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# Things Will Get Better: The Anxiety-Buffering Qualities of Progressive Hope

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*Terror management theory argues that people can cope with the psychological threat of their own death by bolstering faith in their cultural worldviews. Based on the notion that—since the Age of Enlightenment—belief or faith in progress has become one of the defining qualities of modern Western thinking, we expected that this belief serves as a buffer against mortality concerns. Three experiments were conducted to test the relationship between existential anxiety and belief in progress. Results of Experiment 1 show that mortality salience increased participants' disagreement with an essay on the illusory notion of human progress. The same essay increased death-thought accessibility in Experiment 2. In Experiment 3, belief in progress and mortality salience were manipulated. Results show that bolstering belief in progress buffered the effects of mortality salience on death-thought accessibility and diminished subsequent defensive reactions to a cultural worldview-threatening essay.*

**Keywords:** *mortality salience; belief in progress; hope; worldview defense; death-thought accessibility*

Philip Larkin wrote of religious faith as . . . a system of falsehoods contrived to shield humans from their fear of death. His description may once have had some validity, but it is better applied nowadays to the secular faith in progress.

John Gray, 2004

In his books *Black Mass* (2007) and *Heresies: Against Progress and Other Illusions* (2004), British philosopher John Gray argues that human progress is a myth. Although he admits that there has been progress in science and technology, progress in ethics and politics is claimed to be utopian and a superstition (Gray, 2004).

Defining himself as a realist, Gray's main argument is that this myth of progress and utopian thinking are widespread and deeply rooted in the Western world. In his view, progressive hope is a part of its religious heritage that has transferred into secular thought (Gray, 2004, 2007). Apparently, we need faith in progress and the belief that the world of tomorrow can be a better place than the one we live in today. This can be related to work on positive illusions (Taylor & Brown, 1988), showing that people tend to be oriented toward the future and are generally confident that things will improve for them (more so than for others). It needs to be added that these illusions are quite specific and focus on comparisons with peers, while progressive hope is aimed at a more general (i.e., societal, moral, scientific, environmental) level. In the words of Gray (2005): "We seek in the idea of progress what theists found in the idea of providence: an assurance that history need not be meaningless." Moreover, Gray argues that this faith is persistent; we do not want to be confronted with regression and want to believe that history is not cyclic but, indeed, progressive. Moral progress, for example, imbues the course of history with meaning ("we've come a long way"), whereas the idea that history is cyclic can render any progress obtained meaningless because then, ultimately, there is only moral "gain and loss" (Gray, 2005). In sum, although the Age of Enlightenment brought us universal secular values such as freedom and tolerance (Gray, 2007), its core premise of faith in progress seems to offer us a form of hope much in the same way as religion does.

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We know from terror management theory (TMT; Greenberg, Solomon, & Pyszczynski, 1997; Pyszczynski, Greenberg, & Solomon, 1999) that religion can be an important protective structure against existential anxiety (Dechesne et al., 2003; Norenzayan & Hansen, 2006; Pyszczynski, Solomon, & Greenberg, 2003). Conversely, challenging religious beliefs results in increased mortality awareness for those who subscribe to these beliefs (Friedman & Rholes, 2007). This raises the question of what might happen when belief in progress is called into question. What happens when progressive hope is challenged? Does belief in progress protect us from existential concerns in the same vein as religious beliefs?

According to TMT, human beings are unique in their ability to self-reflect and, as a consequence, also in their ability to ponder the finiteness of their existence. Combined with a biological predisposition toward survival, this juxtaposition creates the potential for existential terror. To deal with this anxiety-provoking paradox, human beings developed a dual-component cultural anxiety buffer consisting of faith in the cultural worldview (which can consist of both secular and religious elements) and self-esteem. The cultural worldview, defined as a humanly constructed symbolic universe, imbues one's life with meaning, order, permanence, and stability (Pyszczynski et al., 2003). The combination of subscribing to a cultural worldview and contributing to its values (which according to TMT is the basis of self-esteem) functions as an existential buffer that wards off potential terror resulting from death anxiety. A substantial amount of research confirms this basic assumption of TMT. Moreover, reminding people of death tends to increase their need to bolster and defend these protective structures (Greenberg et al., 1997). This is most commonly investigated by enhancing mortality salience and subsequently presenting alternative worldviews to participants, after which they are given the opportunity to derogate the individual(s) behind that worldview (e.g., the author of an essay). This derogation typically comprises a firm rejection of alternative worldviews and questioning the intelligence of individuals that subscribe to these views. In other words, when people are confronted with their mortality, they tend to rate individuals with different cultural beliefs as less intelligent and disagree with them to a greater extent (Pyszczynski et al., 2003) as compared to control participants. This deviation of worldviews can be based on religious beliefs (e.g., Christians derogating a Jewish or a Muslim author; Greenberg et al., 1990; Hayes, Schimel, & Williams, 2008) and on ethnic and/or national identities (German participants derogating Turks, Italians emphasizing the Italian identity, Americans expressing greater veneration for the American flag and showing increased support for president George W. Bush; see Greenberg, Simon, Porteus,

Pyszczynski, & Solomon, 1995; Pyszczynski, 2004). Worldview defense has also been found as a reaction to moral transgressors (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) because these indirectly reject one's worldview by violating its standards. More direct evidence for the buffering quality of bolstering faith in one's cultural worldview is provided by research showing that worldview defense reduces death-thought accessibility (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997).

One could argue that cultural worldview defense as described previously does not paint an optimistic picture for intergroup relations. Indeed, to cope with mortality concerns, we respond more favorably toward those who are "on our side" and subscribe to the same cultural norms and values as we do. At the same time, those who violate our cultural norms and values evoke more negative reactions (Greenberg et al., 1997). Progressive hope, on the other hand, is about holding faith in the ongoing and cumulative progress we go through as human beings. Believing that the world of tomorrow will be better than the one we live in today seems to stand in stark contrast to the enhanced group-based belief distinctions that characterize typical worldview defense reactions. Moreover, the openness to change that inevitably accompanies progress seems to detrimentally oppose the conservative clinging to, and defending of, one's own worldview.

Given that belief in progress is deeply rooted in contemporary society (Gray, 2004, 2007), we argue that it is worth investigating the extent to which this belief might serve as a more positive alternative to cultural worldview defense. Thus, the main purpose of the current research is to investigate whether Gray's earlier quote concerning belief in progress as a shield against mortality concerns can be related to TMT; that is, does secular progressive faith provide protection from existential concerns?

Three experiments were conducted to investigate the relationship between existential anxiety and belief in progress. In Experiment 1, we tested whether mortality salience leads people to more vigorously defend progressive faith. Experiment 2 examined whether threatening progressive faith would increase the amount of death-related cognitions reported by participants (i.e., death-thought accessibility). Experiment 3 more directly examined the extent to which belief in progress provides a protective existential buffer. We manipulated belief in progress and mortality salience and assessed their impact on death-thought accessibility and cultural worldview defense.

## EXPERIMENT 1

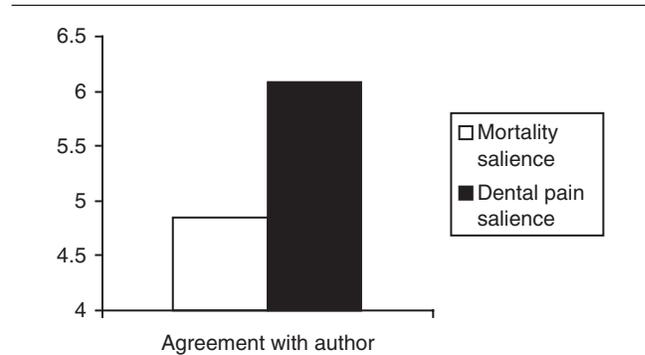
The main goal of this experiment was to assess whether mortality salience triggers defensive reactions

against a person who disagrees with the notion of progress. To test this hypothesis, we employed a design in which participants were asked to think about their mortality (vs. a control topic). Next, as a filler, they completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and a word-searching puzzle, followed by a death-thought accessibility measure. Participants then read an essay expressing some of the core ideas of Gray (2004, 2007) concerning human progress. Finally, they answered questions measuring agreement with the essay.

### Method

Thirty-three female participants (mean age = 20.52 years,  $SD = 2.21$ ) took part in a study that ostensibly was about individual differences and emotions. On arrival in the laboratory, they were seated in individual cubicles to complete a booklet of questionnaires. Participants were randomly assigned to either a mortality salience or a dental pain condition (commonly used in TMT research to establish that the effects are not driven by a general elicitation of negative affect; see Greenberg et al., 1997). In the mortality salience condition, participants were presented with two open-ended questions (Rosenblatt et al., 1989): "Please briefly describe the emotions that the thought of your own death arouses in you" and "Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead." In the control condition, similar questions were asked with respect to dental pain.

After a brief delay (see, e.g., Arndt et al., 1997), during which participants completed the PANAS ( $\alpha$  of the 10-item negative affect index was .86) and a small, neutral word-searching puzzle as filler activities, all participants completed a death-thought accessibility measure. This measure served as a manipulation check and consisted of a word completion task in which participants were presented with 16 Dutch word fragments (in each fragment one letter was missing). Eleven of these fragments could be completed either as a death-related or a neutral word (e.g., doo . . . , which could be completed to form the words dood, the Dutch translation of death, or doof, the Dutch translation of deaf), whereas the other five word fragments could only be completed in a neutral fashion (e.g., kas . . . , which could only be completed as kast, which is Dutch for cupboard) and were included as fillers. Next, participants read an essay (171 words) that argued—in the vein of Gray (2004, 2007)—that progress is an illusion. The basic premise was that there is no moral or societal progress, despite technological and scientific advances. History is argued to be cyclic; consequentially, there is no improvement in politics and human relations. The



**Figure 1** The effects of mortality salience on agreement with the "progress is a myth" essay in Experiment 1.

NOTE: Higher scores indicate more agreement (9-point scales).

essay ended with the conclusion that human progress is a myth (see Appendix A for the complete essay). We measured the extent to which participants agreed with the author's viewpoint with four items (e.g., "Do you think the author is right?"). For each item, the answer scale ranged from 1 (*not at all*) to 9 (*completely*);  $\alpha$  was .87. Participants received course credit in exchange for their participation. One participant did not fill in the death-thought accessibility measure and was excluded from the analyses.

### Results

**Death-thought accessibility.** A one-way ANOVA with salience (mortality vs. dental pain) as the independent variable and death-thought accessibility as the dependent variable revealed a significant effect,  $F(1, 31) = 4.71, p = .038$ . Death-thought accessibility was higher in the mortality salience condition ( $M = 5.94, SD = 1.70$ ) than in the dental pain condition ( $M = 4.79, SD = 1.12$ ).

**Essay.** We conducted a one-way ANOVA with salience as the independent variable and the "agreement with the author" index as the dependent variable. As can be seen in Figure 1, participants in the mortality salience condition agreed less with the author ( $M = 4.85, SD = 1.32$ ) than did participants in the control condition ( $M = 6.08, SD = .97, F(1, 32) = 9.07, p = .005$ ). Correlational analyses confirmed this finding; death-thought accessibility showed a highly significant negative correlation with level of agreement with the essay ( $r = -.42, p < .02$ ).

**Affect.** Although the PANAS was included as a filler, we wanted to make sure that the effects reported earlier were not caused by negative affect. An index of the 10 items measuring negative affect did not differ between conditions,  $F < 1$ . Moreover, including negative affect as

a covariate in the preceding analyses did not influence the effects on death-thought accessibility and agreement with the essay.

### Discussion

The main goal of Experiment 1 was to test the relationship between existential anxiety and belief in progress. More specifically, we tested the hypothesis that mortality salience increases faith in human progress. Indeed, results show that participants who were asked to contemplate their mortality disagreed more with the “progress is a myth” essay. Moreover, correlational analyses reveal that the more accessible death-related cognitions were, the less participants agreed with the essay. This finding adds to the notion that it is specific death-related concerns that trigger negative reactions to the essay. Together, these findings suggest that faith in progress serves as a meaning-providing structure that buffers existential anxiety.

In Experiment 2, the starting point was to find evidence for the converse effect based on the death-thought accessibility hypothesis (see Schimel, Hayes, Williams, & Jahrig, 2007). This hypothesis states that if certain psychological structures buffer against mortality concerns, attacking these structures should reduce their buffering quality and, as a consequence, increase the accessibility of death-related thoughts. Thus, the same “progress is a myth” essay was presented to participants but now at the beginning of the experiment. We expected death-thought accessibility to increase after reading the essay, as compared to a control condition.

## EXPERIMENT 2

### Method

Forty-three participants (29 females) participated in this experiment and were assigned to either the anti-progress condition or a control condition. The mean age was 19.65 years ( $SD = 2.13$ ). In the antiprogess condition, participants were presented with the same “progress is a myth” essay as used in Experiment 1. In the control condition, participants read an essay that was similar in structure and length, but instead of questioning the idea of human progress it was critical of the service provided by the Dutch Railways (see Appendix A for the complete essays).

After reading the essay, participants immediately continued with the death-thought accessibility measure (the same word-completion task as in Experiment 1). No delay was included because there was no explicit reminder of mortality (see Schimel et al., 2007).

### Results and Discussion

A *t*-test with essay as the independent variable revealed that death-thought accessibility was higher in the antiprogess condition ( $M = 5.84$ ,  $SD = 1.77$ ) than in the control condition ( $M = 4.61$ ,  $SD = 1.20$ ),  $t(41) = 2.55$ ,  $p = .015$ . Thus, threatening participants’ belief in progress increased the accessibility of death-related cognitions. Together with the findings of Experiment 1, these results support our suggestion that belief in progress serves as a buffer against existential concerns. In Experiment 3, this buffering quality was examined more directly by orthogonally manipulating both belief in progress and mortality salience. It has been shown that bolstering meaning-providing structures before increasing the salience of mortality can buffer its effects on death-thought accessibility (Harmon-Jones et al., 1997; Schmeichel & Martens, 2005). Enhancing belief in progress, then, should cancel out the effects of mortality salience on death-thought accessibility.

Similarly we expect the absence of increased accessibility of death thoughts to be associated with an absence of worldview defense reactions (see Greenberg, Arndt, Simon, Pyszczynski, & Solomon, 2000). By assessing not only death-thought accessibility but also worldview defense, we intend to provide further evidence for our prediction that belief in progress protects us from fear of death.

## EXPERIMENT 3

Experiment 3 was designed to test the hypothesis that belief in progress buffers death thoughts and reduces worldview defense reactions following mortality salience. For half of the participants, belief in progress was manipulated by a short essay. In the first paragraph, they read an essay about progress in finding solutions for environmental pollution, increased quality of life, and so on. In the second paragraph it was emphasized that current problems might be solved in the near or distant future. Next, participants were asked to think about four areas in which they felt there had been progress in the last decade. After this, they were asked to briefly describe these areas. The remaining half of the participants read a neutral essay concerning public transport in the Netherlands and subsequently were asked to think about and describe four modes of transport (see Appendix B for the complete essays and task descriptions). After this, half of the participants were asked to think about their mortality (vs. a control topic). After a delay they completed a measure of death-thought accessibility, read a worldview-threatening essay, and completed the accompanying measure of worldview defense.

Thus, a 2 (belief in progress vs. control topic)  $\times$  2 (mortality salience vs. control) between-subjects design was employed, and following our hypothesis it was expected that only in the control topic/mortality salience condition participants would exhibit higher death-thought accessibility and enhanced worldview defense reactions following the reading of a threatening essay.

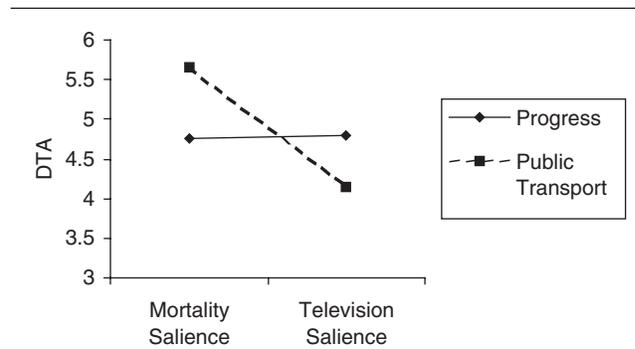
### Method

**Participants and design.** Ninety-one college students at the University of Amsterdam (71 females) participated in this study in exchange for course credit. Mean age of the participants was 20.95 ( $SD = 2.43$ ). They were randomly assigned to one of our four experimental conditions. Two participants did not fill in the death-thought accessibility measure and were excluded from the analyses.

**Procedure.** On entering the laboratory, participants were seated in individual cubicles to work through a booklet of questionnaires. They were told that they would participate in a study on individual differences and emotions. The first part of the booklet consisted of the text on human progress or the control topic (i.e., public transport). Participants were instructed to read the text carefully, think of four examples concerning human progress (or means of public transport), and briefly describe these examples. Then, the mortality salience or control manipulation followed. Mortality salience was manipulated using the same open-ended questions regarding death as in Experiment 1, and in the control condition, parallel questions were asked with respect to watching television. After this, participants completed the PANAS (Watson et al., 1988), serving both as a delay (Arndt et al., 1997) and as a check on whether the mortality salience manipulation engendered negative affect (negative affect  $\alpha = .88$ ).<sup>1</sup> Following the PANAS, participants were presented with a death-thought accessibility measure similar to the one used in Experiments 1 and 2. Finally, participants were presented with an essay (174 words) that was critical toward Dutch society and values. In a previous study, this essay has shown to elicit worldview defense reactions under mortality salience (Rutjens & Loseman, 2008). Cultural worldview defense was assessed using three items ( $\alpha = .73$ ) that measured the extent to which participants agreed with the author (reverse-scored), for example, "Do you think the author is right?" All items were answered on 9-point scales ranging from 1 (*totally disagree*) to 9 (*totally agree*).

### Results

The hypothesized pattern was that both death-thought accessibility and worldview defense would be similar in



**Figure 2** The effects of belief in progress and mortality salience on death-thought accessibility (Experiment 3).

NOTE: DTA = death-thought accessibility.

all conditions except the control topic/mortality salience condition, where they were expected to be higher.<sup>2</sup> If belief in progress serves as a buffer against mortality concerns, death-thought accessibility and worldview defense reactions in the progress/mortality salience condition should be no different from those in the two television salience conditions.

**Death-thought accessibility.** First, we submitted the scores on the death-thought accessibility measure to a 2 (buffer: belief in progress vs. control)  $\times$  2 (salience: mortality salience vs. television salience) ANOVA. We found a marginal main effect of salience,  $F(1, 85) = 3.69$ ,  $p = .06$ , and the expected interaction between buffer and salience,  $F(1, 85) = 4.10$ ,  $p < .05$  (see Figure 2). Next, we conducted a series of more specific orthogonal contrasts. To determine whether mortality salience increased death-thought accessibility only if belief in progress was *not* enhanced, we contrasted the control topic/mortality salience condition with the other three conditions. This contrast was significant,  $t(85) = 2.62$ ,  $p = .01$ . Participants in the control topic/mortality salience condition showed higher death-thought accessibility ( $M = 5.65$ ,  $SD = 1.83$ ) than did participants in the other three conditions pooled ( $M = 4.57$ ,  $SD = 1.76$ ). Next, to test whether belief in progress successfully buffered the effects of mortality salience on death-thought accessibility, the progress/mortality salience condition ( $M = 4.75$ ,  $SD = 1.62$ ) was contrasted with progress/television salience ( $M = 4.79$ ,  $SD = 1.65$ ) and control/television salience ( $M = 4.15$ ,  $SD = 2.01$ ) conditions. In line with our expectations, this contrast was not significant,  $t(60) = .61$ ,  $p = .54$ . Finally, although at first glance death-thought accessibility seems to differ across the two television salience conditions (see Figure 2), this difference was found to be nonsignificant,  $t(37) = 1.08$ ,  $p = .29$ .

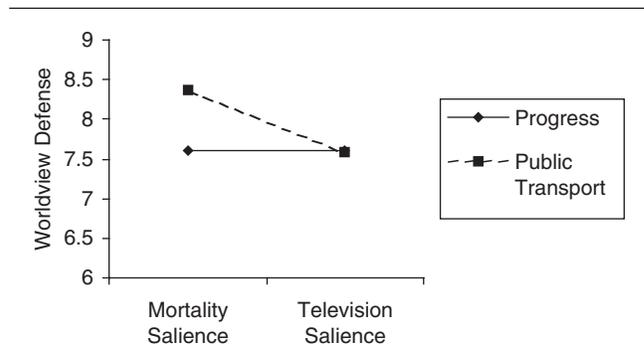
*Worldview defense.* We expected that belief in progress would not only buffer the effects of mortality salience on death-thought accessibility but also those on subsequent cultural worldview defense reactions to a threatening essay. To test this, we employed the same analyses as described earlier on worldview defense. We submitted the worldview defense scores to a 2 (buffer: belief in progress vs. control)  $\times$  2 (salience: mortality salience vs. television salience) ANOVA and found only a marginal interaction effect,  $F(1, 87) = 3.03, p = .08$  (see Figure 3). However, orthogonally contrasting the control topic/mortality salience condition with the other three conditions revealed that participants in this condition showed higher worldview defense ( $M = 8.37, SD = .85$ ) than those in the other three conditions pooled together ( $M = 7.60, SD = 1.11$ ),  $t(87) = 3.20, p = .002$ . Again, to test the buffering qualities of belief in progress, the progress/mortality salience condition ( $M = 7.61, SD = 1.08$ ) was contrasted with the progress/television salience ( $M = 7.60, SD = 1.01$ ) and control topic/television salience ( $M = 7.58, SD = 1.28$ ) conditions. As expected, this contrast was not significant,  $t(61) = .06, p = .95$ .

### Discussion

Results of Experiment 3 provide support for our hypothesis that belief in progress helps protect people from mortality concerns. Without the belief in progress manipulation, mortality salience led to higher death-thought accessibility and to increased disagreement with a worldview-violating essay. However, when belief in progress was bolstered beforehand, these effects disappeared so that both death-thought accessibility and worldview defense were similar to control levels. These findings illustrate the terror management potential of belief in progress.

## GENERAL DISCUSSION

In three experiments we investigated the viability of belief in progress as a construct that protects people from fear of death. Indeed, present results show that mortality salience increases the need to defend the notion of human progress (Experiment 1) and that questioning this notion increases death-thought accessibility (Experiment 2). Furthermore, enhancing faith in progress buffers the effects of mortality salience on both death-thought accessibility and subsequent worldview defense reactions (Experiment 3). Thus, belief in progress can be viewed as a meaning-providing construct, a secular faith that can be traced back to the 17th and 18th centuries in which Enlightened thinkers such as Voltaire, Hume, and Montesquieu argued that the advances we see in science can also be seen in other domains of life (Gray, 2004). Whereas



**Figure 3** The effects of belief in progress and mortality salience on worldview defense (Experiment 3).

NOTE: Higher scores indicate more worldview defense.

religion can imbue life with meaning by focusing on afterlife, a more secular meaning-providing construct by definition has to focus on the world we know and live in. One way of pervading our world with meaning, then, might be to hold faith in the notion that history is not cyclic but progressive. A progressive unfolding of events assures us that even the extremely negative events (e.g., wars, slavery) mankind has witnessed now belong to the past and, because we have improved ourselves, will never reoccur in the future. Progress assures us that what is gained will never be lost (Gray, 2004) and what is not gained yet will be obtained in the future. Moreover, ongoing progress would ultimately lead to a utopian society. This might well be the highest goal attainable for those with a more secular faith.

In our view, the current findings provide more insight in the role of cultural worldviews in TMT. Defensive reactions against worldview violators, as a means to alleviate existential anxiety, are generally of a religious, ethnic, or nationalistic nature. Moreover, according to TMT, the mere notion of the existence of people with alternative cultural and/or religious conceptions of reality is problematic because it undermines our own death-buffering views, thus rendering us more vulnerable to experience anxiety (Pyszczynski et al., 2003; Schimel et al., 2007). Indeed, some argue that most, if not all, ethnic conflicts in the world are the result of the inability to deal with deviating death-denying worldviews (Pyszczynski et al., 2003). Belief in progress as a meaning-providing structure, then, seems to be of a different order than the cultural worldviews described earlier. Although its origin lies in the Age of Enlightenment, it is not reserved to specific cultures or religions as a salient part of their worldviews. Above all, it is an integral aspect of our modern age (Gray, 2004).

As a meaning-providing construct, belief in progress perhaps more closely resembles nostalgia, which has also been shown to provide protection against mortality

concerns by transcending the present (Routledge, Arndt, Sedikides, & Wildschut, 2008). Their similarity lies in the fact that both constructs seem relatively harmless in providing this protection. Indeed, as Routledge et al. (2008) argue, terror management responses such as cultural worldview defense reactions are often socially disadvantageous (see also earlier in this section). Belief in progress, like nostalgia, generally seems to bear no such social disadvantages. There is no demonstrable group that explicitly challenges this belief and therefore no ground for outgroup derogation and social conflict.

Obviously, there are some important differences between belief in progress and nostalgia. Whereas nostalgia involves drawing meaning from one's *past* experiences, progressive hope is aimed at the *future*. Furthermore, nostalgia involves mostly personal and self-relevant experiences, whereas progressive hope involves societal (i.e., humanistic, ethical, political) matters and potentially the whole world. Both constructs, however, involve temporal consciousness and the ability to transcend the present (albeit in two different directions). Interestingly, Routledge et al. (2008) emphasize that the temporal direction of the nostalgia construct is pivotal; it is the drawing on past experiences that increases meaning and thus reduces death-thought accessibility. What is interesting about this is that temporal consciousness, as the capacity to think about the future, *facilitates* mortality awareness as well (Becker, 1971). The solution to this problem, according to Routledge et al., also lies in temporal consciousness because it simultaneously allows us to draw on the past (i.e., nostalgia). The current research extends this argument by showing that temporal consciousness directed toward the future, in the form of belief in progress, can also provide protection against mortality concerns.

Finally, our findings might be of relevance to the ambiguity in the literature concerning the relationship between death anxiety and conservatism versus ideological extremity (see Greenberg & Jonas, 2003; Jost et al., 2007). Whereas Jost et al. (2007) argue that of all ideologies, conservatism in particular is motivated by the need to manage threats such as mortality concerns (see also Jost, Glaser, Kruglanski, & Sulloway, 2003), terror management research (e.g., Greenberg & Jonas, 2003; Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992) suggests that mortality salience leads to a defense of whatever values are dominant. These values can be conservative but can, by the same token, be liberal or tolerant. Jost et al., however, argue that the two core components of conservatism—resistance to change and opposition to equality—are particularly suitable to manage threat. Interestingly then, our findings that mortality concerns lead to the defense of, and can be buffered by, faith in progress seem to contradict this

notion. After all, progressive hope and resistance to change appear incompatible values.

In sum, for many, religion no longer unambiguously bears the promise of an afterlife, and it seems that progressive hope offers a secular version of meaning-providing faith that protects us from thoughts about death. Although realists such as Gray (2004, 2007) argue that belief in progress potentially has dangerous geopolitical consequences, it does seem to be beneficial for the individual. Fortunately then, Gray concludes that this myth is encrypted in modern life to such an extent that he deems progress an illusion with a promising future.

## APPENDIX A "PROGRESS IS A MYTH" ESSAY

Below you find part of an article published in a magazine some months ago. In this article the author discusses the issue of human progress. Please read the text carefully and answer the questions below.

The question of whether there is human progress is easy to answer; I think progress is definitely an illusion. We always seem to focus on progress in science and technology, but meanwhile there still exist wars and conflicts in the world. There's plenty of evidence that we haven't witnessed any real progress since the Middle Ages: we fail to find answers to environmental problems, political systems do not function better than say 100 years ago, there still is poverty in the world, and so on. We don't seem to learn from history and keep making the same mistakes over and over again. Moreover, once we have managed to control certain diseases, there will always be new ones to deal with. That's why I cannot believe that our children will encounter a world that is better than the world we live in today. People are people, and morally, politically, and socially, we simply do not make any progress. All in all, I think we have to face reality: progress is an illusion!

### Control Essay

Below you find part of an article published in a magazine some months ago. In this article the author discusses the issue of human progress. Please read the text carefully and answer the questions below.

It does not take much to answer that question; I think public transport is abominable. We always seem to think that public transport is the solution for our environmental problems and crowded motorways, but meanwhile everybody keeps using his or her own car. There are plenty of examples illustrating that this is unavoidable: trains are too often delayed, and often do not depart at all. Moreover, too many people are crammed into chockfull compartments, and so on. Unfortunately, the Dutch Railways do not seem to learn from history

and keep making the same mistakes over and over again. Moreover, once they claim they have found a solution for their overcrowded trains, they also increase the prices of the tickets. That's why I cannot believe that the future looks bright for public transport. The Dutch Railways are the Dutch Railways so let's be realistic: our cars remain indispensable!

## APPENDIX B BELIEF IN PROGRESS ESSAY AND TASK

From the late Middle Ages onward, mankind has witnessed major progress, and this has continued ever since. We have become better and better in combating diseases and improving our overall quality of life. Moreover, we keep making progress in developing energy-efficient technology as well as more environmental-friendly fuels, such as coal-seed.

In sum, progress enables us to find new solutions to the problems we face, and these solutions can be either short-term or long-term. Problems that we cannot solve right now could very well be solved within 20 years from now. Progress will continue and ensure that our children will encounter a world that is better than the world we live in today.

We would like you to think of four areas in which there has been human progress in the last decades. Try to imagine to what extent this progress will continue and help us to further improve our quality of life, now and in the future. Once you have selected four areas, your task is to think for a few minutes about these specific areas and then continue with the remaining part of the questionnaire.

### Control Essay and Task

Lately, public transport in the Netherlands has improved considerably. Although there are still lots of people complaining about trains, metros, busses, and trams, we were definitely worse off ten years ago. Trains are departing on schedule these days, and information services are getting better as well. Recent findings show that busses in our major cities are much cleaner, with lower emissions due to the installation of special filters and the use of different fuels.

In sum, public transport is making clear progress, and this will probably continue for years to come.

We would like you to think of four modes of transport you have been using recently. Please write them down. Once you have selected your four modes of transport, your task is to think for a few minutes about these modes of transport and then continue with the remaining part of the questionnaire.

## NOTES

1. As in Experiment 1, controlling for negative affect by entering it as a covariate in the analyses did not influence any of the reported effects in the Results section.

2. This pattern was not significant for negative affect as measured by the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988),  $p > .20$ .

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