

Running Head: Intrinsic and Extrinsic Goal Attainment

Ambitions Fulfilled? The Effects of Intrinsic and Extrinsic Goal Attainment on Older Adults' Ego-
Integrity and Death Attitudes

In press at International Journal of Aging and Human Development

Alain Van Hiel

Maarten Vansteenkiste

Department of Developmental, Personality, and Social Psychology, Ghent University, Belgium

Corresponding authors: Correspondence regarding this article can be sent to either Alain Van Hiel, Department of Developmental, Personality, and Social Psychology, H. Dunantlaan 2, 9000 Gent, Belgium; E-mail: Alain.VanHiel@Ugent.be, or to Maarten Vansteenkiste, Department of Developmental, Personality, and Social Psychology, H. Dunantlaan 2, 9000 Gent, Belgium; E-mail: Maarten.Vansteenkiste@ugent.be

Abstract

The present research examined the effects of intrinsic and extrinsic goal attainment on older adults' ego-integrity, psychological well-being, and death attitudes. Hypotheses were derived from Self-Determination Theory (SDT; Deci & Ryan, 2000; Vansteenkiste, Ryan, & Deci, in press). Study 1 ($N = 202$, Mean age = 68.2 years) indicated that, after controlling for extrinsic goal attainment, intrinsic goal attainment contributed positively to subjective well-being and ego-integrity and negatively to despair, whereas extrinsic goal attainment was unrelated to psychological health and contributed positively to despair. Study 2 ($N = 213$, Mean age = 75.2 years) replicated and extended these results, showing that intrinsic goal attainment contributed to the acceptance of one's own death, lower ill-being and less death anxiety, whereas extrinsic goal attainment was negatively associated with death acceptance. It is argued that the attainment of intrinsic goals is related to better psychological health, because intrinsic goals are more conducive to the satisfaction of basic psychological needs.

KEY WORDS: Intrinsic and Extrinsic Goals, Death Attitudes, Ego-integrity, Psychological Health, Self-determination Theory, Subjective well-being

Ambitions Fulfilled? The Effects of Intrinsic and Extrinsic Goal Attainment on Older Adults' Ego-Integrity and Death Attitudes

Erikson (1963) argued that people need to solve a final psycho-social identity conflict during the final decades of their life by trying to achieve a sense of ego-integrity, whilst at the same time avoiding despair. He suggested that old people need to come to terms with their own lives. Some older individuals manage to deal effectively with this latter task and experience a sense of inner peace, harmony, and psychological well-being when reflecting on their lives (see also, Brown & Lewis, 2003). Other older adults, however, experience discontentment, existential regret, and bitterness presumably because they feel that they have made wrong choices in their lives and have failed to live the life they wanted (Lucas, 2004).

Along with coping with this psycho-social conflict, older individuals face the existential certainty and psychological challenge that life will end and that they will have to die. Old people do, however, differ considerably in the way they deal with the reality of their own inevitable death (Niemeyer, 1994). For some older people, the prospect of having to die is frightening and causes a lot of anxiety. They rebel against and fear their own death¹. Others take a more positive stance and are more accepting, considering their death as an integral part of their life (Gesser, Wong, & Reker, 1987; Wittkowski, 2001).

One critical variable that is likely to predict the way older individuals deal with the identity conflict of ego-integrity versus despair, and the way they cope with their own death is the extent to which they have achieved their life goals. Indeed, older individuals typically engage in a life review at the end of their lives (Erikson, 1980; Erikson, 1997; Erikson, Erikson, & Kivnick, 1986), reflecting upon the extent to which they have been able to achieve particular goals over their life time. Although it is reasonable to assert that older adults are more likely to experience a sense of ego-

integrity and wellness when they have attained their goals (e.g., Feather, 1992; Wigfield & Eccles, 2000), we assume that the effect of goal attainment depends on the type of goals one has been capable of achieving. Specifically, based on Self-Determination Theory (SDT; Deci & Ryan, 2000; Ryan & Deci, 2006; Vansteenkiste, Ryan, & Deci, in press), we examined whether the attainment of intrinsic and extrinsic life goals would have a differential effect on well-being, ego-integrity, and death attitudes. We hypothesized that they would, given that they are considered to represent two qualitatively different types of life goals (Kasser & Ryan, 1993, 1996; Vansteenkiste, Lens, & Deci, 2006). We first provide a brief overview of past work that focused on the valuation of intrinsic and extrinsic life goals within the SDT-tradition before turning to the discussion of intrinsic and extrinsic goal attainment, which is central to the present research.

Intrinsic and Extrinsic Life Goals

Many scholars (e.g., De Witte, 2004; Feather, 1992; Rohan, 2000; Schwartz, 1992) have examined people's values, which have been most commonly defined as desirable, trans-situational life goals of varying importance which serve as guiding life principles (Schwartz, 1992, 1994; see also Rokeach, 1973). Researchers pursuing this line of inquiry have tried to delineate the underlying structure of individuals' life goals (e.g., through multi-dimensional scaling techniques) and have examined the cross-cultural stability of these value structures around the globe (e.g., Grouzet et al., 2006; Schwartz, 1992). This work was thus rather *descriptive* in nature, as researchers wanted primarily to describe the different types of life goals people hold.

SDT differs from the classic work on values because it not only concerns the detection of the basic dimensions of individuals' life goals (e.g., Grouzet et al., 2006), but also takes a clear stance towards the types of goals that would be better for people to pursue in order to thrive and function most effectively. Thus, SDT adopts a *prescriptive* approach because intrinsic goals are considered to yield positive personal and interpersonal effects, whereas extrinsic goals are

assumed not to have such adaptive effects. This 'value-laden' perspective is both theoretically and empirically grounded.

Theoretically, it is suggested that the pursuit of intrinsic life goals (Kasser & Ryan, 1993, 1996), such as community contribution, aspiring personal development, and building up meaningful relations is characterized by an 'inward' orientation, that is, a focus on one's inherent growth tendencies (Vansteenkiste, Soenens, & Duriez, in press). Such an inward oriented frame is adaptive because it fosters the satisfaction of the basic psychological needs for autonomy (i.e., experiencing a sense of ownership and volition in one's behavior), competence (i.e., experiencing a sense of effectiveness in one's actions), and relatedness (i.e., experiencing a sense of deep-going connectedness with others). By way of illustration, one of the fundamental tasks for older individuals consists of gradually leaving behind their professional career and adopting new roles (Hsieh, 2005; Peck, 1968). When older persons value contributing to the community, they might decide to engage in voluntary work, which might help them to renew and even broaden their social contacts, thereby satisfying their basic need for relatedness.

In contrast, the pursuit of extrinsic goals, such as financial success, power, physical appeal, and social recognition is characterized by an 'outward' orientation as extrinsic goal oriented individuals are primarily concerned with making a good impression on others. Extrinsic goal oriented individuals want to validate their ego by garnering social recognition and respect for their physical looks, their prestigious endeavors, or their financial achievements. Extrinsic goal oriented older adults, for instance, want to hide their signs of getting older, so that they can impress their social environment. Because the pursuit of extrinsic goals is unrelated or even negatively related to the satisfaction of the innate basic psychological needs (Kasser, 2002), the pursuit of these goals is unlikely to yield well-being benefits. By way of illustration, when older persons strongly value physical appearance, they are likely to experience difficulties when coping with the inevitable

deterioration of their body and its looks. By hanging their self-esteem upon the maintenance of physical appeal, they might end up feeling less worthy and competent as a person, and, hence, be less likely to get their basic needs met. In line with this hypothesis, it has recently been discovered that intrinsic goal pursuit is positively related to general need satisfaction (Rijavec, Brdar, & Miljkovic, 2006) as well as to need satisfaction in the work (Vansteenkiste, Neyrinck et al., 2007) and exercise domain (Sebire, Standage, & Vansteenkiste, in press), whereas extrinsic value orientation does not have such an effect.

Because of their differential linkage to basic need satisfaction, the pursuit of intrinsic relative to extrinsic goals should yield differential effects on people's optimal functioning. In line with this assumption, various studies have shown that when people emphasize more strongly intrinsic than extrinsic goals, they tend to show higher personal well-being (as indexed by vitality, life satisfaction, and self-esteem), better performance and learning and fewer signs of ill-being (as indexed by lower depression, drug abuse, and anxiety; Kasser & Ryan, 1996; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; see Kasser, 2002 for an overview), even when extrinsic goals are strongly emphasized in their direct social environments (Vansteenkiste, Duriez, Simons, & Soenens, 2006). The personal valuation of intrinsic over extrinsic goals not only yields advantages at the personal level, but also at the social and societal level. For instance, intrinsic goal oriented individuals report having more satisfying interpersonal relationships (Sheldon & Kasser, 2001) as compared to extrinsic goal oriented individuals. They adopt less prejudiced attitudes towards minority groups (Duriez, Vansteenkiste, Soenens, & De Witte, 2007), and they are more likely to save the scarce common resources in our society (Sheldon & McGregor, 2000).

Intrinsic and Extrinsic Goal Attainment

In addition to examining the effects of the personal *valuation* of intrinsic and extrinsic goals, a few studies to date have also examined whether the *attainment* of intrinsic and extrinsic goals

yields differential effects on psychological well-being. Specifically, Kasser and Ryan (2001) showed in a series of cross-sectional studies among American college students that the attainment of intrinsic goals is positively related to personal well-being and the quality of relationships with friends and romantic partners, whereas the attainment of extrinsic goals was unrelated to these outcomes. Ryan et al. (1999) examined the cross-cultural generalizability of these findings, showing in a mixed sample of Russian and American university students that intrinsic goal attainment is predictive of well-being above and beyond the effect of extrinsic goal valuation, whereas extrinsic goal does not yield such an independent association. Finally, short-term longitudinal research by Sheldon and Kasser (1998) has shown that progress in attaining intrinsic goals leads to higher levels of subjective well-being over time, presumably because intrinsic goal progress goes hand in hand with the satisfaction of basic psychological needs. Significantly, these authors also reported that attaining extrinsic goals did not have such positive effects (see also Niemiec, Deci, & Ryan, 2007).

To summarize, different from the research on intrinsic and extrinsic goal valuation, which has typically examined the well-being effects of the relative importance of intrinsic vis-à-vis extrinsic goals, the small body of studies on intrinsic and extrinsic goal attainment has examined the separate effects of both types of goal attainment rather than creating a relative intrinsic vis-à-vis extrinsic goal attainment score. Generally, these studies have shown that whereas intrinsic goal attainment yields a well-being enhancing effect, extrinsic goal attainment does not yield these positive effects.

Another noteworthy feature of these previous studies on goal attainment within the SDT-tradition is that they all sampled late adolescents. The present studies extend this line of research by examining whether the realization of intrinsic and extrinsic goals yields differential well-being effects for a group of individuals for whom the evaluation of one's goal attainments is especially

important, that is, older adults. Indeed, older adults typically engage in a self-evaluative process thereby considering the fulfillment of their ambitions across their life time (Erikson, 1980; Erikson, 1997; Erikson et al., 1986). We suggest that older adults who find out that they have attained intrinsic goals during their life time might experience their old days differently from those who have been particularly successful in achieving extrinsic goals. For this reason, we considered it most instructive to examine the associations between intrinsic and extrinsic goal attainment rather than focusing on goal importance. In the present research, optimal functioning was assessed with a number of age-specific outcomes, such as old people's death attitudes and their sense of ego-integrity, as well as with subjective well-being as a more general outcome. The previously cited set of studies allowed us to derive hypotheses on the effects of intrinsic and extrinsic goal attainment on older adults' wellness, ego-integrity and death attitudes.

Intrinsic and Extrinsic Goal Attainment: Relationships with Well-being and Ego-integrity

Based on previous research and SDT, we predicted that when older people have organized their lives around the pursuit of intrinsic goals and conclude they were able to achieve these kinds of goals, they might function more optimally in their later days. This is because the pursuit of intrinsic goals is more consistent with people's natural growth tendencies and the satisfaction of their basic needs for autonomy, competence and relatedness. When intrinsic goals are attained, older adults might feel that they have been able to follow a natural growth trajectory, which would lead them to look back on their lives with a sense of serenity, harmony, and inner peace. For this reason, intrinsic goal attainment should be positively associated with subjective well-being and ego-integrity.

In contrast, although extrinsic goal attainment might yield some hedonic and short-lived sense of satisfaction, it is unlikely to be experienced as self-realizing as extrinsic goal attainment is less likely to be conducive to basic need satisfaction. Older individuals who have attained their

extrinsic goals may even feel that they have lived an “empty” life, which may give rise to feelings of discontentment and bitterness. Thus, extrinsic goal attainment was predicted to be unrelated to ego-integrity and well-being and might perhaps even predict a sense of despair.

Intrinsic and Extrinsic Goal Attainment: Relationships with Death Attitudes

There is some preliminary and indirect evidence that suggest intrinsic and extrinsic goal attainments are differentially related to people’s death attitudes as well. For instance, several previous studies have shown that an extrinsic religious orientation (Allport & Ross, 1967) positively correlates with death anxiety, whereas an intrinsic religious orientation correlates negatively with death anxiety (e.g., Ardel & Koenig, 2006; Bivens, Neimeyers, Kirchberg, & Moore, 1994; Thorson & Powell, 1990; Tomer & Eliason, 2005), especially among Protestants (Cohen et al., 2005). The concepts of intrinsic and extrinsic goal attainment, which are central to the present research, need, however, to be conceptually differentiated from Allport’s distinction between intrinsic and extrinsic religious motivation as (a) religious motivation is domain-bounded, whereas goals are more global and are thus assumed to goal and guide behavior across life domains (Vallerand, 1997); (b) within SDT, goals refer to ‘what’ (i.e., the type of life ambitions) people pursue in their lives, whereas motives indicate ‘why’ (i.e., the dynamic reasons) people engage in a behavior or pursue a particular life goal (Deci & Ryan, 2000; Neyrinck, Lens, & Vansteenkiste, 2005); (c) Allport’s religious motivation scales assess the *importance* people attach to intrinsic and extrinsic motives, whereas goal attainment in the present study assesses older people’s *realization* of life goals.

Furthermore, Christopher, Drummond, Jones, Marek, and Therriault (2006) found that the fear of one’s own death was positively associated with materialism, a subcomponent of extrinsic goal valuation, and that this relationship could be partially accounted for by personal insecurity. These results are in line with Terror Management Theory’s (TMT; Greenberg et al., 1992; Solomon, Greenberg, & Pyszczynski, 2004a) claim that the pursuit of materialism is often used as a way of

coping with the paralyzing terror that is engendered by the awareness of one's own death (Arndt, Solomon, Kasser, & Sheldon, 2004; Kasser, Ryan, Couchman, & Sheldon, 2004; Solomon, Greenberg, & Pyszczynski, 2004b;).

Together, the available evidence suggests that extrinsic goal pursuit may serve as defense mechanisms against death anxiety. Extrinsic goals would only temporarily reduce death anxiety, however, as the pursuit of extrinsic goals only yields short-term and derivative satisfaction (Kasser, 2002). People would continuously need to formulate and attain new extrinsic goals to alleviate or suppress their feelings of existential anxiety, without ever obtaining a feeling of deep and long-lasting need satisfaction. The attainment of intrinsic goals would, in contrast, represent a better buffer against death anxiety and make them more accepting of their own death, as the attainment of intrinsic goals represents a life achievement that is considered to be consistent, according to SDT, with the organismic growth path of human beings.

Present Research

The present research comprised two studies that aimed to extend previous work on goal attainment in the SDT tradition as well as previous work on ego-integrity and death attitudes. A first innovative characteristic concerned the sampling of older people. Extant research on goal valuation and goal attainment within the SDT-tradition has typically relied on samples of adolescents and young adults. Second, the present study included a set of age-specific and general measures of psycho-social functioning. That is, we studied outcomes that are particularly relevant for this age group, like death attitudes and ego-integrity, as well as general measures of psychological well-being. Third, the present study's aimed to meet Niemeyer, Wittkowski, and Moser's (2004) recent criticism that "research on death attitudes has tended to follow an a-theoretical "statistical dragnet" method" (p. 327). Research on death attitudes is seldomly anchored within broader theoretical frameworks with the exception of Terror Management Theory (Solomon et al., 2004a; but see also

Tomer, 1992). In the present research, we used, for the first time, SDT as a guiding framework to derive hypotheses regarding the effects of intrinsic and extrinsic goal attainment on death attitudes.

Based on SDT it was hypothesized that content or quality (i.e., intrinsic vs. extrinsic) of individuals' attained goals will relate differently to their experienced well-being, their way of resolving the conflict of ego-integrity vs. despair and their death attitudes. Specifically, we predicted that intrinsic goal attainment would be positively related to ego-integrity, subjective well-being, and death acceptance, while being negatively related to despair and death anxiety. In contrast, it was hypothesized that extrinsic goal attainment would yield less positive results, being unrelated to psychological well-being, ego-integrity and death acceptance, but perhaps even positively related to despair and fear of one's own death. Whereas Study 1 tapped psychological health, as indexed by psychological well-being and ego-integrity vs. despair, Study 2 also included assessments of ill-being and death attitudes.

Study 1

Methods

Participants and Procedure

The sample was recruited by research students at Ghent University who contacted their grandparents' social network. Each student provided potential participants with the questionnaires, which were returned later in a closed envelope. A total of 230 envelopes and questionnaires were distributed, 202 (88%) of which were returned. The accompanying letter for the participants introduced the study as an investigation of 'personality and beliefs'.

The sample consisted of 86 males, 103 females and 13 individuals who did not indicate their gender. The mean age was 68.2 years ($SD = 8.7$). Of these participants, 43 had completed higher education, 74 had completed secondary education, and 65 had completed their education at the age of 15 years (18 participants failed to provide this information).

Measures

Intrinsic and Extrinsic Goal Attainment. Goal attainment was assessed with a Dutch version of the Aspiration Index (AI; Kasser & Ryan, 1996), which has been used in various previous studies (e.g., Duriez et al., 2007). Participants indicated to what extent they have been able to attain each of the given intrinsic and extrinsic goals by indicating a number on a 5-point Likert scale, ranging from 1 (*Completely Not Attained*) to 5 (*Completely Attained*). Internal consistencies (Cronbach's α) of the intrinsic goal attainment scale, which was composed by averaging the self-acceptance ($M = 3.56$, $SD = .67$; e.g., "to know and to accept who I really am"), affiliation ($M = 3.23$, $SD = .69$; e.g., "to have committed, intimate relationships"), and community contribution ($M = 3.47$, $SD = .76$; e.g., "to assist people in need, asking nothing in return") scales was .78. Internal consistency of the extrinsic goal attainment scale, which represented the average of the social recognition ($M = 2.62$, $SD = .75$; e.g., "to be famous"), physical appeal ($M = 2.72$, $SD = .75$; e.g., "to keep up with fashions in hair and clothing"), and financial success ($M = 2.71$, $SD = .76$; e.g., "to be financially successful") was .80.

Subjective Well-being. Subjective well-being was assessed with the Satisfaction with Life Scale (SLS; Diener, Emmons, Larsen, & Griffin, 1985). The SLS is a 5-item questionnaire (e.g., "I am satisfied with my present life") answered on 5-point Likert scales, varying between 1 (*Completely Disagree*) to 5 (*Completely Agree*). Cronbach's α in this study was .81 ($M = 3.67$, $SD = .72$).

Ego-integrity and Despair. Ego-integrity and despair were assessed with two 7-item scales from the Measures of Psychosocial Development questionnaire (MPD; Hawley, 1988). Items were rated on a 5-point Likert scale, varying between 1 (*Completely Disagree*) to 5 (*Completely Agree*). An Ego-integrity subscale (e.g., "I feel a sense of connectedness with the whole humanity; past, presence, and future") and a Despair subscale (e.g., "I'm full of regret") were created by summing and averaging the seven ego-integrity and seven despair items, respectively. Cronbach's α was .69 and .61, respectively ($M = 3.80$, $SD = .69$ and $M =$

2.35, $SD = .71$).

Results

Preliminary Analyses

Independent sample t-tests indicated that males and females did not differ in terms of total intrinsic and total extrinsic goal attainment, ($t(185) = -.81$ and $-.90$, *n.s.*) Males report less despair compared to females ($t(185) = 2.32$, $p < .05$; $M = 2.22$, $SD = .64$ and $M = 2.45$; $SD = .75$, respectively), as well as more subjective well-being ($t(183) = -1.95$; $M = 3.77$, $SD = .57$ and $M = 3.56$, $SD = .82$, respectively). With respect to educational level, no significant differences were obtained for the intrinsic and extrinsic goal attainment scores ($F(, 179) = .80$ and 1.58 , *n.s.*), nor did we obtain significant differences for subjective well-being and integrity ($F_s < .25$). The higher educated ($M = 2.07$, $SD = .52$) reported less despair than participants who completed secondary education ($M = 2.22$, $SD = .74$) and the lower educated ($M = 2.61$, $SD = .69$; $F(2, 179) = 4.20$, $p < .001$). We obtained a significant relationship between age and integrity, $r = .18$, $p < .05$, but the relationships between age and subjective well-being and despair were non-significant.

As can be seen in Table 1, total intrinsic and total extrinsic goal attainment were positively correlated, suggesting that older adults who experienced intrinsic goal attainment, on average, also experience extrinsic goal attainment. Although both intrinsic and extrinsic goal attainment were positively correlated with ego-integrity and psychological well-being, the strength of this association was stronger in the case of intrinsic goal attainment. The correlations between intrinsic and extrinsic goal attainment and despair were non-significant.

Primary Analyses

Next, we conducted a set of hierarchical regression analyses in which the three outcomes were regressed on the demographic variables (i.e., age, educational level, and gender) in Step 1, and intrinsic and extrinsic goal attainment in Step 2. Examination of the unique effects of intrinsic

and extrinsic goal attainment was in line with previous research (e.g., Ryan et al., 1999) and was considered necessary because the intrinsic and extrinsic goal attainment scores were highly related. Entering them as separate predictors in a regression analysis allowed us to examine whether intrinsic goal attainment would yield positive effects above and beyond extrinsic goal attainment and vice versa. In this way, the effects of intrinsic goal attainment were pitted against the effects of extrinsic goal attainment. The results of these analyses can be found in Table 2.

These analyses revealed that after controlling for the demographic variables, entering the goal attainment variables in Step 2 was associated with a significant increase in explained variance in all dependent variables. In the case of well-being and ego-integrity, it was found that only intrinsic goal attainment yielded a strong positive association, whereas the effect of extrinsic goal attainment was non-significant. Conversely, analysis of the despair scores revealed that extrinsic goal attainment yielded a positive and significant effect, whereas intrinsic goal attainment did not relate significantly to despair.

Brief Discussion

The results of this study provides preliminary evidence for our hypothesis that intrinsic and extrinsic goal attainment are differently related to older adults' feelings of ego-integrity vs. despair and their psychological well-being. Although both intrinsic and extrinsic goal attainment were found to be positively related to psychological health at the correlational level, regression analyses indicate that intrinsic goal attainment yielded a unique association with ego-integrity and well-being, whereas extrinsic goal attainment did not yield a significant effect. Thus, the observed positive correlations between extrinsic goal attainment and psychological health only emerged because of their shared variance with intrinsic goal attainment. Correcting for the shared variance between intrinsic and extrinsic goal attainment cancelled out the positive effects of extrinsic goal attainment, whereas intrinsic goal attainment had positive effects on psychological health irrespective of

extrinsic goal attainment. These findings are fully in line with previous research (e.g., Ryan et al., 1999). Another marked result was the positive effect of extrinsic goal attainment on despair, whereas the negative effect of intrinsic goal attainment only approached significance. Hence, extrinsic goal attainment did not only fail to contribute to psychological health over and beyond intrinsic goal attainment, but it also significantly contributed to feelings of resentment and despair.

Study 2

The aim of Study 2 was twofold. First, because the present research is the first investigation of the effects of intrinsic and extrinsic goal attainment on psychological health among older adults, we considered it to be important to replicate the Study 1 findings. Second, we extended the number of age-specific outcomes by including (a) a broader set of well-being outcomes, thereby assessing both positive (i.e., life satisfaction, vitality) and negative outcomes (i.e., depressive symptoms), and (b) two measures of death attitudes, that is, anxiety and acceptance of one's own death.

Given the relatively low internal consistencies of the ego-integrity and despair scales in Study 1 and the content-overlap between some of the ego-integrity and life satisfaction items, we developed an improved measure of ego-integrity and despair. We therefore searched throughout the literature for existing scales on ego-integrity and despair and relied on Erikson's writings to construct some new items (see Van Hiel & Vansteenkiste, 2008). Similar to Study 1, we expected intrinsic goal attainment to be positively related to ego-integrity, well-being and death acceptance and to be negatively related to despair, ill-being and fear of one's death, whereas extrinsic goal attainment is expected to be either unrelated or even positively related to negative outcomes, such as despair and death anxiety.

Method

Participants and Procedure

The sample ($N = 213$) was recruited by first year bachelor psychology students at Ghent University (Belgium) as part of a requirement for the developmental psychology course. Students formed 6-person groups and each group contacted one male and one female grandparent of two different group members. In order to guarantee meaningful age variation the students contacted one grandparent younger than 75 years and one grandparent older than 75 years. Students (who were unaware of the exact purpose of the study) visited their grandparents at home and introduced the study as an investigation on “the well-being of older individuals”. They assisted their grandparents in the completion of the questionnaire if necessary. This guided sampling procedure resulted in almost an 100% response rate and a balanced sample in terms of gender (55% female) and age (52% being younger than 75 years and 48 percent being older than 75 years; $M = 75.2$ years; $SD = 6.03$). With respect to level of education, 62% had completed their education at the age of 15 year, 23% had completed their education at the age of 18 year and 15% had followed higher education.

Measures

Intrinsic and Extrinsic Goal Attainment. Goal attainment was assessed with the same items and scales as in Study 1. However, different from Study 1, we used a 7-point instead of a 5-point Likert scale to assess goal attainment, with item responses varying between 1 (*Completely Not Attained*) and 7 (*Completely Attained*). Internal consistency of the intrinsic goal attainment scale, which was created by averaging the self-acceptance ($M = .4.80$, $SD = 1.17$), affiliation ($M = 5.60$, $SD = 1.04$), and community contribution ($M = 4.97$, $SD = 1.04$) scales was .85. The Cronbach α of the extrinsic goal attainment scale, which represented the average of the social recognition ($M = 4.66$, $SD = 1.14$), physical appeal ($M = 4.27$, $SD = 1.21$), and financial success ($M = 3.76$, $SD = 1.27$) subscales was .82.

Well-being. Participants completed the same life satisfaction scale as in Study 1 (Cronbach's $\alpha = .79$; $M = 3.92$, $SD = .74$). In addition, they completed the 7-item vitality scale

(Ryan & Fredericks, 1997), which measures individuals' feelings of vitality, vigor, and energy (Cronbach's $\alpha = .90$; $M = 3.41$, $SD = .82$). Items were rated on a scale varying between 1 (*Totally Disagree*) and 5 (*Totally Agree*). Because these two indices of well-being were highly correlated, $r(213) = .53$, $p < .001$, the two variables were averaged to form a composite well-being score.

Ill-being. Participants completed a shortened 6-item version of Center for Epidemiological Studies-Depression (CES-D) scale (Radloff, 1977), indicating how often they experienced specific depressive symptoms during the past week. Ratings were made on a scale ranging from (0) *rarely or none of the time (less than one day)*, over (1) *a couple of times (1-2 days)*, and (2) *sometimes or regularly (3-4 days)*, to (3) *most or all of the time (5-7 days)*. For each individual, a total severity of depression score was calculated by averaging the responses ($M = .45$, $SD = .52$). Cronbach's α was .77.

Ego-integrity and Despair. Given the low internal consistencies of the ego-integrity and despair scales in Study 1 and the apparent item overlap between some of the ego-integrity and life satisfaction items (e.g., "I am satisfied with my life, work, and accomplishments"), we aimed to construct a new ego-integrity and despair scale. In doing so, we selected items from various existing scales (e.g., Constantinople, 1976; Domino & Affonso, 1990) and we constructed items based on Erikson's writings. The included items ego-integrity items referred to an accepting attitude towards the positive and negative sides of one's past living, whereas the despair items referred to a sense of bitterness and resentment with respect to earlier life experiences. Twenty-six items were rated on a 5-point Likert scale ranging from 1 (*Totally Disagree*) to 5 (*Totally Agree*). We ran a series of Principal Component Analyses using pro-max rotation. Considering the eigenvalues, the cross-loadings, and the interpretability of the factor structure, we finally retained two factors that could be interpreted as indicative of ego-integrity (8 items; e.g., "I can accept faults and missed opportunities"; "I have learned to accept myself and others as I became older") and despair (10 items; e.g., "I look back upon my life with a feeling of discontent and regret"; "When one is

old, one can only have regrets, because it is too late to do something about it"). Cronbach's α s of these two subscales were .67 ($M = 4.01$, $SD = .50$) and .74 ($M = 2.29$, $SD = .66$), respectively.

Death Attitude Profile-Revised (DAP-R). We selected two subscales of a multidimensional measure of death attitudes developed by Wong, Reker, and Gesser (1994; DAP-R): the fear of death (e.g., "The prospect of my own death arouses anxiety in me"; $M = 3.41$, $SD = 1.42$) and the death acceptance scale ("Death is a natural aspect of life"; $M = 5.97$, $SD = .88$). Items were rated on a 7-point Likert scale, varying between 1 (*Completely Disagree*) and 7 (*Completely Agree*). Internal consistencies were .81 for death anxiety and .63 for death acceptance.

Results

Preliminary Analyses

Independent sample t -tests indicated that both genders did not differ in intrinsic or extrinsic goal attainment. With respect to the outcome variables, females scored significantly higher on depression ($M = .54$, $SD = .59$) and death anxiety ($M = 3.59$, $SD = 1.49$) compared to males ($M = .33$, $SD = .40$; $M = 3.18$, $SD = 1.33$); $t(211) = -3.05$, $p < .01$ and $t(211) = -2.12$, $p < .05$, respectively. Educational level did not yield significant correlations with the outcome variables, except for a negative correlation with death acceptance, $r(213) = -.14$, $p = .05$. Age was positively correlated with ego-integrity, $r(213) = .21$, $p < .001$. No other significant correlations were obtained.

Table 3 reports the correlations between goal attainment and psychological health as well as death attitudes. These results corroborate the findings obtained in Study 1. Intrinsic goal attainment was positively correlated with well-being and ego-integrity, and also a positive relationship between extrinsic goal attainment and well-being emerged. Furthermore, intrinsic goal attainment was negatively correlated with depressive symptoms, despair and death anxiety, whereas extrinsic goal attainment was unrelated to these outcomes. None of the two goal attainment scores were related to death acceptance. A positive correlation between the intrinsic

and extrinsic goal attainment scales was noted. Several meaningful relationships emerged among the outcomes variables as well. Well-being was positively correlated with ego-integrity and negatively with depressive symptoms and despair. Depressive symptoms were negatively correlated with ego-integrity and were positively correlated with despair. Ego-integrity was negatively related to despair and positively to death acceptance, whereas death acceptance and death anxiety were negatively related to one another.

Primary Analyses

Similar to Study 1, we examined the relative contribution of intrinsic and extrinsic goal attainment in the prediction of psychological health and death attitudes by performing a series of hierarchical regression analyses in which the demographic variables were entered in Step 1 and intrinsic and extrinsic goal attainment scores were entered in Step 2. The results of these hierarchical regression analyses can be found in Table 4.

Entering the goal attainment variables in Step 2 was associated with a significant increase in explained variance in each of the six outcomes. Intrinsic goal attainment yielded a significant positive association with all psychological health measures (i.e., well-being, ego-integrity, and death acceptance) as well as a significant negative association with ill-being measures (i.e., depressive symptoms, despair, and death anxiety). Conversely, extrinsic goal attainment was found to have either a non-significant association (in the case of well-being, depressive symptoms, and death anxiety), or even to yield a negative association with health outcomes (in the case of ego-integrity and death acceptance) and to contribute positively to ill-being (in the case of despair).

Brief Discussion

The regression analyses conducted in Study 2 revealed that, analogous to Study 1, intrinsic goal attainment yielded a unique positive association with psychological health, whereas extrinsic goal attainment was either unrelated, or contributed negatively to psychological health and

positively to ill-being. Specifically, intrinsic goal attainment had a positive association with ego-integrity and psychological well-being and was negatively related to the experience of depression and despair among older adults, whereas extrinsic goal attainment showed a positive association with despair and bitterness and a negative association with ego-integrity. With respect to death attitudes, intrinsic goal attainment contributed to an accepting attitude towards one's own death and was negatively related to fear of one's own death, whereas the attainment of extrinsic goals was negatively associated with death acceptance.

It should be noted that the negative associations of extrinsic goal attainment only became evident in the regression analysis, which controls for the shared variance between both types of goal attainment. Thus, the lack of negative association between extrinsic goal attainment and outcomes at the correlational level seemed to be obscured by the fact that extrinsic goal attainment goes hand in hand with intrinsic goal attainment. Therefore, controlling for the shared variance between both types of goal attainment indicated that extrinsic goal attainment per se is associated with impaired psychological functioning among older adults.

General Discussion

At the end of their life, individuals are likely to engage in a life review (see Erikson, Erikson, Kivnick, 1986), considering among other important issues the extent to which they have been able to fulfill their lifelong ambitions. Based on Self Determination Theory (SDT; Deci & Ryan, 2000; Vansteenkiste, Ryan, & Deci, in press), we suggested that the *type* of goals one has aspired and attained, rather than the attainment of life goals per se, is critically important for well-being and integrity in old age. Indeed, the kind of goals people have set out for themselves and realized at the end of their lives might differ considerably in their foci. Following the mass media's emphasis on the 'good life' (Kasser & Sheldon, 2004), some older individuals might have been concerned during their life with accumulating wealth, impressing others through their achievements and their

attractive looks. Other individuals are likely to have adopted a less outward oriented focus, for instance by having tried to contribute in meaningful ways to society, by having focused on the development of their talents, and by having tried to be empathic towards others as they value trustworthy and close relationships. Whereas the latter category of goals is labeled 'intrinsic' within SDT, the former goals are considered to be 'extrinsic'. SDT holds that the valuation and attainment of intrinsic goals is more conducive to the satisfaction of one's basic psychological needs, whereas extrinsic goals contribute little, if anything, to the satisfaction of psychological needs (Kasser, 2002; Vansteenkiste, Neyrinck et al., 2007).

The most important aim of the current research was to examine the untested hypothesis that the attainment of intrinsic goals is more conducive for old people's psychosocial functioning compared to the attainment of extrinsic goals. In particular, we expected both types of goal attainment to show differential relations with old individuals' overall well-being and ill-being as well as with a set of age-specific outcomes, such as individuals' way of coping with the last psychosocial identity conflict in life – integrity versus despair (see, Erikson, 1963, 1982; Erikson et al., 1986) - and attitudes towards one's own death.

In line with our expectations, intrinsic goal attainment was systematically and uniquely positively related to psychological well-being and negatively related to ill-being across the two present studies, whereas extrinsic goal attainment yielded no additional effect on these outcomes after controlling for the extent to which older individuals had achieved their intrinsic ambitions. Similarly, the attainment of intrinsic goals was associated with a greater experience of inner harmony and serenity, as indexed by higher ego-integrity, and it predicted fewer experiences of bitterness and resentment in Study 2. Extrinsic goal attainment, in contrast, was either unrelated (Study 1) or negatively related to the experience of inner harmony, whereas it is associated with stronger feelings of despair and disappointment.

These effects are probably due to the fact that the pursuit of intrinsic goals represents a more fundamental and organismic growth trajectory (Kasser, 2002; Vansteenkiste, Deci, & Ryan, in press), providing people with a sense of inner peace. Fromm (1955) already asserted that a “being orientation”, where one is focused on the attainment of one’s inner potential, is more conducive to psychological health compared to adopting a “having orientation”, which is based on a false need for material objects and an endless desire to consume. Indeed, when older adults find out they have achieved their extrinsic goals they have been striving for, they might perhaps come to the conclusion that they have spent their energy on the wrong goals, as these goals do not yield the social admiration and happiness one has hoped for. Such a sad conclusion might give rise to feelings of disappointment and bitterness, while simultaneously provoking a sense of restlessness and lack of inner peace, as one has difficulties to accept and integrate these extrinsic goal strivings in one’s sense of self.

The discrepancy between the expected and actually experienced happiness and satisfaction that goes along with extrinsic goal attainment (Kasser, 2002) might equally explain the observed negative effect of extrinsic goal attainment on death acceptance. The feelings of disappointment and frustration that go along with finding out that extrinsic goal attainment represents a relatively empty endeavor together with the observation that “time is running out” to rectify these wrong goal strivings might lead older adults to have difficulties in accepting their own death. They are less able to accept that they have to die, although extrinsic goal attainment was not found to be associated with death anxiety in the current study. Future research might want to replicate this pattern of findings and to additionally examine older adults’ affective experiences that go along with the attainment of intrinsic and extrinsic goals. Based on SDT, we would predict that, although the attainment of extrinsic goals might be associated with some hedonic goal satisfaction or feelings of relief and tension reduction, it is likely that the engendered positive feelings will be

rather short-lived, as extrinsic goal attainment is less likely to be associated with basic need satisfaction.

The observed pattern of associations between intrinsic goal attainment and death attitudes was quite different. When older individuals report to have achieved intrinsic goals during their life time, they were more likely to accept their own death and were less afraid of their own death. It seems as if they were “ready to die”. This is in line with SDT’s assumption that intrinsic goal attainment is associated with the satisfaction of the basic psychological needs for autonomy, competence and relatedness, which in turn, enables people to integrate one’s own death into their life history. Future research might want to directly examine whether accumulated amount of experienced need satisfaction during older adults’ life time can account for the beneficial effects of intrinsic goal attainment on well-being, ego-integrity and death acceptance, as hypothesized by SDT.

Goal Attainment versus Goal Valuation

Different from most previous intrinsic and extrinsic goal studies within the SDT-tradition, the present study focused on intrinsic and extrinsic goal attainment rather than on goal valuation. This choice seems justified given that especially older adults look back upon their life time, thereby considering whether they have been able to realize their ambitions. Indeed, the older individual is focused on the emotional integration of personal experiences and memories as well as the acceptance of one’s own life (Erikson, 1980; Erikson, 1997; Erikson, Erikson, & Kivnick, 1986). In reconciling the elements of one’s previous life experiences and the gradual maturation through life cycles, the older individual, placing him/herself in the array of subsequent generations, is likely to draw more and more upon his or her personal experiences and history rather than to focus more on new events, encounters, knowledge or sensations.

According to Whitbourne, Sneed, and Skultety (2002), individuals' personal interpretations of experiences in relation to their existing identity schemata shape their self-concepts and how they select, organize, and interpret events. Previous studies (e.g., Whitbourne & Collins, 1998) revealed that older individuals are typically engaged in identity assimilation processes. Identity *assimilation*, or the strategy to incorporate and adapt experiences to fit within one's established identity schema, allows the aging individual to maintain self-esteem while negotiating experiences of loss and decline in resources associated with the aging process (Whitbourne et al., 2002). Assimilation strategies are described as a way of approaching new experiences through a lens coloured by the past. It is possible that increased engagement in this type of processes among older individuals focuses them on primarily on what goals they have attained, rather than on what new goals they aspire.

In the words of Erikson (1980), in the later stages of life, there is a "...meaningful interplay between beginning and end as well as some finite sense of *summary* and possibly, a more active anticipation of dying" (p. 63, italics added). In this context, experienced goal attainment contributes to making a balance of one's life and may be an important determinant of older adults' views towards the last stage of their live, that is, their own death.

Although we suggest it is most instructive to look at the association between goal attainment and psychological health in older age, future research might want to examine whether the effects of intrinsic and extrinsic goal attainment are similar for older adults who attach high importance to these different goal-contents. Indeed, based on expectancy-valence theories (Feather, 1992; Wigfield & Eccles, 2000), it can be predicted that the non-attainment of particular goal-contents is especially frustrating yielding a negative association with psychological well-being, especially if older adults strongly value these goal-contents. Conversely, the attainment of particular goal-contents should yield a more beneficial effect on older adults' well-being if they

value these goals. For instance, if older adults valued the attainment of extrinsic goals during their life time and they found out at the end of their lives that they successfully achieved these goals, they should benefit from extrinsic goal attainment. Thus, expectancy-valence theories do not suggest that the attainment of particular goal contents is problematic or conducive to one's well-being, but only to the extent that one valued these goal contents. Such a view is different from the SDT-perspective, which suggests that intrinsic goal attainment should engender better psychological health even when one does not value attaining these goals. According to SDT, the attainment of intrinsic goals is associated with more accumulated need satisfaction during one's life time (Vallerand, O'Conner, & Blais, 1989). Future research might want to examine in greater detail these contradicting hypotheses.

Limitations

The present research has a number of noteworthy limitations. First, the research is cross-sectional and correlational in nature, which precludes causal inferences. Although we suggested that intrinsic goal attainment fosters psychological well-being, it is also possible that experiencing more psychological well-being provides one with the necessary resources to more successfully attain one's intrinsic goals. Second, we only tapped on particular aspect of death acceptance, whereas multi-dimensional measures of death acceptance have been developed (e.g., Cicirelli, 1998; Gesser et al., 1987) that differentiate, for instance, between rational and affective components of death acceptance or that include assessments of belief in an afterlife. It would be worthwhile for future research to include these other death attitudes to examine whether intrinsic and extrinsic goal attainment yields similar effects on these different types of death acceptance. Third, instead of solely relying on questionnaires to assess people's death attitudes, other instruments such as projective tasks (e.g., drawings of death) or more open-ended narrative measures (Niemeyer, Moser & Wittkowski, 2003) might be used to cross-validate the present

findings. Finally, because the participants of the present study 2 were all grandparents, whereas in study 1 the social network of grandparents was solicited, it is likely that older people having no children are underrepresented in the present samples. Older people having no children may have had a greater focus on extrinsic goals, which they eventually having pursued successfully. An interesting avenue for future research, therefore, is to look whether the present findings apply to older adults having no children.

Conclusion

“Non, je ne regrette rien”, sang Edith Piaf, a famous French singer. The central question we tried to answer in the present studies is whether old people can agree with those words. It is revealed that not all old people are able to formulate an affirmative answer to this question, depending on the types of ambitions they have been striving for and have achieved during their life time. Indeed, ‘not all life goals are created equally’ (Ryan, Sheldon, Kasser, & Deci, 1996): Whereas the attainment of intrinsic goals enables the elderly to experience a sense of psychological well-being, to derive a sense of ego-integrity, and to more openly integrate their final destiny in their lives, this is not the case for those who organized their lives around the pursuit and attainment of extrinsic goals. In contrast, in spite of our consumer culture’s emphasis on the pursuit of material success as the key path towards psychological well-being (Kasser & Kanner, 2004), the attainment of such goals does not seem to yield any positive effects. Hence, young and middle aged individuals might do well to downplay the pursuit and attainment of extrinsic goals and to spend more energy and time in intrinsic goal ambitions during their life time, at least if they want to maximize the chances of having a satisfying and gratifying old age.

Footnotes

1. Although the concept of fear of death is more object-oriented and specific, whereas the concept of death anxiety is more diffuse and non-specific, we will use both terms in an interchangeable manner, as most researchers on death attitudes seem to be doing (Niemeyer, Moser, & Wittkowski, 2003; Tomer, 1992).

AUTHOR NOTE

The author names are listed in alphabetical order. Both authors contributed equally to this research. The authors also wish to express their gratitude to Bart Soenens and Willy Lens who commented a previous version of the manuscript.

References

- Arndt, J., Solomon, S., Kasser, T., & Sheldon, K. M. (2004). The urge to splurge: A terror management account of materialism and consumer behavior. *Journal of Consumer Psychology, 14*, 198-212.
- Allport, G. W., & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology, 5*, 432-443.
- Ardelt, M., & Koenig, C. (2006). The role of religion for hospice patients and relatively healthy older adults. *Research on Aging, 28*, 184-215.
- Bivens, A. J., Neimeyer, R. A., Kirchberg, T. M., & Moore, M. K. (1994). Death concern and religious belief among gays and bisexuals of variable proximity to AIDS. *Omega, 30*, 105-120.
- Brown, C. L., & Lewis, M. J. (2003). Psychosocial development in the elderly: An investigation into Erikson's ninth stage. *Journal of Aging Studies, 17*, 415-426.
- Christopher, A. N., Drummond, K., Jones, J. R., Marek, P., & Therriault, K. M. (2006). Beliefs about one's own death, personal insecurity, and materialism. *Personality and Individual Differences, 40*, 441-451.
- Cicirelli, V. G. (1998). Personal meanings of death in relation to fear of death. *Death Studies, 22*, 713-733.
- Cohen, A., Pierce, J., Chambers, J., Meade, R., Gorvine, B., & Koenig, H. (2005). Intrinsic and extrinsic religiosity, belief in the afterlife, death anxiety, and life satisfaction in young Catholics and Protestants. *Journal of Research in Personality, 39*, 307-324.
- Constantinople, A. (1969). An Eriksonian measure of personality development in college students. *Developmental Psychology, 1*, 357-372.

- Deci, E. L., & Ryan, R. M. (2000). The "what" and the "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.
- De Witte, H. (2004). Ideological orientations and values. *Encyclopedia of Applied Psychology*, 1-10.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*, 71-75.
- Domino., G., & Affonso, D. D. (1990). A personality measure of Erikson's life stages: The inventory of psychosocial balance. *Journal of Personality Assessment, 54*, 576-588.
- 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.
- Erikson, E. H. (1963). *Childhood and society*. New York: Norton.
- Erikson, E. H. (1982). *The life cycle completed*. New York: W. W. Norton & Company.
- Erikson, E. H., Erikson, J. M., Kivnick, H. Q. (1986). *Vital involvement in old age: The experience of old age in our time*. New York: Norton.
- Feather, N. T. (1992). Values, valences, expectations, and actions. *Journal of Social Issues, 48*, 109-124.
- Fromm, E. (1955). *The sane society*. New York: Holt, Rinehart, & Winston.
- Gesser, G., Wong, P.T. P., & Reker, G. T. (1987). Death attitudes across the life-span: The development and validation of the attitude profile. *Omega, 18*, 113-128.
- Greenberg, J. R., Solomon, S., Pyyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., Simon, L., & Pinel, E. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves an anxiety-buffering function. *Journal of Personality and Social Psychology, 63*, 913-922.

- 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. (2006). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology, 89*, 800-816.
- Hawley, G. A. (1988). *Measures of Psychosocial Development*. Odessa, Florida, Psychological Assessment Resources, Inc.
- Hsieh, C. M. (2005). Age and relative importance of major life domains. *Journal of Aging Studies, 19*, 503-512.
- Kasser, T. (2002). *The high price of materialism*. London: The MIT press.
- Kasser, T., & Kanner, A. D. (2004). *Psychology and consumer culture: The struggle for a good life in a materialistic world*. Washington, DC: American Psychological Association.
- Kasser, T., & Ryan, R.M. (1993). A dark side of the American dream: Correlates of financial success as 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 for what you wish: 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). Goettingen, Germany: Hogrefe & Huber.
- Kasser, T., Ryan, R.M., Couchman C.E., & Sheldon, K. (2004). Materialistic values: Their causes and consequences. In T. Kasser & A.D. Kanner,. (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 11-28). Washington, DC: American Psychological Association.

- Kasser, T., & Sheldon, K. M. (2004). Nonbecoming, alienated becoming, and authentic becoming: A goal-based approach. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of Experimental Existential Psychology* (pp. 480-496). New York: The Guilford Press.
- Lucas, M. (2004). Existential regret: A crossroads of existential anxiety and existential guilt. *Journal of Humanistic Psychology, 44*, 58-70.
- Neyrinck, B., Lens, W., & Vansteenkiste, M. (2005). Goals and regulations of religiosity: A motivational analysis. In M.L. Maehr & S. Karabenick (Eds.). *Advances in motivation and achievement* (pp. 77-106). Greenwich, Conn.: Jai Press Inc.
- Niemeyer, R. A. (1994). *Death anxiety handbook: Research, instrumentation, and application*. London: Taylor and Francis.
- Niemeyer, R. A., Moser, R. P., & Wittkowski, J. (2003). Assessing attitudes toward dying and death : Psychometric considerations. *Omega, 47*, 45-76.
- Niemeyer, R. A., Wittkowski, J., & Moser, R. P. (2004). Psychological research on death attitudes: An overview and evaluation. *Death Studies*.
- Niemiec, C. P., Deci, E. L., & Ryan, R. M. (2006). *The path taken: Consequences of attaining intrinsic and extrinsic aspirations in post-college life*. Unpublished Manuscript, University of Rochester.
- Peck, R. C. (1968). Psychological developments in the second half of life. In B. L. Neugarten (Ed.), *Middle age and aging* (pp. 88-92). Chicago: University of Chicago Press.
- Rijavec, M., Brdar, I., & Miljkovic, D. (2006). Extrinsic versus intrinsic life goals, psychological needs and life satisfaction. In Delle Fave, A. (Ed.), *Dimensions of well-being. Research and intervention* (pp. 91-104). Milano, Franco Angeli.
- Rohan, M.J. (2000). A rose by a name? The values construct. *Personality and Social Psychology Review, 4*, 255-277.

- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Ryan, R. M., & Deci, E. L. (2006). Self-regulation and the problem of human autonomy: Does psychology need choice, self-determination, and will? *Journal of Personality, 74*, 1557-1586.
- Ryan, R. M., Sheldon, K. M., Kasser, T., & Deci, E. L. (1996). All goals were not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking motivation and cognition to behavior* (pp. 7-26). New York: Guilford.
- Schwartz, S.H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M.P. 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 structure and contents of human values? *Journal of Social Issues, 50*, 19-45.
- Sebire, S., Standage, M., & Vansteenkiste, M. (in press). Development and validation of the Goal Content for Exercise Questionnaire. *Journal of Sport & Exercise Psychology*.
- 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., & McGregor, H. A. (2000). Extrinsic value orientation and the "Tragedy of the Commons". *Journal of Personality, 68*, 383-411.
- Solomon, S., Greenberg, J. L., & Pyszczynski, T. A. (2004a). The cultural animal: Twenty years of terror management theory and research. In J. Greenberg, L. Koole, and T. Pyszczynski

- (Eds.), *Handbook of Experimental Existential Psychology* (pp. 13-34). London: Guilford Press.
- Solomon, S., Greenberg, J. L., & Pyszczynski, T. A. (2004b). Lethal consumption: Death-denying materialism. In T. Kasser & A. D. Kanner (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 127-146). Washington DC: American Psychological Association.
- Thorson, J. A., & Powell, F. C. (1990). Meanings of death and intrinsic religiosity. *Journal of Clinical Psychology, 46*, 379-391.
- Tomer, A. (1992). Death anxiety in adult life – Theoretical perspectives. *Death Studies, 16*, 475-506.
- Tomer, A., & Eliason, G. (1996). Toward a comprehensive model of death anxiety. *Death Studies, 20*, 343-365.
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M.P. Zanna (Ed.), *Advances in Experimental Social Psychology, Vol. 29*, (pp. 271-360). New York: Academic Press.
- Vallerand, R. J., O'Conner, B. P., & Blais, M. R. (1989). Life satisfaction of elderly individuals in regular community housing, in low-cost community housing, and high and low self-determination nursing homes. *International Journal of Aging and Human Development, 28*, 277-283.
- Van Hiel, A., & Vansteenkiste, M. (2008). *Development and validation of a questionnaire probing Erikson's last developmental phase: Integrity versus despair*. Manuscript in preparation.
- 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., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal-contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist, 41*, 19-31.
- Vansteenkiste, M., Neyrinck, B., Niemiec, C. P., Soenens, B., De Witte, H., & Van den Broeck, A. (2007). On the relations among work value orientations, psychological need satisfaction, and job outcomes: A self-determination theory approach. *Journal of Occupational and Organizational Psychology, 80*, 251-277.
- Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating learning, performance, and persistence: The synergistic role of intrinsic goals and autonomy-support. *Journal of Personality and Social Psychology, 87*, 246-260.
- Vansteenkiste, M., Soenens, B., & Duriez, B. (in press). Presenting a positive alternative to materialistic strivings and the thin-ideal: Understanding the effects of extrinsic relative to intrinsic goal pursuits. In Lopez, S. J. (Ed.) (in press). *Positive psychology: Exploring the best in people*. Westport, CT: Greenwood Publishing Company.
- Vansteenkiste, M., Ryan, R. M., & Deci, E. L. (in press). Self-determination theory and the explanatory role of psychological needs in human well-being. In L. Bruni, F. Comim, & M. Pugno (Eds.), *Capabilities and happiness*. Oxford, UK: Oxford University Press.
- Wong, P., Reker, G., & Gesser, G. (1994). Death Attitude Profile-Revised: A multidimensional measure of attitudes toward death. In R. A. Neimeyer (Ed.), *Death anxiety handbook: Research, instrumentation, and application* (pp. 121-148). London: Taylor and Francis.
- Whitbourne, S.K., & Collins, K.C. (1998). Identity and physical changes in later adulthood: Theoretical and clinical implications. *Psychotherapy, 35*, 519-530.

- Whitbourne, S.K., Sneed, J.R., & Skultety, K.M. (2002) Identity processes in adulthood: Theoretical and methodological challenges. *Identity: An International Journal of Theory and Research*, 2, 29-45.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, 25, 68-81.
- Wittkowski, J. (2001). The construction of the multidimensional orientation toward dying and death inventory (MODDI-F). *Death Studies*, 25, 479-495.

Table 1

Correlations among Measured Variables - Study 1 (N = 202)

	1	2	3	4
1. Intrinsic goal attainment				
2. Extrinsic goal attainment	.56***			
3. Ego-integrity	.43***	.19**		
4. Despair	-.06	.13	-.20**	
5. Life satisfaction	.46***	.33***	.55***	-.29***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 2

Standardized Regression Coefficients of Hierarchical Regression Analyses Predicting Psychological Health on the Basis of Demographic Variables (Step 1) and Attainment of Intrinsic and Extrinsic Goals (Step 2) - Study 1 (N =202)

	Well-being		Ego-Integrity		Despair	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Demographic variables						
Age	.02	-.01	.17*	.16*	-.01	-.03
Gender	.16*	.12	.09	.07	-.12	-.14
Level of education	-.04	-.02	.03	.03	-.31*	-.28***
Goal attainment						
Intrinsic goal attainment		.36***		.43***		-.17
Extrinsic goal attainment		.15		-.06		.26**
R-square	.03	.21	.04	.19	.11	.15
R-square change		.24***		.16***		.04*

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3

Correlations among Measured Variables - Study 2 (N = 213)

	1	2	3	4	5	6	7
1. Intrinsic goal attainment							
2. Extrinsic goal attainment	.61***						
3. Composite well-being	.47***	.33***					
4. Depressive symptoms	-.25***	-.11	-.54***				
5. Ego-integrity	.34***	.11	.27***	-.14*			
6. Despair	-.20**	.01	-.39***	.29***	-.15*		
7. Death acceptance	.08	-.07	.13	-.05	.14*	-.18*	
8. Death anxiety	-.16*	.13	-.13	.12	-.04	.24***	-.32***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

Standardized Regression Coefficients of Hierarchical Regression Analyses Predicting Psychological Health on the Basis of Demographic Variables (Step 1) and Attainment of Intrinsic and Extrinsic Goals (Step 2) - Study 2 (N = 213)

	Well-being		Depressive symptoms		Ego-integrity	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Demographic variables						
Age	.02	-.04	.04	.08	.21***	.16*
Gender	-.06	-.12	.20**	.22***	.01	-.02
Level of education	-.08	-.14*	-.02	.01	-.06	-.11
Goal attainment						
Intrinsic goal attainment		.45***		-.31***		.44***
Extrinsic goal attainment		.07		.07		-.16*
R-square	.01	.24	.04	.12	.05	.18
R-square change		.23***		.08***		.13***
	Despair		Death acceptance		Death anxiety	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Background variables						
Age	-.05	-.02	-.07	-.07	-.07	-.04
Gender	.05	.06	.08	.06	.13	.14*
Level of education	-.07	-.04	-.14*	-.16*	-.10	-.07
Goal attainment						
Intrinsic goal attainment		-.30***		.22*		-.21*
Extrinsic goal attainment		.20*		-.20*		.07
R-square	.01	.07	.03	.06	.03	.07
R-square change		.06**		.03*		.04*

Note: * $p < .05$; ** $p < .01$; *** $p < .001$