

Sublimation, Culture, and Creativity

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Combining insights from Freud and Weber, this article explores whether Protestants (vs. Catholics and Jews) are more likely to sublimate their taboo feelings and desires toward productive ends. In the *Terman* sample (Study 1), Protestant men and women who had sexual problems related to anxieties about taboos and depravity had greater creative accomplishments, as compared to those with sexual problems unrelated to such concerns and to those reporting no sexual problems. Two laboratory experiments (Studies 2 and 3) found that Protestants produced more creative artwork (sculptures, poems, collages, cartoon captions) when they were (a) primed with damnation-related words, (b) induced to feel unacceptable sexual desires, or (c) forced to suppress their anger. Activating anger or sexual attraction was not enough; it was the forbidden or suppressed nature of the emotion that gave the emotion its creative power. The studies provide possibly the first experimental evidence for sublimation and suggest a cultural psychological approach to defense mechanisms.

Keywords: religion, sublimation, culture, creativity, defense mechanisms

Resurgent interest in culture has led to a better understanding of the way culture shapes human behavior, but the primary focus has mostly been on developing a cultural psychology of the conscious mind. Part of this focus has been due to a methodology that has relied heavily on questionnaires and attitude surveys. However, part of it is probably also theoretically driven. Whereas many researchers acknowledge that “culture is like the water” in that it is invisible to the fish, the field has generally relied on theoretical definitions of culture that emphasize and examine explicit, easily articulated beliefs, knowledge, and processes (for exceptions, see Heine & Lehman, 1997; Hoshino-Browne et al., 2005; Kitayama, Snibbe, Markus, & Suzuki, 2004; Kitayama & Uchida, 2003; Oishi, Miao, Koo, Kislign, & Ratliff, 2012; Triandis, 2009).

This is actually a bit strange, given what some in the field regard as one of cultural psychology’s inspirational founding texts: Max Weber’s *Protestant Ethic and the Spirit of Capitalism*, a work articulating “perhaps the most profound cultural psychological theory that was ever proposed” (Heine, 2008, p. 242). Weber (1905/2002) highlighted ideas as a force that shaped society and economic development, but Weber’s work also highlighted the role of ego-defensive processes in driving behavior. Anxiety—more particularly, Protestant anxiety about salvation—was theorized as a driving force behind a work ethic that propelled Northern Europe forward after the Protestant Reformation. In this article, we take Weber’s ideas and blend them with those of another theorist of defensive processes to suggest how Protestant culture may productively channel anxieties about depravity to creative ends.

Weber, Anxiety, and Guilt

For Weber, the Protestant work ethic germinated nominally with Luther’s notion of a “calling” but reached its purest expression in Calvinist doctrine and later diffused to other Protestant denominations, especially the more ascetic ones. Weber considered defensive motives to be crucially important, as described in his extensive treatment of Calvinism. If one was a behaviorist, one could hardly come up with an ideology less conducive to hard work than Calvinism. Beliefs that humans were inherently depraved and that God had predestined most to damnation but saved a select few for salvation (through no merit of their own) would seem to breed a certain fatalism. However, Weber understood that the human mind does not work according to strictly behaviorist, “rational,” or logical principles. The mind also works in part by *psycho-logical* (vs. logical) principles—often patterned by culture—that allow imperfect humans to live and cope with a sometimes scary and unknowable world. As Pye (2000) noted, “Weber recognized that an account book approach to rewards and punishments”—that is, a behaviorist account—“got people off too easily, whereas with predestination there was a profound sense of psychic insecurity that would drive people to grasp for any possible sign that they might be among the ‘elect.’ The key drive was psychic anxiety” (p. 248).

In Weber’s account—among other factors—the belief in total human depravity, salvation limited to a predestined elect who could never know for sure whether or not they had been saved, and the sanctification of work as a religious calling became a potent psychological cocktail driving people forward. With the later development of various forms of ascetic Protestantism (including Methodist and Baptist sects), anxieties about one’s salvation, the psychic need to find “proof” that one was saved, and the sanctification of work would continue, even as doctrines of predestination diminished or fell away.

Weber’s thesis is controversial (see critiques and supporting evidence in, e.g., Giorgi & Marsh, 1990; Jones, 1997; McClelland, 1961; Novak, 1993; Weber, 1905/2002). It is obvious, for exam-

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ple, that strong work ethics can be found in places where there are relatively few Protestants (Harrison & Huntington, 2001; Sowell, 1981, 1997). Most controversial has been Weber's claim about the causal role of Protestant ideology in economic development. Additionally, Weber's accounts of theology have been criticized; his argument ignores certain historical facts, and so on. Yet, overall, Weber does seem to have captured something important about (a) some Protestant teachings on depravity and (b) the quasi-religious status accorded to work in the Protestant tradition (see also Sanchez-Burks, 2002, 2005, on Protestant work traditions; Bellah, Madsen, Sullivan, & Tipton, 1996; Berg, Grant, & Johnson, 2010; Cardador, Dane, & Pratt, 2011; Dreher, Holloway, & Schoenfelder, 2007; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997, on callings; McCullough & Willoughby, 2009, on sanctification).

In contrast to some Protestant theologies, the cultural logics of Judaism and Catholicism begin with a somewhat more positive view of human nature (e.g., Greeley, 2000). Humans are less likely to be seen as inherently bad or wicked, and, perhaps as a consequence, both Catholic and Jewish traditions seem to implicitly acknowledge the cyclical nature of guilt and repentance. Guilt is a highly elaborated emotion in Jewish and Catholic cultural traditions, and actions that call into question one's moral fitness are confessed, dwelled on, suffered for, repented, and, ideally, forgiven either by the person one has wronged or by God. If the process works, the person comes out the other side a better, changed person. Both Judaism and Catholicism have formal institutions and rituals that allow a person to atone for and repent one's sins, but a heavy dose of guilt and remorse is required to successfully begin the road to redemption (A. Cohen, Malka, Rozin, & Cherfas, 2006; Weber, 1910). As such, a sense of one's own depravity is not an engine of psychic anxiety that can be harnessed for productive ends; rather, it is a cause for a temporarily debilitating guilt that must be endured as part of the reparative process (see also Tillich, 1975, p. 166; Vergote, cited in Westerink, 2009a, pp. 239, 292–293; Westerink, 2009b, p. xi).

Such guilt can certainly be burdensome. However, religious teachings and the formal institutions and rituals of confession, atonement, and repentance in Judaism and Catholicism provide some relief from the weight of moral failure and do not imbue it with the significance of "proof" of one's salvation or damnation. Thus, in response to moral failings, Catholicism and Judaism cultivate the unpleasant experience of guilt as a way to motivate people to take reparative actions (see also Walinga, Corveleyn, & van Saane, 2005, on Catholic guilt as oriented toward repair). Further, that guilt is particularly useful for motivating repair of *interpersonal* breaches dovetails nicely with the greater emphases on community (as opposed to individualism) and on behavior or deeds (as opposed to beliefs) of Catholicism and Judaism, in comparison to Protestantism (Albertsen, O'Connor, & Berry, 2006; A. Cohen, Hall, Koenig, & Meador, 2005; A. Cohen & Rozin, 2001; Greeley, 1997; Sanchez-Burks, 2002).

Again, to be clear, every nonpsychopathic person will feel bad about his or her misdeeds and failings. However, Weber argued that the cultural logics of what these failings meant for the individual and how he or she should psychologically deal with them were very different for Protestants and Catholics. Further, Weber argued that whereas many different religions may admire piety and asceticism, the Protestant notion of a calling brought these values out of the seminary and into the world. The notion gave secular

work a moral and religious significance for ascetic Protestants that it did not have for others (for whom work might simply be a familial duty, a route to personal fortune, or an act in the service of Mammon—not God). In ascetic Protestantism, moral failings and the anxiety produced by them could in part be avoided—and if not avoided, partly assuaged—by work in one's calling, which was sanctified with a religious significance, Weber argued.¹

Sublimation

In the same year (and in the same language) that Weber was writing, another theorist of defensive processes—Freud—was writing about sublimation. Freud was not the first person to believe that sexual drives could be a source of energy for nonsexual pursuits. The belief in the power of sexual energies had been part of Western and Eastern folklore for centuries (Boorstin, 1993). (Balzac is famously known for saying, "there goes another novel" after finishing sexual intercourse.²) However, Freud was important for popularizing the idea that unacceptable sexual or unacceptable aggressive urges could be defensively sublimated into socially appropriate pursuits. The theory was one of drive but also of form: The unacceptable wishes provided the energy to be harnessed for productive or creative ends, and the unacceptable wishes could also be worked out or transmogrified into art, with the forbidden desires often taking a disguised or symbolic form, as they do in a dream (Freud, 1905/2000).

The latter point about the content of the sublimation (in addition to the motivation to sublimate) is important, because again sublimation is theorized to be not solely a redirection of energy (à la Balzac) but a defense mechanism to reduce intrapsychic conflict. Vaillant (1993), for example, argued that creativity cannot just be willed. If we could all just tell ourselves to be creative, we would. Instead, the creativity is theorized to be the result of the working out of a psychic conflict that derives from our unacceptable desires or wishes that become changed and expressed in socially acceptable form (Freud, 1958). In theory, the forbidden and the suppressed get moved down to the unconscious, where they incubate and then percolate up to consciousness in an altered, rearranged, loosely associated, but socially appropriate form.

Sublimation is *theoretically* derivable—or is at least theoretically plausible—under a number of different accounts, though it may be described with somewhat different language and metaphor. There is no single metaphor underlying psychoanalytic thinking

¹ Weber argued, "Through the [Catholic] form of confession, the individual is vouchsafed a means of spiritually unburdening himself of absolutely all kinds of transgressions against church commands over and over again. In contrast to this, Calvinism and Baptism in their development since the late 16th century generated the thought of the necessity of ascetic *proof*—proof in life generally and especially in vocational life—as the subjective guarantee of the *certitudo salutis* (i.e., not as an *actual ground* of salvation but as one of the most important reasons for *knowing* one's salvation) . . . Ascetic Protestantism lacks (and by no means accidentally!) the institution of confession that afforded the Catholic *relief* from the pressure of such pathos-filled questions as the individual's qualification for election" (Weber, 1910, p. 109).

² The appetitive Balzac apparently felt the same way about eating as about sex. As the *New Yorker* (Muhlstein, 2012) reported, "When writing, Balzac subsisted on little more than coffee, but post-publication, he was known to down, in a single sitting, a hundred oysters, four bottles of wine, twelve lamb cutlets, duckling, a brace of partridge, sole, and pears by the dozen" (p. 73).

(Erdelyi, 1985). However, under a psychodynamic “depth” metaphor, forbidden sexual or aggressive thoughts and desires are suppressed and shuttled into the unconscious, where they are redirected, disguised, transformed, or otherwise channeled and expressed in activities that are more conventional and considered socially appropriate. The transformation would occur as a conjunction of “primary” process thinking (impulse-driven, illogical, unconstrained) operating in the unconscious and “secondary” process thinking (realistic and logical) operating in the conscious and unconscious. Under a neobehavioristic learning account, the phenomena would be described in terms of a curve representing an approach tendency (the desire to act on one’s goal) and an even steeper curve representing an avoidance tendency (repulsion at one’s goal). The greatest tendency to sublimate (or displace) would occur for responses that were close enough to the forbidden desire to maximize the difference between the approach tendency excited by the goal and the avoidance tendency repulsed by it (see Dollard & Miller, 1950, conceptualized in Erdelyi, 1985, p. 261). An information processing account would recast the phenomenon in terms of a flowchart that allows a sublimating response to be expressed only if it “undershot” anxiety thresholds at various stages of information processing (Erdelyi, 1985, pp. 241–242, 262). Transformation of undesirable thoughts could occur as a conjunction of (a) “loose, associational” thinking (cf. primary process thinking) or through an incubation process that occurs as one focuses elsewhere (cf. unconscious processes) and (b) analytic, attentive, careful, and rational information processing (cf. secondary process thinking; Allen & Thomas, 2011; Ellwood, Pallier, Snyder, & Gallate, 2009; Ghiselin, 1985; Sio & Ormerod, 2009).

Finally, an ego depletion account (Baumeister & Tierney, 2011) could plausibly describe the phenomenon in terms of an energy metaphor, with the energy required to suppress one’s thoughts and desires both strengthening the intensity of the forbidden thoughts and desires and sapping one’s ability to inhibit or control them. Under an ego depletion account, the forbidden thoughts and desires need not be transmogrified into socially acceptable behavior. Indeed, studies usually examine ego depletion in terms of the undesirable behavior it produces. However, to the extent that (a) insight and creativity require some disinhibition, heightened emotionality, and loose or unconstrained thinking and (b) the ego still has some ability to repress, control, displace, or transform forbidden thoughts and desires (either to maintain positive interpersonal relations or to protect the integrity of the self), we might plausibly expect that—if given the right opportunity—creative, productive work might result. The ego depletion itself thus ultimately leads to “a certain degree of laxity in the repressions” (Freud, 1977, p. 468) that can be useful for creativity (cf. Sjoback, 1973, pp. 140–142).

As Erdelyi has pointed out, the use of different metaphors and the overliteralization of some metaphors often result in a great deal of confusion: “This is a fundamental problem in psychology (whether psychoanalysis or experimental cognitive psychology), where many problems that on face value seem to be conceptual or methodological turn out in the end to be semantic” (Erdelyi, 1985, p. 115). The point of the above paragraphs is not that one metaphor is better than another. Rather, the point is that—despite the dissimilarity in terminology—all the above accounts are actually describing a very similar, theoretically plausible phenomenon.

As with other defensive processes, particularly the mature defense mechanisms (such as sublimation), there is some question about the conscious versus unconscious use of such mechanisms (Andrews, Singh, & Bond, 1993; Conte & Plutchik, 1995; Cramer, 2000; Erdelyi, 1985; Vaillant, 1993). We discuss this later in the article. Either way, it is clear that conscious processes—with enough repetition—can become, if not unconscious, then at least very well practiced (Barnier, Levin, & Maher, 2004; Fraley & Shaver, 1997; Kelly & Kahn, 1994; Levy & Anderson, 2008; Newman & McKinney, 2002).

The problem for sublimation comes not in theoretical plausibility or in theoretical discussions of whether it is conscious or unconscious. The problem comes simply in empirically demonstrating that the phenomenon exists. Some psychiatrists have claimed support for the existence of sublimation as a healthy defense mechanism (Andrews et al., 1993; Domino, Short, Evans, & Romano, 2002; Vaillant, 1993; Vaillant, Bond, & Vaillant, 1986; Vaillant & Vaillant, 1990). For example, based on clinical interviews and biographical information, both Vaillant and Vaillant (1990) and Domino et al. (2002) found that participants who were rated as using the defense of sublimation showed the most creativity. (The Vaillants’ measure of creativity was based on creative life accomplishments, and Domino et al.’s measure was based on various creativity tasks and an adjective checklist administered to college student participants enrolled in an English composition class.) Unfortunately, it is not clear to us whether raters used creative activity as part of their criteria for identifying sublimators in the first place.³ Moreover, as Baumeister, Dale, and Sommer (1998) have pointed out—unlike phenomena such as rationalization (Festinger & Carlsmith, 1959), projection (Cohen & Gunz, 2002; Newman, Duff, & Baumeister, 1997), compensation (Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003), reaction formation (Adams, Wright, & Lohr, 1996; Weinstein et al., 2012), and repression (Anderson & Green, 2001; Caldwell & Newman, 2005; Newman, Caldwell, Chamberlin, & Griffin, 2005; Newman & McKinney, 2002; Weinberger, 1990; cf. Holmes, 1990; see also Winer & Newman, 2012)—there has not yet been any “even moderately convincing” experimental demonstration that sublimation occurs (p. 1104). This “provides a sobering contrast with some other defense mechanisms” (for which there is evidence), and it represents “an inviting opportunity for some researcher to provide positive evidence of sublimation” (Baumeister et al., 1998, pp. 1106–1107).

Hypotheses, Intellectual History, and the Concern of the Present Studies

The process of sublimation—if it exists—is not supposed to be specifically Protestant. However, this hypothesis can be logically derived: Given (a) Weber’s argument that anxiety about one’s depravity can be used as a fuel for accomplishment, (b) the quasi-religious stature accorded to work as a calling in Protestant-

³ Because Vaillant and colleagues were primarily interested in whether sublimation and other “mature defenses” were associated with better adjustment and health, using creative activity as part of a heuristic for identifying sublimation is not particularly problematic. However, using creativity as a criterion for identifying sublimation and then using sublimation to predict creativity can render the argument circular.

ism, and (c) the temporarily debilitating effects of guilt in religious traditions (e.g., Judaism and Catholicism) that feature guilt as a highly elaborated-upon emotion, it seems reasonable to expect that sublimation as an ego-defensive process would be at least easier to evoke in Protestants.

The hypothesis that Protestants are more likely than Catholics or Jews to sublimate can be logically derived (as above). And further, not only logic but some of the intellectual history of related sociological, psychological, and theological ideas points to this hypothesis. In terms of such history, as Cavalletto (2007, p. 70) noted, Weber had “familiarity” with Freud’s concept of sublimation and at times seemed to at least implicitly invoke it in the *Protestant Ethic* (and explicitly evoke it in work published later). And Freud, described by a philosopher friend as “Protestant in sexuality” or a “sexual Protestant” (depending on the translation), fully owned this description of himself in his correspondence on sublimation with a Protestant minister (Freud & Pfister, 1963, p. 19; Westerink, 2009a, p. 59). Contemporary theologian Herman Westerink (2009a) speculates that congeniality between Freudian and Protestant ideals may be one historical reason that Freud’s theories of sublimation have received a warmer reception among Protestant theologians (as compared to Catholic ones):

In Catholicism there is the excess of casuistic, of unraveling and classifying sinful desires, thoughts, gestures and acts . . . that need to be confessed in order for the confessor to gain absolution. This practice “deflected attention from questions about the general corruption of human nature.” On the other hand, in orthodox forms of Protestantism (Puritanism, Pietism), sin and guilt were closely related to concepts such as original sin and predestination which led to “a pervasive sense of thorough human sinfulness.” Eventually, here also a kind of casuistic was developed, not focusing on sexual thoughts and acts that should be processed in confession, but on the *signs* [emphasis added] of sin and faith according to schemes of progress. Here the believer should certainly not focus on the variety of sins committed, but on the contrary he should focus on his spiritual progress. Maybe here we find already a historic source for the differences in the views on sublimation. (Westerink, 2009a, pp. 292–293)

Aside from these excavations in intellectual history, however, to our knowledge, the studies below offer the first empirical examination of the hypothesis that Protestants (as compared to Catholics and Jews) may be more likely to sublimate forbidden and suppressed thoughts and urges into creative work. In Study 1, we analyze data from a famous longitudinal study of gifted children (Terman, 1992) to examine how conflicts over (what were at the time) socially unacceptable sexual urges might serve as wellsprings for creative, productive accomplishment. In Studies 2 and 3, we move on to experiments, looking at how creative work might derive from conflict over unacceptable sexual urges (Study 2) or suppressed anger (Study 3). In all three studies, we hypothesize that Protestants, unlike their Catholic and Jewish counterparts, are more likely to channel unacceptable or suppressed urges into creative output.⁴

Study 1

There are few publicly available data sets that allow one to examine whether psychic conflict over taboo sexual urges might translate into creative accomplishment. There is a very notable exception, however. In his landmark *Study of Adult Development*, Vaillant (1993) examined three samples, of which data from the

Terman (1992) study are publicly available. The Terman study was a study of high IQ children in California, first interviewed in the 1920s and subsequently followed as their lives progressed during the following decades.

Method

Sexual taboo/depravity anxieties. In the publicly available data set, there were two questions related to whether participants had experienced anxieties, problems, or difficulties with respect to sex. One of these questions was not coded in the publicly available data set. However, the other question in 1950 asked, “Either in childhood or later, have there been any major problems or marked difficulties related to sex?” Researchers then categorized what respondents perceived as major problems in their sex lives. Of course, some of the participants’ concerns in 1950 might not be concerns for people today; however, with regard to the question of hang-ups, anxieties, and feelings of depravity that might lead the participants to sublimate, it is participants’ perceptions (and not moral judgments made in 2013) that matter.

We created a three-level independent variable called “sexual problems” that indicated whether the participant (a) had a problem related to anxieties about sexual depravity or taboo sexual behavior, (b) had a problem that was not clearly related to such sexual anxieties or taboos, or (c) did not report a sexual problem.

Categories relevant for the first level (anxieties about depravity or taboo/unacceptable behavior) included responses classified as “Aversion to sex: horror of; sex shameful, dirty, wrong; hated opposite sex; guilt feelings toward”; “Very strongly sexed (i.e., thinks it more than average; mere mention of trouble to control sex desires is normal for boys and not counted here)”; “Homosexual tendencies: includes homosexual experience and hetero-homosexual conflict”; “Masturbation: any mention of, whether brief or prolonged, whether it caused worry or not”; and “Little or no interest in sex (ranges from ‘much less than average’ to total lack of sex desire: e.g., ‘none,’ ‘never’).” Again, such concerns might not be considered problematic today; however, they seem to reflect anxieties about behaviors that were taboo or considered shameful or deviant (or considered major problems by respondents) at the time.

Relevant for the second level (sexual problems not clearly related to taboos) were responses that had been classified as “sexual maladjustment in marriage (any mention of, whether present marriage or former)”; “decidedly shy toward opposite sex, timid, awkward, or lack of social confidence toward opposite sex. Also ‘inhibited toward,’ afraid of opposite sex, etc.”; and sexual problems that were listed by the participant, but the “nature of trouble [was] not sufficiently specified to permit classification.” To the extent that these sorts of sexual problems did not involve anxieties about unacceptable desires, they also might not be expected to prompt sublimation.

The third level of this sexual problems variable was coded if the participant did not indicate any sexual problems.

⁴ Compare an interesting paper by Uhlmann, Poehlman, Tannenbaum, and Bargh (2011), who argued that work as a religious calling and a stern sexual morality may be Protestant in origin but may also have diffused across American culture more generally (possibly to Catholics and Jews as well).

Participant religion. The religious classification of respondents in 1950 categorized people as Catholic, Protestant, Jewish or several other miscellaneous categories. Those who had “leanings” toward a religion but were not classified as belonging to that religious tradition were excluded. The codebook did not specify the particular Protestant denomination to which the participant belonged.

Dependent variables.

Creative accomplishments. Our main creative achievement dependent variable was modeled after that of Vaillant (1993) and was created from two survey questions in 1950. One question asked participants to “List your publications since 1940, if any. Give title, date, publisher, and type of materials.” The response categories were one or more scientific or scholarly titles; one or more nonfiction titles, criticism, biography, technical; one or more fictional works; poetry or verse; plays, drama, TV or radio drama dialogue; musical compositions, albums; architect, artist, photography, design, movies; and newspaper, magazine articles, radio articles, book reviews, editing. In the codebook, up to two categories were coded, and we gave respondents a point for each unique category of publication. The second question asked participants to list “other creative work accomplished (e.g., architectural, engineering, inventive, scientific, artistic, dramatic). Note any special recognition.” Responses other than “writing within a profession” were then classified into the following categories: “art, painting, sculpture, weaving, photography, etc.”; “musical performance, dancing, writing music, etc.”; “dramatic performance, acting, directing, design, etc.”; “architecture, interior decorating, house-garden design, building, etc.”; “engineering, invention, patents; scientific research or theory”; “social or political leadership, education skill gains [sic]”; and “writing.” Summing these two questions gave respondents a score from 0 to 3.

Choice of creative occupation. We also examined participants’ choice of occupation. It might be expected that sublimators would be more likely to seek out careers in creative professions, and thus we examined respondents’ occupations for each of the years asked about, from 1946 to 1949. Job categories in the codebook differed for male and female respondents and did not allow for a clear-cut division into creative versus less creative occupations. However, based on a priori categorization, the following were classified as the most creative occupations. For men: “teaching and/or research—university, research institute, medical school, etc.,” “architect (include naval arch. but not landscape),” “artist or composer,” “author or journalist, editor, newspaper reporter,” “advertising, publicity, promotion, public relations,” “entertainment field (motion picture, radio, TV, theater), executive or supervisory position (e.g., producer, director, editor, cutter, writer),” “musician (except teacher in elementary school or college),” “actor: radio, TV, motion pictures or stage,” and “commercial artist, photographer, ceramist.” For women: “teaching or research—college level,” “writing—journalists, editing, background research for articles and stories, reporter,” “writing—fiction, essays, poetry, drama, reviews, etc.; radio and TV,” “writing—advertising, publicity, promotion,” “applied arts (ceramics, fashion artist, interior decorator, advertising artist, cartoonist),” “theater arts (actress, entertainer, dancer, singer),” “artist (painter, sculptor, illustrator),” and “advertising.” Participants were given 1 point for each year they were engaged in one of these creative occupations. Responses were averaged, so the dependent variable represented

the proportion of the 4 years that the participant was engaged in one of these creative jobs.

Results

Approximately 10 percent of respondents had a major difficulty that involved a sexual taboo or depravity-related anxieties. Another 7% had a major difficulty not clearly related to such a taboo or anxiety. Because the number of Catholic and Jewish respondents was small, these two groups were combined for analysis. The analysis below involved a Religious group (Protestant vs. Catholic and Jewish) \times three-level sexual problem variable \times Gender of respondent analysis of variance (ANOVA).

Creative accomplishment. In predicting creative accomplishment, there was a main effect of Religious group, $F(1, 580) = 4.23, p = .04$. The latter effect was qualified by a significant Religious group \times Sexual problem interaction, $F(2, 580) = 4.31, p = .01$.

As shown in Table 1, consistent with the hypothesis about Protestant participants sublimating anxieties about sexual depravity, Protestants with such anxieties had much greater creative achievements compared to those without any sexual problems (simple effect $t(440) = 4.18, p < .001, d = 0.67$) and compared to those who had sexual problems not clearly related to taboos or depravity anxieties (simple effect $t(77) = 2.19, p = .03, d = 0.50$). (The difference between participants who had no sexual problems versus participants who had sexual problems not clearly related to taboos was not significant.) This pattern did not hold for Catholic and Jewish respondents, as the means at the three levels of the sexual problems variable were not significantly different from one another (contrast $t = -0.75$ taboo problem vs. no reported problems, $t = 0.12$ taboo problem vs. problem unrelated to taboo, *ns*). Cell sizes were relatively small, however, with 92, 7, and 15 people at the three levels of the sexual problems variable for the combined Catholic and Jewish sample. For the Protestant sample, the corresponding numbers were 407, 36, and 44.

In addition to the predicted interaction, there was a main effect of participant gender, $F(1, 580) = 7.95, p = .005$, likely due to men’s greater opportunities. There was no significant Gender \times Religious group \times Sexual problem interaction, $F(2, 580) = 0.01, p = .99$.

Creative occupations. When we examined employment in the most creative occupations, effects similar to those above emerged. There was a main effect of religious group, $F(1, 594) = 9.80, p = .002$, and a main effect of sexual problems, $F(2, 594) = 7.28, p = .001$. However, both main effects were qualified by the predicted Religious group \times Sexual problems interaction, $F(2, 594) = 3.23, p = .04$.

As shown in Table 2, again consistent with the hypothesis about Protestant participants sublimating anxieties about sexual depravity, Protestants with such anxieties chose much more creative careers as compared to those reporting no sexual problems (simple effect $t(439) = 5.68, p < .001, d = 0.90$) and as compared to those who had sexual problems unrelated to such anxieties (simple effect $t(78) = 1.83, p < .07, d = 0.41$). (Those who reported no sexual problems were also significantly lower than those who had problems not clearly related to taboo or depravity anxieties, $t(441) = 2.80, d = 0.49$). Again, this pattern did not hold for Catholic and Jewish respondents, with means for the three levels of the sex

problems variable not differing from one another (contrast t for taboo problem vs. no reported problem = 0.88, t for taboo problem vs. problem unrelated to taboo = 0.92, ns).⁵

In addition to the predicted interaction, other effects included a main effect of participant gender, $F(1, 594) = 10.31, p = .001$, likely due to men's greater opportunities, and a significant interaction of Gender \times Sexual problems, $F(2, 594) = 3.20, p = .04$. Among the women, those with sexual problems related to taboo or depravity anxieties were more likely to be engaged in the most creative occupations, as compared to those who did not report any sexual problems, $t(241) = 2.00$. Among the men, those with sexual problems related to taboo or depravity anxieties were also more likely to be engaged in creative occupations, as compared to those who did not report sexual problems, $t(317) = 5.89$, and as compared to those with sexual problems not clearly related to taboo/depravity anxieties, $t(49) = 2.31$. The larger effects among men thus drove the Gender \times Sexual problems interaction. Whether this reflects men's greater tendency to sublimate or whether this effect is also a product of a limited range of opportunities given to women is an open question.

Finally, we note that the career choices of sublimating Protestants cannot solely account for their greater creative achievements. Even controlling for the percent of time that participants spent in the most creative jobs, Protestant participants with problems related to sexual taboo/depravity anxieties were still likely to have more creative accomplishments as compared to their counterparts without any problems, $t(440) = 2.82, p = .005, d = 0.45$, and as compared to those with problems not clearly related to taboo/depravity anxieties, $t(77) = 1.93, p = .054, d = 0.44$. Adjusted creative accomplishment means were .73 for Protestants with taboo/depravity anxieties; .44 for those with sexual problems not related to depravity anxieties; and .42 for those with no reported sexual problems. Thus, not only did the Protestants with sexual problems related to taboo/depravity anxieties choose to go into the most creative jobs, they also were more likely to be creative within those jobs (as compared to their fellow Protestant professionals with sexual problems unrelated to taboo/depravity anxieties and as compared to their fellow Protestant professionals reporting no sexual problems). Among Catholic and Jewish participants, adjusted means of the creative accomplishment variable were again not different from one another at the three levels of the sexual problems variable (adjusted means for Jews and Catholics were .30 for those with taboo/depravity anxieties, .38 for those with sexual problems not related to depravity anxieties, and .49 for those with no reported sexual problems; contrast $ts < 1$).

Summary

Study 1 was consistent with the hypothesis that Protestants are more likely than Catholics and Jews to sublimate unacceptable urges into creative accomplishments: Protestants who had major problems or marked difficulties related to sexual taboos and depravity anxieties showed greater creative achievements in their lives. They had more publications and creative accomplishments in other areas, as compared to their counterparts without such difficulties; they also disproportionately chose jobs in the most creative occupations. Neither of these results held for Catholic and Jewish participants.

Study 1 examined meaningful outcomes, in that it examined creative real life accomplishments that required both inspiration and effort. However, no correlational study can prove causation. For that, experimental manipulations are needed. In Study 2, we brought Protestants, Catholics, and Jews into the lab, attempted to create psychic conflict in them over forbidden thoughts and desires, and then examined their creative output on a series of tasks. In Study 3, we examined whether suppressed anger can also be sublimated into creative work.

Study 2

Study 2 offers 2 independent tests of the hypothesis that anxieties about depravity and taboo feelings are more likely to lead to sublimation by Protestant participants, as opposed to Catholic and Jewish participants. One test involved actually creating a taboo-related psychic conflict among our participants. Another test involved using a lexical decision task to prime participants with either damnation- or purity-related words that the participant would apply to himself.

Dependent variables included measures of (a) the creative work the participant produced (Do participants create better sculptures and poetry?), (b) the participant's aesthetic preferences as a "consumer" of others' creative work (Would participants prefer poetry by Robert Frost or lyrics by the heavy metal group Night Ranger?), and (c) the participant's effort on a worksheet that did not involve productive activity (How many words could the participant locate on a word search?). Because the experimental procedure involved two independent tests of the sublimation hypothesis as well as three classes of dependent variables, we describe it in full below but also present it in schematic form in Figure 1.

⁵ Not surprisingly, creative occupations tended to pay more and were more likely to be considered "professional." However, controlling for income (log transformed) and whether the occupation was classified as a "profession" by the census did not much change the results. Protestants with problems related to taboo/depravity anxieties were more likely to be in a creative job (adjusted $M = .32$) as compared to those not reporting sexual problems (adjusted $M = .09$), $t(429) = 5.11, p < .001, d = 0.49$, and as compared to those reporting sexual problems not clearly related to taboo/depravity anxieties (adjusted $Ms = .32$ vs. $.22$), $t(76) = 1.67, p = .095, d = 0.38$. Neither of these effects held for Catholic and Jewish participants (ts for both comparisons < 1).

In terms of professional status as a dependent variable, Protestants with problems related to taboo/depravity anxieties spent more time in professional jobs from 1946 to 1949 ($M = .56$) as compared to those not reporting sexual problems ($M = .31$), $t(449) = 3.68, p < .001, d = 0.35$, and as compared to those reporting sexual problems not clearly related to taboo/depravity anxieties ($Ms = .56$ vs. $.26$), $t(78) = 3.09, p = .002, d = 0.70$. Neither of these effects held for Catholics and Jews (both $ts < 1.42$). In terms of log income as a dependent variable, there was a marginally significant Sex \times Religious group \times Sexual problems interaction, $F(2, 560) = 2.31, p = .10$. Among female Protestants, those with problems related to taboo/depravity anxieties had higher incomes ($M = 1.84$) as compared to those not reporting sexual problems ($M = 1.27$), $t(192) = 2.28, p = .02, d = 0.33$, but not as compared to those reporting sexual problems not clearly related to taboo/depravity anxieties ($Ms = 1.84$ vs. $1.63, t < 1$). There were no effects for male Protestants or for Catholics and Jews of either gender. (We did not run any analyses for any cells smaller than $n = 5$.)

Table 1
Creative Accomplishment Among Adults in the Terman Sample as a Function of Participant's Religious Group and Whether the Participant Reported Problems Related to Sexual Taboo/Depravity Anxieties, Reported Problems Not Clearly Related to Such Anxieties, or Reported No Sexual Problems

Group	Respondent reported no sexual problems	Problems reported but not clearly related to sexual taboo/depravity anxieties	Problems related to sexual taboo/depravity anxieties
Protestants	.42	.53	.88
Catholics and Jews	.48	.29	.33

Method

Participants and cover story. Participants were men (60 White Protestant, 27 Latino Catholics, and 40 White Jewish students) who were run through the experiment one at a time. We selected Latino Catholics because the religious milieu of Latino communities tends to be overwhelmingly Catholic, and we supposed that White non-Latino Catholics would be much more intermixed with (and influenced by) the wider Protestant culture (Espinosa, Elizondo, & Miranda, 2010; Herberg, 1959; Perl, Greely, & Gray, 2010; Uhlmann, Poehlman, Tannenbaum, & Bargh, 2011; cf. Study 3). All participants had to identify themselves as currently religious, and they had to have grown up living with a sister. Originally, 199 persons were run, but approximately one third were eliminated because they did not meet our ethnic or religious criteria (mostly because they were atheist or agnostic), did not grow up with a sister, or told the experimenter during debriefing that they were gay.⁶ (The reason for excluding the latter two groups will become clear below.) We used men exclusively because, in general, men tend to be more easily aroused than women are by erotic visual stimuli (Ellis & Symons, 1990).

The experimenter began the study by telling participants they would complete a variety of tasks in which they would be making or writing something, performing a computer task, as well as doing some judgment and decision tasks.⁷ Participants were told that “the goal of the study was to see if there are any relationships between the way we perceive the world, process stimuli, and make things.”

Manipulation 1: Writing task to introduce sublimated desire (or not). The experimenter explained that the first task would be a writing task in which participants would look at a photo album and write about it, imagining that this was their family (photo diary task). The experimenter stressed that participants needed to write “about family memories based on these photos *as though they were your own*. We need you to really get into your role, really imagine that this is *your life* and *your memories* that you are writing about.” For all of the photo albums, the first two pictures included very innocuous photos of a family, highlighting the brother–sister relationship (to build up a sense of fraternal feeling). For each picture, a starter sentence was given such as, “Here are some pictures of my family from when I was a kid. My sister and I . . .” For half the albums, this continued with three consecutive slides that began “During high school my sister and I went on vacation with just the two of us. It really helped us grow closer . . .”; “My sister always loved the color red. One summer she even dyed her hair red. That was a crazy summer . . .”; and

“Last summer my sister and I went on a cruise we won at a raffle. We had a great time together . . .” For the other half of the photo albums, “My sister” was replaced with “My girlfriend” for the last three slides.

We varied the sexual attractiveness of the woman in the pictures orthogonal to the sister–girlfriend manipulation. In half the albums she was relatively plain. In the other half of the albums, the woman was a swimsuit model, who wore bikinis and clothes that accentuated her sexual attractiveness.

Conflict was supposed to occur when participants had erotic thoughts about the attractive, bikini-clad woman they were imagining and writing about as their sister. Participants presumably know at some level that this is, of course, not their sister. However, they are supposed to be writing about and imagining this person as their sister at the same time as they are likely to feel an erotic pull toward her (Hofmann, Friese, & Gschwendner, 2009; Tidwell & Eastwick, 2012). Given that participants are forced to write about the woman as their sister, the feelings that have to possibly be suppressed or sublimated are the erotic rather than fraternal ones.

The first test of the hypotheses thus involved predicting our creativity dependent variables (described below) from the interaction of Religious group \times High vs. low attractiveness of the target \times Whether the target was the sister or a girlfriend. Protestant participants in the attractive sister condition were predicted to show the greatest levels of creativity.

Manipulation 2: Lexical decision task to prime damnation/depravity versus purity words. After completing the photo diary task, participants completed a lexical decision (LD) task with

⁶ The standard prescreening question, “What is your family’s religious background,” could not eliminate religious apostates (those who said they had no religion though their families did). Predictably, including such religious dropouts tends to weaken the effects (Leung & Cohen, 2011), though the key Religious group \times Depravity/purity prime interaction and Religious group \times Sister/girlfriend \times Attractive/not attractive interaction remained significant and marginally significant, respectively. Two participants were also excluded for suspicion. Including these two participants does not change the significance of the two key interactions above (both $ps \leq .01$).

⁷ Experiments 2 and 3 depend on subjects psychologically immersing themselves in the experimental tasks (Crano & Brewer, 2005). To this end, we tried to minimize distractions and focus participants on the task at hand. Thus, phones and other devices are put away; experimenters are trained to command attention, memorize their scripts, and run the study as seamlessly as possible; participants do not know they have been prescreened on the basis of religion; they are run individually and left alone to complete their tasks, and so on.

Table 2
Proportion of Time the Participant Was Employed in One of the Most Creative Occupations as a Function of Participant's Religious Group and Whether the Participant Reported Problems Related to Sexual Taboo/Depravity Anxieties, Reported Problems Not Clearly Related to Such Anxieties, or Reported No Sexual Problems

Group	Respondent reported no sexual problems	Problems reported but not clearly related to sexual taboo/depravity anxieties	Problems related to sexual taboo/depravity anxieties
Protestants	.08	.22	.33
Catholics and Jews	.06	.00	.13

50 words and 50 nonwords. Participants had to decide as quickly as possible whether a string of letters, for example, *eight* or *thegi*, was a word or not. The second manipulation of feelings of depravity was embedded in this LD task (LDT). In the damnation/depravity prime condition, the words included *dirty, punish, vile, bad, guilt, suffer, forbid, prison, condemn, reject*. In the purity prime condition, the words included *clean, pure, good, soul, virtue, noble, reward, worthy, approval, prayer*. For four of these focal words, a nonword homophone (e.g., *iyam* or *meeiz*) preceded the focal word and was designed to induce the participant to direct

the damnation or purity word toward himself. (For example, the participant would see two consecutive LDT stimuli, such as *iyam* then *vile*. See also Weinstein et al., 2012.) This damnation versus purity word prime manipulation was orthogonal to the sister versus girlfriend and attractive versus not attractive manipulations; thus, the effect of the word prime provided a second, independent test of our hypothesis. Work by Uhlmann et al. (2011) showed that Americans seemed to work harder after being primed with words related to salvation (e.g., *heaven, salvation, righteous, saved*, and so on), as compared to neutral word primes. However, to the extent

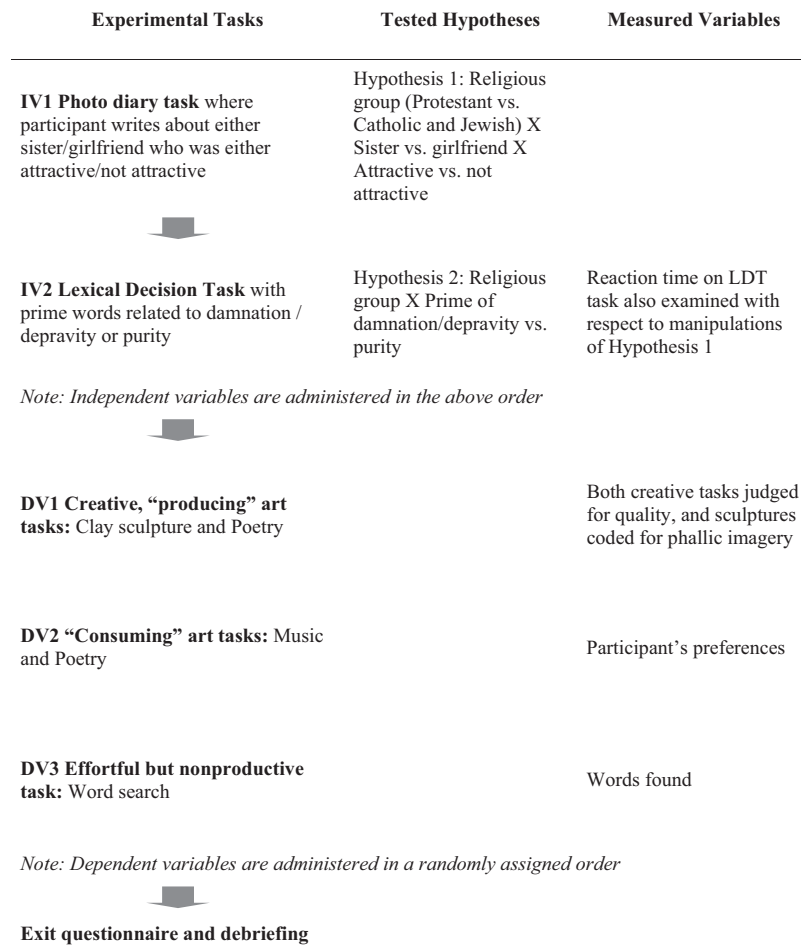


Figure 1. Flowchart of manipulated and measured variables in Study 2. IV = independent variable; LDT = lexical decision task; DV = dependent variable.

that anxiety about damnation and depravity is a driving force, one would expect our Protestant participants to be more productive after our damnation-related primes, as compared to our purity-related ones. The second test of the hypothesis thus involved predicting our creativity dependent variables from the Religious group \times Damnation vs. purity prime interaction, with Protestants in the damnation prime condition expected to produce the best work.

Both the photo album task and the LD task were done on computer. The experimenter could not see which version of either task the participants completed and was thus blind to experimental condition. Participants then completed a series of tasks described below whose order was counterbalanced. The tasks involved producing art (making a sculpture and writing a poem), “consuming” art (making aesthetic judgments), and measuring effort in a non-productive task (a word search task).

Dependent measures.

Producing art.

Creative art sculpture task. Participants were given 7 minutes to turn a ball of clay (approximately 3.5 inches in diameter) into a sculpture and title it.

Creative poetry task. Following Amabile (1982, 1996), participants were given 5 minutes to write a cinquain (a five-line poem with a specified format) about laughter. Following Amabile’s consensual assessment technique, sculpture and poetry were independently judged by seven experts (local artists or those with experience in the respective art forms, including one of the authors). All judges were blind to experimental condition and religion and rated the poems and pictures of the sculptures that had been labeled with random identification numbers. Scale ratings went from 1 to 5, with higher numbers being better.⁸ Poetry judges were asked to rate the poem on creativity, the degree to which it expresses a novel idea, quality of word choice, the judge’s personal liking for the poem, and the poem’s aesthetic quality (see also Amabile, 1982, 1996). The sculpture judges rated each sculpture on creativity, novelty of the idea, the judge’s liking, the effort evident in the sculpture, and its technical goodness. Poem and sculpture ratings were averaged together, with the alpha for the 10 item scale being .91.

Consuming art.

Aesthetic judgment tasks. To see if our manipulations had an effect on participants’ aesthetic judgment, we had tasks asking them to (a) rate two pieces of music after hearing 1-min snippets from both Stravinsky’s *Rite of Spring* and Hans Zimmer’s soundtrack to *Millenium: Tribal Wisdom and the Modern World* and then choose to listen to one of the compositions later and (b) rate two poems, Robert Frost’s “To Earthward” and lyrics from “I Will Follow You” by 1980s heavy-metal hair band Night Ranger. The titles and authors of the poetry and music were not revealed to participants, and order was counterbalanced. A “better” aesthetic judgment, as defined by conventional critical wisdom, would be indicated by preferences for Stravinsky and Frost (vs. Zimmer and Night Ranger).

Effort at a nonproductive task.

Word search task. As a brief measure of concentration and effort, participants were given a word search puzzle (our “worksheet” task) and asked to find as many words as possible in 4 minutes. The task required participants to focus but did not actually involve their producing anything. The word search involved

the participant expending effort, but it was not creative, productive activity in the sense that it involved either meaningful work or “putting something in the world that was not there before,” in Vaillant’s (1993, p. 205) words. (For various conceptions of meaningful work, see Bellah et al., 1996; Bunderson & Thompson, 2009; Dreher et al., 2007; Grant, 2008, 2012; Lips-Wiersma & Wright, 2012; Pratt, 2000; Roe, 1956; Steger, Dik, & Duffy, 2012; Vaillant, 1993; Wrzesniewski et al., 1997.)

Before they began the tasks, participants were asked whether they preferred to do a worksheet or a task in which they would “make something.” In reality, the order of tasks was counterbalanced, and the experimenter would simply obligingly tell the participant that he would be able to start/finish with a task like that, depending on what the participant said and the predetermined order of presentation.

After participants finished the tasks, they received a brief questionnaire that asked about their opinions about the morality of a man who fantasizes about having an affair (adapted from A. Cohen & Rozin, 2001), sexual anxiety and consciousness (three questions on each construct from the Multidimensional Sexuality Questionnaire by Snell, Fisher, & Walters, 1993; scores ranged from 1 “not at all characteristic of me” to 5 “very characteristic of me”), tendency to suppress and sublimate (two items on each from Andrews et al., 1993), and a few items about demographics, participants’ background, and manipulation checks.

Results and Discussion

Again, two sets of analyses were of particular interest: (a) those involving the interaction of Religious group \times Damnation vs. purity words and (b) those involving the interaction of Religious group \times Sister vs. girlfriend in photo album \times Attractive vs. not attractive woman in photo album. The two religious groups in which guilt is a highly elaborated-upon emotion (Catholicism and Judaism) were collapsed together into the non-Protestant group. (All Jewish vs. Catholic \times Damnation vs. purity and Jewish vs. Catholic \times Sister vs. girlfriend \times Attractive vs. not attractive interactions were not significant.)

Initial analyses confirmed that—with the exceptions noted below—there were no four-way Religious group \times Damnation vs. purity words \times Attractive vs. not attractive \times Sister vs. girlfriend interactions. Thus, we present the two tests of the sublimation hypotheses serially below.

First test of sublimation hypothesis: Religious group \times Sister versus girlfriend \times Attractive versus not attractive interaction.

Producing art. The Religious group \times Sister vs. girlfriend \times Attractive vs. not attractive interaction was significant for the sculpture and poem ratings, $F(1, 113) = 6.94, p = .01, f = .25$. Table 3 displays results consistent with the argument that Protestants sublimated their unacceptable desires or thoughts (about the sexually attractive sister) into better art (mean for attractive sister = 2.65 vs. mean for not attractive sister = 2.30, $t(24) = 1.94, d = 0.79, p = .05$), whereas such unacceptable desires were relatively debilitating for those practicing religions that have guilt

⁸ Following Amabile (1982, 1996), all works are rated together and scored relative to one another. Thus, these numbers are not absolute scores but are scores relative to the collection of work in this study.

as a highly elaborated upon emotion (mean for attractive sister = 2.31 vs. mean for not attractive sister = 2.60, $t(27) = -1.71$, $d = -0.66$, $p = .09$). When having to imagine the woman as a sister, the simple two-way interaction contrast of Religious group \times Attractive vs. not attractive was $t(52) = 2.56$, $p = .01$, $f = .36$; when imagining the woman as a girlfriend, there was no significant interaction, $t(63) = -1.11$.

“Consuming” art and effort at nonproductive task. There was a marginally significant three-way interaction (see Table 4) that was difficult to interpret on one of the aesthetic judgment tasks, as Stravinsky’s music was particularly disliked and avoided by Jews and Catholics in the attractive sister condition and particularly liked by Protestants in the not attractive girlfriend condition, $F(1, 114) = 2.76$, $p = .10$, $f = .16$.⁹ Interactions involving the other aesthetic judgment task and the word search task were not significant ($ps > .26$). Means for these nonsignificant results are presented in Table 5.

Second test of the sublimation hypothesis: Religious group \times Damnation versus purity words interaction.

Producing art. Table 6 displays results consistent with the argument that damnation- and depravity-related thoughts or anxiety can fuel creative production among Protestants (simple effect, $t(56) = 2.75$, $p = .01$, effect size $d = 0.73$), whereas such thoughts tend to be somewhat but not significantly debilitating for those practicing religions (Catholicism and Judaism) in which guilt is a highly elaborated-upon emotion, $t(61) = -1.33$, $d = 0.34$. The Protestant vs. Catholic and Jewish \times Damnation vs. purity prime interaction was significant for the average of the sculpture and poetry ratings, $F(1, 117) = 8.59$, $p = .004$ (interaction effect size $f = .27$).¹⁰

Note that for both the first and second tests of the sublimation hypothesis, Protestant participants performed similarly. They produced better, more creative art when induced to feel unacceptable desires in the attractive sister condition and when primed with damnation/depravity words. The opposite happened for Catholics and Jews in both tests of the sublimation hypothesis. Though the effect of the attractive sister and the effect of the damnation prime were not significant by themselves, combining these two effects meta-analytically would produce a significant effect: meta-analytic $Z = (1.71 + 1.33)/(\sqrt{2}) = 2.15$, $p < .05$. Thus, summing across the two tests, Catholics and Jews performed worse when induced to have forbidden thoughts in the attractive sister condition or when primed with damnation/depravity words.

Consuming art and effort at nonproductive task. There were no significant Religious group \times Damnation vs. purity interactions

Table 3

Score on the Sculpture and Poetry Tasks as a Function of Religious Group and Whether the Participant Wrote About a Sister Versus a Girlfriend Who Was Attractive Versus Not Attractive

Target and group	Not attractive	Attractive
Sister		
Protestants	2.30	2.65
Catholics and Jews	2.60	2.31
Girlfriend		
Protestants	2.49	2.38
Catholics and Jews	2.29	2.43

Table 4

Preference for Stravinsky’s Rite of Spring as a Function of Religious Group and Whether the Participant Wrote About a Sister Versus a Girlfriend Who Was Attractive Versus Not Attractive

Target and group	Not attractive	Attractive
Sister		
Protestants	.38	.34
Catholics and Jews	.48	.26
Girlfriend		
Protestants	.54	.30
Catholics and Jews	.43	.49

Note. Figures are on a 0 to 1, scale with higher numbers indicating greater preference for Stravinsky.

for either aesthetic judgment task or the word search (all $ps > .23$). Means for these nonsignificant results are presented in Table 5.

Further analyses.

Transmogrification of desire. If Protestants are more likely to sublimate their sexual thoughts and desires, one might expect to see these desires leak out in the art they produced. To test this, two coders rated each clay sculpture with respect to its phallic imagery on a scale of 0 (*not at all present*), 1 (*possibly present*), and 2 (*definitely present*); $r = .67$ for the coders, one of whom was an

⁹ The interpretation of this effect is somewhat ambiguous. *Rite of Spring* is considered a better piece, but it also has another quality that distinguishes it. As Leonard Bernstein once screamed out during a rehearsal of *Rite of Spring*, “Don’t you get it? This piece is all about SEX!” (Alsop, 2007). Thus, it is possible that our non-Protestant participants in the attractive sister condition not only had a tin ear but also were purposefully turning a deaf ear to the music’s implied content. For this variable (unlike the creativity dependent variables and the poetry preference variable), there was also a four-way interaction of LDT condition \times Religious group \times Sister vs. girlfriend \times Attractive vs. not attractive, such that the three-way interaction described above was most pronounced after the purity prime, $F(1, 111) = 9.97$, $p = .002$.

¹⁰ The main dependent variables were the performance measures above. However, as will be recalled, participants were also asked whether they would prefer to make something versus do a worksheet. Consistent with the notion that thoughts or anxieties about damnation and depravity can act as a spur to productive activity, Protestant participants in the damnation prime condition chose to make something (rather than do a worksheet) by a ratio of 4 to 1 (80% of those in the damnation prime condition wanted to “make something” vs. only 48% in the purity prime condition, $Z = 2.67$, $p = .008$, $d = 0.65$; see Rosenthal and Rosnow, 1991, pp. 538–539 for contrasts on proportions). On the other hand, the damnation prime was not such a spur for Catholic and Jewish participants (59% wanted to make something after the damnation prime vs. 62% after the purity prime, *ns*). The Religion \times Damnation vs. purity interaction contrast was significant ($Z = 2.19$, $p < .05$). The result that Protestant participants chose to make something at greater rates in the damnation condition cannot explain the result that they also made better sculptures and wrote better poems in this condition. The Religious group \times Damnation vs. purity interaction predicting the quality of the work was still significant when task choice was controlled for ($p = .01$).

The Religious group \times Sister vs. girlfriend \times Attractive vs. not attractive interaction did not significantly predict task choice ($t < 1$). A subsequent study by Hudson and Cohen (2013) replicated the Sister/girlfriend \times Attractive/not attractive manipulation of Study 2 and asked respondents a large number of questions about their preference for creative careers. Protestants in the attractive sister condition were more likely to say they wanted to pursue creative careers (as opposed to those involving helping people). This effect did not hold for Catholics and Jews. Why a parallel effect on task choice did not occur in the present study can only be a matter of speculation.

Table 5

Means and Interaction *p* Values of the Measures That Had Nonsignificant Effects in Study 2 (Aesthetic Judgment Task and Word Search Task)

Task	Protestant				Catholic and Jewish				<i>p</i> values for interaction
	Hypothesis 1: Photo diary manipulations in which participant writes about sister/girlfriend who was attractive/not attractive								
	Attractive		Not attractive		Attractive		Not attractive		
	Girlfriend	Sibling	Girlfriend	Sibling	Girlfriend	Sibling	Girlfriend	Sibling	
Aesthetic poetry judgment	.32	.31	.25	.40	.36	.40	.29	.26	.26
Word search	8.72	9.31	9.13	8.64	8.44	9.79	8.28	8.71	.38

Task	Hypothesis 2: Lexical decision manipulation with prime words related to damnation/depravity or purity				<i>p</i> values for interaction
	Damnation prime		Purity prime		
Aesthetic poetry judgment	.31	.33	.33	.32	.76
Aesthetic music judgment	.38	.39	.41	.44	.56
Word search	9.48	8.48	8.63	8.90	.23

author, the other of whom was a psychology graduate student. No participant actually made a sculpture of a penis. However, those scoring high on this measure made objects—for example, a submarine, a cigar—that had a phallic shape. Coders were blind to experimental condition and participant religion.

With respect to the Religious group × Sister × Not attractive ANOVA (see Table 7), there was a simple two-way interaction of Religious group × Attractive vs. not attractive, with Protestant participants being very likely to create phallic symbols with their clay after looking at the attractive pictures: interaction, $F(1, 117) = 7.45, p = .007, f = .25$; simple effect for attractiveness among Protestants, $t(58) = 2.54, p = .01, d = 0.67$; simple effect among Catholics and Jews, $t(64) = -1.11$. The three-way interaction of Religious group × Sister vs. girlfriend × Attractive vs. not attractive was not significant, though, with the Religion × Attractive vs. not attractive simple interaction being significant in the sister condition, $t(55) = 2.25, p = .03, d = 0.61$, and not quite marginal in the girlfriend condition, $t(64) = 1.62, p = .11, d = 0.41$.

The attractive sister and damnation versus purity words. The damnation/depravity versus purity words acted as a prime during the LD task. However, if thoughts and desires about the sexually attractive sister were causing Jewish and Catholic participants to feel and elaborate upon any sense of guilt, we might expect that Jewish and Catholic participants would be relatively quick to identify judgmental damnation and depravity words and relatively slow to identify purity words. If, on the other hand, thoughts and desires about the sexually attractive sister were causing anxiety

among Protestant participants and defensively leading them to suppress thoughts about damnation and depravity and instead focus their thoughts in purer directions, we might expect Protestant participants would be relatively quick to see purity words and relatively defended against seeing damnation words (Caldwell & Newman, 2005; Erdelyi, 1974, 1985; Newman & McKinney, 2002).

Table 8 displays reaction times for the self-directed purity versus damnation words in all conditions (16 cells). Table 9 displays the same data presented as damnation minus purity reaction time scores (8 cells). A focused comparison showed that Jews and Catholics in the attractive sister condition (as compared to all others) showed slowed responses to self-directed purity (vs. damnation) words (Attractive sister vs. all other conditions × Damnation vs. purity words contrast, $t(62) = 1.94, p = .054, f = .25$). On the other hand, Protestants in the attractive sister condition (as compared to all others) showed accelerated responses to the self-directed purity (vs. damnation) words (Attractive sister vs. all other conditions × Damnation vs. purity words contrast, $t(62) = 2.07, p = .04, f = .26$). Such results are consistent with the interpretation that Jewish and Catholic participants were relatively more likely to feel and elaborate on the guilt deriving from the

Table 6

Score on the Sculpture and Poetry Tasks as a Function of Religious Group and Damnation/Depravity Versus Purity Word Prime

Group	Depravity/damnation words	Purity words
Protestants	2.63	2.30
Catholics and Jews	2.34	2.50

Table 7

Phallic Symbolism in the Clay Sculptures Created by Participants as a Function of Religious Group and Whether the Participant Wrote About a Sister Versus a Girlfriend Who Was Attractive Versus Not Attractive

Target and group	Not attractive	Attractive
Sister		
Protestants	0.93	1.54
Catholics and Jews	1.18	0.89
Girlfriend		
Protestants	0.61	1.06
Catholics and Jews	1.21	1.06

Note. Scores run from 0 (no phallic symbolism) to 2 (definite phallic symbolism).

Table 8
Reaction Times (in Milliseconds) to Damnation/Depravity Versus Purity Words as a Function of Religious Group and Whether the Participant Wrote About a Sister Versus a Girlfriend Who Was Attractive Versus Not Attractive

Group and target	Damnation/depravity words		Purity words	
	Not attractive	Attractive	Not attractive	Attractive
Protestants				
Sister	606	698	624	538
Girlfriend	619	654	614	624
Catholics and Jews				
Sister	662	640	569	694
Girlfriend	659	665	578	588

unacceptable desires in the sexually attractive sister condition, whereas Protestant participants were relatively more likely to defend against thoughts of damnation and try to turn their focus to a more pure direction.

Turning toward purity while working out desires. As seen in the analysis of phallic symbols, Protestant participants were more likely to have sexual feelings from the photo album task subsequently expressed in their art. As seen in the reaction time analyses, after being induced to feel unacceptable desires, Protestant participants were also more likely to defend against damnation words, trying to turn their thoughts in a purer, more Godly direction. Again, this conjunction—of sexual desires transmogrified as one's thoughts turn in a purer direction—is suggestive of an act of conflict-induced sublimation in progress. And again, for Protestant participants, the process of this sublimation is likely to be particularly effective. As shown in Table 10, we can examine the interaction of our two measured (not manipulated) variables of phallic content and reaction time to damnation versus purity words among our Protestant participants (three-way interaction of Phallic content \times Damnation vs. purity condition \times Reaction time interaction, $t(50) = 1.7, p < .10, f = 0.24$). As shown in the top panel of Table 10, when there is definite phallic content in the art and our Protestant participants are trying to turn their thoughts in a purer, more Godly direction (away from depravity), participants are doing exceptionally good work. The predicted value of 3.22 is 1.63 standard deviations (*SD*) above the grand mean (the 94th percentile) of all participants. Thoughts of purity conflicting with sub-

Table 9
Reaction Times Shown as Damnation/Depravity Words Minus Purity Words

Group and target	Not attractive	Attractive
Protestants		
Sister	-18	160
Girlfriend	5	30
Catholics and Jews		
Sister	93	-54
Girlfriend	81	77

Note. Larger positive numbers imply a relative quickness to respond to purity words and relative slowness to respond to damnation/depravity words.

Table 10
Predicted Scores on the Sculpture and Poetry Tasks for Protestant Participants as a Function of the Phallic Content of Their Sculpture and Their Relative Slowness or Quickness to Respond to Damnation/Depravity Versus Purity Words

Measure	Damnation/depravity words	Purity words
Phallic content: "definite"		
Fast RTs	2.52	2.56
Slow RTs	3.22	1.81
Phallic content: "not at all"		
Fast RTs	2.50	2.34
Slow RTs	2.19	2.33

Note. Value for fast RTs computed as 1 *SD* below the mean. Value for slow RTs computed as 1 *SD* above the mean. RTs = reaction times.

terranean desires seemed to be particularly productive for our Protestant participants as they made their sculptures and wrote their poetry (simple two-way interaction of Damnation vs. purity condition \times Reaction time, centered at a value indicating definite phallic content, $b = -.33, \beta = -.60, t = -2.09, p = .04$). When there was no phallic content to the work, quick or slow reaction times to damnation versus purity words predicted very little (simple two-way interaction of Damnation vs. purity condition \times Reaction time, centered at a value indicating no phallic content, $p = .97$).

The attractive sister and sexual anxiety. Finally, if anxiety (as Weber argued) was the key psychic force, we might also find evidence that Protestant participants felt heightened anxiety in the sexually attractive sister condition. The three sexual anxiety items from the questionnaire by Snell et al. (1993) were "Thinking about the sexual aspects of my life leaves me with an uneasy feeling," "I feel nervous when I think about the sexual aspects of my life," and "I feel anxious when I think about the sexual aspects of my life." Table 11 displays the means for sexual anxiety, showing a main effect of sister vs. girlfriend, $F(1, 117) = 4.32, p = .04$; a marginal main effect of attractiveness, $F(1, 117) = 3.21, p = .08$; and a marginal interaction between sister and attractiveness, $F(1, 117) = 2.82, p = .096$. However, it also shows a significant three-way interaction among Religious group \times Girlfriend vs. sister \times Attractive vs. not attractive, $F(1, 117) = 4.63, p = .03, f = .20$, with Protestants showing particularly high levels of anxiety in the attractive sister condition. The simple effect of attractiveness was significant for Protestants in the sister condition, $t(25) = 2.59, p <$

Table 11
Sexual Anxiety as a Function of Religious Group and Whether the Participant Wrote About a Sister Versus a Girlfriend Who Was Attractive Versus Not Attractive

Target and group	Not attractive	Attractive
Sister		
Protestants	1.62	2.58
Catholics and Jews	1.94	2.12
Girlfriend		
Protestants	2.50	2.20
Catholics and Jews	2.30	2.63

.05, $d = 1.02$, but it was not significant in any other condition or group.

Anxiety about sexuality combined with an attempt to turn oneself in a purer direction again proved a particularly productive psychic combination for our Protestant participants. As may be seen in the top panel of Table 12, using the measured reaction time and sexual anxiety variables, when Protestants participants were both high in sexual anxiety and trying to focus in a more Godly direction (as indicated by their slowness to recognize depravity and damnation words), they again made particularly good artwork (predicted value = 3.25 was at the 94th percentile of all artwork; two-way interaction of Damnation vs. purity condition \times Reaction time with sexual anxiety centered at 1 *SD* above the mean, $t(49) = -2.21, p = .03, b = -.33, \beta = -.60$). Without the heightened sexual anxiety, quickness or slowness to the purity and damnation words predicted very little (two-way interaction of Damnation vs. purity condition \times Reaction time with sexual anxiety centered at 1 *SD* below the mean, $t = 0.7, p = .49$). The three-way interaction of Anxiety \times Damnation vs. purity condition \times Reaction time was significant among Protestant participants, $t(49) = -2.02, p < .05, b = -.20, \beta = -.31$.

In sum, consistent with the argument that Protestants effectively sublimate, (a) the combination of heightened sexual anxiety and thoughts directed away from depravity predicted better sculpture and poetry, and (b) the production of phallic symbols combined with thoughts directed away from depravity also predicted better art.

Formally testing mediation is not a simple task here, because the attractive sister condition predicts main effects on mediating variables suggesting (a) heightened sexual anxiety or desire (the sexual anxiety scale, the phallic symbolism), and (b) increased defensiveness (perceptual vigilance against damnation words/for purity words on the RT task). The heightened anxiety or desire variable and the defensiveness against damnation then interact to predict creative output.

We thus ran regressions to see if our interactions might indeed explain some of the influence of the attractive sister condition on the creative output. In a simple bivariate regression, a dummy variable indicating whether the participant was in the attractive sister condition predicted more creativity ($b = .26, \beta = .22, t = 1.71, p = .09$). If the terms that produce the Phallic content \times Damnation vs. purity condition \times Reaction time interaction are

entered, the magnitude of the attractive sister variable is reduced ($b = .24, \beta = .20, t = 1.39, p = .17$), whereas the three-way interaction of Phallic content \times Damnation vs. purity condition \times Reaction time remains ($b = -.14, \beta = -.28, t = 1.75, p = .09$). The same is true if the terms for the Anxiety \times Damnation vs. purity condition \times Reaction time interaction are entered: The magnitude of the attractive sister variable is reduced ($b = .19, \beta = .16, t = 1.23, p = .23$), whereas the three-way interaction of Anxiety \times Damnation vs. purity condition \times Reaction time remains ($b = -.25, \beta = -.38, t = -2.55, p = .01$). If both three-way interaction terms are entered simultaneously, the magnitude of the attractive sister variable drops even further ($b = .09, \beta = .08, t = 0.50, p = .62$), suggesting that the interaction terms likely “explain” a decent amount of the attractive sister effect.

Measured variables among Catholic and Jewish participants.

Unlike their Protestant counterparts, Jewish and Catholic participants did not show general tendencies to create phallic symbols, feel greater sexual anxiety, direct their thoughts in purer directions, or produce particularly good art when shown pictures of the attractive sister. Nevertheless, it is an open question as to whether one could find greater creativity among those Jewish and Catholic participants who happened to show such effects. On the one hand, if psychic conflict inevitably leads to sublimation among all populations, then one would expect to find that evidence of such conflict in our measured variables also predicts greater creativity among Jewish and Catholic participants. On the other hand, if psychic conflict simply leads to ambivalence or paralysis or difficulty among Jewish and Catholic participants, one would not expect to see such conflict lead to greater creativity.

Overall, the data seem tentatively most consistent with the latter hypothesis. The three-way interaction of Phallic symbolism \times LDT condition \times Reaction time and the three-way interaction of Sexual anxiety \times LDT condition \times Reaction time were not significant among Jewish and Catholic participants. The four-way interaction of Religious group \times Sexual anxiety \times LDT condition \times Reaction time was significant, $t(102) = -2.33, p = .02, f = .23$, suggesting that effects of the corresponding three-way interaction terms were significantly different between Protestant versus Jewish and Catholic participants. The four-way interaction of Religious group \times Phallic symbolism \times LDT condition \times Reaction time was not significant, however, $t(103) = -1.22, p = .23$. Overall, then, results of these analyses also seem tentatively consistent with the idea that whereas psychic conflict seems to make Protestant participants particularly productive, such psychic conflict does not seem to have such clear positive effects for Jewish and Catholic participants. (For individual and cultural differences in preferences for, and performance under, various affective states, see Chentsova-Dutton, Tsai, & Gotlib, 2010; Fulmer et al., 2010; Gasper & Clore, 1998; Grossmann & Kross, 2010; Lee, Aaker, & Gardner, 2000; Tamir, 2009; Tsai, 2007; Wood, Heimpel, Manwell, & Whittington, 2009.)

Assessing potential confounds. Protestants were not significantly more likely than non-Protestants to score higher on sexual consciousness or the two-item measure of suppression (both $ps > .15$). They were more religious, more likely to score higher on the morality of mentality questions (replicating A. Cohen, 2003; A. Cohen & Rankin, Study 4, 2004; A. Cohen & Rozin, 2001), and more likely to score higher on the two-item measure of sublimation (“I work out my anxiety through doing something constructive

Table 12
Predicted Scores on the Sculpture and Poetry Tasks for Protestant Participants as a Function of Their Sexual Anxiety and Their Relative Slowness or Quikness to Respond to Damnation/Depravity Versus Purity Words

Measure	Damnation/depravity words	Purity words
High sex anxiety		
Fast RTs	2.56	2.67
Slow RTs	3.25	2.02
Low sex anxiety		
Fast RTs	2.61	2.24
Slow RTs	2.36	2.27

Note. Value for fast RTs computed as 1 *SD* below the mean. Value for slow RTs computed as 1 *SD* above the mean. Values for high Versus low sexual anxiety were ± 1 *SD* from the mean. RTs = reaction times.

and creative like painting or woodwork” and “Sticking to the task at hand keeps me from feeling depressed or anxious”). However, controlling for these variables did not alter the significance of the Religious group \times Depravity vs. purity words interaction or the Religious group \times Sister vs. girlfriend \times Attractive vs. not attractive interaction in predicting the sculpture and poetry ratings. It may be that the sublimation process happens at a level below that accessible to conscious reporting (Cramer, 2000; Wilson & Dunn, 2004). As with effective defense mechanisms such as dissonance (or rationalization), we may know that we are rationalizers yet not be able to identify that a specific instance of our reasoning is indeed a rationalization. Thus, we may know that we sublimate, but we may not be able to identify the process as we are doing it (see also Erdelyi, 1985, p. 246; Nisbett & Wilson, 1977; Vaillant, 1993; Wilson, 2009; Wilson & Dunn, 2004). If debriefings are any guide, only two participants (one Protestant) expressed a suspicion that resembled the sublimation hypothesis. If the process is indeed unconscious, perhaps this is adaptive: Identifying a defensive process in action may ruin its effectiveness (see also the General Discussion section; Sherman et al., 2009).¹¹

Summary

Weber theorized that Protestants were more likely than other groups to use anxieties about depravity and salvation to fuel their productivity. Using Freudian defense mechanisms, Protestants might also be more likely to sublimate unacceptable desires and channel them in socially appropriate ways. In contrast, religions that tend to emphasize the emotion of guilt may not be able to harness their anxieties and unacceptable desires so productively. Rather than spurring sublimation, the guilt reaction—at least in the short term—seems to debilitate. Its function may be to spur reparative actions, rather than spur productive and creative work.

Along with providing what may be the first experimental evidence for the process of sublimation, results of the present study were consistent with the above reasoning (with the idea about guilt motivating interpersonal reparative tendencies to be explored further in Study 3). Protestant participants were more likely to create better sculptures and write better poetry in conditions where they were induced to have unacceptable desires (the attractive sister condition) or were primed with damnation (vs. purity) words. In contrast, Catholic and Jewish participants performed relatively worse under such conditions. (By themselves, neither the effect of the attractive sister nor the effect of the damnation words significantly hampered Catholics and Jews. However, the meta-analysis of the two effects showed that Catholics' and Jews' output was significantly worse under these conditions.)

Protestant participants also seemed more likely to have the desires stimulated by the sexually attractive woman show up in their art (as indicated by their sculptural phallic symbols). And they were more likely to react defensively to socially unacceptable thoughts or feelings by turning their minds in a purer, more Godly direction (as indicated by their reaction time results in the LDT). The interaction of these two measured variables suggested that the conflict between having an unacceptable desire and trying to focus one's mind on pure thoughts (vs. damnation and depravity) was a particularly productive one for our Protestant participants, who thus created very good art in the form of sculpture and poetry.

Finally, Protestant participants felt particularly high sexual anxiety in the attractive sister condition. Also our Protestant participants who felt this heightened anxiety and also defensively turned their mind in a purer direction (as indicated by their reaction times to damnation vs. purity words) likewise produced particularly good art, again consistent with a process of successfully sublimating psychic conflict.

Study 3

The first two studies examined psychic conflicts related to sexual desires. However, such desires are not the only source of sublimation. As Freud originally hypothesized, angry, destructive emotions may be sublimated into something positive as well. In this study, participants were asked to suppress their angry feelings. As Wegner and colleagues have shown, what is or has been suppressed often finds its way out (Wegner, 1992, 1994; Wegner & Erber, 1992; Wegner, Erber, & Zanakos, 1993; Wegner, Wenzlaff, & Kozak, 2004; Wenzlaff & Wegner, 2000; see also Macrae, Bodenhausen, & Milne, 1998; Macrae, Bodenhausen, Milne, & Jetten, 1994). We expected Protestant participants who were trying to suppress or had been suppressing their anger to be most likely to channel this anger into their work, sublimating that anger into better, more creative output.

In Study 2, we assumed that participants would want to suppress erotic thoughts about the woman they were imagining as their sister. In Study 3, we manipulated suppression directly through instruction. The basic design of Study 3 compares (a) participants who have to recall an anger-producing incident and suppress it, (b) participants who have to recall an anger-producing incident but have to suppress something innocuous, and (c) participants who have to recall something innocuous and suppress something innocuous. It is thus Protestants in the first group (recall anger and suppress anger) who should be more creative than those in the second and third group. This effect is not predicted to hold among Catholics and Jews. We describe our manipulated and measured variables in full below but also present the procedure in schematic form in Figure 2.

Method

Participants. Participants were 42 Protestant (62% female) and 54 Catholic and Jewish undergraduates (67% female). Most of the Catholics were at least part Irish American, for reasons described in the dependent measures section below.

Anger (or not) manipulation. Participants were told that they would do “a number of different tasks that call on your thinking, perception, and attention skills.” Such tasks would measure “your ability to focus your attention on something, your ability to focus your attention away from something, your ability to use visual and tactile imagery, and your vocabulary and word recognition skills.” The study began with participants doing three “imagery and writ-

¹¹ Subsequent studies by Kim and Cohen (2013) also suggest greater Protestant sublimation. However, the two sublimation items from Andrews et al. (1993) were asked again in one of those studies comparing Protestants with Catholics, and the difference on these two items was not observed. The lack of difference on these two self-report items occurred despite the bulk of the evidence in Kim and Cohen's (2013) study suggesting greater Protestant sublimation.

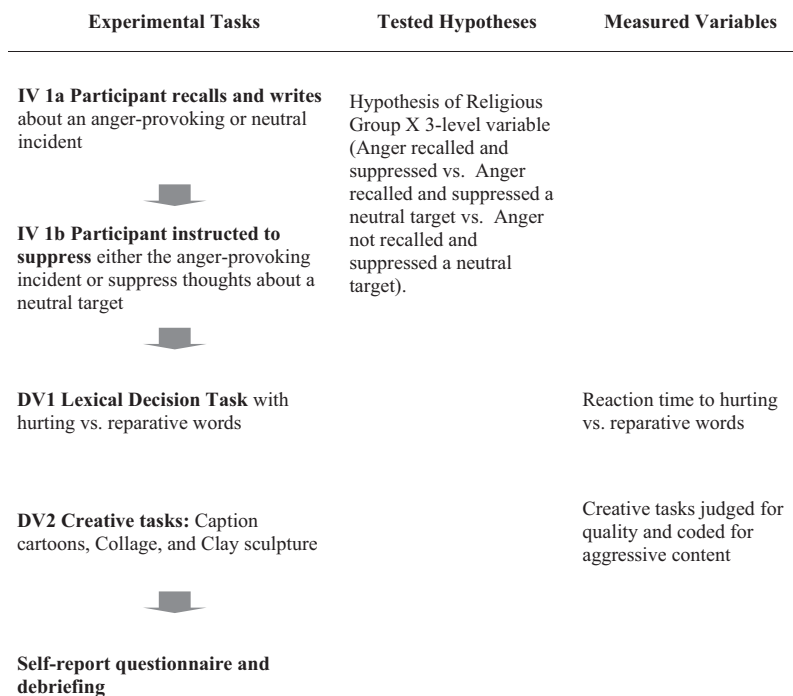


Figure 2. Flowchart of manipulated and measured variables in Study 3. IV = independent variable; DV = dependent variable.

ing” tasks. The first and third tasks were the same in all conditions. They involved creating a mental image of a horse (first task) and a desk (third task), using their nondominant hand to make relevant motions as they wrote about the image. However, for the second task, participants were given one of two instructions: Some participants were asked to recall (a) “a time when someone did something to make you very, very angry, to the extent that you wanted to physically hurt them (even if you did not carry this thought out).” They were given 2 minutes to “visualize in your mind the incident, visualize how you wanted to hurt the person, and feel your anger” and then had 2 minutes to write about the event. As they did so, they were asked to make a fist with their nonwriting hand to help their visualization.¹² Other participants were asked to recall (b) “a time when you were doing something that was emotionally neutral (for example, cleaning the house or riding in a car or running some errand).” These participants also had 2 minutes to visualize and 2 minutes to write, using their nonwriting hand as they would while doing the imagined activity.

Suppression manipulation. After the second task, the experimenter explained that the participant would begin the “focusing away procedure.” For some of the participants, this meant suppressing the anger story; for others, this meant suppressing something innocuous (suppressing either the horse or the neutral event).¹³

All participants thus needed to suppress something. Some of the participants were told to suppress thinking about it for the rest of the study. Others were told to suppress for 5 minutes and (after that period) were told that they were free to think or not think about what they had been suppressing. Either instruction should make whatever is suppressed show “rebound effects,” as the suppressed memory becomes more intrusive for the participant. Wegner and

colleagues (Wegner, 1992, 1994, 2009; Wegner & Erber, 1992; Wegner et al., 1993; Wenzlaff & Wegner, 2000) have found that rebound effects occur both after the suppression period and during the suppression period, if cognitive load is high. (Cognitive load for those engaged in the tasks described below is presumably quite high.) We were unsure which manipulation would maximize the likelihood that the anger memory would keep “pinging” the participant. However, we found similar results for participants instructed to suppress for the whole period or for 5 minutes and thus collapsed across these two conditions to increase cell *n*. In predicting our main dependent variable (the creativity ratings), there were no main effects or interactions for a variable representing

¹² Participants were told to remember a situation where they were angry either at someone close to them or at a stranger. According to both participant self-report and independent rater coding of the narratives, the two types of stories produced the same amount of anger (all *ps* > .37 for anger codings by independent rater and participant self-reports). Also, the key effect looked the same across both types of stories. In predicting creativity ratings, there was no effect for type of anger story (*p* = .74), no interaction of this variable with religious group (*p* = .58) or with instructions to suppress the anger (*p* = .50), and no three-way interaction of type of Anger story × Religious group × Instructions to suppress anger (*p* = .76). We thus collapsed results across the two anger conditions.

¹³ For participants who suppressed something innocuous, whether they suppressed the horse versus the neutral incident did not matter in predicting creativity ratings for Protestants or Catholics and Jews: effect of horse vs. neutral incident, *F*(1, 55) = .61, *p* = .44; interaction of Religious group × Horse vs. neutral, *F*(1, 55) = .004, *p* = .95.

suppress for 5 minutes versus suppress for entire experiment (all p s > .63, all F s < .24).

Dependent measures

Lexical decision task of hurting versus reparative action words. All participants then did a lexical decision task (LDT) that included some words describing aggressive, hurting actions versus reparative actions. Embedded within a number of neutral words and nonwords were either 10 hurting words (*fight, choke, hit, strike, hostile, hate, smash, beat, rage, kick*) or 10 reparative words (*love, hug, bond, friendly, harmony, warmth, kind, gentle, peace, soothe*). Of these words, seven were preceded by nonword homophones (e.g., *iivandt, iyem, goingtoo*). Whether a participant saw hurting or reparative words was a between-subjects variable.

The list of words in Study 3 is different than that in Study 2, in that Study 3's words concern immediate actions, states, and urges (e.g., *fight, choke, hit* vs. *love, hug, bond*) rather than higher order conceptualizations and judgments. If Jewish and Catholic participants felt guilty (as indicated by their quicker reaction times to damnation and depravity words in Study 2), we should expect this guilt to motivate interpersonal reparative and reconciling action tendencies. Thus, guilt should lead Jews and Catholics to be quicker to respond to words such as *love, hug, bond*, and so on.

Predictions for Protestants are a bit less clear. The turn toward purity and away from damnation and depravity words in Study 2 could imply that Protestants will also show quicker responses to reconciling action words in Study 3. Or the turn toward purity and away from damnation and depravity could imply that such higher order goals are being invoked precisely to fight against strong, immediate temptations, as suggested by theories related to counteractive self-control (Fishbach & Shah, 2006; Fishbach, Zhang, & Trope, 2010; Myrseth, Fishbach, & Trope, 2009; Trope & Fishbach, 2000), construal-level theory (Fujita & Han, 2009), and repressive information processing (Caldwell & Newman, 2005; Calvo & Eysenck, 2000; Derakshan, Eysenck, & Myers, 2007; Newman & McKinney, 2002). In the latter case, we would expect Protestant participants in the suppressed anger condition to exhibit quicker responses to words related to more immediate hurting urges and temptations.

Creativity Task 1: Humor captioning. Participants were given five cartoons to caption (two of them had explicit violent content; three of them did not, though they did contain some potential for conflict and mayhem). Participants had 6 minutes to "provide the funniest captions for as many of the cartoons panels as you can." These were later rated on their funniness, creativity, wit, execution, and overall quality by six judges, including one of the authors. Participants were allowed to provide more than one caption and the funniest caption for each cartoon was used to compute an average across cartoons.

We chose the humor task to increase the chance that we might find results in direct opposition to those in Studies 1 and 2. That is, we wanted to increase the possibility of finding a creative task into which Jewish and Catholic participants (rather than Protestant participants) would sublimate their anger. Jews and Catholics (particularly Irish Catholics) have long been overrepresented among professional comedians and satirists. To the extent that these groups use humor as a channel for suppressed anger, we might expect them to show enhanced creativity on the cartoon captioning task when they are in the suppressed anger condition. To the extent that suppressed anger is not the driving force behind

Jewish and Catholic humor, we would instead expect that results from this task would parallel those of other creative tasks. In that case, it should again be Protestants in the suppressed anger condition who would show the greatest creativity.

Creativity Task 2: Collage. Participants were given a standard set of 19 photos and three patterns and allotted 6 minutes to make a collage and title their work. Of the 19 photos, five had clear anger content. Later, six expert judges (graduate art students whose work had been featured in shows) rated the collages for their creativity, novelty of the idea, effort evident, aesthetic quality, ability to command and keep attention, and overall evaluation as a work of art.

Creativity Task 3: Clay sculpture. Participants were given a ball of clay and had 6 minutes to create a sculpture and title it. The six expert judges (who rated the collages above) rated the sculpture on the same six dimensions with an additional dimension of technical goodness (not deemed to be relevant to the collage).

Primary dependent variable: Art quality. The main dependent measure was thus the five ratings of the quality of the cartoon captions, six ratings of the quality of the collage, and seven ratings of the quality of the sculpture, weighted so that the three creativity tasks all contributed equally to the total creativity score. The alpha for the scale with the 18 creativity ratings was .92.

Subsidiary dependent variable: Anger content of art. A subsidiary measure was the amount of anger content shown in the art. Except when cartoon ratings were made by one of the authors, judges who rated the anger content of the art were different than those who rated the creative quality of the art. Cartoons were rated by six judges for how much anger they revealed, how cutting they were, how much they portrayed the world as nice versus cruel. The cartoons with explicit violent content were given two additional ratings: how much they played up the aggression and (reverse-scored) how much they treated it matter of factly. The two additional ratings for cartoons without explicit violent content were how much they played up any conflict in the cartoons and how much they played up the possibility of mayhem. Ratings of anger content of the collages included (a) an objective count of the number of violent/aggressive pictures used in the collage, (b) a subjective rating of the overall anger content in the collage, and (c) a subjective rating of the overall amount of conflict shown in the collage, with (b) and (c) averaged across three raters. Sculptures were also rated for subjective judgments about the amount of anger and amount of conflict in the art (averaged across three raters). Again, as with all ratings, judges were blind to the condition and religion of each participant. The five anger scores for the cartoons, two anger scores of the sculptures, and three anger scores of the collage were weighted so that the three creativity tasks contributed equally to the total creativity score. The alpha for the scale with the 10 anger ratings was .72.

Self-report questionnaire. After participants had completed all creativity tasks, they were given a questionnaire. If participants were asked to recall an incident that made them angry, they were given a short questionnaire asking them to report their reactions to the incident. Questions asked about how angry participants were at the time of the incident, how much they felt like hurting the other person at the time of the incident, and whether they thought about specific acts of vengeance (all on 1 to 5 scales, except for the last that was scored from 0 to 5, depending on the number of revenge acts considered). All of these measures were standardized to create

an index of hostile feelings at the time of the incident. Participants also rated how much they felt like hurting the other person when they were writing at the beginning of the study and how much they felt like doing so as they filled out the current self-report questionnaire (both on 1 to 5 scales). All participants filled out a brief questionnaire containing Megargee, Cook, and Mendelsohn's (1967) overcontrolled hostility scale as well as items about demographics and religious status. Individuals who score high on this measure of overcontrolled hostility have a great deal of latent anger that is usually held in check by strong restraints against such anger; however, when the restraints fail, the anger can be explosive.

Results

The basic experimental design in this study compares (a) participants who have to recall an anger-producing incident and suppress it, (b) participants who have to recall an anger-producing incident but have to suppress something innocuous, and (c) participants who have to recall something innocuous and suppress something innocuous. The hypothesis was that suppressed anger would lead Protestants to sublimate their hostility into more creative art.

As shown in Table 13, the most creative work was done by Protestants in the suppressed anger condition ($M = 2.91$). Protestants who recalled an anger-provoking incident but did not have to suppress it scored about the same as those who did not recall an anger-provoking incident ($M_s = 2.61$ vs. 2.63), and the scores for both groups were significantly lower than those for Protestants who had to suppress their anger (contrast of 2, -1 , -1 ; $t(90) = 2.07$, $p < .04$, $f = .33$). This effect did not hold among the Jews and Catholics, who scored slightly and nonsignificantly lower in the suppressed anger versus other conditions (contrast of 2, -1 , -1 ; $t(90) = -0.96$, *ns.*). If anything, both anger conditions tended to make Jews and Catholics perform worse than controls, though the difference was not significant ($t(90) = 1.5$, $p = .14$, $f = .21$). The overall contrast capturing the Religious group \times Anger suppression (or not) interaction was significant, $t(90) = 2.16$, $p < .03$, $f = .23$.

Further results.

Self-reports of anger. In Study 2, we did not have a self-report measure of how much participants felt erotic desire toward the woman in the picture. However, in this study, we did have participants' self-report of their anger. We conducted a 2 (religious group) \times 2 (angry and instructed to suppress anger vs. angry and

instructed to suppress something innocuous) ANOVA. (Recall that participants not instructed to recall an anger-provoking incident could not make anger ratings.) Protestants were more likely to report greater anger at the time of the incident (anger index for Protestants = $.21$ vs. anger index for Catholics and Jews = $-.21$), $F(1, 50) = 4.87$, $p = .03$, $d = 0.62$, but they also reported that they felt less hostile earlier in the experiment when they wrote about the incident (Protestant $M = 1.77$, $SD = 1.02$ vs. Catholic and Jewish $M = 2.44$, $SD = 1.25$), $F(1, 48) = 4.11$, $p < .05$, $d = 0.59$. There was no difference between religious groups in their self-reports of how hostile they felt at the end of the study ($p = .50$). There were no significant effects of instructions to suppress or of Religious group \times Instructions to suppress interactions for any of the self-report variables (all $ps > .23$). Also, when two independent coders later rated the "objective" severity of the provocation, there were no main effects of religious group, instruction to suppress, or the interaction of these two terms (all $ps > .12$).

Anger content of the art. Though Protestants in the anger suppression condition did not report consciously feeling more anger, the anger nevertheless came out in two places: the LDT and their creative work tasks. With regard to the latter, as shown in Table 14, Protestants in the suppressed anger condition created art with the most angry content ($M = .32$, $SD = .67$) as compared to those in the anger not suppressed ($M = -.29$, $SD = .51$) and the no anger conditions ($M = -.10$, $SD = .55$; contrast, $t(90) = 2.42$, $p < .02$, $f = .26$). No such effect occurred for Catholics and Jews. The contrast capturing the Religious group \times Anger suppression (or not) interaction was significant, $t(90) = 1.98$, $p = .05$, $f = .21$.

Further, among the Protestants, it was this anger that leaked out into their art that was at least partly responsible for its quality. In a bivariate regression analysis among Protestant participants, a dummy variable coding for the suppressed anger condition (1) versus all else (0) was significant at $t = 2.52$, $b = .28$, $\beta = .37$, $p = .02$. However, when the anger content of the art is added to the model as a predictor, the effect of the anger content is significant ($t = 3.55$, $b = .29$, $\beta = .50$, $p = .001$) and the effect of the dummy variable is cut in half ($t = 1.32$, $b = .14$, $\beta = .18$, $p = .20$) and becomes nonsignificant.

With a single variable as a mediator (rather than interaction terms as mediators, as in Study 2), it is also much simpler to carry out a formal test of mediation. We did so with the macro from Hayes and Preacher (2013) using data from our Protestant participants. Thus, among Protestants, there was a significant indirect effect of experimental condition on the quality of the art that ran through the anger content revealed in the art. The path from the suppressed anger condition to the anger in the art was significant (coefficient = $.514$, $t = 2.68$, $p = .01$) and the path from the anger in the art to the quality of the art was significant (coefficient = $.29$, $t = 3.67$, $p = .0007$), with bootstrapping results of the 95% confidence interval for the indirect effect being $.04$ to $.32$ (i.e., significantly different from 0).

Among Protestants, the amount of anger in the art was still positively associated with art quality, even after controlling for self-reports of anger at the time of the incident, while writing about the incident, and during the follow-up questionnaire (effect of anger content predicting quality, $t(17) = 2.15$, $b = .23$, $\beta = .48$, $p = .046$). This may not be surprising, given that neither self-reported anger at the time of the incident nor self-reported anger at

Table 13

Combined Creativity Scores on the Sculpture, Collage, and Cartoon Tasks as a Function of Religious Group and Whether Participants Had to Recall an Anger-Provoking Incident and Then Suppress It, Recall an Anger-Provoking Incident but Suppress a Neutral Thought, or Not Recall an Anger-Provoking Incident and Suppress a Neutral Thought

Group	Anger and suppression	Anger without suppression	No anger
Protestants	2.91	2.61	2.63
Catholics and Jews	2.53	2.57	2.73

Table 14

Ratings of the Anger and Hostility Shown in the Sculpture, Collage, and Cartoon Tasks as a Function of Religious Group and Whether Participants Had to Recall an Anger-Provoking Incident and Then Suppress It, Recall an Anger-Provoking Incident but Suppress a Neutral thought, or Not Recall an Anger-Provoking Incident and Suppress a Neutral Thought

Group	Anger and suppression	Anger without suppression	No anger
Protestants	.32	-.29	-.10
Catholics and Jews	-.07	.02	.03

the time of the follow-up questionnaire predicted art quality for Protestants (both t s < 1.28, p s > .22). However, in reporting how they felt as they were writing about the incident earlier in the experiment, Protestants who said they did not want to hurt the other person produced better art, $t(17) = -2.39$, $b = -.18$, $\beta = -.47$, $p = .03$. Thus, the quality of the work was predicted by greater anger content revealed in the art, even as it was predicted by less anger in the self-report.

Lexical decision task (LDT): Hurting words versus reparative words. Anger urges also seemed revealed by the LDT (three-way interaction of Religious group \times LDT condition \times Anger condition contrast, $t = 2.73$, $p = .007$, $f = .29$).¹⁴ As shown in Tables 15 and 16, consistent with the notion that suppressed anger would fester, Protestants who suppressed their anger were relatively quick to respond to the hurting action words ($M = 590.29$ ms, $SD = 91.26$ ms) and relatively slow to respond to the reparative action words ($M = 710.07$ ms, $SD = 185.58$ ms), as compared to Protestants in the other conditions (mean for control and anger-no-suppression conditions: hurting action words = 699.19 ms, $SD = 162.66$ ms; for reparative action words $M = 631.18$ ms, $SD = 178.78$ ms); among Protestants, interaction contrast of LDT \times Anger suppressed vs. all other conditions, $t(39) = 1.83$, $p = .07$, $f = .29$. On the other hand, no such pattern emerged for Catholics and Jews. Instead, consistent with the notion that the anger—suppressed or not—might produce guilt and lead to motivations to repair, both anger conditions caused Catholics and Jews to respond

Table 15

Reaction Times (in Milliseconds) to Hurting Versus Reconciling Words as a Function of Religious Group and Whether Participants Had to Recall an Anger-Provoking Incident and Then Suppress It, Recall an Anger-Provoking Incident but Suppress a Neutral Thought, or Not Recall an Anger-Provoking Incident and Suppress a Neutral Thought

Group	Anger and suppression	Anger without suppression	No anger
Hurting words			
Protestants	590	778	670
Catholics and Jews	700	670	597
Reconciling words			
Protestants	710	622	636
Catholics and Jews	657	636	770

Table 16

Reaction Times to Reconciling Minus Hurting Words as a Function of Religious Group and Whether Participants Had to Recall an Anger-Provoking Incident and Then Suppress It, Recall an Anger-Provoking Incident but Suppress a Neutral Thought, or Not Recall an Anger-Provoking Incident and Suppress a Neutral Thought

Group	Anger and suppression	Anger without suppression	No anger
Protestants	120	-156	-34
Catholics and Jews	-43	-34	172

Note. Higher numbers indicate a relative quickness to respond to hurting words and a relative slowness to respond to reconciling words.

more quickly to reparative action words (contrast of Anger conditions vs. control \times LDT, $t(47) = 2.07$, $p = .04$).

Again, among Protestants, the amount of anger in the art remained a significant predictor of creativity ratings, even after controlling for participants' reaction time scores. In a regression predicting creativity ratings simultaneously from reaction time scores and anger content of the art, more creative art was associated both with (a) more anger content in the art ($b = .34$, $\beta = .57$, $t = 4.20$, $p < .001$) and (b) relatively quick reactions to hurting versus reparative action words (interaction of Reaction time \times Hurting vs. reparative words, $b = .11$, $\beta = .28$, $t(39) = 2.09$, $p = .04$).

Overcontrolled hostility as an individual difference predicting sublimation. The pattern described for Protestants, in which suppressed anger gives rise to creativity, leads to the question of whether an individual difference variable might produce a similar pattern. We chose to measure participants' overcontrolled hostility (a variable on which Protestants vs. Catholics and Jews did not differ in mean levels, $p = .35$) as one possible individual difference.

We conducted regressions with Religious group (Protestant vs. Catholic and Jewish), suppressed anger condition (vs. all else), and participants' overcontrolled hostility score—and all the relevant interactions—as independent variables. It was indeed the case that those high on overcontrolled hostility who were in the suppressed anger condition were likely to subsequently make more creative art (interaction of Overcontrolled hostility \times Suppressed anger, $b = .10$, $\beta = .23$, $t = 2.21$, $p = .03$). Predicted values in the anger and suppression condition were 2.80 and 2.59 when overcontrolled hostility was 1 SD higher and 1 SD lower than the mean, respectively; in the other conditions, predicted values were 2.57 and 2.74 when overcontrolled hostility was 1 SD higher and 1 SD lower than the mean, respectively. This effect did not interact with religious group (Suppressed anger \times Overcontrolled hostility \times Religious group interaction $p = .74$). Beyond this, however, any measures of process were not significant. That is, the Overcontrolled hostility \times Suppressed anger condition (and the overcontrolled hostility measure by itself) did not predict expression of

¹⁴ Data on some participants were lost due to computer glitches, and a few participants were dropped because they were guessing at chance levels or below in identifying words and nonwords. Reaction times quicker than 300 ms and slower than 2,500 ms were dropped.

anger in the art, denial that one felt anger at the time of writing about the memory, or differential reaction times to hostile versus reparative words in the LDT task (all relevant *ps* for the main effect of overcontrolled hostility and its interaction with suppressed anger > .30).¹⁵

In short, Protestants who must recall and suppress their anger and those with high levels of overcontrolled hostility who must recall and suppress their anger showed the most creativity. However, whereas the subsidiary measures (anger content in the art, denial of anger in self-report, differential reaction time to hostile vs. reparative words) help illuminate what is happening among the Protestants, they are not particularly helpful for illuminating what is happening with the overcontrolled hostility individual difference variable.

Summary

Protestants who suppressed their anger were more likely to sublimate it into their work. Anger that was pushed away seemed to fester (as indicated by the reaction time data) and ended up coming out in their work (as indicated by raters' judgments about the aggressive content of the art). The greater the aggressive content of the work and the quicker the response times to hurting action words, the better was the art. At the level of explicit self-reports, Protestants reported being less angry as they wrote about the incident, and it was those who most disavowed their anger who produced the best work. Thus, better work was produced by those who allowed their anger to fester and sublimated it into their work, even as anger was disavowed in explicit self-reports. For Jews and Catholics, on the other hand, the only effects seemed to be that recalling the time they were angry made their work (nonsignificantly) worse and led them to be quicker to recognize reparative action words.

General Discussion

Following the insights of Freud and Weber, the studies here indicate that Protestant participants were more likely to sublimate forbidden or suppressed emotions into creative, productive work. The Terman study suggested that Protestants (but not Catholics and Jews) who had taboo- or depravity-related anxieties about sex went on to show the greatest amount of creative accomplishment. Studies 2 and 3 brought the phenomenon into the lab with an experiment, showing that Protestants (but not Catholics and Jews) were quite adept at turning forbidden lust or suppressed anger into creative art (sculptures, poems, cartoon captions, collages). Study 2 seemed to suggest that such emotions do not elevate participants' aesthetic judgments as mere consumers of art. However, as producers, Protestants seemed to work through their forbidden emotions to create better art.

Activating a drive state was not enough to induce sublimation among Protestants, as Studies 2 and 3 made clear. Pictures of the attractive woman had little effect when participants imagined the woman as their girlfriend. Recalling an anger-producing incident had little effect when this anger was not suppressed. It was the forbidden or suppressed nature of the emotion that gave the emotion its creative power for our Protestant participants.

Finally, in Study 3, an individual difference variable, overcontrolled hostility—in which participants have a great deal of pent-up

frustration that they either deny or cannot express—was shown to produce similar sublimation effects. Those with high levels of overcontrolled hostility who had to recall an anger-provoking incident and then suppress it produced the most creative work. Subsidiary process measures for analyses involving the overcontrolled hostility variable (e.g., examining anger content in the art) were not particularly illuminating, however.

As for Jews and Catholics, they seemed to reap none of the creative benefits of forbidden or suppressed emotions. They performed somewhat worse when they were induced to have forbidden thoughts, were primed with damnation words, or were asked to recall an anger-provoking incident. (None of these effects were significant by themselves; but they were significant when combined meta-analytically.) Instead of becoming more productive and creative, Jews and Catholics seemed to show greater guilt reactions. Consistent with the notion of greater guilt, Jews and Catholics responded more quickly to damnation words after being induced to have forbidden thoughts (in the attractive sister condition) of Study 2. Feelings of guilt should motivate reparative action, and in Study 3, we thus found that Jews and Catholic who recalled an anger episode subsequently showed quicker reactions to reparative (vs. hurting) action words. We note, however, that we have no measure of whether thoughts about reparative actions turn into actual behavior.

¹⁵ There was one interaction between Religious group \times Overcontrolled hostility that was somewhat difficult to interpret because the scale seemed to function differently for Protestants versus Catholics and Jews, as we note below. The interaction was that Protestants with relatively lower scores on the overcontrolled hostility scale and Catholics and Jews with relatively higher scores on overcontrolled hostility generally made better art (Overcontrolled hostility \times Religious group, $b = .09$, $\beta = .21$, $t = 1.98$, $p = .05$). Again, this effect did not interact with condition (Suppressed anger \times Overcontrolled hostility \times Religious group interaction $p = .74$). Thus, Catholics and Jews with high levels of chronic overcontrolled hostility could be as creative as Protestants who were experimentally induced to feel anger and suppress it. However, such levels would have to be extremely high. According to the regression, Catholics and Jews would need to have levels of overcontrolled hostility 3.85 standard deviations above the mean before they would be predicted to be as creative as Protestants in the suppressed anger condition. As with the Suppressed anger \times Overcontrolled hostility interaction, the Overcontrolled hostility \times Religious group interaction did not generally predict the process measures. Thus, the interaction of Overcontrolled hostility \times Religious group did not predict expression of anger in the art ($p = .45$) or differential reaction times to hostile versus reparative words (three-way interaction of LDT condition \times Overcontrolled hostility \times Religious group $p = .73$).

The nature of the interaction is a bit difficult to interpret because of the one process measure where there was a significant effect of Religious group \times Overcontrolled hostility. Overcontrolled hostility is defined as (a) pent-up hostility combined with (b) either a denial or an unwillingness to express that hostility. High scores tended to predict (a) among Protestants and (b) among Catholics and Jews. Thus, overall, there was a marginally significant main effect, such that Catholics and Jews admitted to being more angry earlier in the study when they wrote about the incident ($b = .36$, $\beta = .31$, $t = 1.89$, $p = .07$). However, this was qualified by the Overcontrolled hostility \times Religious group interaction, such that Protestants high in overcontrolled hostility said they were more angry, whereas Jews and Catholics high in overcontrolled hostility said they were less angry (interaction $b = -.52$, $\beta = -.48$, $t = -2.54$, $p = .02$). This effect was further qualified by a marginal three-way interaction of Overcontrolled hostility \times Religious group \times Suppressed anger condition ($b = .29$, $\beta = .32$, $t = 1.70$, $p = .097$), such that this two-way interaction effect was shown mostly when participants did not have to suppress their anger.

Liminal Consciousness

In terms of manipulated variables, the data suggest that the greatest creativity is shown by Protestants who are put in the forbidden thoughts and feelings conditions (either because of taboo in the attractive sister condition or because they need to keep their anger suppressed and out of consciousness). In terms of our measured variables, the greatest creativity is shown by Protestants who are (a) defending against words expressing damnation or perceptually eager to see words related to purity and virtue and (b) creating phallic symbols in their art. Likewise, greater creativity is shown by Protestants who are (a) defending against damnation words/perceptually eager to see purity words and (b) feeling anxious about “the sexual aspect of my life.” In Study 3, the effects are additive, not interactive. Thus, Protestants in the suppressed anger condition are doing good work at least partially because their anger is being sublimated into the content of their art. And further, in self-reports of their emotional state, it is Protestants who disavow their anger who do the best work.

In terms of whether sublimation is a conscious or unconscious phenomenon, the experimental data leave us with some ambiguity. The perceptual defensiveness about damnation versus purity words in the attractive sister condition of Study 2, the making of the phallic symbols in Study 2, and the explicit disavowal of anger in Study 3 seem likely to derive from unconscious moves. On the other hand, the heightened awareness of feelings of sexual anxiety in Study 2 suggests that at least the residues of any unconscious feelings are impinging on consciousness. Added to this are the results of Study 1, where it is Protestants who at least recognize their taboo thoughts and desires who show the greatest creativity. (If such taboo thoughts were fully repressed, they could not or would not be self-reported on a questionnaire.) And last, in Study 2, on the two-item self-report sublimation measure, Protestants are more likely to agree that “I work out my anxiety through doing something constructive and creative like painting or woodwork” and “Sticking to the task at hand keeps me from feeling depressed or anxious” (though, during debriefings, only one Protestant participant expressed suspicion that sounded like the sublimation hypothesis).

Of course, interpretation of any self-report measure is clouded by the question of whether the participant is not admitting something to him- or herself versus will not admit something to the researcher.¹⁶ Our best guess is that sublimation as a defense mechanism is not wholly subconscious, yet it is not fully conscious either (see also Erdelyi, 1985). It probably exists in some liminal state, in which conflicting thoughts and desires get shuttled back and forth—sometimes in plain view, sometimes in the back of our mind, and sometimes out of conscious awareness completely. We recognize the thoughts and feelings at one level, and we don’t recognize them at some other level (see fascinating discussions by von Hippel & Trivers, 2011a, 2011b; also Correll, Spencer, & Zanna, 2004; Fein & Spencer, 1997; Sherman & Cohen, 2006; Sherman et al., 2009; Whitson & Galinsky, 2008). We know at times, and we don’t know at other times. Thus, sublimation may work through liminal consciousness—neither fully subconscious, nor fully conscious, with facts, feelings, and desires shuttling between. There is a difference between being able to, upon calm reflection, acknowledge the conflicts and desires that we have or have had (as in the participants of Study 1) and being able to

acknowledge those conflicts and desires in the moment the fire is most hot and threatening. While in the midst of a conflict (induced experimentally in Studies 2 and 3), it may be most difficult to be self-aware.

Yeats (1917/1998) observed that “We make out of the quarrel with others, rhetoric, but of the quarrel with ourselves, poetry” (p. 331). The quarrel over the forbidden probably takes place at many different levels of awareness, and voices and volumes in the quarrel may change in salience over time.

The Uses of Anxiety

As a more general proposition for research, liminal and unconscious spaces seem like fertile ground for exploring cultural differences, because liminal spaces are probably where a good deal of the work of socialization is done. Much has been written about the anxiety-reducing effects of culture (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997; Becker, 1997; Ellison, Burdette, & Hill, 2009; Greenberg et al., 1990; Heine, Proulx, & Vohs, 2006; Inzlicht & Tullett, 2010; Proulx & Heine, 2006, 2008; Proulx, Heine, & Vohs, 2010; Shepherd, Kay, Landau, & Keefer, 2011). However, culture does not simply reduce anxiety: It also creates it. (The concept of heaven, for example, may be designed to alleviate anxiety, but the concept of hell was designed to create it.) Cultural scripts and beliefs must in part foment the anxieties to which defense mechanisms are a response. There are things to be scared of in the world: injury, death, isolation from the group, and so on. But cultural scripts, rituals, beliefs, and symbols remind us and amp up the anxiety of such things, even as they offer up relief from the anxiety.

Defense and anxiety work in symbiotic relationship: Cultural defenses take hold and are tenacious because they are a response to strong anxieties, as Weber pointed out in *The Protestant Ethic*. Defenses are strengthened and expressed the most when threatened. Thus, we cling to defenses most when our anxieties provoke the most fright. We adhere to preferences most when we hold them in spite of reason rather than because of it. We reaffirm belief A when we experience the anxiety of believing that not-A might be true (Cooper, Zanna, & Taves, 1978; Zanna & Cooper, 1974). We believe most fervently in things that we can never know for certain—perhaps because we can never know them for certain.

By provoking and then quelling anxiety, disbelief, insecurity, and doubt, culture works its magic. Thus, it would not be surprising to find that exploring the metaphorical liminal zone of the mind—where conflicting thoughts and desires shuttle in and out of conscious awareness—is a particularly ripe area for cultural psychologists. (See also a fascinating dialectic of work on the defense mechanism of rationalization/cognitive dissonance by Heine & Lehman, 1997; Hoshino-Browne et al., 2005; and Kitayama et al., 2004, showing cultural differences in self-threats and their melioration.) And on the more general point, to the extent that different cultures demand different things from us, give us different outlets

¹⁶ Perhaps physiological measures will help some with the interpretation. However, questions of consciousness cannot be settled by measures of physiology, because consciousness and self-consciousness reflect states of awareness and meta-awareness (Schooler, 2002) whose physiology is not yet known. Whether we will ever be able to determine what is conscious by measuring physiology is an open question and not one that is relevant here.

for expressing our needs, threaten us psychically in different ways, make different behaviors and thoughts taboo, allow us to satisfy our quest for meaning differently, or offer us comfort through different avenues, we might expect liminal or defensive processes to differ across cultures (see work by Chiu & Cheng, 2007; Heine et al., 2006; Heine, Lehman, Markus, & Kitayama, 1999; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Kitayama, Mesquita, & Karasawa, 2006; Leung, Maddux, Galinsky, & Chiu, 2008; Lun, Oishi, Coan, Akimoto, & Miao, 2010; Norenzayan, Dar-Nimrod, Hansen, & Proulx, 2009; Sasaki, Kim, & Xu, 2011; Tam, Chiu, & Lau, 2007).

Caveats, Limitations, and Open Questions

Several caveats and limitations should be discussed before summing up. We begin with a discussion of experimental limitations and then broaden out to general questions about how widely applicable are the phenomena.

Manipulation and measurement. One concrete limitation of the present article has to do with manipulating forbidden and suppressed thoughts. In Study 2, we created a manipulation that led participants to have forbidden thoughts. In Study 3, we directly manipulated through instructions to the participant whether he or she should suppress his or her thoughts. On one hand, the Study 3 manipulation is a process manipulation, and thus is quite useful in showing that thoughts about an anger-provoking incident that have been pushed down out of consciousness can lead Protestants to sublimate their anger (Spencer, Zanna, & Fong, 2005). On the other hand, using a process manipulation is inherently artificial, because one is instructing the participant to engage in some process rather than watching it occur naturally. There are inevitable trade-offs. In Study 2, we did not instruct participants what to do with their thoughts, though we measured variables that indicated something about how the process was occurring. In Study 3, we went directly for the process manipulation—and given that a person was suppressing anger, Protestants were more likely to sublimate it than Catholics and Jews were. However, we did not examine whether Protestants might be more or less likely to suppress their taboo anger in the first place. Preliminary work in our lab suggests they are more likely to do so (Kim & Cohen, 2012). That is, Protestants are more likely than Catholics to use psychological defenses that minimize troublesome affect; further, Protestants who chronically used such affect-minimizing defenses tended to have more creative accomplishments and interests—a pattern that did not hold and, in fact, reversed for their Catholic counterparts. Still, in future research, it might be useful to create an experimental manipulation that will evoke taboo anger from participants and then observe rather than manipulate what participants do with it.¹⁷

Variation outside and inside the Judeo-Christian tradition. A second limitation has to do with our participant population and variation we have, for now, ignored. We have examined a rarified population (Henrich, Heine, & Norenzayan, 2010a, 2010b) and ignored those outside it. Islam, for example, is the second largest religion in the world, behind Christianity, but we did not explore the phenomenon with any Muslim participants. And, even within the rarified populations of talented and educated Westerners who follow Judeo-Christian traditions, we have ignored some important variation.

We have vastly oversimplified three major Judeo-Christian traditions. The distinctions made between Protestant, Catholic, and Jewish traditions are meaningful and real (A. Cohen et al., 2005; A. Cohen & Rozin, 2001; A. Cohen, Siegel, & Rozin, 2002). However, they should not be overstated (Uhlmann et al., 2011); moreover, there is likely a great deal of variation due to both denominational differences and individual differences. “Protestant” covers groups as diverse as Pentecostals and Episcopalians, “Jewish” covers liberal reform Judaism and mystical Hasidic Judaism, and though there is only one Catholic church, there are certainly local variations (Roof & McKinney, 1987; Sasaki & Kim, 2011).¹⁸ Given this diversity, there may be intrareligious differences in the phenomena we have described here.

Adherence to religion generally seems to strengthen self-control and self-regulation (McCullough & Willoughby, 2009; Watterson & Giesler, 2012). Sublimation—the channeling of taboo or forbidden impulses toward prosocial (especially creative) ends—is a mechanism of self-control par excellence. Freud viewed it as one of the most adaptive, beneficial, and mature defense mechanisms (see also Vaillant, 1993). What the present research suggests is that it is useful to go beyond studying the influence of religion in the generic on self-regulation; additionally, it can be useful to identify

¹⁷ One might look to the anger, no suppression condition for indications about whether Protestants were naturally more likely to suppress their anger. This condition provided no such evidence. However, the anger we would most expect people to “naturally” sublimate is taboo anger—generated by sadistic or depraved feelings, or so extreme as to be frightening, or directed against a taboo object (for some participants, perhaps a parent?). We did not seem to evoke such anger with our manipulation. On the one hand, participants did feel angry. In terms of how much anger they felt at the time of the incident, participants’ mean response was a 4.2 on a scale of 1 to 5. In terms of how much they wanted to hurt the other person at the time of the incident and at the time of the writing, participants’ mean responses were 2.87 (“moderately wanted to hurt the other person”) and 2.14 (“somewhat wanted to hurt the other person”), on a scale of 1 to 5. On the other hand, however, when asked how guilty they felt about their anger at the time of the incident, how scared they felt of their anger at the time of the incident, and how guilty they felt now (during the self-report questionnaire) about their anger, participants’ mean responses were 1.58, 1.77, and 1.39, respectively, on a scale running from 1 (*not at all*) to 5 (*extremely*). When two independent coders rated the narratives for how justified they thought the participants’ anger was, their mean score was 4.17 on a scale from 1 (*not at all justified*) to 5 (*very much justified*). And only nine participants wrote about being angry at a parent. Thus, the events participants wrote about did make them angry, but this anger was generally not scary, not massively guilt inducing, not directed at a parent, and justified rather than sadistic.

¹⁸ The controversial Opus Dei movement within Catholicism claims only 3,000 members in the United States (Opus Dei, 2008) and is known to most Americans through the conspiratorial novel *The Da Vinci Code* (Brown, 2003). However, noted sociologist Peter Berger (2002, p. 12) has called Opus Dei “arguably the most influential Catholic organization in the world today.” In describing Opus Dei as a force for modernization, Berger (2009, p. 72) identified Opus Dei as a movement that “closely exhibited the ‘inner-worldly asceticism’ as described by Weber,” adding that the “economic miracle” of the post-Franco period in Spain “is in no small measure indebted to the influence of Opus Dei” (p. 72). Casanova (1983) argued that “Opus Dei introduced for the first time in the history of Catholic Spain the typically Protestant notion of sanctification of work in the world through the professional ‘calling’” (p. 29) and credited Opus Dei members as playing a “leading role . . . in the modernization of Spain, or at least in the change in economic policy which made possible such modernization” (p. 27). To what extent the theology of Opus Dei resembles Protestant theology in other respects and what influence this may have on any tendencies of Opus Dei members to sublimate is an open question.

the different mechanisms by which adherents to different particular religions achieve self-control. The challenge is to identify the right level and type of religious grouping that will permit useful generalization without too much oversimplification. (This is, of course, a version of the sampling/generalization problem common to all social scientists; Cohen, 2007.)

Individual difference variation. Regarding variation at the individual level, there is plenty of room for individual differences to affect behavior. Particularly with respect to Study 1, there are obviously many factors that drive people to achieve, create, and choose their vocations—individual difference factors, situation factors, structural factors—that have nothing to do with being motivated by sublimated desires or psychic conflicts. Any complex behavior in the real world is multiply determined. This article has examined only one possible factor among many. (A forthcoming manuscript by Hudson and Cohen, 2013, looks at vocational interests and choices and finds results parallel to those reported in Study 1. The “variation explained” by the sublimation effects in Hudson and Cohen is in the small-to-medium range, however, because, again, many factors shape people’s career decisions in highly heterogeneous populations.)

Additionally, even with respect to individual differences related to psychic conflicts, there is likely to be further interesting variation to explore. For example, it will be interesting to examine the extent to which an individual’s endorsement and construal of core religious beliefs affects the extent to which effects like those here are shown (Leung & Cohen, 2011; Oishi, 2003; Oyserman, Kemmelmeier, & Coon, 2002; for disidentification effects, see Benet-Martínez, Leu, Lee, & Morris, 2002; Zou, Morris, & Benet-Martínez, 2008; see also A. Cohen et al., 2005; A. Cohen & Hill, 2007; A. Cohen et al., 2003, for a critique of measuring beliefs, and also Uhlmann et al., 2011, finding little effect of individual differences, and Chiu, Gelfand, Yamagishi, Shteynberg, & Wan, 2010; Na et al., 2010; Shteynberg, Gelfand, & Kim, 2009; Zou et al., 2009). Second, it may prove interesting to examine individual differences in another sense—not as a moderator of religious effects but as a primary cause of religious identification. That is, it is possible that individual differences are the “first mover”—with people who tend to show either defensive/sublimating reactions or guilt-ridden/debilitating ones being attracted to various religious traditions.¹⁹ Given the relatively low rate of conversions between Protestant, Catholic, and Jewish faiths, we doubt that many people are selecting their faith on the basis of preexisting individual differences. However, it may be possible that such preexisting individual differences affect the extent to which one either embraces or ignores the religious tradition that one is born into (for parallel examples, see fascinating work by Gervais & Norenzayan, 2012a; Kay, Gaucher, McGregor, & Nash, 2010; Kay, Shepherd, Blatz, Chua, & Galinsky, 2010; Shepherd et al., 2011, on a need for order and control as a moderator of religious faith; or Gervais & Norenzayan, 2012b, on thinking style and religious belief).

Sublimated emotions: How many? Finally, there is an issue about how much the present findings may be generalized as applicable to other, primarily negative, emotions. According to an earlier review by Baumeister et al. (1998), no evidence for sublimation existed up to that point. Thus, to first demonstrate the phenomenon, we chose to examine the desires that seemed most likely to be sublimated: those deriving from unacceptable erotic urges and urges to destroy (going back to classic ideas from Freud

and Eastern and Western folk beliefs). However, it is an open question as to whether there are other emotions that might be sublimated (and if there might be cultural differences for those emotions; Ellis, 2011; Gilmore, 1990; Haidt, Rozin, McCauley, & Imada, 1997; Levy, 1973; Marsella & Yamada, 2007; Mesquita & Leu, 2007; Tsai, 2007). Another example of an emotion that might or might not be sublimated is sadness. Sadness is not likely to have the tinge of the verboten, as compared to destructive and sexual feelings that violate the strictures of morality. Yet, even Vaillant (1993) discussed sadness mixed with rage—“angry despair” (p. 82)—as an emotion that can be sublimated, describing the way Beethoven sublimated into the Ninth Symphony his anguish about going deaf (cf. “The Ninth Symphony of Beethoven Understood at Last as a Sexual Message,” Rich’s 2002 interpretation of rage and sexuality in the symphony). Undoubtedly, the lives of many very productive artists have been filled with sadness. Whether we would want to say their sadness has been sublimated depends on what we believe about sadness’s causal role. Whether such sadness had to be suppressed or forbidden in some way is another question relevant to the discussion above but not of concern in the present article.

Summary Across Three Studies and Conclusion

The previous speculations are a bit removed from the empirical substance of the article. To return to the studies themselves, the three studies here have shown that, compared to their Jewish and Catholic counterparts, Protestant participants show a greater tendency to sublimate unacceptable sexual desires and suppressed anger and to harness their anxieties about depravity to productive ends. This was shown experimentally in three ways:

1. Protestant participants became more productive after being primed with damnation- and depravity-related words (vs. purity- and reward-related words).

2. They became more productive after being induced to think depravity-related thoughts (in the sexually attractive sister condition of Study 2). Protestant participants seemed to sublimate the desires stimulated by pictures of the attractive woman into their art as suggested by their greater production of phallic symbols in their sculptures. They also seemed to try to turn their thinking in a purer, more Godly direction after being induced to have unacceptable thoughts. In the condition where thoughts about the attractive bikini-clad woman conflicted with imagining and writing about this person as their sister, Protestant participants showed a marked tendency to be particularly quick to identify purity and reward words and particularly slow (or perceptually vigilant against) damnation and depravity words. (In contrast, under the same circumstances, Jewish and Catholic participants were unusually fast to depravity and damnation words and unusually slow to purity and reward words, consistent with the argument that guilt tends to be a highly elaborated upon emotion in Judaism and Catholicism.) Protestant participants also tended to feel heightened sexual anxiety in the attractive sister condition of the experiment. And these conflicts—(a) between heightened sexual desire and the effort to turn one’s thoughts away from depravity and (b) between increased sexual anxiety and such efforts to turn away from depravity—tended to be particularly productive for Protestant par-

¹⁹ We thank Robert Wyer for this observation.

ticipants. The best sculptures and poems tended to be produced by Protestant participants in this high state of conflict.

3. In Study 3, Protestant participants (unlike their Catholic and Jewish counterparts) became most productive in the suppressed anger condition. Among the Protestants, anger that was pushed away seemed to fester (as shown by the reaction time data) and ended up coming out in their work (as shown by raters' judgments of the aggressive content of their work). The greater the aggressive content of the work and the quicker the response times to hurting action words, the better the art they produced. (Suppressed anger did not lead to greater self-reports of anger, and unlike with the reaction time and aggressive content measures, the more Protestant participants disavowed anger in their self-reports, the better their work.)

The analyses of the Terman study complemented the findings in the lab. Among the men and women of the Terman sample, Protestants who had problems related to anxieties about sexual taboos and depravity were also the ones who went on to do the most creative work. They had more creative accomplishments than their peers who did not have such conflicts, and they were more likely to choose jobs in the most creative fields as well. These two effects were relatively independent. Thus, not only did Protestants with taboo/depravity-related anxieties choose the most creative careers, they were also more likely to be creative within those careers (as compared to their fellow Protestants with problems unrelated to sexual taboo/depravity anxieties and as compared to their fellow Protestants reporting no sexual problems). In contrast, these patterns did not seem to hold for Jewish and Catholic participants (though the sample sizes were smaller for these groups, and results should be interpreted with caution).

More work remains to be done. In the meantime, however, the present article has provided what may be the first experimental evidence for sublimation processes (Baumeister et al., 1998). Moreover, it highlights the potential promise of a cultural psychology of the liminal, where anxiety and defense clash, where cognitions and emotions shuttle in and out of consciousness, and where we know and yet do not know. Because of cultural psychology's methods and theoretical emphases on values, beliefs, and attitudes, much research has focused on the conscious mind. The results of the present article suggest that in addition to the interesting cultural phenomena that are easily expressed and reportable, there may be even more interesting cross-cultural effects underneath.

References

- Adams, H. E., Wright, L. W., Jr., & Lohr, B. A. (1996). Is homophobia associated with homosexual arousal? *Journal of Abnormal Psychology, 105*, 440–445. doi:10.1037/0021-843X.105.3.440
- Albertsen, E. J., O'Connor, L. E., & Berry, J. W. (2006). Religion and interpersonal guilt: Variations across ethnicity and spirituality. *Mental Health, Religion & Culture, 9*, 67–84. doi:10.1080/13694670500040484
- Allen, A. P., & Thomas, K. E. (2011). A dual process account of creative thinking. *Creativity Research Journal, 23*, 109–118. doi:10.1080/10400419.2011.571183
- Alsop, M. (2007, March 23). Getting hooked on the "Rite" sound. Retrieved from <http://www.npr.org/templates/story/story.php?storyId=9041627>
- Amabile, T. M. (1982). Social psychology of creativity: A consensual assessment technique. *Journal of Personality and Social Psychology, 43*, 997–1013. doi:10.1037/0022-3514.43.5.997
- Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.
- Anderson, M. C., & Green, C. (2001, March 15). Suppressing unwanted memories by executive control. *Nature, 410*, 366–369. doi:10.1038/35066572
- Andrews, G., Singh, M., & Bond, M. (1993). The Defense Style Questionnaire. *Journal of Nervous and Mental Disease, 181*, 246–256. doi:10.1097/00005053-199304000-00006
- Arndt, J., Greenberg, J., Solomon, S., Pyszczynski, T., & Simon, L. (1997). Suppression, accessibility of death-related thoughts, and cultural worldview defense: Exploring the psychodynamics of terror management. *Journal of Personality and Social Psychology, 73*, 5–18. doi:10.1037/0022-3514.73.1.5
- Barnier, A., Levin, K., & Maher, A. (2004). Suppressing thoughts of past events: Are repressive copers good suppressors? *Cognition & Emotion, 18*, 513–531. doi:10.1080/02699930341000428
- Baumeister, R. F., Dale, K., & Sommer, K. L. (1998). Freudian defense mechanisms and empirical findings in modern psychology: Reaction formation, projection, displacement, undoing, isolation, sublimation, and denial. *Journal of Personality, 66*, 1081–1124. doi:10.1111/1467-6494.00043
- Becker, E. (1977). *The denial of death*. New York, NY: Free Press.
- Bellah, R. N., Madsen, R., Sullivan, W. M., & Tipton, S. M. (1996). *Habits of the heart: Individualism and commitment in American life*. Berkeley: University of California Press.
- Benet-Martínez, V., Leu, J., Lee, F., & Morris, M. (2002). Negotiating biculturalism: Cultural frame switching in biculturals with oppositional versus compatible identities. *Journal of Cross-Cultural Psychology, 33*, 492–516. doi:10.1177/0022022102033005005
- Berg, J. M., Grant, A. M., & Johnson, V. (2010). When callings are calling: Crafting work and leisure in pursuit of unanswered occupational callings. *Organization Science, 21*, 973–994. doi:10.1287/orsc.1090.0497
- Berger, P. L. (2002). Introduction: The cultural dynamics of globalization. In P. L. Berger & S. P. Huntington (Eds.), *Many globalizations: Cultural diversity in the contemporary world* (pp. 1–16). New York, NY: Oxford University Press.
- Berger, P. L. (2009). Faith and development. *Society, 46*, 69–75. doi:10.1007/s12115-008-9166-5
- Boorstin, D. J. (1993). *The creators: A history of heroes of the imagination*. New York, NY: Vintage.
- Brown, D. (2003). *The Da Vinci code*. New York, NY: Anchor.
- Bunderson, J. S., & Thompson, J. A. (2009). The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work. *Administrative Science Quarterly, 54*, 32–57. doi:10.2189/asqu.2009.54.1.32
- Caldwell, T. L., & Newman, L. S. (2005). The timeline of threat processing in repressors: More evidence for early vigilance and late avoidance. *Personality and Individual Differences, 38*, 1957–1967. doi:10.1016/j.paid.2004.12.004
- Calvo, M. G., & Eysenck, M. W. (2000). Early vigilance and late avoidance of threat processing: Repressive coping versus low/high anxiety. *Cognition & Emotion, 14*, 763–787. doi:10.1080/02699930050156627
- Cardador, M. T., Dane, G., & Pratt, M. G. (2011). Linking calling orientations to organizational attachment via organizational instrumentality. *Journal of Vocational Behavior, 79*, 367–378. doi:10.1016/j.jvb.2011.03.009
- Casanova, J. V. (1983). The Opus Dei ethic, the technocrats and the modernization of Spain. *Social Science Information, 22*, 27–50. doi:10.1177/053901883022001002
- Cavalletto, G. (2007). *Crossing the psycho-social divide: Freud, Weber, Adorno, and Elias*. Burlington, VT: Ashgate.

- Chentsova-Dutton, Y. E., Tsai, J. L., & Gotlib, I. H. (2010). Further evidence for the cultural norm hypothesis: Positive emotion in depressed and control European American and Asian American women. *Cultural Diversity and Ethnic Minority Psychology, 16*, 284–295. doi:10.1037/a0017562
- Chiu, C.-Y., & Cheng, S. Y. Y. (2007). Toward a social psychology of culture and globalization: Some social cognitive consequences of activating two cultures simultaneously. *Social and Personality Psychology Compass, 1*, 84–100. doi:10.1111/j.1751-9004.2007.00017.x
- Chiu, C.-Y., Gelfand, M. J., Yamagishi, T., Shteynberg, G., & Wan, C. (2010). Intersubjective culture: The role of intersubjective perceptions in cross-cultural research. *Perspectives on Psychological Science, 5*, 482–493. doi:10.1177/1745691610375562
- Cohen, A. B. (2003). Religion, likelihood of action, and the morality of mentality. *International Journal for the Psychology of Religion, 13*, 273–285. doi:10.1207/S15327582IJPR1304_4
- Cohen, A. B., Hall, D. E., Koenig, H. G., & Meador, K. G. (2005). Social versus individual motivation: Implications for normative definitions of religious orientation. *Personality and Social Psychology Review, 9*, 48–61. doi:10.1207/s15327957pspr0901_4
- Cohen, A. B., & Hill, P. C. (2007). Religion as culture: Religious individualism and collectivism among American Catholics, Jews, and Protestants. *Journal of Personality, 75*, 709–742. doi:10.1111/j.1467-6494.2007.00454.x
- Cohen, A. B., Malka, A., Rozin, P., & Chertfas, L. (2006). Religion and unforgivable offenses. *Journal of Personality, 74*, 85–118. doi:10.1111/j.1467-6494.2005.00370.x
- Cohen, A. B., & Rankin, A. (2004). Religion and the morality of positive mentality. *Basic and Applied Social Psychology, 26*, 45–57. doi:10.1207/s15324834basp2601_5
- Cohen, A. B., & Rozin, P. (2001). Religion and the morality of mentality. *Journal of Personality and Social Psychology, 81*, 697–710. doi:10.1037/0022-3514.81.4.697
- Cohen, A. B., Siegel, J. I., & Rozin, P. (2003). Faith versus practice: Different bases for religiosity judgments by Jews and Protestants. *European Journal of Social Psychology, 33*, 287–295. doi:10.1002/ejsp.148
- Cohen, D. (2007). Methods of cultural psychology. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 196–236). New York, NY: Guilford Press.
- Cohen, D., & Gunz, A. (2002). As seen by the other. . . : Perspectives on the self in the memories and emotional perceptions of Easterners and Westerners. *Psychological Science, 13*, 55–59. doi:10.1111/1467-9280.00409
- Conte, H. R., & Plutchik, R. (1995). *Ego defenses: Theory and measurement*. Hoboken, NJ: Wiley.
- Cooper, J., Zanna, M. P., & Taves, P. A. (1978). Arousal as a necessary condition for attitude change following induced compliance. *Journal of Personality and Social Psychology, 36*, 1101–1106. doi:10.1037/0022-3514.36.10.1101
- Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-affirmation and sensitivity to argument strength. *Journal of Experimental Social Psychology, 40*, 350–356. doi:10.1016/j.jesp.2003.07.001
- Cramer, P. (2000). Defense mechanisms in psychology today: Further processes for adaptation. *American Psychologist, 55*, 637–646. doi:10.1037/0003-066X.55.6.637
- Crano, W., & Brewer, M. (2005). *Principles and methods of social research*. Mahwah, NJ: Psychology Press.
- Derakshan, N., Eysenck, M. W., & Myers, L. B. (2007). Emotional information processing in repressors: The vigilance–avoidance theory. *Cognition & Emotion, 21*, 1585–1614. doi:10.1080/02699930701499857
- Dollard, J., & Miller, N. E. (1950). *Personality and psychotherapy: An analysis in terms of learning, thinking, and culture*. New York, NY: McGraw-Hill.
- Domino, G., Short, J., Evans, A., & Romano, P. (2002). Creativity and ego defense mechanisms: Some exploratory empirical evidence. *Creativity Research Journal, 14*, 17–25. doi:10.1207/S15326934CRJ1401_2
- Dreher, D. E., Holloway, K. A., & Schoenfelder, E. (2007). The Vocational Identity Questionnaire: Measuring the sense of calling. *Research in the Social Scientific Study of Religion, 18*, 99–120. doi:10.1163/ej.9789004158511.i-301.42
- Ellis, B. J., & Symons, M. A. D. (1990). Sex differences in sexual fantasy: An evolutionary psychological approach. *Journal of Sex Research, 27*, 527–555. doi:10.1080/00224499009551579
- Ellis, T. B. (2011). Disgusting bodies, disgusting religion: The biology of Tantra. *Journal of the American Academy of Religion, 79*, 879–927. doi:10.1093/jaarel/lfr077
- Ellison, C. G., Burdette, A. M., & Hill, T. D. (2009). Blessed assurance: Religion, anxiety, and tranquility among U.S. adults. *Social Science Research, 38*, 656–667. doi:10.1016/j.ssresearch.2009.02.002
- Ellwood, S., Pallier, G., Snyder, A., & Gallate, J. (2009). The incubation effect: Hatching a solution? *Creativity Research Journal, 21*, 6–14. doi:10.1080/10400410802633368
- Erdelyi, M. H. (1974). A new look at the new look: Perceptual defense and vigilance. *Psychological Review, 81*, 1–25. doi:10.1037/h0035852
- Erdelyi, M. H. (1985). *Psychoanalysis: Freud's cognitive psychology*. New York, NY: Freeman.
- Espinosa, G., Elizondo, V., & Miranda, J. (2010). *Hispanic churches in American public life: A summary of findings* (Interim Report No. 2). Notre Dame, IN: University of Notre Dame, Institute for Latino Studies.
- Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance: Affirming the self through derogating others. *Journal of Personality and Social Psychology, 73*, 31–44. doi:10.1037/0022-3514.73.1.31
- Festinger, L., & Carlsmith, M. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58*, 203–210. doi:10.1037/h0041593
- Fishbach, A., & Shah, J. Y. (2006). Self-control in action: Implicit dispositions toward goals and away from temptations. *Journal of Personality and Social Psychology, 90*, 820–832. doi:10.1037/0022-3514.90.5.820
- Fishbach, A., Zhang, Y., & Trope, Y. (2010). Counteractive evaluation: Asymmetric shifts in the implicit value of conflicting motivations. *Journal of Experimental Social Psychology, 46*, 29–38. doi:10.1016/j.jesp.2009.09.008
- Fraley, R. C., & Shaver, P. R. (1997). Adult attachment and the suppression of unwanted thoughts. *Journal of Personality and Social Psychology, 73*, 1080–1091. doi:10.1037/0022-3514.73.5.1080
- Freud, S. (1958). *On creativity and the unconscious*. New York, NY: Harper.
- Freud, S. (1977). *Introductory lectures on psychoanalysis*. New York, NY: Norton.
- Freud, S. (2000). *Three essays on the theory of sexuality*. New York, NY: Basic Books. (Original work published 1905)
- Freud, S., & Pfister, O. (1963). *Religion and faith: The letters of Sigmund Freud and Oskar Pfister* (E. Mosbacher, Trans.). New York, NY: Basic Books.
- Fujita, K., & Han, H. A. (2009). Moving beyond deliberative control of impulses: The effect of construal levels on evaluative associations in self-control conflicts. *Psychological Science, 20*, 799–804. doi:10.1111/j.1467-9280.2009.02372.x
- Fulmer, C. A., Gelfand, M. J., Kim-Prieto, C., Diener, E., Pierro, A., & Higgins, E. T. (2010). On “feeling right” in cultural contexts: How person–culture match affects self-esteem and subjective well-being. *Psychological Science, 21*, 1563–1569. doi:10.1177/0956797610384742
- Gasper, K., & Clore, G. L. (1998). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality and Social Psychology, 74*, 1350–1363. doi:10.1037/0022-3514.74.5.1350

- Gervais, W., & Norenzayan, A. (2012a). Analytic thinking promotes religious disbelief. *Science*, 336, 493–496. doi:10.1126/science.1215647
- Gervais, W. M., & Norenzayan, A. (2012b). Reminders of secular authority reduce believers' distrust of atheists. *Psychological Science*, 23, 483–491. doi:10.1177/0956797611429711
- Ghiselin, B. (Ed.). (1985). *The creative process: Reflections on invention in the arts and sciences*. Berkeley: University of California.
- Gilmore, D. D. (1990). *Manhood in the making: Cultural concepts of masculinity*. New Haven, CT: Yale.
- Giorgi, L., & Marsh, C. (1990). The Protestant work ethic as a cultural phenomenon. *European Journal of Social Psychology*, 20, 499–517. doi:10.1002/ejsp.2420200605
- Grant, A. M. (2008). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology*, 93, 108–124. doi:10.1037/0021-9010.93.1.108
- Grant, A. M. (2012). Leading with meaning: Beneficiary contact, prosocial impact, and the performance effects of transformational leadership. *Academy of Management Journal*, 55, 458–476. doi:10.5465/amj.2010.0588
- Greeley, A. (1997). *The Catholic myth: The behavior and beliefs of American Catholics*. New York, NY: Simon & Schuster.
- Greeley, A. (2000). *The Catholic imagination*. Berkeley: University of California.
- Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., & Lyon, D. (1990). Evidence for terror management theory II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology*, 58, 308–318. doi:10.1037/0022-3514.58.2.308
- Grossmann, I., & Kross, E. (2010). The impact of culture on adaptive versus maladaptive self-reflection. *Psychological Science*, 21, 1150–1157. doi:10.1177/0956797610376655
- Haidt, J., Rozin, P., McCauley, C., & Imada, S. (1997). Body, psyche, and culture: The relationship between disgust and morality. *Psychology and Developing Societies*, 9, 107–131. doi:10.1177/097133369700900105
- Harrison, L. E., & Huntington, S. P. (Eds.). (2001). *Culture matters: How values shape human progress*. New York, NY: Basic Books.
- Hayes, A., & Preacher, K. (2013). Statistical mediation analysis with a multicategorical independent variable SPSS macro [Computer software]. Retrieved from <http://www.afhayes.com/spss-sas-and-implus-macros-and-code.html>
- Heine, S. (2008). *Cultural psychology*. New York, NY: Norton.
- Heine, S. J., & Lehman, D. R. (1997). Culture, dissonance, and self-affirmation. *Personality and Social Psychology Bulletin*, 23, 389–400. doi:10.1177/0146167297234005
- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, 106, 766–794. doi:10.1037/0033-295X.106.4.766
- Heine, S. J., Proulx, T., & Vohs, K. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review*, 10, 88–110. doi:10.1207/s15327957pspr1002_1
- Heine, S. J., Takata, T., & Lehman, D. R. (2000). Beyond self-presentation: Evidence for self-criticism among Japanese. *Personality and Social Psychology Bulletin*, 26, 71–78. doi:10.1177/0146167200261007
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010a). Most people are not WEIRD. *Nature*, 466, 29. doi:10.1038/466029a
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010b). The weirdest people in the world? *Behavioral and Brain Sciences*, 33, 61–83. doi:10.1017/S0140525X0999152X
- Herberg, W. (1959). *Protestant-Catholic-Jew: An essay in American religious sociology*. New York, NY: Doubleday.
- Hofmann, W., Friese, M., & Gschwendner, T. (2009). Men on the "pull": Automatic approach-avoid tendencies and sexual interest behavior. *Social Psychology*, 40, 73–78. doi:10.1027/1864-9335.40.2.73
- Holmes, D. S. (1990). The evidence for repression: An examination of sixty years of research. In J. L. Singer (Ed.), *Repression and dissociation: Implications for personality theory, psychopathology and health* (pp. 85–102). Chicago, IL: University of Chicago.
- Hoshino-Browne, E., Zanna, A. S., Spencer, S. J., Zanna, M. P., Kitayama, S., & Lackenbauer, S. (2005). On the cultural guises of cognitive dissonance: The case of Easterners and Westerners. *Journal of Personality and Social Psychology*, 89, 294–310. doi:10.1037/0022-3514.89.3.294
- Hudson, N., & Cohen, D. (2013). *Taboo, sublimation, and career choices*. Unpublished manuscript, University of Illinois.
- Inzlicht, M., & Tullett, A. M. (2010). Reflecting on God: Religious primes can reduce neurophysiological response to errors. *Psychological Science*, 21, 1184–1190. doi:10.1177/0956797610375451
- Jones, H. B. (1997). The Protestant ethic: Weber's model and the empirical literature. *Human Relations*, 50, 757–778. doi:10.1177/001872679705000701
- Jordan, C. H., Spencer, S. J., Zanna, M. P., Hoshino-Browne, E., & Correll, J. (2003). Secure and defensive high self-esteem. *Journal of Personality and Social Psychology*, 85, 969–978. doi:10.1037/0022-3514.85.5.969
- Kay, A. C., Gaucher, D., McGregor, I., & Nash, K. (2010). Religious belief as compensatory control. *Personality and Social Psychology Review*, 14, 37–48. doi:10.1177/1088868309353750
- Kay, A. C., Shepherd, S., Blatz, C. W., Chua, S. N., & Galinsky, A. D. (2010). For God (or) country: The hydraulic relation between government instability and belief in religious sources of control. *Journal of Personality and Social Psychology*, 99, 725–739. doi:10.1037/a0021140
- Kelly, A. E., & Kahn, J. H. (1994). Effects of suppression of personal intrusive thoughts. *Journal of Personality and Social Psychology*, 66, 998–1006. doi:10.1037/0022-3514.66.6.998
- Kim, E., & Cohen, D. (2012). *Religion and forbidden thoughts*. Unpublished manuscript, University of Illinois.
- Kim, E., & Cohen, D. (2013). *Between- and within-culture variation in the chronic tendency to sublimate troublesome affect*. Unpublished manuscript, University of Illinois.
- Kitayama, S., Markus, H. R., Matsumoto, H., & Norasakkunkit, V. (1997). Individual and collective processes in the construction of the self: Self-enhancement in the United States and self-criticism in Japan. *Journal of Personality and Social Psychology*, 72, 1245–1267. doi:10.1037/0022-3514.72.6.1245
- Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology*, 91, 890–903. doi:10.1037/0022-3514.91.5.890
- Kitayama, S., Snibbe, A. C., Markus, H. R., & Suzuki, T. (2004). Is there any "free" choice? Self and dissonance in two cultures. *Psychological Science*, 15, 527–533. doi:10.1111/j.0956-7976.2004.00714.x
- Kitayama, S., & Uchida, Y. (2003). Explicit self-criticism and implicit self-regard: Evaluating self and friend in two cultures. *Journal of Experimental Social Psychology*, 39, 476–482. doi:10.1016/S0022-1031(03)00026-X
- Lee, A. Y., Aaker, J. L., & Gardner, W. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology*, 78, 1122–1134. doi:10.1037/0022-3514.78.6.1122
- Leung, A. K.-y., & Cohen, D. (2011). Within- and between-culture variation: Individual differences and the cultural logics of honor, face, and dignity cultures. *Journal of Personality and Social Psychology*, 100, 507–526. doi:10.1037/a0022151
- Leung, A. K.-y., Maddux, W. W., Galinsky, A. D., & Chiu, C. Y. (2008). Multicultural experience enhances creativity: The when and how. *American Psychologist*, 63, 169–181. doi:10.1037/0003-066X.63.3.169
- Levy, B. J., & Anderson, M. C. (2008). Individual differences in the suppression of unwanted memories: The executive deficit hypothesis. *Acta Psychologica*, 127, 623–635. doi:10.1016/j.actpsy.2007.12.004

- Levy, R. I. (1973). *Tahitians: Mind and experience in the Society Islands*. Chicago, IL: University of Chicago.
- Lips-Wiersma, M., & Wright, S. (2012). Measuring the meaning of meaningful work: Development and validation of the Comprehensive Meaningful Work Scale (CMWS). *Group & Organization Management, 37*, 655–685. doi:10.1177/1059601112461578
- Lun, J., Oishi, S., Coan, J. A., Akimoto, S., & Miao, F. F. (2010). Cultural variations in motivational responses to felt misunderstanding. *Personality and Social Psychology Bulletin, 36*, 986–996. doi:10.1177/0146167210362979
- Macrae, C. N., Bodenhausen, G. V., & Milne, A. B. (1998). Saying no to unwanted thoughts: Self-focus and the regulation of mental life. *Journal of Personality and Social Psychology, 74*, 578–589. doi:10.1037/0022-3514.74.3.578
- Macrae, C. N., Bodenhausen, G. V., Milne, A. B., & Jetten, J. (1994). Out of mind but back in sight: Stereotypes on the rebound. *Journal of Personality and Social Psychology, 67*, 808–817. doi:10.1037/0022-3514.67.5.808
- Marsella, A. J., & Yamada, A. M. (2007). Culture and psychopathology: Foundations, issues, and directions. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 797–818). New York, NY: Guilford Press.
- McClelland, D. C. (1961). *The achieving society*. New York, NY: Free Press.
- McCullough, M., & Willoughby, B. (2009). Religion, self-regulation, and self-control: Associations, explanations, and implications. *Psychological Bulletin, 135*, 69–93. doi:10.1037/a0014213
- Megargee, E. I., Cook, P. E., & Mendelsohn, G. A. (1967). Development and validation of an MMPI scale of assaultiveness in overcontrolled individuals. *Journal of Abnormal Psychology, 72*, 519–528. doi:10.1037/h0025242
- Mesquita, B., & Leu, J. (2007). The cultural psychology of emotion. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 734–759). New York, NY: Guilford Press.
- Muhlstein, A. (2012, January 2). Review of “Balzac’s Omelette.” *New Yorker*, p. 73.
- Myrseth, K. O. R., Fishbach, A., & Trope, Y. (2009). Counteractive self-control: When making temptation available makes temptation less tempting. *Psychological Science, 20*, 159–163. doi:10.1111/j.1467-9280.2009.02268.x
- Na, J., Grossman, I., Varnum, M. E., Kitayama, S., Gonzalez, R., & Nisbett, R. E. (2010). Cultural differences are not always reducible to individual differences. *Proceedings of the National Academy of Sciences, USA, 107*, 6192–6197. doi:10.1073/pnas.1001911107
- Newman, L. S., Caldwell, T. L., Chamberlin, B., & Griffin, T. (2005). Thought suppression, projection, and the development of stereotypes. *Basic and Applied Social Psychology, 27*, 259–266. doi:10.1207/s15324834basp2703_7
- Newman, L. S., Duff, K. J., & Baumeister, R. F. (1997). A new look at defensive projection: Thought suppression, accessibility, and biased person perception. *Journal of Personality and Social Psychology, 72*, 980–1001. doi:10.1037/0022-3514.72.5.980
- Newman, L. S., & McKinney, L. C. (2002). Repressive coping and threat avoidance: An idiographic Stroop study. *Personality and Social Psychology Bulletin, 28*, 409–422. doi:10.1177/0146167202286011
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231–259. doi:10.1037/0033-295X.84.3.231
- Norenzayan, A., Dar-Nimrod, I., Hansen, I. G., & Proulx, T. (2009). Mortality salience and religion: Divergent effects on the defense of cultural worldviews for the religious and non-religious. *European Journal of Social Psychology, 39*, 101–113. doi:10.1002/ejsp.482
- Novak, M. (1993). *The Catholic ethic and the spirit of capitalism*. New York, NY: Free Press.
- Oishi, S. (2004). Personality in culture: A neo-Allportian view. *Journal of Research in Personality, 38*, 68–74. doi:10.1016/j.jrp.2003.09.012
- Oishi, S., Miao, F. F., Koo, M., Kisling, J., & Ratliff, K. A. (2012). Residential mobility breeds familiarity-seeking. *Journal of Personality and Social Psychology, 102*, 149–162. doi:10.1037/a0024949
- Opus Dei. (2008). *History and activities*. Retrieved from <http://www.opusdei.us/art.php?p=31126>
- Oyserman, D., Kimmelmeier, M., & Coon, H. (2002). Cultural psychology, a new look: Reply to Bond (2002), Fiske (2002), Kitayama (2002), and Miller (2002). *Psychological Bulletin, 128*, 110–117. doi:10.1037/0033-2909.128.1.110
- Perl, P., Greely, J. Z., & Gray, M. M. (2010). *How many Hispanics are Catholic? A review of survey data and methodology*. Retrieved from <http://cara.georgetown.edu/Hispanic%20Catholics.pdf>
- Pratt, M. (2000). The good, the bad, and the ambivalent: Managing identification among Amway distributors. *Administrative Science Quarterly, 45*, 456–493. doi:10.2307/2667106
- Proulx, T., & Heine, S. J. (2006). Death and black diamonds: Meaning, mortality, and the meaning maintenance model. *Psychological Inquiry, 17*, 309–318. doi:10.1080/10478400701366985
- Proulx, T., & Heine, S. J. (2008). The case of the transmogrifying experimenter: Affirmation of a moral schema following implicit change detection. *Psychological Science, 19*, 1294–1300. doi:10.1111/j.1467-9280.2008.02238.x
- Proulx, T., Heine, S. J., & Vohs, K. D. (2010). When is the unfamiliar the uncanny? Meaning affirmation after exposure to absurdist literature, humor, and art. *Personality and Social Psychology Bulletin, 36*, 817–829. doi:10.1177/0146167210369896
- Pye, L. (2000). Asian values: From dynamos to dominoes. In L. E. Harrison & S. P. Huntington (Eds.), *Culture matters: How values shape human progress* (pp. 244–255). New York, NY: Basic Books.
- Rich, A. (2002). *The fact of a doorway: Selected poems, 1950–2001*. New York, NY: Norton.
- Roe, A. (1956). *The psychology of occupations*. New York, NY: Wiley. doi:10.1037/13192-000
- Roof, W. C., & McKinney, W. (1987). *American mainline religion: Its changing shape and future*. New Brunswick, NJ: Rutgers.
- Rosenthal, R., & Rosnow, R. L. (1991). *Essentials of behavioral research: Methods and data analysis*. New York, NY: McGraw-Hill.
- Sanchez-Burks, J. (2002). Protestant relational ideology and (in)attention to relational cues in work settings. *Journal of Personality and Social Psychology, 83*, 919–929. doi:10.1037/0022-3514.83.4.919
- Sanchez-Burks, J. (2005). Protestant relational ideology: The cognitive underpinnings and organizational implications of an American anomaly. *Research in Organizational Behavior, 26*, 265–305.
- Sasaki, J. Y., & Kim, H. S. (2011). At the intersection of culture and religion: A cultural analysis of religion’s implications for secondary control and social affiliation. *Journal of Personality and Social Psychology, 101*, 401–414. doi:10.1037/a0021849
- Sasaki, J. Y., Kim, H. S., & Xu, J. (2011). Religion and well-being: The moderating role of culture and the oxytocin receptor (OXTR) gene. *Journal of Cross-Cultural Psychology, 42*, 1394–1405. doi:10.1177/0022022111412526
- Schooler, J. W. (2002). Re-representing consciousness: Dissociations between experience and meta-consciousness. *Trends in Cognitive Sciences, 6*, 339–344. doi:10.1016/S1364-6613(02)01949-6
- Shepherd, S., Kay, A., Landau, M., & Keefer, L. (2011). Evidence for the specificity of control motivations in worldview defense. *Journal of Experimental Social Psychology, 47*, 949–958. doi:10.1016/j.jesp.2011.03.026
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology, 38*, 183–242.

- Sherman, D. K., Cohen, G. L., Nelson, L. D., Nussbaum, A. D., Bunyan, D. P., & Garcia, J. (2009). Affirmed yet unaware: Exploring the role of awareness in the process of self-affirmation. *Journal of Personality and Social Psychology, 97*, 745–764. doi:10.1037/a0015451
- Shteynberg, G., Gelfand, M. J., & Kim, K. (2009). Peering into the “magnum mysterium” of culture: The explanatory power of descriptive norms. *Journal of Cross-Cultural Psychology, 40*, 46–69. doi:10.1177/0022022108326196
- Sio, U. N., & Ormerod, T. C. (2009). Does incubation enhance problem solving? A meta-analytic review. *Psychological Bulletin, 135*, 94–120. doi:10.1037/a0014212
- Sjoberg, H. (1973). *The psychoanalytic theory of defensive processes*. Lund, Sweden: Gleerup.
- Snell, W. E., Fisher, T. D., & Walters, A. S. (1993). The Multidimensional Sexuality Questionnaire: An objective self-report measure of psychological tendencies associated with human sexuality. *Annals of Sex Research, 6*, 27–55.
- Sowell, T. (1981). *Ethnic America: A history*. New York, NY: Basic Books.
- Sowell, T. (1997). *Migrations and cultures: A world view*. New York, NY: Basic Books.
- Spencer, S. J., Zanna, M. P., & Fong, G. T. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. *Journal of Personality and Social Psychology, 89*, 845–851. doi:10.1037/0022-3514.89.6.845
- Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The Work and Meaning Inventory (WAMI). *Journal of Career Assessment, 20*, 322–337. doi:10.1177/1069072711436160
- Tam, K.-P., Chiu, C.-Y., & Lau, I. Y.-M. (2007). Terror management among Chinese: Worldview defence and intergroup bias in resource allocation. *Asian Journal of Social Psychology, 10*, 93–102. doi:10.1111/j.1467-839X.2007.00216.x
- Tamir, M. (2009). Differential preferences for happiness. *Journal of Personality, 77*, 447–470. doi:10.1111/j.1467-6494.2008.00554.x
- Terman, L. M. (1992). *Terman Life-Cycle Study of Children With High Ability, 1922–1991* [Data set files]. doi:10.3886/ICPSR08092
- Tidwell, N., & Eastwick, P. (2012). *Sex differences in succumbing to sexual temptations*. Unpublished manuscript, University of Texas.
- Tillich, P. (1975). *Systematic theology: Vol. 2. Existence and the Christ*. Chicago, IL: University of Chicago Press.
- Triandis, H. C. (2009). *Fooling ourselves: Self-deception in politics, religion, and terrorism*. Westport, CT: Praeger.
- Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality and Social Psychology, 79*, 493–506. doi:10.1037/0022-3514.79.4.493
- Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science, 2*, 242–259. doi:10.1111/j.1745-6916.2007.00043.x
- Uhlmann, E. L., Poehlman, T. A., Tannenbaum, D., & Bargh, J. A. (2011). Implicit Puritanism in American moral cognition. *Journal of Experimental Social Psychology, 47*, 312–320. doi:10.1016/j.jesp.2010.10.013
- Vaillant, G. E. (1993). *The wisdom of the ego*. Cambridge, MA: Harvard University Press.
- Vaillant, G. E., Bond, M., & Vaillant, C. O. (1986). An empirically validated hierarchy of defense mechanisms. *Archives of General Psychiatry, 43*, 786–794. doi:10.1001/archpsyc.1986.01800080072010
- Vaillant, G. E., & Vaillant, C. O. (1990). Determinants and consequences of creativity in a cohort of gifted women. *Psychology of Women Quarterly, 14*, 607–616. doi:10.1111/j.1471-6402.1990.tb00234.x
- von Hippel, W., & Trivers, R. (2011a). The evolution and psychology of self-deception. *Behavioral and Brain Sciences, 34*, 1–16. doi:10.1017/S0140525X10001354
- von Hippel, W., & Trivers, R. (2011b). Reflections on self-deception. *Behavioral and Brain Sciences, 34*, 41–56. doi:10.1017/S0140525X10003018
- Walinga, P., Corveleyn, J., & van Saane, J. (2005). Guilt and religion: The influence of orthodox Protestant and orthodox Catholic conceptions of guilt on guilt-experience. *Archive for the Psychology of Religion, 27*, 113–135.
- Watterson, K., & Giesler, R. B. (2012). Religiosity and self-control: When the going gets tough, the religious get self-regulating. *Psychology of Religion and Spirituality, 4*, 193–205. doi:10.1037/a0027644
- Weber, M. (2002). *The Protestant ethic and the spirit of capitalism* (P. Baehr, Ed.). New York, NY: Penguin. (Original work published 1905) doi:10.1522/cla.wem.sec
- Weber, M. (1910). Weber’s second reply to Rachfahl, 1910. In D. Chalcraft & A. Harrington (Eds.), *The Protestant ethic debate* (pp. 93–132). Liverpool, England: Liverpool University.
- Wegner, D. M. (1992). You can’t always think what you want: Problems in the suppression of unwanted thoughts. *Advances in Experimental Social Psychology, 25*, 193–225. doi:10.1016/S0065-2601(08)60284-1
- Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review, 101*, 34–52. doi:10.1037/0033-295X.101.1.34
- Wegner, D. M. (2009, July 3). How to think, say, or do precisely the worst thing for any occasion. *Science, 325*, 48–50. doi:10.1126/science.1167346
- Wegner, D. M., & Erber, R. (1992). The hyperaccessibility of suppressed thoughts. *Journal of Personality and Social Psychology, 63*, 903–912. doi:10.1037/0022-3514.63.6.903
- Wegner, D. M., Erber, R., & Zanakos, S. (1993). Ironic processes in the mental control of mood and mood-related thought. *Journal of Personality and Social Psychology, 65*, 1093–1104. doi:10.1037/0022-3514.65.6.1093
- Wegner, D. M., Wenzlaff, R. M., & Kozak, M. (2004). Dream rebound: The return of suppressed thoughts in dreams. *Psychological Science, 15*, 232–236. doi:10.1111/j.0963-7214.2004.00657.x
- Weinberger, D. A. (1990). The construct validity of repressive coping style. In J. L. Singer (Ed.), *Repression and dissociation: Implications for personality theory, psychopathology and health* (pp. 357–386). Chicago, IL: University of Chicago.
- Weinstein, N., Ryan, W. S., DeHaan, C. R., Przybylski, A. K., Legate, N., & Ryan, R. M. (2012). Parental autonomy support and discrepancies between implicit and explicit sexual identities: Dynamics of self-acceptance and defense. *Journal of Personality and Social Psychology, 102*, 815–832. doi:10.1037/a0026854
- Wenzlaff, R. M., & Wegner, D. M. (2000). Thought suppression. *Annual Review of Psychology, 51*, 59–91. doi:10.1146/annurev.psych.51.1.59
- Westerink, H. (2009a). *Controversy and challenge: The reception of Sigmund Freud’s psychoanalysis in German and Dutch-speaking theology and religious studies*. Munster, Germany: LIT Verlag Münster.
- Westerink, H. (2009b). *A dark trace: Sigmund Freud on the sense of guilt*. Leuven, the Netherlands: Leuven University Press.
- Whitson, J. A., & Galinsky, A. D. (2008, October 3). Lacking control increases illusory pattern perception. *Science, 322*, 115–117. doi:10.1126/science.1159845
- Wilson, T. D. (2009). Know thyself. *Perspectives on Psychological Science, 4*, 384–389. doi:10.1111/j.1745-6924.2009.01143.x
- Wilson, T. D., & Dunn, E. W. (2004). Self-knowledge: Its limits, value, and potential for improvement. *Annual Review of Psychology, 55*, 493–518. doi:10.1146/annurev.psych.55.090902.141954
- Winer, E. S., & Newman, L. (2012). *Defensive processes*. Retrieved from www.oxfordbibliographiesonline.com
- Wood, J. V., Heimpel, S. A., Manwell, L. A., & Whittington, E. J. (2009). This mood is familiar and I don’t deserve to feel better anyway: Mechanisms underlying self-esteem differences in motivation to repair sad

- moods. *Journal of Personality and Social Psychology*, 96, 363–380. doi:10.1037/a0012881
- Wrzesniewski, A., McCauley, C. R., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality*, 31, 21–33. doi:10.1006/jrpe.1997.2162
- Yeats, W. B. (1998). *Mythologies*. New York, NY: Simon & Schuster. (Original work published 1917)
- Zanna, M. P., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology*, 29, 703–709. doi:10.1037/h0036651
- Zou, X., Morris, M. W., & Benet-Martínez, V. (2008). Identity motives and cultural priming: Cultural (dis)identification in assimilative and contrastive responses. *Journal of Experimental Social Psychology*, 44, 1151–1159. doi:10.1016/j.jesp.2008.02.001
- Zou, X., Tam, K.-P., Morris, M. W., Lee, S., Lau, I. Y.-M., & Chiu, C. (2009). Culture as common sense: Perceived consensus versus personal beliefs as mechanisms of cultural influence. *Journal of Personality and Social Psychology*, 97, 579–597. doi:10.1037/a0016399

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