next study will work out better. On the other hand, life is short and interesting topics abound. Maybe the best course of action is to cut one's losses and move on to study something completely different.

Upon reflection, there are good reasons not to abandon the basic notions underlying the design of the study here described. First of all, the issues that the present study attempted to elucidate are important ones. As mentioned above, many studies show a negative association of endorsement of a relatively extrinsic value orientation with various indicators of personal well-being. In addition to experiencing lower levels of well being themselves, there is evidence that high REVO people can potentially cause problems for others, as well. REVO correlates positively with racial prejudice and social dominance orientation (Duriez, Vansteenkiste, Soenens, & De Witte, 2007), and with Machiavellianism (McHoskey, 1999). REVO is also associated with more group-exploitative behavior in the context of social dilemmas (Sheldon & McGregor, 2000).

Since valuing extrinsic aspirations highly relative to intrinsic aspirations seems to be good neither for the individual nor for the group/society, it is not immediately clear why some people endorse extrinsic values highly relative to intrinsic ones. The present study examined one possibility, namely that high REVO people *incorrectly think* extrinsic aspirations and/or attainments *do* lead to happiness, i.e., high REVO people make a particular type of forecasting error, overestimating the benefits (or possibly underestimating the costs) of extrinsic striving and/or success. There actually seems a lot to recommend this thesis. Both the present study and past research (Sheldon et al., in press) found that high and low REVO people do differ on their forecasts of the relative happiness that results from extrinsic/intrinsic aspirations and experiences. Logically, (a) if high and low REVO people forecast different magnitudes of happiness as a result of extrinsic/intrinsic experiences, and (b) they don't differ on actual happiness outcomes that result from comparable experiences, then (c) they should differ on forecast accuracy.

While the reasoning of this syllogism seems valid, the present study supported propositions a and b but failed to find c.

One possible reason that this result was not found in the present study results from a characteristic of the study design. That is, while all participants who completed the mass pretest made forecasts for both giving and receiving an Itune download, each participant only experienced one or the other event. To test forecast accuracy, only one of each participant's two forecasts—the one corresponding to the manipulation they ultimately were assigned to receive—was contrasted against their actual positive feelings following the manipulation. Because participants in each condition forecasted that getting would make them happier than giving, it might be assumed that the mean for giving forecasts in the giving condition would have been lower than the mean for getting forecasts in the getting condition. However that was not the case. Participants randomly assigned to the giving condition had marginally higher forecasts averaged across both hypothetical scenarios (Avg. $M = 5.30$, $SD = 1.12$) compared to participants assigned to the getting condition (Avg. $M = 4.79$, $SD = 1.33$, $t(73) = 1.78$, $p < .10$). The forecasts of the participants in the giving condition for getting ($M = 5.43$, $N = 37$) and for giving ($M = 5.16$, $N = 37$) an Itune song download were both higher in magnitude than the means of participants in the getting condition for getting ($M = 5.00$, $N = 38$) and for giving ($M = 4.59$, $N = 38$). This means that even though people overall in the sample rated the benefits of getting as higher than giving, the getting forecasts reflected in the accuracy analyses were not significantly higher than the giving forecasts—in fact they were a bit lower, though not significantly so. Random assignment should have ensured with a reasonably high likelihood that the conditions wouldn't differ with regard to the same

baseline variable or variables. It is unclear why this failed to be the case with regard to forecast magnitude, though it is evident how this anomaly may have contributed to the null finding on the test of hypothesis five (predicting differences by condition on forecast accuracy).

Another reason not to give up is that there are a number of promising related approaches that could be attempted. Future experiments could attempt to employ a manipulation expected to exert a more substantial impact than the single Itune song download used in the present study. This could involve the participants giving/getting a number of Itune songs to download, say three or five songs. One concern, though, with the Itunes manipulation is that it is possible that participants have such easy access to free online song downloading services that they think nothing of a free Itune song download. If this is the case, it may be better to use some other type of gift (perhaps a gift certificate of some sort, maybe to a restaurant or to the local movie theatre) thought to be worth more than an Itune by the average participant. Similarly, chocolate candy or other goodies could be used. Candy does not have a particularly high monetary value, but it does tend to be highly valued by hungry people during the present moment (Baumeister, Bratslavsky, Muraven, & Tice, 1998). A potential problem with using candy, though, is that it could introduce a potential confound of time (people in the self condition could eat the candy immediately, but those in the giving to other condition wouldn't get the experience of knowing they had actually given something to someone else until sometime later when they have a chance to hand the candy to a friend) not present with the Itune manipulation, where the email containing the Itune for themselves or their friend is sent out at the same time during the session.

One notable feature of the Itune manipulation is that the emotional significance of receiving a particular song chosen by one's friend may tend to boost the impact to the song's recipient beyond what the low monetary value of the gift might suggest. Increased impact to the recipient of the song gift presumably increases the impact, upon the giver, of giving the gift (as he or she anticipates the pleasure the recipient will feel). Increased impact is generally good, of course, but it also could be construed as a cause for concern if the impact occurs only or differentially in one condition but not the other, raising the specter of a potential confound (Pearl, 2000). Both conditions in the present study involved the participant choosing a particular song (either for oneself or one's friend), but only the giving condition forced participants to think about a friend and to anticipate the friend's emotional reaction to receiving a song specifically chosen or individually tailored for him/her. A better design would seek somehow to make the individual tailoring aspect the same in both conditions; either both conditions would have the feature or neither would.

Future approaches could also include non-experimental designs. A daily diary longitudinal design could follow people's ratings of hedonic and eudaimonic well-being over time to determine how these are affected in the aftermath of episodes of giving and getting that occur naturally over the course of a day or week. A within subjects design could feature participants each experiencing both a chance to give and a chance to get. Even in the context of another experimental design, data could be collected at later time points (e.g., several hours later, a day later) to examine duration of the well-being effects experienced immediately after the manipulation. In the present study, giving and getting served as proxies or instances representing the larger theoretical categories of intrinsic

and extrinsic experiences. Future studies could manipulate different intrinsic and extrinsic experiences, or even combine multiple experiences to boost the likely impact. Future studies could also add a truly neutral control condition, i.e. a condition where participants didn't give or get anything, but just thought about a good song, or had some other such innocuous experience.

Conclusion

The present findings contribute to the growing body of research examining the intersection of decision-making and psychological well-being (Hsee & Hastie, 2006; Hsee, Hastie & Chen, 2008). More specifically, the present study sought to examine the role of affective forecasting in possibly explaining why people, certain people in particular, choose to pursue a set of aspirations known from past research (e.g., Kasser & Ryan, 1993, 1996, 2001) to shortchange personal happiness. While the results failed to support all study hypotheses and ended up shedding little light on why some people are so highly invested in extrinsic aspirations such as achieving financial success, there were some interesting findings with potentially important implications. While people in general predicted that getting would lead to more happiness than giving, both experiences ended up leading to increased positive affect and decreased negative affect in roughly equal amounts. This means that giving something to someone else might serve as an easy and practical means that individuals could use if they want to achieve a boost in mood. Receiving a gift from another also would likely improve a person's mood, but of course is something over which a person has somewhat less control.

Another benefit of giving demonstrated by this research is that it boosts the sentiment that one's life has meaning and purpose, an effect that getting a gift did not have. This suggests that individuals stuck wallowing in the depths of existential despair, lamenting the meaninglessness to existence, might find some temporary relief from their anomie by giving to or helping some other person or people. From a utilitarian ethical perspective, giving appears to have yet another virtue, that of advancing the common good at roughly twice the rate as would be achieved by, for example, purchasing something of comparable value for oneself. The present research suggests that giving something has the potential to bring cheer to both the giver and the receiver—benefiting two individuals, as it were, for the price of one. Consequently, an increase in overall acts of giving and helping might go a long way toward advancing aggregate well-being in the world.

Footnotes

¹ These independent samples were gathered from the mass pretest data set by the following process. First, participants in the experiment were removed from the mass pretest data set. After cleaning the resulting data set to remove cases where participants responded to the mass pretest survey more than once, a total of 1672 unique response sets remained. Using an SPSS random selection function, exactly half (836) of these were randomly selected. Forecasts for the situation corresponding to the “other condition” were computed for these 836 mass pretest respondents. Predictions for the situation corresponding to the “self condition” were computed on the remaining 836 entries not initially randomly selected.

Table 1

Descriptive statistics for primary study variables

	M	SD	α	Min	Max	N
1. Intrinsic Aspirations	7.54	.79	.88	5.07	9.00	108
2. Extrinsic Aspirations	4.51	1.25	.91	2.27	7.87	108
3. REVO	-3.03	1.43	.86	-6.13	2.00	108
4. Prediction for Self	5.21	1.40	.89	1.67	7.00	75
5. Prediction for Other	4.87	1.26	.90	2.00	7.00	75
6. Positive Feelings	3.31	1.10	.92	2.00	7.00	108
7. Self-biased Predictions	.34	.94	n/a	-2.33	2.67	75
8. Overestimation	.24	1.53	n/a	-4.00	4.00	75
9. Inaccuracy	1.20	.97	n/a	0.00	4.00	75
10. T ₁ Positive Affect	5.00	1.44	.88	1.50	8.50	108
11. T ₂ Positive Affect	5.32	1.42	.88	2.00	8.20	108
12. T ₁ Negative Affect	2.02	.92	.82	1.00	5.00	108
13. T ₂ Negative Affect	1.67	.73	.82	1.00	4.70	108
14. Happiness	5.17	1.13	.86	1.75	7.00	108
15. Pretest Meaning	4.65	1.19	.88	1.20	7.00	73
16. T ₂ Meaning	4.85	1.25	.91	1.00	7.00	108

(Table 1 continues)

Table 1(continued)

Note. REVO: Relative Extrinsic Value Orientation. Prediction for Self: composite of three forecasts for how participant would feel after getting Itune song themselves. Prediction for Other: composite of three forecasts for how participant would feel after giving Itune song to someone else. Positive Feelings: composite of three positive affect items asked after Itunes manipulation and worded to correspond with the earlier forecasts. Self-biased Predictions: Prediction for other subtracted from prediction for self. Overestimation: Experienced positive feelings subtracted from predicted feelings for the situation to which one has been assigned. Inaccuracy: the absolute value of one's overestimation score. Positive and Negative Affect refer to those subscales of the PANAS (Watson, Clark, & Tellegen, 1988) administered either before (T1) or after (T2) the delivery of the manipulation during the study session. Happiness: score on the subjective happiness scale (Lyubomirsky & Lepper, 1999) administered after the delivery of the manipulation. Pretest Meaning refers to the presence subscale of the Meaning in Life Questionnaire (Steger et al., 2006) administered in the mass pretest weeks before the study session. T₂ Meaning refers to the same scale measured after the delivery of the manipulation.

Table 2

Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Intrinsic Aspirations	---															
2. Extrinsic Aspirations	.07	---														
3. REVO	-.49**	.84**	---													
4. Prediction for Self	.07	.25*	.18	---												
5. Prediction for Other	.16	.10	.00	.75**	---											
6. Positive Feelings	.18	.14	.02	.29*	.31**	---										
7. Self-biased Predictions	-.10	.23*	.27*	.48**	-.22	.01	---									
8. Overestimation	.10	.04	-.02	-.59**	-.49**	.52**	-.23	---								
9. Inaccuracy	.19	.01	-.09	-.43**	-.26*	-.14	-.30*	.23*	---							

(Table 2 continues)

(Table 2 continued)

10. T ₁ Positive Affect	.16	.21*	.09	.09	.08	.55**	.03	.44	-.19	---						
11. T ₂ Positive Affect	.17	.23*	.11	.15	.19	.70**	-.03	.48**	-.17	.87**	---					
12. T ₁ Negative Affect	-.11	.21*	.24*	.02	-.10	-.15	.16	.03	.05	.11	.05	---				
13. T ₂ Negative Affect	-.18	.22*	.29**	.03*	-.14	-.25**	.23*	-.04	-.03	.01	-.05	.82**	---			
14. Happiness	.23*	.00	-.13	.25*	.32**	.52**	-.07	.18	-.15	.29**	.39**	-.27**	-.30**	---		
15. Pretest Meaning	.19	-.10	-.20	.07	.04	.15	.05	.03	-.04	.04	.03	-.12	-.14	.18	---	
16. T ₂ Meaning	.31**	-.07	-.23*	.11	.20	.21*	-.10	-.03	-.08	.06	.09	-.27**	-.19	.36**	.62**	---

Note. * $p < .05$. ** $p < .01$.

Table 3

Descriptive Statistics for Giving to Another and Getting for Self Groups

Variable	Giving to Another			Getting for Self		
	Mean	SD	N	Mean	SD	N
1. Forecast/own cond.	5.16	1.14	37	5.00	1.53	38
2. Positive Feelings	5.37	1.07	54	5.26	1.14	54
3. Self-biased Predictions	.27	.58	37	.41	1.08	38
4. Overestimation	.17	1.38	37	.32	1.67	38
5. Inaccuracy	1.04	.91	37	1.35	1.01	38
6. T1 Positive Affect	5.05	1.56	54	4.94	1.33	54
7. T2 Positive Affect	5.31	1.52	54	5.33	1.32	54
8. T1 Negative Affect	2.07	1.04	54	1.89	.87	54
9. T2 Negative Affect	1.70	.80	54	1.65	.65	54
10. Happiness	5.31	1.16	54	5.02	1.09	54
11. Pretest Meaning	4.68	1.24	36	4.62	1.16	37
12. T2 Meaning	5.11	1.19	54	4.60	1.27	54

(Table 3 continues)

Table 3 (continued)

Note. Forecast/own condition refers to participants' forecast for the situation corresponding to the condition to which they were ultimately assigned, i.e. giving predictions for those in the giving condition and getting predictions for those in the getting for self condition. Positive Feelings: a composite of three positive affect items asked after Itunes manipulation and worded to correspond with the earlier forecasts. Self-biased Predictions: Prediction for other subtracted from prediction for self. Overestimation: Experienced positive feelings subtracted from predicted feelings for the situation to which one has been assigned. Inaccuracy: the absolute value of one's overestimation score. Positive and Negative Affect refer to those subscales of the PANAS (Watson, Clark, & Tellegen, 1988) administered either before (T1) or after (T2) the delivery of the manipulation during the study session. Happiness: score on the subjective happiness scale (Lyubomirsky & Lepper, 1999) administered after the delivery of the manipulation. Pretest Meaning refers to the presence subscale of the Meaning in Life Questionnaire (Steger et al., 2006) administered in the mass pretest weeks before the study session. T₂ Meaning refers to the same scale measured after the delivery of the manipulation.

References

- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, *74*, 1252-1265.
- Buckner, R. L., and Carroll, D. C. (2007). Self-projection and the brain. *Trends in Cognitive Science*, *11*, 49-57.
- Buehler, R., & McFarland, C. (2001). Intensity bias in affective forecasting: The role of temporal focus. *Personality and Social Psychology Bulletin*, *27*, 1480-1493.
- Chandler, E. W., & Dreger, R. M. (1993). Anthropocentrism: construct validity and measurement. *Journal of Social Behavior and Personality*, *8*, 169–188.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*, 227-268.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*, 71-75.
- Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science*, *319*(5870), 1687-1688.
- Dunn, E. W., Brackett, M. A., Ashton-James, C., Schneiderman, E., & Salovey, P. (2007). On emotionally intelligent time travel: Individual differences in affective forecasting ability. *Personality and Social Psychology Bulletin*, *33*, 85-93.
- Duriez, B., Vansteenkiste, M., Soenens, B., & De Witte, H. (2007). The social costs of extrinsic relative to intrinsic goal pursuits: Their relation with social dominance and racial and ethnic prejudice. *Journal of Personality*, *75*, 757-782.
- Gilbert, D. T. (2006). *Stumbling on happiness*. New York: Knopf.
- Gilbert, D.T., Driver-Linn, E., & Wilson, T.D. (2002). The trouble with Vronsky: Impact bias in the forecasting of future affective states. In L.F. Barrett & P. Salovey (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 114– 143). New York: Guilford Press.
- Gilbert, D. T., Lieberman, M. D., Morewedge, C. K., & Wilson, T. D. (2004). The peculiar longevity of things not so bad. *Psychological Science*, *15*, 14-19.

- Gilbert, D. T., Morewedge, C. K., Risen, J. L., & Wilson, T. D. (2004). Looking forward to looking backward: The misprediction of regret. *Psychological Science, 15*, 346-350.
- Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (2002). Durability bias in affective forecasting. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 292-312). Cambridge: Cambridge University Press.
- Gilbert, D. T., Pinel, E. C., Wilson, T. D., Blumberg, S. J., & Wheatley, T. P. (1998). Immune neglect: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology, 75*, 617-638.
- Gilbert, D. T., & Wilson, T. D. (2007). Propection: Experiencing the future. *Science, 317*(5843), 1351-1354.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*, 504-528.
- Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., Ryan, R. M., Saunders, S., Schmuck, P., & Sheldon, K. M. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology, 89*, 800-816.
- Hsee, C. K. & Hastie, R. (2006). Decision and experience: Why we don't choose what makes us happy? *Trends in Cognitive Sciences, 10*, 31-37.
- Hsee, C. K., Hastie, R., & Chen, J. (2008). Hedonomics: Bridging decision research with happiness research. *Perspectives on Psychological Science, 3*, 224-243.
- Kermer, D. A., Driver-Linn, E., Wilson, T. D., & Gilbert, D. T. (2006). Loss aversion is an affective forecasting error. *Psychological Science, 17*, 649-653.
- Kasser, T. (2002). Sketches for a self-determination theory of values. In E. L. Deci & R. M. Ryan (Eds.) *Handbook of self-determination research* (pp. 123-140). Rochester, NY: University of Rochester Press.
- Kasser, T., & Ahuvia, A. (2002). Materialistic values and well-being in business students. *European Journal of Social Psychology, 32*, 137-146.
- Kasser, T., Koestner, R., & Lekes, N. (2002). Early family experiences and adult values: A 26-year, prospective longitudinal study. *Personality and Social Psychology Bulletin, 28*, 826-835.
- 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, 281-288.
- 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. Schmuck & K. M. Sheldon (Eds.), *Life goals and well-being: Towards a positive psychology of human striving* (pp. 116-131). Gottingen: Hogrefe & Huber Publishers.
- Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial aspirations. *Developmental Psychology*, 31, 907-914.
- Lam, K. C. H., Buehler, R., McFarland, C., Ross, M., & Cheung, I. (2005). Cultural differences in affective forecasting: The role of focalism. *Personality and Social Psychology Bulletin*, 31, 1296-1309.
- Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *Quarterly Journal of Economics*, 118, 1209-1248.
- Loewenstein, G. F., & Schkade, D. (1999). Wouldn't it be nice? Predicting future feelings. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 85-105). New York: Russell Sage Foundation Press.
- Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46, 137-155.
- Mallett, R. K., Wilson, T. D., Gilbert, D. T. (2008). Expect the unexpected: Failure to anticipate similarities leads to an intergroup forecasting error. *Journal of Personality and Social Psychology*, 94(2), 265-277.
- Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature, *Journal of Environmental Psychology*, 24, 503–515.
- Mayer, J. D., Salovey, P., & Caruso, D. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry*, 15, 197-215.
- Mellers, B. A., & McGraw, A. P. (2001). Anticipated emotions as guides to choices. *Current Directions in Psychological Science*, 10, 210-214.

- Mellers, B. A., Schwartz, A., & Ritov, I. (1999). Emotion-based choice. *Journal of Experimental Psychology: General*, *128*, 332-345.
- McHoskey, J. W. (1999). Machiavellianism, intrinsic versus extrinsic goals, and social interest: A self-determination theory analysis. *Motivation and Emotion*, *23*, 267-283.
- Pearl, J. (2000). *Causality: Models, reasoning, and inference*. Cambridge, U.K.: Cambridge University Press.
- Rokeach, M. (1973). *The nature of human values*. New York, Free Press.
- Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American dream in Russia: Extrinsic aspirations and well-being in two cultures. *Personality and Social Psychology Bulletin*, *25*, 1509-1524.
- Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, *65*, 529-565.
- Sagiv, L., & Schwartz, S. H. (2000). Value priorities and subjective wellbeing: Direct relations and congruity effects. *European Journal of Social Psychology*, *30*, 177-198.
- Schkade, D. A., & Kahneman, D. (1998). Does living in California make people happy? A focusing illusion in judgments of life satisfaction. *Psychological Science*, *9*, 340-346.
- Schmuck, P., Kasser, T., & Ryan, R. M. (2000). Intrinsic and extrinsic goals: Their structure and relationship to well-being in German and U. S. college students. *Social Indicators Research*, *50*, 225-241.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25) (pp. 1-65). New York: Academic Press.
- Schwartz, S. H. (1994). Are there universal aspects in the content and structure of values? *Journal of Social Issues*, *50*, 19-45.
- Sheldon, K. M. (2005). Positive value change during college: Normative trends and individual differences. *Journal of Research in Personality*, *39*, 209-223.
- 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. Gunz, A., Nichols, C. P., & Ferguson, Y. (in press). Affective forecasting and extrinsic goal pursuit: Over-estimating the rewards, under-estimating the costs. *Journal of Personality*.
- Sheldon, K. M., & Kasser, T. (1998). Pursuing personal goals: Skills enable progress, but not all progress is beneficial. *Personality and Social Psychology Bulletin*, *24*, 1319-1331.
- 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. & Kasser, T. (2008). Psychological threat and extrinsic goal striving. *Motivation and Emotion*, *32*, 37-45.
- Sheldon, K. M., & McGregor, H. (2000). Extrinsic Value Orientation and the "tragedy of the commons." *Journal of Personality*, *68*, 383-411.
- Sheldon, K. M., Ryan, R. M, Deci, E. L., & Kasser, T. (2004). The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin*, *30*, 475-486.
- Steger, M.F., Frazier, P., Oishi, S. & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*, 80-93.
- Steger, M. F., Kashdan, T. B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, *42*, 22-42.
- Vansteenkiste, M., Duriez, B., Simons, J., & Soenens, B. (2006). Materialistic values and well-being among business students: Further evidence for their detrimental effect. *Journal of Applied Social Psychology*, *36*, 2892-2908.
- Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M. & Deci, E. L. (2004). Motivating Learning, Performance, and Persistence: The Synergistic Effects of Intrinsic Goal Contents and Autonomy-Supportive Contexts. *Journal of Personality and Social Psychology*, *87*, 246-260.
- Watson, D., Clark, L. A. & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063-1070.
- Williams, G. C., Cox, E. M., Hedberg, V. A., & Deci, E. L. (2000). Extrinsic life goals and health-risk behaviors in adolescents. *Journal of Applied Social Psychology*, *30*, 1756-1771.

- Wilson, T. D., Centerbar, D. B., Kermer, D. A., & Gilbert, D. T. (2005). The pleasures of uncertainty: Prolonging positive moods in ways people do not anticipate. *Journal of Personality and Social Psychology*, 88, 5-21.
- Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 35 (pp. 345-411). New York: Elsevier.
- Wilson, T. D. & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science*, 14, 131-134.
- Wilson, T. D., Wheatley, T. P., Meyers, J. M., Gilbert, D. T., & Axson, D. (2000). Focalism: A source of durability bias in affective forecasting. *Journal of Personality and Social Psychology*, 78, 821-836.
- Wilson, T. D., Gilbert, D. T., & Salthouse, T. (2001). [Predicted emotional reactions across the adult life span]. Unpublished raw data, University of Virginia (cited in Dunn et al., 2007).