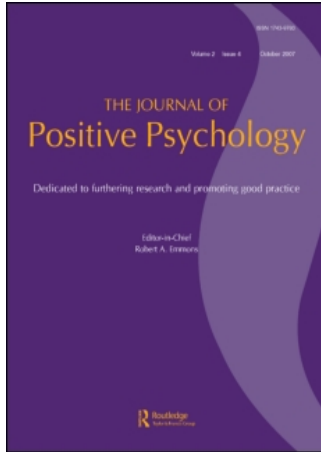


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### Positive emotions as leading to religion and spirituality

Vassilis Saroglou<sup>a</sup>; Coralie Buxant<sup>a</sup>; Jonathan Tilquin<sup>a</sup>

<sup>a</sup> Department of Psychology, Université catholique de Louvain, Belgium

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## Positive emotions as leading to religion and spirituality

Vassilis Saroglou\*, Coralie Buxant and Jonathan Tilquin

Department of Psychology, Université catholique de Louvain, Belgium

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A great deal of research has shown that a variety of *negative* events and emotions can increase religion and spirituality. We argue that *positive* events and emotions (that imply some self-transcendence) can increase religion and spirituality. In two experiments, participants ( $N=91$  and  $N=87$ ) were exposed to a neutral video or one of three videos eliciting positive emotions: humor, appreciation of nature, and wonder at childbirth. Religiousness was to some extent affected by the positive emotions elicited (Study 1), and spirituality was higher among participants who were exposed to the videos eliciting self-transcendent emotions (appreciation of nature and wonder at childbirth) but not among those exposed to humor (Study 2). Both religiousness and spirituality may fit with the broaden-and-build theory of positive emotions, but the correspondence seems to be clearer for spirituality, a reality marked by universalism and openness to experience.

**Keywords:** positive emotions; religion; spirituality; awe; wonder; humor

### Introduction

#### *Positive versus negative experiences as predicting religion and spirituality*

Why do people turn to religion and spirituality? There is considerable cross-sectional, longitudinal, and experimental evidence that religion serves as a refuge from a number of *negative* psychological experiences and emotions. Indeed, religion increases following socioeconomic distress (e.g., Wimberley, 1984). People who have experienced insecurity in attachment to parents or to an adult partner tend to be attracted to religious and spiritual beliefs, practices (Kirkpatrick, 2005), and groups (Buxant & Saroglou, 2008; Buxant, Saroglou, Casalfiore, & Christians, 2007). The death of a loved one may also elicit interest in religion and spirituality (e.g., Michael, Crowther, Schmid, & Allen, 2003). Facing an illness, personal crises, and negative life events have often been found to predict conversion and greater religious and spiritual involvement (Spilka, Hood, Hunsberger, & Gorsuch, 2003). More subtly, religion and spirituality seem to buffer against anxiety, especially death-related and existential anxiety. When mortality is made salient, people show stronger belief in God and supernatural agents in general (Norenzayan & Hansen, 2006), and people with extrinsic value orientation show higher levels of spirituality (Cozzolino, Staples, Meyers, & Samboceti, 2004). The religious beliefs of

the intrinsically religious people and religious fundamentalists seem to play a protective role in managing terror of death (Friedman & Rholes, 2007, 2008; Jonas & Fischer, 2006).

All of this evidence gives support to classic theorists who have emphasized the defensive function of religion against frustration, anxiety, fear, deprivation, and so on (e.g., Freud, 1927/1961; Glock, 1964; Marx, 1843/1979). However, the question arises as to whether 'positive' life events and 'positive' emotions can also lead to religion and spirituality. For instance, if people may turn to God and spirituality when they lose a loved one, might they also turn to God and spirituality when they fall in love? Similarly, if threats coming from the external world push people to turn to religion and spirituality, can positive emotions relative to this external world also lead to some interest in or increase of religion and spirituality? The aim of the present paper is thus to investigate whether positive experiences can lead to religion and spirituality.

To our knowledge, it is hard to find empirical evidence that supports a *causal* link from positive events and emotions to religion or spirituality (R/Sp). There is of course substantial correlational evidence that R/Sp, constructs themselves theorized as components of positive psychology (Mattis, 2004; Pargament & Mahoney, 2002), are linked with positivity in life, well-being, happiness, and specific positive emotions (Fredrickson, 2002;

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\*Corresponding author. Email: vassilis.saroglou@uclouvain.be

Koenig, McCullough, & Larson, 2001; Lewis & Cruise, 2006). However, this causal direction may be double-sided. Positivity in people's life and the experience of positive emotions are often theorized as being *consequences* of R/Sp (Fredrickson, 2002; Hill, 2002; see also Ciarrochi & Yanni-Brelsford, 2007; Joseph, Linley, & Maltby, 2006), especially in the presence of previous negative events and emotions, but they may also be, as we argue here, *antecedents* of attachment to and endorsement of R/Sp.

### *The powerful potential of positive emotions*

A great deal of theoretical and empirical work on positive emotions provides arguments in favor of our hypothesis that positive experiences and emotions can lead to religion and spirituality. According to Fredrickson's (1998, 2001) broaden-and-build theory and subsequent research, positive emotions broaden people's thought-action repertoires, encouraging them to discover novel lines of thought and action. For instance, inducing positive affect widens the scope of attention and increases intuition and creativity (see Fredrickson & Losada, 2005, for a review). Studies by Isen and colleagues have shown that when people feel good, their thinking becomes more creative, integrative, flexible, and open to information (see Isen, 1987, for review). In addition, positive emotions enhance people's feeling that life is meaningful (King, Hicks, Krull, & Del Gaiso, 2006) and help them find positive meaning in ordinary events and in adversity (Folkman & Moskowitz, 2000; Fredrickson, 2001). Moreover, positive emotions imply the feeling of 'oneness' with other people: they lead to an increase of the self-other overlap and to a more complex understanding of others (Waugh & Fredrickson, 2006), reduce the own-race bias in face recognition (Johnson & Fredrickson, 2005), and lead people to see both ingroup and outgroup members as belonging to one superordinate group (Dovidio, Gaertner, Isen, & Lowrance, 1995). Finally, positive emotions facilitate holistic attentional processing and enhance the individual's ability to see the 'big picture' (Basso, Schefft, Ris, & Dember, 1996; Fredrickson & Branigan, 2005).

Based on this research, we hypothesized that positive emotions would make people more open to, interested in, or attached to R/Sp. R/Sp provides an alternative perception of reality, different from the perception of everyday reality (e.g., Berger, 1997). Religious and spiritual beliefs, rituals, and narratives involve intuition and creativity (Aarnio & Lindeman, 2007; Berry, 1999), positive meaning, belief in the meaningfulness of life, integration and sense of coherence (Park, 2005), positive reframing of negative

experiences (Pargament, 1997), as well as prosocial and altruistic ideals and values (Saroglou, Pichon, Trompette, Verschueren, & Dernelle, 2005). Finally, the holistic perception favored by positive emotions may facilitate the experiential, mystical dimension of R/Sp.

### *Can all positive emotions lead to religion and spirituality?*

Do all kinds of positive emotions have the potential to orient people toward R/Sp? In our view, this is not the case. It is probable that mere joy, amusement, and pleasure are not sufficient for mobilizing the necessary elements that lead people to embrace a R/Sp worldview. However, this should be the case for emotions that imply the experience of marvel, admiration, and the perception of the self as being enveloped by something vaster and greater, which possibly includes an element of mystery. We will present below the rationale in support of our prediction.

The emotion of being amused may be insufficient to lead to R/Sp. Humor and laughter, prototypes of this positive emotion, are known to increase cognitive and social skills such as memory, creativity, and social interaction (see Martin, 2007, for a review), and may share with religion the capacity to promote the perception of everyday life in an alternative way (Berger, 1997). Not surprisingly, humor has been considered as an important construct in positive psychology (Lefcourt, 2002; Ruch, 2004). However, humor diminishes reality (Wyer & Collins, 1992), while religion postulates an ideal reality higher than the one of everyday life. In addition, humor and laughter are intra-individual emotions that celebrate a glorified self (Freud, 1928); although they often increase social cohesiveness, they may also be hostile and lead to social exclusion (Martin, 2007). These positive emotions may then not necessarily lead to self-transcendence. Moreover, the hedonistic dimension of humor and laughter may be somewhat in opposition with the religious attitude, which reflects gravity (James, 1902/1985) and low importance attributed to the value of hedonism, as is constantly found across religions and cultures (Saroglou, Delpierre, & Dernelle, 2004; see also Leung, Au, Huang, Kurman, Niit, & Niit, 2007). Finally, with regard to certain dimensions, there is some 'incompatibility' between humor and religion: while laughter and humor mean enjoyment and celebration of incongruity, disorder, and the possibility of nonsense, R/Sp emphasizes order, meaningfulness, and finality (Saroglou, 2002a).

In contrast, positive emotions that imply the experience of marvel, wonder, appreciation, or respect for something that is perceived as larger, higher, or

more important than the self, or something that is beautiful, pure, or implying some mystery, may be emotions that facilitate people's interest in R/Sp. One can find some or many of these elements (in a variety of configurations) as characterizing several positive emotions that have recently been the object of psychological theory. This is the case of awe (Keltner & Haidt, 2003), wonder (Fuller, 2006), appreciation of beauty and excellence (Haidt & Keltner, 2004), and elevation (Haidt, 2003), all of them being characterized as self-transcendent emotions (Haidt & Keltner, 2004; Keltner & Haidt, 2003).<sup>1</sup> Interestingly, Haidt (2006; see also Haidt & Keltner, 2004) has hypothesized that awe is an emotion that may lead to or facilitate spiritual experience and religious conversion (see also Lazarus & Lazarus, 1994).

We therefore decided to focus on two positive experiences that may reasonably be expected to elicit self-transcendent emotions (especially awe), and we made the hypothesis that positive attitudes towards R/Sp would increase following these experiences. These are childbirth and the appreciation of nature. Both of these can reasonably be expected to engender wonder, admiration, and respect as well as the experience of vastness (a key component of awe; Keltner & Haidt, 2003), certainly for nature but also for childbirth, in terms of the vastness of the mystery of human life. This also means the experience of some diminishing of the self and, in connection with vastness, an experience of self-transcendence or ecstasy (see also Haidt, 2006). A natural landscape and childbirth also point to purity (a key component of elevation; Haidt, 2003), for both stimuli imply authenticity exempt from human interferences. Finally, whereas in the admiration of nature one is facing with the majestic, in childbirth one is facing with the infinitely small, which may lead to feelings of tenderness and affection (note also that positive emotions facilitate generativity; Fredrickson, 1998).

There is historical and anecdotic evidence that appreciation of nature facilitates religious experience and may even lead to conversion; and there is empirical evidence that the transition to parenthood is an opportunity for adults to (re)orientate themselves towards R/Sp (Spilka et al., 2003, for review). The present study aims to provide, to the best of our knowledge for the first time, experimental, laboratory evidence on the importance of these positive experiences for religion and spirituality.

A final issue is whether our hypotheses apply to both religion and spirituality. Although there is an ongoing debate on the exact definitions and interrelations of these two constructs, there is an emerging consensus and evidence on the many features they share, as well as on the aspects on which they differ

(e.g., Saucier & Skrzypińska, 2006; Zinnbauer & Pargament, 2005). Indeed, whereas religion places strong emphasis on specific religious traditions and institutions, modern spirituality is, to some extent, independent of religious traditions and institutions and constitutes an individualized approach to religious, existential, and ethical issues. However, the two constructs share (1) the inclusion of the dimension of the sacred and transcendence in life, and (2) the experience of being interconnected to a larger community or to the world as a whole. It is on the basis of these two basic common elements that we made the hypothesis that positive self-transcendent emotions will have a positive influence on both religion and spirituality.

### *Overview of the studies*

Two experiments will be detailed in this article. In both of them, participants watched one of four different video clips. Three of them primed respectively the following emotions: (1) appreciation of nature, (2) wonder at childbirth, and (3) amusement (comedy). The fourth video was neutral and acted as a control. After a pretest of the specific emotions elicited by each video clip, we investigated in the first experiment the effect of positive emotions on religiousness. In the second experiment, we investigated the effect of the same emotions on spirituality. We expected that participants who were primed with the two positive emotions implying wonder at self-transcendent secular realities (childbirth and beauty of nature) would subsequently report higher scores on religion and spirituality measures in comparison to the control group. We also expected these effects not to be found among people who were primed with mere amusement.

## **Study 1**

### *Method*

#### *Participants and procedure*

The participants were 91 first- and second-year students studying psychology at a Belgian university; 72 of them were women and 19 were men. The majority of participants reported being Catholic (69%), one participant self-identified as Buddhist, and the remaining participants (30%) reported no religion or being agnostic. Participants received class credit in exchange for their participation. They were randomly assigned to one of four conditions, corresponding each to a specific video clip: Childbirth ( $n = 21$ ), Nature ( $n = 22$ ), Humor ( $n = 26$ ), and Neutral ( $n = 22$ ). After being welcomed to the laboratory and being given instructions for the study, the participant was left alone in the experiment room and watched one of the video clips;

each was of 3 minutes duration. After the video had finished, participants completed a questionnaire which was left face-down on the table in front of them. Once participants were finished, they were fully debriefed and thanked for their participation.

## Material

### Video clips and emotions elicited

Four video clips of 3 minutes duration were created by editing extracts from various documentary films. The Childbirth video depicted a young heterosexual couple that was filmed at many points during the woman's pregnancy. The video showed the image of the fetus on a sonogram and the birth of the baby in the maternity hospital, followed by the mother holding her infant in the first minutes after childbirth. The Nature video showed panoramic views of natural landscapes including waterfalls, deserts, oceans, large rivers, and high mountains. The Humor video included sketches with a French humorist imitating an old man trying to understand the menu in a fast food restaurant. Finally, in the Neutral video a man with some expertise was describing, in a neutral but mildly interesting way, the many stages necessary for the production of beer.

A pretest intended to check for the intensity and specific nature of the emotions induced by these video stimuli was conducted. A sample of 40 volunteer participants (10 participants by condition), also psychology students, watched the clips and afterwards rated first the overall emotional intensity they experienced when watching the film in a 7-point Likert scale (1 = 'I felt no emotions at all'; 7 = 'I felt very intense emotions'). Second, they evaluated the intensity of eight specific emotions they were feeling when watching the video: pleasure, humility, ecstasy, respect, sadness, enjoyment, boredom, and wonder. A 7-point Likert scale was also used for these emotions (1 = 'I was feeling not at all this emotion'; 7 = 'I was feeling completely this emotion'). In order to allow for a better discrimination between the two video clips assumed to elicit wonder-awe (Childbirth and Nature), the participants who watched them had to rate five additional emotions: admiration, affection, fullness, fascination, and tender feelings.

Results from the pretest confirmed the distinctiveness of each of these four video clips as well the pertinence for using them for the purposes of the study (see Table 1 for descriptive statistics). First, all three video clips assumed to elicit positive emotions (Childbirth, Nature, and Humor) induced more pleasure, more enjoyment, and less boredom in comparison to the Neutral video (all  $ps < 0.05$ ). Second, the two video clips designed to elicit awe-like emotions, i.e., Childbirth and Nature, elicited more

intensity in emotions in comparison to the Neutral and Humor ones; and the Neutral one elicited a less intense emotional state than the Humor one (all  $ps < 0.05$ ). Third, these two conditions (Childbirth and Nature) induced high levels of ecstasy, respect, wonder, and sadness in comparison to the Neutral and Humor ones (all  $ps < 0.05$ ).<sup>2</sup> The scores on humility were higher after watching the two 'awe' videos (Nature and Childbirth) than after watching the Humor or Neutral video and the difference was significant for the Childbirth. Finally, Childbirth elicited more affection and tender feelings than Nature. No difference was observed between these two conditions on admiration, fascination, and fullness.

### Religiousness

After the exposure to the respective by condition video, participants filled in a measure of personal religiousness composed of the following six items (7-point Likert scale): 'Religion is important in my life'; 'Without God the world would not have a meaning'; 'The great religions of the world give a message that is useful for the everyday life'; 'God is important in my life'; 'God does not exist' (reverse-scored); 'God (or a divine force) is at the origin of the world.' Reliability was satisfactory ( $\alpha = 0.85$ ).

## Results and discussion

The means and standard deviations of religiousness, by condition, are detailed in Table 2 (see also Figure 1). Two outliers in the neutral condition were excluded

Table 1. Means and standard deviations of emotions elicited by the different videos (Study 1).

Emotions elicited	Videos eliciting positive emotions			
	Awe			Neutral video
	Childbirth	Nature	Humor	
Pleasure	4.90 (0.7)	5.27 (1.0)	4.10 (1.2)	2.78 (1.6)
Enjoyment	3.50 (1.4)	3.45 (0.9)	4.70 (1.3)	1.89 (1.3)
Boredom	1.30 (0.7)	1.82 (1.5)	1.80 (1.2)	4.11 (1.8)
Emotional intensity	5.40 (1.4)	5.09 (1.4)	3.44 (1.0)	1.67 (0.5)
Ecstasy	3.30 (1.7)	4.09 (1.0)	1.60 (0.8)	1.22 (0.4)
Respect	4.80 (1.6)	5.81 (1.7)	2.40 (1.8)	2.78 (1.5)
Wonder	5.80 (1.3)	5.91 (1.0)	2.30 (1.1)	1.89 (1.2)
Sadness	2.10 (1.9)	3.18 (1.9)	1.40 (0.9)	1.00 (0.1)
Humility	4.50 (1.8)	3.73 (2.2)	2.70 (1.4)	2.67 (1.6)
Affection	6.10 (0.9)	4.18 (1.6)	–	–
Tender feelings	6.36 (0.9)	4.18 (1.8)	–	–
Admiration	4.80 (1.9)	6.00 (0.6)	–	–
Fascination	5.30 (1.2)	6.09 (0.7)	–	–
Fullness	4.90 (1.1)	5.27 (1.2)	–	–

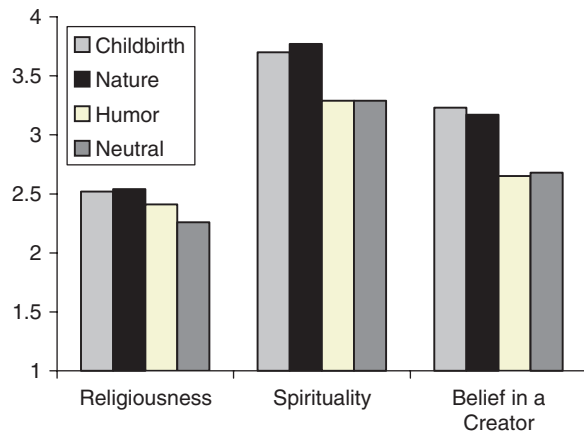


Figure 1. Effects of positive emotions on religiousness (Study 1), spirituality, and religious beliefs (Study 2).

from the analyses. Planned contrasts comparing the two conditions involving self-transcendent emotions against the neutral condition showed that, as hypothesized, participants reported being more religious after exposure to the Childbirth,  $t(40) = 1.85$ ,  $p < 0.05$ , and Nature,  $t(41) = 1.83$ ,  $p < 0.05$ , videos. However, exposure to the humorous video also increased religiousness,  $t(45) = 1.79$ ,  $p < 0.05$ , compared to the neutral condition; and religiousness following the comedy video was not significantly lower than religiousness following the self-transcendent emotions. The results were only significant with a one-tailed test of significance.

Our hypothesis was thus confirmed, but only to a limited extent. One possible statistical explanation for this lack of more clear-cut results is the low scores of religiousness in general that could indicate a floor effect. We therefore decided to focus in Study 2 on spirituality, which is known to be more common than religiousness today, especially among young people. In addition, by revisiting the arguments presented in the introduction, one can realize that the many cognitive and emotional implications of positive emotions we reviewed apply more to spirituality and less to religion. First, the openness to novelty, intuition, and creativity that are implied by the experience of positive emotions (Fredrickson & Losada, 2005; Isen, 1987; Shiota, Keltner, & John, 2006) fit better with spirituality than with traditional religiousness. Spirituality, but not traditional religiousness, is systematically related to openness to experience (Piedmont, 2005; Saroglou, 2002b; Saucier & Skrzypińska, 2006). Second, if positive emotions in general, and in particular the specific emotions elicited by our video stimuli, imply some perception of vastness and interconnectedness of things within the world, they may more easily lead to a spiritual attitude of connection with a transcendent reality and the world as a whole (see the definition of spirituality by

Piedmont, 1999) and openness to universalistic values, and less to concrete religious beliefs and practices. Again, it is spirituality rather than religion that reflects universalistic values (Saroglou et al., 2004; Saroglou & Muñoz-García, 2008), openness to broader than the one's own reality, including openness to alternative realities (Saucier & Skrzypińska, 2006), and broad (with respect to the status of targets) prosocial attitudes and behavior (Saroglou et al., 2005). Finally, positive emotions, although they activate a series of feelings, cognitions, and behaviors, do not necessarily lead people to take specific actions: the action tendencies implied by positive emotions are vague and underspecified (Fredrickson, 1998). It may then be that the positive emotions elicited by our experiment could not lead people to make a step toward clearly religious attitudes or beliefs. Religion, in contrast with spirituality (see Belzen, 2005), necessarily implies engagement (in terms of personal decisions, acts, and practices) and affiliation with groups and organized traditional belief systems. In Study 2, we thus investigated whether positive emotions involving awe would increase participants' positive attitudes towards spirituality.

## Study 2

### Method

#### Participants and procedure

Participants were 87 first- and second-year students studying psychology at a Belgian University. The majority of them were women (72). Most of them self-identified as Catholic (60%), 2% as Protestant, and the remaining 38% reported not having a religion or being agnostic. They all received class credit in exchange for their participation. The procedure and experimental conditions were identical to Study 1. As in Study 1, participants were randomly assigned to one of four conditions: Childbirth ( $n = 22$ ), Nature ( $n = 20$ ), Humor ( $n = 23$ ), or Neutral ( $n = 22$ ). Each participant watched one video and then completed a questionnaire that included two subscales of the Spiritual Transcendence Scale and a measure of religious attributions to God as creator of the universe.

### Measures

*Spiritual Transcendence Scale* (STS; Piedmont, 1999; our French translation). This 24-item scale measures spirituality as the tendency to orient oneself toward a larger transcendent reality that binds all things into a unitive harmony. It reflects the personal search for connection with a larger sacredness. The scale consists of three subscales: *Universality* (a belief in the unity and purpose of life; 9 items), *Connectedness* (a sense of connection and commitment to others and humanity

as a whole; 6 items), and *Prayer Fulfillment* (an experienced feeling of joy and commitment that results from prayer and/or meditation; 9 items). All three subscales include items that make reference to transcendence. Sample items are: ‘There is an order to the universe that transcends human thinking’ (Universality); ‘I still have strong emotional ties with someone who has died’ (Connectedness); ‘I find inner strength and/or peace from my prayers or meditations’ (Prayer Fulfillment). Because we were interested in a measure of spirituality that is clearly distinct from religion, we did not include the third subscale. Indeed, Prayer Fulfillment has an explicitly religious content (reference to God and religious practices such as prayer or meditation) and has been found to relate positively to traditional religious attitudes and behaviors (Piedmont, 1999).

#### *Belief in a Creator*

In order to measure clear religious beliefs that reflect an engaged attitude towards the idea that the world was created by God, participants were asked to evaluate the following statement: ‘There exists a conception of world and life stating that everything that appeared in the Earth would not be a fruit of chance but the result of a divine act. Human beings and all things around them would be an outcome of Creation and not of coincidence.’ We asked participants to give their opinion, using a 5-point Likert scale (1=‘I totally agree’; 5=‘I totally disagree’), to the following questions: ‘Do you believe in this conception of the world?’; ‘Would you be willing to receive documentation or to learn more about this conception of the world?’; ‘Would you like to meet with people who share this conception?’; and ‘Would you stand up for this conception if one casts doubt on it?’ Reliability was satisfactory ( $\alpha = .76$ ). The belief in a Creator scale was moderately related to the STS ( $r_s = 0.51, 0.43$ , with Universalism and Connectedness, respectively).

#### **Results and discussion**

Means and standard deviations of spirituality, by condition, are detailed in Table 2 (see also Figure 1). The same as in Study 1, planned contrasts between the two awe conditions and the neutral one showed that people who had watched the Childbirth,  $t(42) = 3.76, p < 0.001$ , and Nature,  $t(40) = 3.22, p < 0.01$ , videos scored higher on spirituality than people who had watched the Neutral video. This was not the case with participants who watched the Humor video; no difference emerged between this condition and the Neutral one. Interestingly, people who had watched the Childbirth and Nature video clips scored higher on spirituality  $t_s(43 \text{ and } 41) = 3.63,$

Table 2. Means and standard deviations of religiosity and spirituality after exposure to different videos.

	Study 1: Religiosity		Study 2: Spirituality		Study 2: Belief in a Creator God	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Childbirth	2.52	0.94	3.70	0.44	2.94	0.95
Nature	2.54	1.03	3.77	0.46	2.76	0.92
Humor	2.41	0.72	3.29	0.43	2.55	0.80
Neutral	2.26	1.04	3.29	0.38	2.51	0.85

$3.08, p_s < 0.001, 0.01$ , also in comparison with people who had watched the Humor video. Similar results were obtained when the analyses were carried out separately for the Universalism and the Connectedness components of the Spiritual Transcendence scale. All of the results were significant at a two-tailed level of significance.

The differences on the Belief in a Creator scale (see Table 2) were in the expected direction but were not significant. Interestingly, when we focused on the two first items of the scale, which indicate positive attitudes to the idea of God as the creator of the world (the other two covering stronger engagement and behavior), the differences between the conditions were significant: exposure to Childbirth ( $M = 3.23, SD = 0.21$ ) and Nature ( $M = 3.17, SD = 0.21$ ) led to a stronger belief in God as a creator than viewing the Neutral video ( $M = 2.68, SD = 0.20$ ),  $t_s(42 \text{ and } 40) = 1.89, 1.68, p < 0.05$  (one-tailed significance level). Exposure to the comic video did not increase belief in God as a creator,  $M = 2.65, SD = 0.18$ .

Positive emotions, as expected, appear to have an impact on the level of participants’ reported spirituality. However, also as expected, this is limited to self-transcendent emotions, and does not include other positive emotions implying mere amusement such as humor. The results for the traditional religious belief in God as a creator were weaker: they were limited to openness to this belief, and were not extended to more committed engagement. Since religion implies concrete and specific engagement and behavior to a greater extent than spirituality (Belzen, 2005), priming self-transcendent emotions seems to be more efficient for increasing spirituality. Spirituality corresponds better than religion to the ‘broaden’ aspect of the positive emotions to which the broaden-and-build theory applies.

#### **General discussion**

The present study provides initial evidence that positive emotions resulting from the perception of stimuli producing wonder, ecstasy, and respect, such

as the appreciation of nature and the wonder at the childbirth (the later eliciting in addition affection and humility), can lead to increased perception of oneself as being spiritual. These experiences provoking awe-like emotions promoted the perception of oneself as endorsing the existence of transcendence in personal life and the world, believing in the unity and purpose of life, and having the sense of being connected to others and the world as a whole. Based on contemporary theory and research on positive emotions, especially the broaden-and-build theory (Fredrickson, 1998, 2001), we might assume that encouraging the discovery of novel lines of thought, widening the scope of attention, becoming more integrative, increasing the feeling of oneness with others, and finding positive meaning in events and life in general will have beneficial effects on one's personal disposition towards spirituality. Going beyond previous studies that have investigated the relationship between positive psychology constructs and religion-spirituality (or the impact of the latter on the former), this study provides very initial evidence in favor of a causal link from positive emotions to spirituality. Moreover, the results of this study confirm that interest and involvement in spirituality may not only be a consequence of previous negative experiences but could also result from some positive experiences and emotions.

The induction of positive emotions seemed to have similar effects on explicit evaluations of religiousness, although in a weaker way. In Study 1, self-transcendent emotions increased personal religiousness to some extent and, in Study 2, they increased belief in a conception of the world that includes God as a creator, but they did not increase willingness for more concrete engagements. Spirituality, known to be related to openness to experience, universalistic values, and prosociality broadly-viewed (Saroglou & Muñoz-García, 2008; Saroglou et al., 2005; Saucier & Skrzypińska, 2006), may correspond better than religion with the key dimensions of positive emotions such as openness to novelty, holistic perception, and stronger feeling of oneness and self-other overlap. Moreover, future research should investigate whether this effect of some positive emotions on spiritual and religious attitudes and beliefs is sufficient to lead to concrete religious and spiritual behaviors or remains at a 'surface' level of a general positive predisposition towards religion and spirituality.

Interestingly, the present study confirms that not every kind of positive emotion necessarily elicits spiritual attitudes. Humor, a stimulus that elicits mere amusement, had no effect on spirituality, in contrast with the two other stimuli, i.e., appreciation of beauty and childbirth, implying awe, respect, affection, ecstasy, and some kind of self-transcendence (Study 2). Note also that in unpublished studies cited in

Haidt (2006), the emotion of elevation was induced by heroic and altruistic stimuli but not by humorous stimuli. Interestingly, initial empirical research on awe provides important information on the specifics of this emotion: awe, but not amusement and joy, is associated with openness to experience as evaluated by peers (Shiota et al., 2006). Awe, compared to happiness, is more elicited by information-rich stimuli and less by the opportunity for material award or social engagement (Shiota, Keltner, & Mossman, 2007; Study 1); and the experience of awe, compared to that of pride, is more stimulus-focused than self-focused since it is more associated with a sense of smallness of the self and the presence of something greater than the self (Shiota et al., 2007; Study 2). Note, however, that in Study 1 humor followed the two stimuli implying self-transcendent positive emotions in that it increased religiousness. This suggests that humor may not be totally 'incompatible' with religion and spirituality: indeed, laughter shares with religion an alternative, self-transcendent perception of reality (Berger, 1997).

Among the limitations of the present study, the restricted character of the research sample (psychology students) and the non-ecological aspect of the study (laboratory experiments) should not be neglected. These limitations require caution. The results are, however, encouraging. It is very likely that, in real life, adults from a variety of ages (especially the ones that are particularly sensitive to religious and spiritual quests) experience, in a variety of contexts (personal, social, professional, artistic, flow experiences), positive self-transcendent emotions such as wonder, awe, or appreciation of beauty that may have important consequences for their religious and spiritual attitudes, beliefs, and behaviors.

The study of the variety and the specifics of the various positive emotions and the investigation of the way these emotions interact with R/Sp are only beginning. Important questions are open for future research. What are the cognitive, motivational, social, and biological processes that explain how certain positive emotions have an impact on people's openness to R/Sp ideas and experiences? What in this process is due to evolution and biology and what is linked to subjective experiences? To what extent are the effects of positive emotions on R/Sp determined by cultural factors? Alternatively, is there a universal connection between self-transcendent positive emotions and R/Sp? Finally, if awe is a prototypical of conversion emotion, do other positive emotions, either self-transcendent ones (e.g., hope, reverence, gratitude: see Emmons, 2005) or 'common' ones (pride, contentment, joy: see Shiota et al., 2006), interfere with and shape specific religious and spiritual experiences and actions?



## Notes

1. Note that the descriptions of these four emotions made by the respective scholars are original, detailed, and rather convincing, but they are also overlapping and, as acknowledged by these scholars themselves, quite speculative rather than empirically based. The empirical investigation of distinct positive emotions, including awe, is only beginning (Shiota, Keltner, & John, 2006; Shiota, Keltner, & Mossman, 2007).
2. The result relative to sadness may point to a complex issue that is presented in theoretical work on awe. The emotion of awe, although positive, also includes some negative components: it is located 'in the upper reaches of pleasure and on the boundaries of fear,' a fear resulting from the perception of a high power and the obscurity of the sublime (Keltner & Haidt, 2003, p. 297). Similarly, Bulkeley (cited in Emmons, 2005) has observed that, in the emotion of wonder, after a decentering of the self when faced with an unexpected powerful reality, there is ultimately a recentering of the self as a response to new knowledge and understanding. It is not impossible that the discovery of the limits of the self during a self-transcendent emotional experience may produce some negative emotions such as sadness.

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