

ABSTRACT

The Ecological Validity of Priming Religiousness: Context and Culture

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Across four studies, the paradox of religiousness and prejudice was examined through self-report and priming methods in both a laboratory setting in an evangelical culture and a culturally agnostic field setting. Across all cultures and methods greater religiousness was associated with more positive attitudes towards the religious ingroup and more negative attitudes towards religious value-violating outgroups (i.e., intergroup bias) whether religion was inherently salient in the culture examined, or activated by a religious context.

These studies indicate that priming religiousness through subtle ecologically valid methods is possible but difficult, and the activation of these constructs is seated in the culture in which those constructs are activated. In a highly religious series of American samples, subtle religious primes did not significantly influence self-reported religiousness, attitudes towards outgroups, or political attitudes. In a more religiously heterogeneous European sample, however, the mere presence of a religious stimulus in a participant's visual field was associated with more conservative attitudes, higher self-reported personal religiousness, and greater intergroup bias.

The Ecological Validity of Priming Religiousness: Context and Culture

by

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A Dissertation

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Submitted to the Graduate Faculty of
Baylor University in Partial Fulfillment of the
Requirements for the Degree
of
Doctor of Philosophy

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Accepted by the Graduate School
August 2011

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ACKNOWLEDGMENTS

This project would have been impossible without the direction and support of my mentor, Dr. Wade C. Rowatt; graduate program director, Dr. Matthew Stanford; chair, Dr. Jim Diaz-Granados; committee members Dr. JoAnn Tsang, and Dr. Michael Long, as well as the remaining faculty and graduate students in the Psychology and Neuroscience Department at Baylor University. Their support, patience, and input were crucial to the understanding of the project as a base for a broad multicultural program of research.

Further, study three of this manuscript was supported through the Center for International Education at Baylor. It could not have been conducted without the diligent work and support of Dr. Michael Long, Mrs. Wendy Moore, Mrs. Séverine Dufour, Dr. Michael Morrison, and the faculty and staff of both Baylor University and the University of Maastricht.

A project of this size requires a dedicated group of graduate and undergraduate researchers. The researchers who worked on these projects were remarkable colleagues who helped shape and direct the process. These studies would have been impossible without the hard work of Baylor colleagues Hillary Blakeley, Megan Haggard, Megan Johnson, and Sarah Lake, with undergraduate students Rachel Chasse, Callie Finkle, Alfredo Gonzales, Nita Prabhu, and Logan Yelderman, among many others.

Finally, special thanks to Dr. A. Taylor Newton for kindling and stoking these ideas with me, and Dove's Dancing Bears for providing a place for these ideas to ferment and form.

For LaRae. For her wisdom, grace, and endurance

CHAPTER ONE

Background and Significance

The Psychology of Religion

Religion is often cited as a motivating factor for human behaviors of many kinds. A brief examination of recent events shows individuals invoking religious justifications for actions as disparate as sacrificing their lives to save strangers in the face of a deadly tsunami (Penhaul, 2010) to the slaughter of over 500 women and children in Nigeria (Marshall, 2010). Religion is a crucial component of everyday life in the United States, as approximately 96% of Americans express belief in God (Stark, 2008).

As early as psychology's American origins, thinkers have been interested in the involvement of religion in human behavior. Beginning with the works of Starbuck (1899) and James (1902), psychologists were already classifying people by their religious behavior and motivation. James (1902) described several different types of religious motivations (e.g., institutional and personal religiousness; healthy-minded and sick-souled religiousness), a theme that would recur often in the history of the psychology of religion.

The empirical study of religiousness has grown dramatically since the late 1950s (Hill & Hood, 1999). The subdiscipline of the psychology of religion now has a home in at least eleven dedicated journals, several professional organizations and divisions, as well as annual conferences and pre-conference meetings (Hood, Hill, & Spilka, 2009).

A sizable portion of the empirical research on religion has focused on positive or negative outcomes of religiousness. Religion has been treated as a positive force by a large number of researchers. Empirical evidence links personal religiousness with physical health (McCullough, Friedman, Enders, & Martin, 2009; Powell, Shahabi, & Thoresen, 2003), mental health (Larson, Swyers, & McCullough, 1998; Miller & Kelley, 2005), optimism (Koenig et al., 2001), gratitude (Lambert, Fincham, Braithwaite, Graham, & Beach, 2009; McCullough, Emmons, & Tsang, 2002), humility (Powers, Nam, Rowatt, & Hill, 2007), coping and self-esteem (Maynard, Gorsuch, & Bjorck, 2001), reduced substance abuse (Michalak, Trocki, & Bond, 2007), reduced nonmarital sexual behavior (Paul, Fitzjohn, Eberhart-Phillips, Herbison, & Dickson, 2000), and helping behavior (Norenzayan & Shariff, 2008; Preston, Ritter, & Hernandez, 2010; Saroglou, Pichon, Trompette, Verschueren, & Dernelle, 2005), among a variety of other desirable traits. On the other hand, many researchers have suggested that religion may be a negative force. Several studies demonstrate relationships between religiousness and prejudice (Batson, Schoenrade, & Ventis, 1993; Johnson, Rowatt, & LaBouff, 2010; Johnson et al., in press; Rowatt, LaBouff, Johnson, Froese, & Tsang, 2009), sexual abuse (Fones, Levine, Althof, & Risen, 1999), warfare (Karsh, 2002), attitudes towards terrorism (Nielsen, 2001), and many other constructs.

One of the primary reasons for these seemingly paradoxical relationships is the difficulty of isolating the causal relationships between religion and any outcome variable given that religion is positively associated with a host of constructs that may simultaneously influence the outcomes of interest. Further, religion does not appear to operate as a homogeneous construct across differing political (Cohen & Rozen, 2001) or

religious cultures (Cohen & Hill, 2007). Understanding the effects of religiousness requires an investigation into a variety of constructs simultaneously. A classic example that will serve to explain this difficulty is the relationship between religiousness and prejudice.

Religiousness and Prejudice

Gordon Allport rightly characterized the convoluted relationship between religion and prejudice: “The role of religion is paradoxical. It makes prejudice and it unmakes prejudice.” (1954, p. 444). Some of the earliest empirical work in the science of religiousness was focused on understanding this relationship. Early studies (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950) have been reviewed several times in the literature (see Batson et al., 1993; Hunsberger, 1995; Hunsberger & Jackson, 2005) and all focus on the positive relationships between various approaches to religiousness and increased prejudiced attitudes. Recent meta-analyses have further supported this claim. An analysis of 55 studies since the passage of the Civil Rights Act in 1964 demonstrated that increased identification with religious groups significantly predicted negative attitudes towards racial outgroups (Hall, Matz, & Wood, 2010). Further, a meta-analysis of 64 studies of religiousness and attitudes towards homosexual men and women demonstrated that nearly all measures of religiousness demonstrated at least small negative relationships with attitudes towards homosexual persons (Whitley, 2009). Given that nearly every world religion contains some theme of inclusion and treating others as you wish to be treated (Coward, 1986), these findings seem paradoxical.

Religious orientation and prejudice. The majority of the early work on this paradox examined the different approaches (orientations) towards religious behavior

(similar to James' divisions at the turn of the century). Allport and Ross (1967) organized religious orientation into categories that are still often discussed today. Intrinsic, or ends-driven, religiousness is characterized as more internally motivated and usually results in religiousness impacting non-religious areas of life. Extrinsic, or means-driven, religiousness is typically characterized as more externally motivated and utilitarian. Their findings and those of dozens of researchers who have used their methods (see Gorsuch, 1988) indicate that people with intrinsic, ends-motivated religious orientations demonstrate lower levels of prejudice than those with extrinsic, means-motivated religious orientations and lower still than those who are indiscriminately pro-religious.

The implication that religion measured as a unitary construct (e.g., "Do you attend church?") was insufficient for understanding the complex relationships between religiousness and prejudice was a crucial step in the development of the psychology of religion. It also opened the door to more nuanced psychometric practices that have cast sizable doubt on this traditional relationship between intrinsic religious orientation and tolerant attitudes. There is substantial evidence that persons with intrinsic religious orientations may simply be reporting more tolerant attitudes due to the social desirability of religiousness and tolerant attitudes (Batson et al., 1993; Duck & Hunsberger, 1999; Hall, et al., 2010; Sedikides & Gebauer, 2010; Trimble, 1997). It also appears that intrinsic religious orientations are not associated with lower levels of prejudice when it is measured covertly rather than overtly (Batson, Flink, Schoenrade, Fultz, & Pysz, 1986).

In response to these concerns about the relationship between religious orientations and prejudice, combined with the idea that religious orientation may be more

multifaceted than dichotomous, Batson (1976; Batson & Schoenrade, 1991; Batson & Ventis, 1982) proposed a religion-as-quest orientation that characterizes an orientation towards religiousness involving existential questioning and an acceptance of doubt and uncertainty. Whereas several studies have demonstrated religion-as-quest orientations explain unique variability in tolerance when measured overtly, covertly or implicitly (Batson, et al., 1986; Joseph, Smith, & Diduca, 2002; Tsang & Rowatt, 2007), criticisms of the measure argue that religion-as-quest may actually be a measure of anti-religiousness or agnosticism (Beck & Jessup, 2004; Donahue, 1985; Hall, et al., 2010; see Batson et al., 1993 for a response to these criticisms).

The relationship between religious orientation and prejudice is a convoluted mass of psychometric research. Not only are these different orientations towards religiousness predicting different prejudiced or tolerant attitudes depending upon how they are measured, but they are demonstrating important and varied relationships with constructs like social desirability. To further this complexity, a recent meta-analysis demonstrated that the relationship between social desirability and religious orientation is moderated by political and religious cultures (Sedikides & Gebauer, 2010). That is, persons in cultures where religion is more normative and important (the United States relative to the United Kingdom; Christian universities relative to secular universities) demonstrated a greater relationship between intrinsic religious orientation and socially desirable responding. What was originally suggested as a straight-forward relationship between motivation and attitude has been demonstrated to be tangled in covariates and nested in various types of culture.

Fundamentalism, authoritarianism and prejudice. Social desirability is not the only covariate that can occlude the relationship between religiousness and prejudice. A large body of evidence has linked both religious fundamentalism (RF; Altemeyer, 2003; Hunsberger, 1996) and right-wing authoritarianism (RWA; Adorno et al., 1950; Altemeyer, 1996) with prejudicial attitudes, and both constructs are significantly related to measures of religiousness (Genia, 1996). Whereas the previously described measures attempt to gauge an individual's motivations towards religious beliefs and behaviors, the constructs of fundamentalism and right-wing authoritarianism are directed towards the dogmatism and inflexibility with which those religious beliefs are held.

The two constructs are distinct but interrelated in many ways. Altemeyer and Hunsberger (1992) developed the most widely used self-report measures of both religious fundamentalism and right-wing authoritarianism and have described fundamentalism as the belief that one's religious teaching is uniquely true and inerrant, that the followers of this teaching have a special relationship with a deity and are constantly embattled with the forces of evil which is not specific to any one world religion. The construct of right-wing authoritarianism, in contrast, is composed of three interrelated elements: submissiveness to established authority, conventionalism, and general aggressiveness (Altemeyer, 1981). In practice, however, these two constructs are highly correlated. That is, it is rare to find an individual high in right-wing authoritarianism who is low in religious fundamentalism (Altemeyer, 1988).

Both of these constructs have demonstrated unique relationships with prejudiced attitudes across a variety of studies and towards a variety of target groups (see Altemeyer, 2003; LaBouff, Rowatt, Johnson, Thedford & Tsang, 2010; Laythe, Finkel, &

Kirkpatrick, 2001; Powell & Steelman, 1982; Rowatt & Franklin, 2004, for examples). Research has focused on the independence or interrelatedness of these two variables with religiousness in their relationship with prejudice. Several studies indicate that right-wing authoritarianism alone is associated with prejudiced attitudes and discriminatory behavior (e.g., Altemeyer 1996; Crowson, DeBacker, & Thoma, 2005; Mirisola, Sibley, Boca, & Duckitt, 2007) and fundamentalism alone has also been significantly associated with prejudice (Hunsberger, 1995). When combined, these two constructs explain a relatively large amount of the variability in prejudiced attitudes (Laythe, Finkel, Bringle, & Kirkpatrick, 2002). Some researchers have argued on the basis of multiple regression analysis that fundamentalism, when controlling for right-wing authoritarianism, is less powerfully associated with prejudice or even predicts tolerance (Laythe et al., 2001; Rowatt & Franklin, 2004; Wylie & Forest, 1992).

More recent statistical analyses have indicated that the correlation between the conventionalism component of the most commonly used right-wing authoritarianism measure (Altemeyer & Hunsberger, 1992) with religious fundamentalism creates a statistical artifact that suppresses the effects of fundamentalism in a multiple regression analysis (Mavor, MacLeod, Boal, & Louis, 2009). When analyzing the components of right wing authoritarianism separately and removing the intercorrelated items, fundamentalism rather than authoritarianism often emerges as at least an equally strong predictor of prejudiced attitudes (Johnson et al., in press; LaBouff et al., 2010; Mavor et al., 2009). Regardless of the relationship between these two variables, this large body of research converges towards the conclusion that the relationship between religiousness

and prejudice may be partially explained through the way in which religious beliefs are held rather than the beliefs themselves.

Religion and prejudice towards various target groups. Just as treatments of religiousness and its covariates have grown and changed over the hundred-year history of the psychology of religion, our understanding of prejudice as a multifaceted rather than unitary construct has grown and changed. The target of prejudice matters a great deal in the relationship between religiousness and prejudice. As prejudice towards African American persons, for instance, has become increasingly proscribed by religious institutions making self-report relatively less reliable, research has turned towards other target groups such as gay men and lesbian women. Researchers have demonstrated different relationships between religiousness and prejudice towards racial groups and different sexual orientations (Herek, 1987; Laythe et al., 2001).

In an attempt to examine the relative contributions of religious orientations and fundamentalism on prejudice towards groups, Hunsberger and Jackson (2005) performed a meta-analysis including 25 distinct samples utilizing well-established measures of religious orientation and fundamentalism. In studies examining only racial prejudice, the historical finding of intrinsic religious orientation being related to tolerance was supported. In more than 75% of studies investigating prejudice based on sexual orientation, however, intrinsic religious orientation was associated with prejudice rather than tolerance. A similar pattern was present for religious fundamentalism; that is, fundamentalism was significantly associated with intolerance for gay men and lesbian women whereas the relationship between fundamentalism and racial outgroups was less clear.

These findings have led researchers to hypothesize that the expressed opinions of organized religious groups may have a dramatic influence on expressions of prejudice for members of those groups (Rosik, 2007). That is, because most religious organizations forbid prejudice against racial groups, people high in religiousness may report relatively lower levels of prejudice towards those groups. Since most religious groups do not forbid prejudice based on sexual orientation (and some may overtly support it) religious persons in those groups may express a relatively higher level of prejudice towards homosexual men and lesbian women (Batson et al., 1993; Hood et al., 2009).

Whereas the relationship between religiousness and prejudice towards homosexual persons has been examined fairly extensively in the literature (Finlay & Walther, 2003; Herek, 1988; Rowatt et al., 2006), only a few studies have examined the association between group attitudes and individual attitudes. Duck and Hunsberger (1999) demonstrated that intrinsically religious persons match the expressed attitudes of their religious congregation. That is, intrinsic religious orientation was significantly associated with tolerance towards racial outgroups and significantly associated with prejudice towards sexual orientation outgroups, matching the reported attitudes of the participant's religious group.

Religious fundamentalism appears to be the strongest predictor of prejudice towards homosexual men and lesbian women, however, possibly due to the high rate of church attendance and conservatism among fundamentalists (Finlay & Walther, 2003). This accepted prejudice in a North American Protestant fundamentalist religious group may be directed at value-violating outgroups like homosexual men and women in an

attempt to maintain boundaries against a group they perceive as aggressively evil (Hood, Hill, & Williamson, 2005; Johnson et al., in press).

These relationships between religiousness and prejudice could be partially explained by intergroup bias (Hewstone, Rubin, & Willis, 2002). Religious intergroup bias has been shown to take two forms: 1) *ingroup favoritism*, in which religious individuals show favor towards their own ingroup members (Jackson & Hunsberger, 1999), and 2) *outgroup derogation*, in which religious individuals show disfavor towards outgroup members (Harper, 2007). Religious intergroup bias exists among multiple religious groups, including non-Christians (Islam & Hewstone, 1993) and is suggested to underlie the *group* component of religion. The *group* component represents religion as a social identity or category and has goals associated with protecting and cooperating with the ingroup (Preston et al., 2010). Other traits which serve to protect the ingroup are associated with religiosity as well, such as traditionalism (Inglehart & Baker, 2000) and political conservatism (Roccas, 2005). In contrast to the *group* component, the *supernatural* component of religion represents the virtue or morality associated with religiosity (e.g., Biblical teachings). Whereas the supernatural component of religion promotes tolerance towards outgroups, the group component of religion promotes intolerance towards outgroups (Preston et al., 2010). This dual nature of religiosity may help explain the paradox of religiosity and attitudes towards others.

Measurement tools in the psychology of religion and group attitudes. The influence of group norms, covariance with social desirability, and the complexity of multifaceted constructs has led researchers to develop more unique and specialized tools to measure both religiousness and prejudice in an attempt to untangle the psychometric

issues and get closer to understanding the complicated and paradoxical relationship between religiousness and prejudice. This need for increasingly precise measurement has resulted in a plethora of measures for constructs related to religiousness and spirituality. Even after Hill and Hood's (1999) compilation of measures of religiousness and spirituality totaling 125 total measurement tools, many more have been developed.

Given the difficulties associated with social desirability as a covariate of measures of intrinsic religious orientation and overt prejudice towards racial target groups, researchers have begun to use implicit measurement tools to help avoid the influence of conscious control on attitudes or self-concepts. The most commonly used implicit measurement technique is the Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998). The IAT is designed to assess relatively non-conscious attitudes about the self or target group using a reaction time measure. The fundamental assumption of the IAT is that stimuli that are congruent with personal attitudes will be more easily (and quickly) categorized than stimuli that are incongruent with personal attitudes.

Research utilizing the IAT has reinforced the findings concerning group attitudes and personal attitudes. In a series of studies measuring prejudice implicitly, intrinsic religious orientation and Christian orthodoxy predicted negative attitudes towards homosexual men and women relative to heterosexual men and women (Tsang & Rowatt, 2007; Rowatt et al., 2006) and Muslims (Rowatt, Franklin, & Cotton, 2005) even when statistically controlling for authoritarianism and other related constructs. When measuring attitudes forbidden by the religious group, the same set of constructs was inversely related to negative attitudes towards racial outgroups relative to racial ingroups (Rowatt & Franklin, 2004). Future research utilizing implicit measurement is warranted

in the psychology of religion and prejudice, perhaps with an implicit measure of religiousness (LaBouff et al., 2010).

Priming Methods in Social and Personality Psychology

No matter how sophisticated the measurement tools and statistical analyses, the types of research described thus far are unable to explain causal links between religiousness and possible outcome variables. Even well-developed longitudinal studies such as the one conducted by Wink, Dillon, and Prettyman (2007) can only give the time course of development of religiousness and associated constructs; it cannot definitively determine causality. Partially due to the psychometric difficulties discussed here, researchers have begun to turn towards other methods to test the effect of religiousness on associated outcomes, whether positive or negative. There is an emerging trend in the literature to manipulate levels of religiousness through subliminal and supraliminal priming methodologies.

Priming methods, which attempt to activate a specific set of constructs, follow naturally from the same arguments that have motivated researchers to utilize implicit measurement. Passive, unintentional, and non-conscious methods are preferred in this case because they avoid the complexities associated with deliberative and controlled goal processing (Bargh & Chartrand, 2000). These methods allow researchers to automatically activate concepts and test the effects of that activation in a given stimulus milieu. That is, because many researchers believe that the relationships between religiousness, its covariates, and outcomes may operate automatically or below conscious awareness ecologically (Bargh & Chartrand, 1999; Fazio & Towles-Schwen, 1999), it

follows to activate them outside of conscious awareness in order to observe the kinds of effects their spontaneous activation may elicit.

The Development of Priming Methods in Social and Personality Psychology

Over the last 30 years, priming methods have become increasingly common in social and personality psychology. This family of methods involves “the temporary activation of an individual’s mental representation by the environment and the effect of this activation on various psychological phenomena” (Bargh & Chartrand, 2000, p. 256). Priming originated from cognitive and perception methods (Hebb, 1949). As early as 1960, cognitive psychologists were using the word to describe the phenomenon that presenting a list of to-be-remembered words to a participant significantly increased the probability of those words appearing on a subsequent unrelated free-association task (Segal & Cofer, 1960).

Social psychologists began using priming methods in the 1970s in order to demonstrate the influence of relatively subtle presentations of stimuli on subsequent evaluations of a target individual. In the earliest studies, participants were shown words describing positive traits as part of a seemingly unrelated language task. The presentation of these positive words (e.g., kind, generous) significantly influenced subsequent evaluations of a target person, Donald (Srull & Wyer, 1979).

Since these early studies, social and personality psychologists have utilized priming methods to study nearly every major realm of the subdisciplines. The majority of this research takes the “concept prime” approach described by Bargh and Chartrand (2000) where the subtle or non-conscious presentation of a stimulus activates a concept which influences subsequent evaluations or behaviors. The assumed mechanism follows

Taylor and Fiske's (1978) model of salience and Higgins and King's (1981) model of accessibility; subtle presentations of a concept increase the accessibility and salience of those concepts on subsequent cognitive processes regardless of the relevance of that process to the presentation of the concept.

Priming methods used in laboratory settings utilize supraliminal (possibility of conscious awareness) or subliminal (below conscious threshold) presentations of words or figures related to the target construct. Research utilizing these paradigms from supraliminal applications like the scrambled sentence task (SST) and subliminal applications using personal computer software [e.g., lexical decision tasks (LDT)] subtly exposes the participant to stimuli in order to activate the participant's individual mental representation of the family of constructs of interest. These methods have produced interesting and powerful effects. For example, people primed to be polite interrupted less than people primed to be rude (Bargh, Chen, & Burrows, 1996) and people primed with egoism-related words helped less than people primed with altruism-related words (Walther, Müller, & Schott, 2001).

Research utilizing the same fundamental concept activation methodology has been conducted to examine a variety of concepts. For example, chronic egalitarians were less influenced by the presentation of stereotype consistent material than non-egalitarians on an automatic gender stereotype task (Moskowitz, Gollwitzer, Wasel, & Shaal, 1999). Priming methods have been used to induce emotions using unrelated film clips to significantly influence buying and selling prices of incidental items when real money was on the line (Lerner, Small, & Loewenstein, 2004). The subtle presentation of words related to conceit led participants to construe a weak situation to be a strong example of

conceitedness (Higgins & Brendl, 1995). These subtle presentations even influence behavior directly. The subtle activation of the trait “intelligent” or “professor” (rather than “stupid” or “soccer hooligan”) significantly increased participant performance in a trivia task (Dijksterhuis & van Knippenberg, 1998). Further, the presentation of elderly or youthful concepts caused participants to walk more slowly or quickly (Bargh, Chen & Burrows, 1996).

Most importantly for the psychology of religion, priming methodologies have been utilized to activate particular sets of norms. Hertel and Kerr (2001) demonstrated that priming participants in a minimal groups paradigm with group-relevant norms (e.g., loyalty versus equality) led to increased salience of group norms, increased ingroup favoritism and increased self-report of identification with the minimal group. Recent studies have indicated that these methodologies can go beyond merely activating norms and can in fact increase the accessibility and salience of entire cultural ideologies. Gardner, Gabriel, and Lee (1999) used a story and word-search task to activate either independent or interdependent cognitions. Participants from a relatively individualistic culture (the United States) and a relatively collective culture (Hong Kong) were asked to circle pronouns [either singular (I, me, my) or plural (we, us, our)] in a story about an individual or a family. The presentation of cognitions contrary to the participant’s primary worldview had a greater effect than congruent cognitions on self-reported values and social judgments (i.e., a person refusing to give directions due to distraction was judged as being rude or simply inattentive). North American individualistic culture members behaved more like Eastern collectivist culture members after the subtle presentation of interdependent stimuli. Priming methods have also been used to activate

worldviews and paradigms. Primarily through Terror Management Theory (TMT) research (Solomon, Greenberg, & Pyszczynski, 1991), participants have been primed to increase mortality salience. According to a growing body of research (see Strachman & Schimel, 2006 for examples), these relatively simple activations can temporarily alter cultural worldviews and even romantic relationship satisfaction.

One of the most interesting problems for priming research is that each of these independent effects discussed above operate in parallel rather than in isolation. John Bargh has described this “generation problem” many times (1997; 2006; Bargh & Chartrand, 2000). How can these single concept primes impact a wide variety of cognitions, attitudes and behaviors simultaneously?

Take the example of priming the concept of generosity (Bargh, 2006). Researchers might be interested in the extent to which priming generosity increases the accessibility of memories of generous behavior by the self or towards the self. Alternatively, one might prime the concept of generosity and measure the likelihood of a participant behaving more generously in an economic game, or the likelihood that a person will rate a fellow player as generous or greedy. Perhaps a researcher might be interested in the extent to which accessibility of generous concepts alters altruistic or egoistic goal pursuit in helping behaviors. It would be unsurprising given the body of research on priming to find any one of these ideas as the dependent variable in a study using priming methods. The important implication, then, is that all of these effects operate on all of the participants across each of the studies regardless of which dependent variable the researcher has chosen to measure. Thus, manipulating concepts or cultural

ideals through priming methods may have subtle effects, but those effects are widespread across a wide variety of cognitive and behavioral processes.

Priming Methods in the Psychology of Religion

Researchers in the psychology of religion have seized on the wealth of possibilities that priming methodologies have opened up to them. Although a relatively small number of studies examining the effects of manipulating religion through priming methods have been published, the field is rapidly expanding with the efforts of several research teams testing different facets of these complicated phenomena. Due in part to the recency of the merging of the method with the field and in part to the nature of religious phenomena and priming methods previously reviewed, the research on the effects of priming religion is scattered across many different outcome variables and many different specific priming methods. The first priming studies of religion simply examined concept accessibility and salience. For example, participants primed with religious words were more likely than those primed with control words to list Biblical events among their three greatest events in the history of the world (Wenger, 2003).

Much like the research on the psychology of religion in general, research using priming methodologies began by looking at differences in religious persons and religious orientations. Some of the first published studies using priming methods were designed to examine the differences in participants with various religious orientations after exposure to a religious prime. Wenger (2004) utilized a supraliminal priming method adapted from Dovidio, Evans, and Tyler (1986) and Banaji and Hardin (1996). Participants were shown the word “Christian,” “Student” or “Housetop” for 200ms and then were presented with an action phrase and asked whether a hypothetical person could perform that action.

Persons primed with “Christian” were faster at categorizing Christian-like actions than student-like actions or nonactions. Persons with an intrinsic religious orientation were faster still at the categorization task, indicating an interaction between pre-existing religiousness and manipulated religiousness. Further studies have supported this interaction. For example, Christians who were primed with positive religious words (e.g., heaven) showed a decrease in associations between positive affect and meaning in life. Christians who were primed with negative religious words (e.g., hell), however, showed a decrease in associations between religious commitment and meaning in life (Hicks & King, 2008).

Given the large body of research examining self-reported relationships between religion and a multitude of outcome variables, researchers have pursued increasingly specific priming methods to investigate possible cause and effect relationships between religiousness and a variety of prosocial or antisocial attitudes, behaviors or intentions to behave.

Priming religion and positive outcomes. Some of the most extensive literature on religion and prosociality comes from studies linking religiousness to helping behavior. Priming methods are uniquely suited to clarify the complex question of whether or not religiousness increases helping behavior, as they allow the manipulation of religiousness to be compared to behavior or expressed intent to behave in ways that are impossible in many other methods. Pichon, Boccato, and Saroglou (2007) utilized priming methods to examine the effects of religious concept activation on intention to help a person in need. They used a foveal subliminal priming method adapted from Wittenbrink, Judd, and Park (1997) which uses a computer-based lexical decision task (LDT) to present stimuli

outside of conscious awareness. For each of 20 trials, participants were given a fixation point (+) for 500ms which was immediately followed by a prime for 15ms. The prime was immediately masked by a string of Xs (e.g., XXXXXXXXXX) which was presented for 500ms. The participant was then presented with a string of characters and asked to indicate whether that string of characters did or did not make up a word (the lexical decision task). The primes consisted either of positive religious words (e.g., heaven, miracle), neutral religious words (e.g., monk, Bible), positive non-religious words (e.g., freedom, thanks), or neutral non-religious words (e.g., shirt, bag).

After the LDT, as participants were leaving the laboratory, they were reminded of the importance of an organization that helps feed impoverished persons. They were told that they may take as many pamphlets as they like from a pile and distribute them in order to help the organization get donations and support. Participants primed with religious words were significantly more likely to take more pamphlets than participants primed with non-religious words, presumably indicating their intention to be more helpful to this charitable organization. Further, participants primed with positive religious words were more likely to take more pamphlets than participants primed with neutral religious words and negative non-religious words. This study, while conceptually simple, made a large stride in understanding the relationship between religiousness and helping which had heretofore been largely correlational in nature.

A variety of other studies have been conducted to test the connections between religiousness and prosocial outcome variables. Shariff and Norenzayan (2007) used a popular supraliminal priming method, the scrambled sentence task (SST; adapted from Srull & Wyer, 1979), to investigate the effect of activating religious concepts on

generosity in an economic game. Participants were asked to take 10 five word sentences and drop one of the words in order to make a logical sentence from the remaining four words. Participants in the religious prime condition had five of 10 sentences contain religious words (i.e., spirit, divine, god, sacred, prophet) whereas participants in the no-prime condition simply had 10 sentences that possessed no coherent theme. After the SST, participants completed a one trial anonymous dictator game (adapted from Hoffman, McCabe, Shachat, & Smith, 1994). They were told that they had been randomly selected as the “giver” and provided with 10 one-dollar coins. They were allowed to allocate as many of those coins as they like to themselves, and the rest would be given to the other “randomly chosen” receiver (actually fictitious). Participants were told that the receiver would never know their identity. The results of the prime were both statistically and practically significant. The activation of religious and civic concepts greatly increased the probability of leaving more money for the receiver. More than half of the participants in the religious prime condition left \$5 or more whereas less than 15% of participants in the no-prime condition left even \$5. This study serves as a further example that different priming methods can be used in the scientific study of religion to investigate relationships between religious activation and outcome variables that have long been hypothesized.

These supraliminal and subliminal methodologies have been used to examine other prosocial religious outcomes such as honesty. Randolph-Seng and Nielsen (2007) used both the supraliminal SST (study 1) and a subliminal parafoveal “vigilance task” that presented religious stimuli for 80ms in the visual periphery (study 2) to activate religious concepts in participants. They then measured cheating behavior (an operational

definition of honesty) on a modified version of Heartshorne and May's (1928) circle test. This measure requires participants to write specific numbers inside small circles with their eyes closed while alone and presumably unobserved, with ample opportunities and incentives for cheating. The combined results from both studies indicated that activating religiousness in both intrinsically religious and non-religious people was sufficient to reduce cheating behavior significantly. The implications of this particular set of studies are exceedingly important for research on priming religion. Not only do Randolph-Seng and Neilson (2007) indicate that priming religious concepts increases the probability of stereotypical religious behavior (similar to non-religious priming studies like those reviewed in Bargh, 1997) but that the priming of these religious concepts is effective at altering behavior to approximate a religious stereotype even for non-religious persons, indicating that priming religion might be an effective method for manipulating and thus studying the effects of religion across varied samples.

This finding, however, should not be overgeneralized. Social psychologists are interested in the person by situation interaction. In other studies examining the outcomes of religious primes, individual religious beliefs have moderated the effects of concept activation. Wiegand and Weiss (2006) examined Christian participants who varied in their image of God as controlling or loving. All participants were given a supraliminal religious or nonreligious prime in the form of a word-search puzzle containing words similar to the SST (e.g., god, spirit; dog, sport). The activation of religious concepts caused an increase in negative affect and a decrease in life satisfaction for participants with a preexisting controlling God image but not for participants with a preexisting loving God image, indicating that there may be an interaction between preexisting

religious beliefs or ideas and the attitude outcomes of activating religious concepts. This finding has been corroborated by recent research conducted by Dijksterhuis, Preston, Wegner, and Aarts (2008). When primed with the word “God,” participants who believed in God demonstrated a decrease in feelings of authorship relative to participants in a neutral prime condition.

Further studies on the positive (if not prosocial) effects of activating religious concepts have highlighted this possible interaction and demonstrated priming religious persons with religious concepts increased effort and perseverance on difficult tasks (Uhlmann, Poehlman, Tannenbaum & Bargh, 2011), cooperation with religious outgroups (Preston & Ritter, 2011), as well as reductions in moral hypocrisy. Carpenter and Marshall (2009) activated religious concepts supraliminally by directing half of the participants to read nine Bible verses chosen because of their references to intrinsically religious ideals and the other half of participants to read nothing. Participants’ moral hypocrisy was then measured through a modified version of Batson, Thompson, and Chen’s (2002, Study 2) paradigm. Participants were told they were responsible for deciding whether they would receive a raffle ticket for \$30 or whether another participant (actually fictitious) would receive the ticket. Participants were provided with a coin and told that they may flip the coin to help them decide if they so choose. Moral hypocrisy was defined as stating that flipping the coin was the most moral way to make the decision while simultaneously having been clandestinely observed to either fail to flip the coin or to go against the results of the coin toss in favor of personal benefit. Priming religiousness reduced incidences of moral hypocrisy for intrinsically religious participants, but intrinsic religious orientation without religious priming was not enough

to reduce moral hypocrisy on its own. These results further support the possible interaction between personal religiousness and activation of religious concepts.

These studies have effectively demonstrated that several prosocial and positive outcomes are reliably a part of the generated web of outcomes when religious constructs are made salient and accessible experimentally, shedding some light on the question of the involvement of religiousness in these types of desirable behaviors. Given previous research linking religiousness to other negative and antisocial outcomes, several studies have been conducted to examine the effects of manipulating religious salience on less positive outcomes.

Priming religion and negative outcomes. Most of the research concerning the darker side of religion examines the link between religiousness and violence or aggression. One need not look far in either scholarly or popular literature to find references to religious underpinnings of violent or terroristic acts (Hood et al., 2005). In fact, popular literature has seized on a few research studies highlighting the links between religiousness and aggression. ABC news (Dye, 2007) reported about a study conducted by Bushman, Ridge, Das, Key, and Busath (2007) indicating that exposure to sections of religious text advocating violence resulted in increased aggression against a loser in a mock game. Bushman et al. (2007) did not prime religion in general, but rather primed authoritative deific justification of retaliatory violence in one condition or violence in general in another condition. Participants read a description of violence (mob rape and murder of a concubine, subsequent retaliatory tribal warfare) in ancient Israel. They were told either that the passage was from the Bible or that the passage was from an ancient scroll discovered recently. For half of the participants in each condition, lines were

inserted indicating God advocated the retaliatory warfare. Participants were then offered the opportunity to aggress towards a fellow participant (actually fictitious) by blasting them with sound after losing a reaction time game. Aggression was operationally defined as the number of maximum level sound blasts administered over 25 trials. The basic reported finding was that people who were exposed to either deificly advocated violence or scripturally advocated violence were more likely to aggressively retaliate regardless of their belief in God or cultural surroundings (Brigham Young University or a secular university in Amsterdam, the Netherlands). While the finding is interesting and opens the door for future research on religious sanctioning of aggression and violence (see Jurgensmeyer, 2003), the particular methods used in the study and data analysis decisions leave the results somewhat open to interpretation.¹

Partially confirming the findings of Bushman et al. (2007) and providing a possible mechanism for increased aggression through the accessibility of religious concepts was a series of studies conducted by Saroglou, Corneille, and Van Cappellen (2009). Given that previous research has indicated a link between religiousness and the establishment of social hierarchies (Shariff & Norenzayan, 2007; Atran & Norenzayan, 2004), these researchers examined the effect of activating religious concepts on submission to authority. Subliminal 15 or 30 ms foveal presentation of stimuli borrowed from Pichon et al. (2007) in a LDT were used as the religious concept prime. The measure of submission to authority involved the participant receiving a particularly

¹ Given the generation and reductionist problems identified by Bargh (2006), the question of what concepts are actually being activated in this study looms large. The prime stimulus is far too complex, and contains excessive violence in all conditions, leaving comparisons across conditions troublesome at best. Perhaps due to the convoluted nature of the priming stimuli, aggression was only examined at its extremes (i.e., the number of maximum volume retaliatory sound blasts) rather than the more traditional approach of examining average decibel level across retaliations. Given these methodological concerns, it is worth tempering the kinds of sweeping generalizations made by both popular news agencies and scholarly press (Ledford, 2007).

negative review of a short essay they had written from a fictitious other participant. They were then given the opportunity to choose trivia questions which the reviewer would be asked. In the submission condition, participants were told by the experimenter that because the review was overly negative, they should choose the most difficult questions. Participants' assent to this request was operationally defined as submission. Participants primed with religious concepts were more likely to self-report submissive attitudes to retaliate against the negative reviewer when told to do so by the experimenter than when given the opportunity to do so without encouragement. Given this research, it appears the activation of religious concepts could increase submission to authority and thus perhaps aggression if mandated by an authoritative source as appears to be the case with right-wing authoritarianism.

There is, however, some competing evidence on whether or not the activation of religious concepts increases or decreases support for terrorism and warfare. Given the frequency with which religious rhetoric is used to support warfare (Larsson, 2004; Twain, 1916) this relationship is important.

Ginges, Hansen, and Norenzayan (2009) used a very simple and brief supraliminal prime to assess the influence of different religious concepts on attitudes towards suicide attacks in a population of Israeli Jews living in the West Bank and Gaza. Participants were randomly selected as part of a phone survey and were primed by either being asked about their synagogue attendance, their frequency of prayer, or no priming question. All participants were then asked about their attitudes towards a recent Jewish suicide attack on Palestinians. Participants primed with religious attendance were

significantly more likely to view the Jewish attack as heroic than participants primed with frequency of prayer.

Partially conflicting results were found by Rothschild, Abdollah, and Pyszczynski (2009) who activated religious compassion concepts and examined attitudes towards extreme military interventions. Across a series of studies, both North Americans and Iranian Shiite Muslims were provided primes of values that were religiously compassionate and neutral, or secularly compassionate or neutral. Participants were also given a mortality salience manipulation. Across the series of studies, activating religious but not secular compassion reduced acceptance of violent and extreme military interventions for people high in religious fundamentalism but not for people low in fundamentalism. That is, across cultures, people were more likely to be negative towards violent conflict if reminded of their own mortality and religious compassionate values by an authoritative religious source. These findings are mirrored in North American samples as well (Schumann, Nash, McGregor, & Ross, 2010).

It is important to note that both of these studies prime religious concepts and measure attitudes inside a relevant cultural context (that is, where the relationship between religiousness and violence is salient and important). Given the research indicating that the norms activated by concept primes are knowledge-based and thus culturally seated (Bargh, 2006; Randolph-Seng & Nielsen, 2007), this is an important step for any research program on concept activation. These studies also demonstrate that the accessibility and salience of a general concept are not sufficient to make sweeping claims about the effects of the concept. Subtle variations in priming methods and stimuli are capable of influencing the direction of effects on a variety of outcome variables.

Priming religion and attitudes towards groups. Recently, researchers have begun to investigate the kinds of attitude outcome variables associated with self-reported religiousness (e.g., prejudice and ingroup favoritism). Perhaps the ability to manipulate accessibility of religious concepts will shed some light on Allport's (1954) famous paradox of religion both making and unmaking prejudice.

Several lines of research have converged on the idea that there are two components to prejudiced attitudes: favoritism or support of the ingroup and denegation of the outgroup (Beer et al., 2008). It appears that priming religious concepts may facilitate both of these factors. McKay, Efferson, and Fehr (2009) demonstrated that activating religious concepts may increase the probability of altruistic punishment of ingroup defectors. Altruistic punishment has been suggested as a mechanism for human cooperation (Bernhard, Fehr, & Fishbacher, 2006; Fehr & Gächter, 2002) and thus could indicate an increase in favoritism or protection of the ingroup when religiousness is activated. Further, Shariff (2009) demonstrated that religious concept activation resulted in allocation of more money to ingroup members than to outgroup members in an anonymous dictator task.

Johnson, Rowatt, and LaBouff (2010) recently investigated negative attitudes towards African Americans as a possible outcome of activation of religious concepts. In a series of studies, participants completed a LDT which subliminally presented Christian words (e.g., Bible, Jesus, heaven) or neutral words (e.g., shirt, butter, hammer) as priming stimuli for 35ms foveally. Regardless of the preexisting religiousness of the participant, activation of religious concepts significantly increased both negative affect towards African Americans and covert prejudice towards African Americans (measured by the

Racial Argument Scale; Saucier & Miller, 2003). A second series of studies demonstrates a similar finding for prejudice against gay men and lesbian women (Johnson et al., in press). These findings taken together indicate that the activation of religious concepts may increase both factors of prejudice and result in increased ingroup favoritism and outgroup denigration.

Variability of priming methods in the psychology of religion. Several researchers are currently investigating the mechanisms through which the activation of religious concepts acts upon these various outcome variables. A variety of mechanisms have been suggested (Newton & McIntosh, 2009), such as co-activation of religious fundamentalism, right-wing authoritarianism, conservatism and justification of inequality (Johnson et al., 2010). The difficulty associated with understanding these mechanisms is that each of the studies described thus far utilize slightly different methods or stimuli, resulting in slightly different possible interpretations of outcomes and mechanisms for those outcomes. Given the problem of generation (Bargh, 2006) whereby a variety of different outcomes can result from the same priming method, the variability of stimuli used in the research on priming religious concepts amplifies the problem.

For example, approximately 2/3 of the studies reviewed here utilize supraliminal priming methods while the remaining 1/3 utilize subliminal methods. Within both of those methods, different stimuli or themes of stimuli are used across different research teams. Given that religiousness is such a complex and multifaceted construct with a large number of associated constructs (e.g., fundamentalism, conservatism, authoritarianism) it stands to reason that different stimuli may result in different results.

Some researchers have tested this theory relatively directly. For example, Pichon et al. (2007) demonstrated that positive religious stimuli resulted in different effects than neutral religious stimuli. In the case of Saroglou et al.'s (2009) study on submission, special care was taken to avoid stimuli used in other studies that may directly activate religious authority. Finally, in a series of studies by Preston and Ritter (2011), priming with stimuli related directly to the divine (e.g., "God") resulted in increased outgroup cooperation, while priming with stimuli related directly to organized religiousness (e.g., "Religion") resulted in increased ingroup cooperation. In sum, it appears that the more specific the religious prime, the more variability there may be in the resulting attitude or behavior between participants (Preston & Ritter, 2011).

In much the same way as measurement of religiousness, the activation of religiousness has become more and more intricate with further study. Researchers are now interested in activating particular subsets of image of God (Wiegand & Weiss, 2004) much as they have been interested in measuring particular subsets of image of God (Lawrence, 1997).

Ecological Validity of Priming Methods

Rarely, however, are people confronted with carefully controlled subtle stimuli outside of a laboratory. The more specific and intricate priming methods become in the psychology of religion, the less likely they are to emulate activation that might occur spontaneously in everyday life. Nisbett (2003) has suggested that everyday human life is full of constant contexts in which a multitude of constructs might be activated depending on attention, salience, previous experience, and a variety of other factors. Bargh (2006) discusses this as the reduction problem of priming methodology. The question of which

prime “wins” in a given stimulus milieu is one of the second generation of priming problems, something that the psychology of religion must address in order to effectively interpret the results that are coming very quickly. Psychologists of religion, as well as almost any scientist pursuing priming methods in social psychology, are guilty of “running where we don’t know yet how to walk” and missing the possibility of examining how religious concept activation might function in daily life (Bargh, 2006, p. 148).

It is possible that priming influences on social perception, attitudes and ultimately behavior are powerful and pervasive in everyday life. In fact, Bargh and Chartrand (1999) argue that most aspects of an individual’s life are influenced nonconsciously by the environment through the activation of various mental processes that subsequently influence automatic behaviors and decision-making strategies. It stands to reason that a nonconscious prime in a person’s environment may influence both automatic and controlled expressions of attitudes or behaviors.

Priming research has begun to incorporate priming methods that are simple and more ecologically valid than subliminal presentation through reaction time software. These priming methods have demonstrated that very brief exposure to seemingly unrelated stimuli can influence attitudes and perceptions profoundly. For example, Williams and Bargh (2008) demonstrated that participants who briefly held a cup of hot coffee for an experimenter perceived a hypothetical individual as more psychologically warm (i.e., generous/caring) than those who briefly held an iced coffee beverage for the experimenter.

A variety of studies have indicated that stimuli need not be interacted with directly by the participant in order to be an effective concept prime. Kay, Wheeler, Bargh, and Ross (2004) used the implicit presentation of “business related” stimuli (e.g., briefcases and boardroom tables) relative to “non-business related” material stimuli (e.g., backpacks) in order to prime a particular set of norms. Participants across several studies demonstrated increased accessibility for the concept of competition, were more likely to construe an ambiguous social action as competitive, and were more likely to act competitively and out of self-interest in economic games when in a “business context” than when out of that context, though all participants were unaware of the influence of materials in the environment on their subsequent judgments or behaviors. Since the publication of this first “situational context priming” study, several other attempts at these types of manipulations have been successful. Presenting a sports drink rather than a bottle of water resulted in the construal of challenge as positive and results in increased endurance on physical tasks (Friedman & Elliot, 2007). Presence in a context with luxury goods as opposed to non-luxury goods (shoes and watches) resulted in increased self-interest in hypothetical economic decisions (Chua & Zou, 2008). Supermarket shoppers were more likely to purchase French wine when French (rather than German) music played nearby (North, Hargreaves, & McKendrick, 1999). Finally, persons exposed to the subtle scent of cleanser kept their surroundings cleaner than those not exposed to the scent (Holland, Hendriks, & Aarts, 2005).

It appears a possible mechanism for the effects of general context primes are the activation of norms associated with that context. One of the first studies to examine the activation of norms for a particular context was conducted by Aarts & Dijksterhuis

(2003). The authors argued that normative social influence can both teach norms and activate them when a person is primed with a particular situation. Participants were presented with the situational context of being in a library and/or primed with the goal to visit the library through the presentation of pictures of the library environment. Across several studies, a variety of dependent measures were used to assess the effect of situational priming on behavior both directly and indirectly. Presentation of the situational context of the library both increased the accessibility of the concept of silence and actually reduced the volume with which participants spoke after the presentation of the prime, a direct effect of norm activation through situational presentation on behavior. It is worth noting, however, that merely examining a photographic representation of the environment was insufficient for the prime to activate norms enough to change behavior. The participants had to have the goal to visit the library activated in order to show behavioral differences. The authors argue that the norms activated by situational context primes are a product of socialization (normative social influence), cultural construal (Camic, 1986) and do not require a lot of direct practice to form (Sperber, 1990). That is, dozens of hours in a library are not required for a library prime to activate silence norms.

Priming Religion with Situational Context

Very few studies have examined the possibility of using a religious situational context prime in order to activate religious concepts in a way that might actually occur naturally. Each of these studies utilized pictures of a church as the supraliminal religious situational context prime.

Building on their previous studies, Pichon and Saroglou (2009) examined the relationship between religious concept activation and helping behavior. Participants were

approached by experimenters while walking in Louvain-la-Neuve, Belgium. They were presented with a situational context prime in the form of one of four photographs of a person in need. Each of the photographs depicted an illegal immigrant or a homeless person in either a religious (church) or secular (gymnasium) context. After the presentation of the prime, participants were asked a series of questions including their intentions to help the group depicted in their photo. Religious situational context priming influenced help for the homeless but not for illegal immigrants. Given the normative negative attitudes towards illegal immigrants in north western Europe, the situational context prime may have been effective in activating religious norms and stereotype attitudes that a religious person in that particular cultural context may possess (Pichon et al., 2007).

An archival and experimental series of studies conducted by Berger, Meredith, and Wheeler (2008) investigated the relationship between polling location (situational context) and polling results. Examining Arizona's 2000 general election results, the authors found that people voting in schools as their government-mandated polling location were more likely to support raising state sales tax in support of education programs than people voting in other polling locations (e.g., churches, civic buildings.) Importantly, the effect of voting in a school persisted even while controlling for preexisting political beliefs, demographics and when comparing to matched groups in other polling locations. In a follow-up experimental study, participants were shown pictures of schools or churches and then asked to "vote" on a variety of initiatives. Exposure to a picture of a church reduced the likelihood of support for stem-cell research initiatives while exposure to a picture of a school increased likelihood of support for a

school funding initiative. These findings are consistent with research investigating attitudes towards stem-cell research among religious persons (Nielsen, Williams, & Randolph-Seng, 2009) and with findings demonstrating that persons vote more conservatively in religious polling places (Rutchick, 2010)

Similar methods have indicated that situational context primes may be effective in altering attitudes towards outgroups. In a study examining automatic stereotype activation, Wittenbrink, Judd, and Park (2001) presented the same black and white faces through a computer program digitally altered to appear as if the stimuli were in different contexts (i.e., a small Baptist church or an urban street corner). Between presentations of these stimuli, participants were asked to categorize trait terms as quickly as possible (similar to the IAT paradigm discussed previously) into good or bad categories. These traits included stereotypical positive and negative traits for African Americans and Caucasians. Presentation of black faces in an urban context and in no context significantly increased speed at categorizing negative black stereotypes. However, presenting the same black face in a religious context reduced the effect and trended towards increasing speed at categorizing positive black stereotypes. The authors could suggest that situational contexts influence implicit or automatic attitudes towards African Americans. While that is quite possibly the case, this study fails to address that question directly. Instead, another conclusion from the data is that the presentation of an African American face in a religious context influences the perception of that African American rather than attitudes towards African Americans in general. A study that used a situational context prime for the participant rather than the attitude target would stand a

better chance at answering questions regarding the effects of ecologically valid religious primes on attitudes towards outgroups.

There are several limits to these studies that encourage future research. First, these studies use only representations of religious situational contexts, rather than actually placing participants in a particular stimulus environment and examining the effects of competing stimuli on concept activation. Second, all of these studies (and indeed the vast majority of priming research in social psychology) run participants alone and in a room with the experimenter only. Given the fact that real-world presentations of religious stimuli rarely occur in isolation, and that the interest of social psychologists in the presence of others on attitudes and behavior, it is worth examining the effects of religious situational contexts in mass tested sessions. For instance, are these concept activation effects so subtle as to be trumped by the presence of peers, or would the presence of peers accentuate their effects by increasing normative social influence (Aarts & Dijksterhuis, 2003)? Indeed, some research indicates that warning people that others may see their responses on a measure of prejudice may increase their prejudice rather than decrease it (Lambert et al., 2003). Testing a religious situational context prime's effects on attitudes towards target groups in social and individual situations may help address the influence of other people on norm activation.

One strength of these studies is that they come from diverse populations. The vast majority of research on the psychology of religion has been collected in a North American Protestant "box" (Hood, et al., 2009). Religious priming studies (including situational context primes) have been more culturally diverse, including participants from Belgium, the Netherlands, and the Middle East. No situational context priming study has

yet examined similar methodologies and outcome variables across cultures, however. Since situational context primes operate on the basis of norm activation, and norms are learned culturally (Aarts & Dijksterhuis, 2003), it stands to reason that situational context primes will operate differently in different political (Cohen & Rozen, 2001) or religious (Cohen & Hill, 2007) cultures. Diverse samples are necessary to make any generalizable claim. The findings of Pichon and Saroglou (2009) likely represent the activation of religious norms for that particular culture (i.e., Wallonia-Brussels Belgium), but since the same methods have not been used in other religious cultures that comparison cannot be effectively measured. Given that the largest differences between Protestant religious norms across political cultures involve attitudes towards outgroups and political ideals (e.g., when primed with religiousness, Americans demonstrate more conservatism and work harder at a task than Canadians; Uhlmann, et al., 2011) a study utilizing similar situational context primes and examining their effect on attitudes towards outgroups and political ideals would be the best way to examine the influence of cultural norms on religious primes.

Even with these limitations, these studies demonstrate many interesting and promising findings for the pursuit of ecologically valid religious priming methods. Given these studies, it is increasingly important to test the effects of common presentations of religious stimuli in order to effectively answer the second generation of priming questions (i.e., what stimuli in a busy environment actually influence cognitions, attitudes and behaviors?). These methods may inform researchers about what actually happens with religious activation in the real world and may answer some of the paradoxical

questions surrounding the relationship between religion and prejudice, politics, and mechanisms of priming in everyday life.

CHAPTER TWO

Study One

Methods

A pilot study was conducted in the Spring of 2009 designed to test the possibility of using mere presence in a religious environment as an independent variable powerful enough to have an effect on attitudes or behavior. Following previous literature indicating significant changes in political opinions (Berger et al., 2008) and attitudes (Wittenbrink et al., 2001) based on proxy religious situational context primes, most of the dependent variables focused on social or political attitudes, including attitudes related to groups that would be value-violating for our predominantly white Christian sample (e.g., gay men and lesbian women) (see Johnson, Rowatt, & LaBouff, 2010). Also examined was the extent to which implicit attitudes might differ by context given that they are less susceptible to overt conscious control (Fiedler & Bluemke, 2005). It was predicted that the subtle presentation of religious stimuli would result in greater self-reported personal religiousness, conservatism, and more negative attitudes towards value violating target groups.

Participants and Recruitment

Data were analyzed¹ for 134 undergraduate students from Baylor University in Waco, Texas (20 men and 114 women; $M = 19.6$ yrs.) who were recruited from

¹ Approximately 40% of participants for whom data were collected were excluded from the analysis based on criteria set forth by Lemm et al. (2008) described below. Due to ambiguity in the research script, participants failed to complete the pencil-format IAT appropriately. Participants with fewer than 3 correct responses on the categorization task or with systematic errors (e.g., categorizing only one set

Introductory Psychology classes to participate in a Personality and Situation study. Participants were somewhat ethnically diverse (60% White, 13.5% Asians/Pacific Islander, 12.8% Hispanic, 10.5% African-American, and 3.2% other) but predominantly Protestant (60.6%) or Catholic (25%) with only 14.4% of participants indicating they had no religious affiliation. All participants received course credit for participation.

Materials and Procedure

Online survey. Before attending their scheduled research session, participants were asked to complete a 223-item survey through the Baylor University Human Participation in Research website. This battery was designed to assess several demographic variables, as well as provide baselines for religious and attitude variables for comparison with an in-context post-test. The online survey contained the following measures in the following order.

- Several demographic items assessing age, race, religious affiliation, education level, political affiliation and belief in God
- The *Ten Item Personality Inventory* (Gosling, Rentfrow, & Swann, 2003), designed to assess the Big Five personality domains.
- Altemeyer and Hunsberger's (1992) *Right-Wing Authoritarianism Scale* was used to measure self-reported authoritarian aggression/submission (e.g., "Our country will be destroyed someday if we do not smash the perversions eating away at our moral fibers and traditional beliefs."), and conventionalism [e.g., "Atheists and others who have rebelled against established religion are no doubt as good and virtuous as those

of terms, categorizing only one term wherever it appeared on the page, ignoring the target labels switching) resulting in more than 50% error rates were removed from the analysis. While this extremely conservative approach eliminated a large number of participants, it lends credence to the statistical conclusions.

who attend church regularly.” (reverse-keyed) 1 = very strongly disagree; 9 = very strongly agree.]

- Several items designed to assess distraction (e.g., “Where are you completing this survey?” “How many other people are present?” etc.)
- Portions applicable to a college sample of the *Brief Multidimensional Measure of Religiousness/Spirituality* (Fetzer Institute, 1999) were administered. They were designed to assess several sub-dimensions of religiousness-spirituality including: daily spiritual experiences (as both trait and state qualities), religious meaning, forgiveness, private religious practices, organizational religiousness, and overall religious-spiritual self-rating.
- Religious orientations were measured using the *Intrinsic and Extrinsic Religious Orientation Scales* (Allport & Ross, 1967) and the *Quest Scale* (Batson & Schoenrade, 1991). Intrinsically religious persons engage in religious behaviors as an important end. Extrinsically religious persons use religion for personal or social reasons (e.g., coping, fellowship). Quest religiousness involves openness to existential questioning, religious doubts, and religious change.
- The *Attitudes Towards Lesbians and Gay Men Scale – Short Form* (ATLG; Herek, 1994) was utilized to assess negative attitudes and prejudices directed towards gay men and lesbians (e.g., “I think male homosexuals are disgusting.” “Lesbians just can’t fit into our society.” 1 = very strongly disagree; 7 = very strongly agree). Scores were aggregated such that higher scores indicated more negative attitudes towards lesbian women and gay men.

- The *Revised Religious Fundamentalism Scale* (Altemeyer & Hunsberger, 2004) measured the extent to which participants endorsed statements about religion (e.g., “There is a particular set of religious teachings in this world that are so true, you can’t go any “deeper” because they are the basic, bedrock message that God has given humanity”) across a 9-point rating scale (-4 = very strongly disagree, 0 = neutral, +4 = very strongly agree.)
- A 16-item version of the *Narcissism Personality Inventory* (NPI-16; Ames, Rose & Anderson, 2006) was administered. This forced-choice paradigm requires participants to agree with a relatively contrite item or a relatively narcissistic item (e.g., “People sometimes believe what I tell them.” or, “I can make anybody believe anything I want them to.”)
- As we were interested in attitudes towards target outgroups, we utilized the *Social Dominance Orientation – 5* (SDO5) measure developed by Pratto, Sidanius, Stallworth, and Malle (1994) to assess participants’ degree of preference for social inequality in general rather than towards specific target outgroups
- Impression management and self deceptive enhancement were measured using the *Balanced Inventory of Desirable Responding* (BIDR; Paulhus & Reid, 1991) which used a 7-point rating scale (1=not true; 7=very true). Participants received one-point for each 6 or 7 and 0 for each response ≤ 5 .
- Finally, attitudes towards a variety of target groups were assessed using single item thermometer measures. The groups assessed included: African Americans, Latin Americans (Mexican, Puerto Rican, etc.), Caucasian Americans (White), Asian Americans, Indian Americans, Men, Women, Homosexual men, Homosexual women,

Poor persons, Lower class persons, Middle class persons, Upper class persons, Protestant Christians (Baptist, Methodist, Presbyterian, etc.), Catholics, Muslims, Hindus, Buddhists, Agnostics, Atheists, Texas A&M students / fans, University of Texas students / fans, Canadians, Foreigners, Baylor students / fans.

Context conditions. After completing the online survey, participants joined a group data collection session either in a Baylor University classroom (control context) or the sanctuary of Seventh and James Baptist Church (religious context). The classroom was a traditional auditorium-style room with a podium at front from which the experimenter gave instructions. There were no decorations or signs on the walls making it a fairly neutral room. The sanctuary was a traditional Southern Protestant church. Participants sat in pews near the front of the room where an altar with a large open Bible sat facing the participants. Christian symbols appear in the room in various places, making the religious context salient. In both conditions, participants were asked to sit quietly, spread out, and turn off any electronic devices until the study began. Average waiting time was approximately four minutes. Participants were given a survey packet with a cover page which encouraged them to relax and explaining the categorization task that would begin the study.

A low-tech implicit association test (IAT). Lemm, Lane, Sattler, Kahn, and Nosek's (2008) *Paper Format Implicit Association Test* was adapted to measure implicit attitudes towards homosexual men and women (see Appendix). Following their procedure, participants were told that they would be categorizing stimuli into paired categories (e.g., "Good – Flower" and "Bad – Insect"). They were to indicate the correct category for the stimulus by checking the correct side for the appropriate group.

Participants were given 20 seconds to categorize the stimuli on the page. For each participant, the first task was a training task in which participants were required to correctly categorize “Good – Flower” and “Bad – Insect.” For the critical trials, participants were required to categorize “Homosexual – Pleasant” and “Heterosexual – Unpleasant” and then switch the pairing to “Homosexual – Unpleasant” and “Heterosexual – Pleasant.” The order of the critical trials as well as the left or right column placement of the categories were counterbalanced across both conditions.

Group self-report survey. Following the three paper format IATs, participants were asked to complete a shortened version of the online survey described previously. It included self-reported religiousness and spirituality [both a state and trait version of the daily spiritual experiences subscale of the *Brief Multidimensional Measure of Religiousness/Spirituality* (Fetzer Institute, 1999)], the *Attitudes Towards Lesbians and Gay Men Scale – Short Form* (Herek, 1994), a three-item version of the *Right-Wing Authoritarianism Scale* (Altemeyer & Hunsberger, 1992), the thermometer attitude items including all of the groups from the online survey, several items to assess specific political opinions taken from the Baylor Religion Survey (Bader, Mencken, & Froese, 2007) (e.g., “How do you feel about the morality of embryonic stem cell research?”, “The federal government should protect the environment”, etc.) and finally items assessing participant history were included (e.g., “When did you last eat?”, “Have you ever been in this particular room before?”, etc.). After completing the survey participants were debriefed as a group.

Results

There was no significant difference between religious or control context conditions on implicit attitudes towards homosexual men and women as assessed by the Paper Format IAT [religious context: $M = -2.62$, $SD = 3.72$; control context: $M = -2.43$, $SD = 3.90$; $F(1,138) = .08$, *ns.*] Across context conditions, significant correlations were observed between the implicit and explicit measures of attitudes towards lesbians and gay men (ATLG). However, when simultaneously controlling for variables correlated with the implicit measure using a regression analysis, only two individual difference measures explained unique variability in the implicit measure: Attitudes towards racial outgroups (i.e., attitudes towards African Americans and Latino Americans) and self-reported religiousness/spirituality (see Table 1). As the Paper Format IAT is a relatively new measure, there was some variability in its administration that could have influenced scores on the measure and were the likely source of high error rates².

There were, however, several significant differences between context conditions with regard to explicit attitudes and beliefs that are worth further investigation.

Self-reported Religiousness

There was a significant effect for self-reported religiousness and trait daily spiritual experiences across both context conditions from time 1 to time 2 [time 1: $M = 4.36$, $SD = 1.58$; time 2: $M = 4.64$, $SD = 1.55$; $F(1, 72) = 7.68$, $p < .01$, $\eta^2 = .10$]. There was, however, no significant interaction between conditions.

Table 1
Regression of Implicit ATLG on Self-reported Attitudes and Associated Variables

Variable	β	t	P	R^2
Religiousness/Spirituality	-.272	-2.14	.036 *	.214
Attitudes Towards Racial Outgroups	.361	2.11	.039 *	
Self-reported ATLG	-.142	-1.18	.241	
Right-Wing Authoritarianism	-.094	-.79	.433	
Political Affiliation	.079	.643	.523	
Attitudes Towards Religious Outgroups	-.113	-.628	.532	

Note: * $p < .05$

Attitudes Towards Outgroups

Across both context conditions, participants expressed more negative attitudes towards lesbian women and gay men in the classroom and church context when compared to the online survey, $F(1,130) = 17.78, p < .001, \eta^2 = .12$ (See Table 2). When including the between subjects effect of context condition, there was a significant interaction between change in attitudes from the online self-report to the in-context self report and condition, $F(1,130) = 7.26, p < .01, \eta^2 = .05$. That is, participants in the classroom condition showed a greater decrease in attitudes towards homosexual men and women than participants in the religious condition, likely due to pre-existing higher baseline attitudes towards homosexual men and women. See Figure 1.

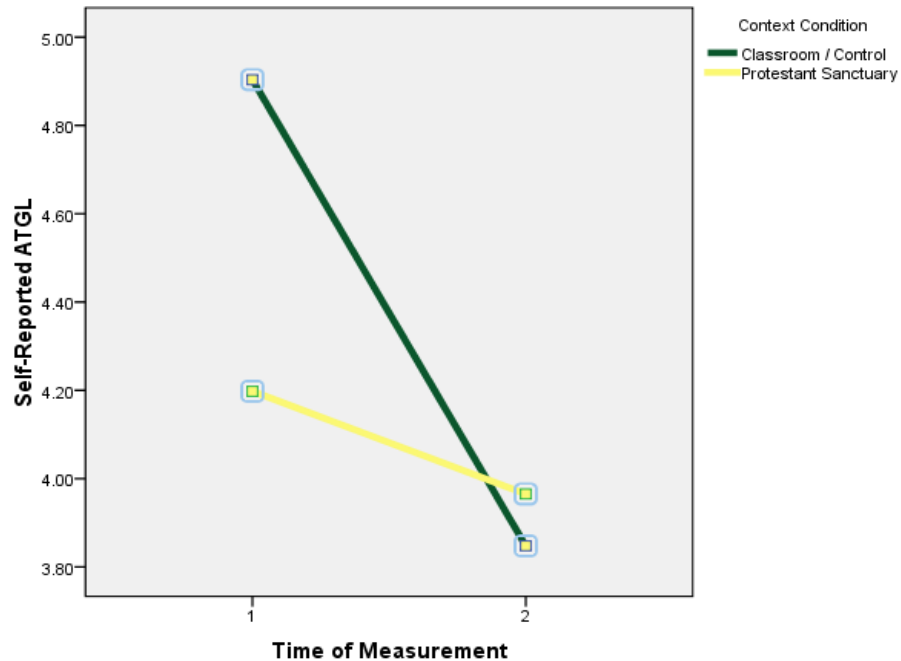


Figure 1. Mean ATGL at time 1 (online) and time 2 (context condition)

This pattern persisted for nearly all measures of attitudes towards outgroups (see Table 3). A similar and significant main effect for attitudes was found for every attitude item except attitudes towards agnostics and attitudes towards rival university students / fans, likely due to low baseline levels of approval at time one for those two groups. None of these groups, however, showed a between subjects interaction with condition.

Discussion

The data presented here support a central tenet of social psychology quite clearly; that is, the situation in which a person expresses their attitudes or engages in behavior significantly influences those expressions. When participants were in a more social context (i.e., with other participants in a classroom or a sanctuary) they expressed greater religiousness, greater conservatism, and more negative attitudes towards a variety of target groups than they did alone and on a computer.

Table 2
Means, Standard Deviations and ANOVAs for Attitudes towards Lesbian Women and Gay Men

Online (Time 1)				In Person (Time 2)				<i>F – Main Effect for Time</i>
<i>M</i>		<i>SD</i>		<i>M</i>		<i>SD</i>		
4.66		1.54		3.89		.44		17.78***
Religious		Control		Religious		Control		<i>F - Interaction</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
4.20	1.63	4.90	1.43	3.97	.40	3.85	.46	7.26**

Note. * $p < .05$, ** $p < .01$., *** $p < .001$

Table 3
Means, Standard Deviations and Main Effects for Single Item Measures of Attitudes Towards Groups.

Attitude Variable	Religious Context				Control Context				F
	Pre-test		Post-test		Pre-test		Post-test		
	M	SD	M	SD	M	SD	M	SD	
African Americans	7.66	2.51	7.34	2.21	7.85	2.45	6.96	2.38	8.23**
Latino Americans	7.96	2.33	7.62	2.10	8.04	2.26	7.26	2.10	7.83**
White Americans	8.65	2.08	8.15	1.75	8.48	2.36	8.15	1.75	9.06**
Men	8.09	2.25	7.70	2.02	8.63	2.04	7.78	1.60	9.41**
Women	8.65	1.91	8.09	1.59	7.81	2.54	7.41	1.95	5.34*
Gay Men	7.52	2.65	7.07	2.19	7.85	2.63	6.70	2.38	15.65***
Lesbian Women	6.59	2.57	5.93	2.67	7.04	2.68	6.30	2.83	13.66***
Protestants	8.24	2.16	7.71	2.10	8.04	2.46	7.41	2.26	6.84*
Muslims	7.17	2.64	6.61	2.71	7.07	2.35	6.52	2.47	7.82**
Agnostics	6.67	2.71	6.22	2.54	6.37	2.98	6.22	2.49	1.69
Texas A&M	6.98	2.71	6.77	2.51	6.41	3.03	6.17	3.12	.74
University of Texas	7.43	2.37	6.89	2.56	7.19	2.86	6.81	2.84	3.40
Baylor University	9.13	1.72	8.74	1.48	8.70	2.02	8.04	1.99	12.94***

Note: Reported *F* values are for the main effect of time. No main effects for condition or interaction effects were significant for these single item thermometer measures. * $p < .05$, ** $p < .01$, *** $p < .001$.

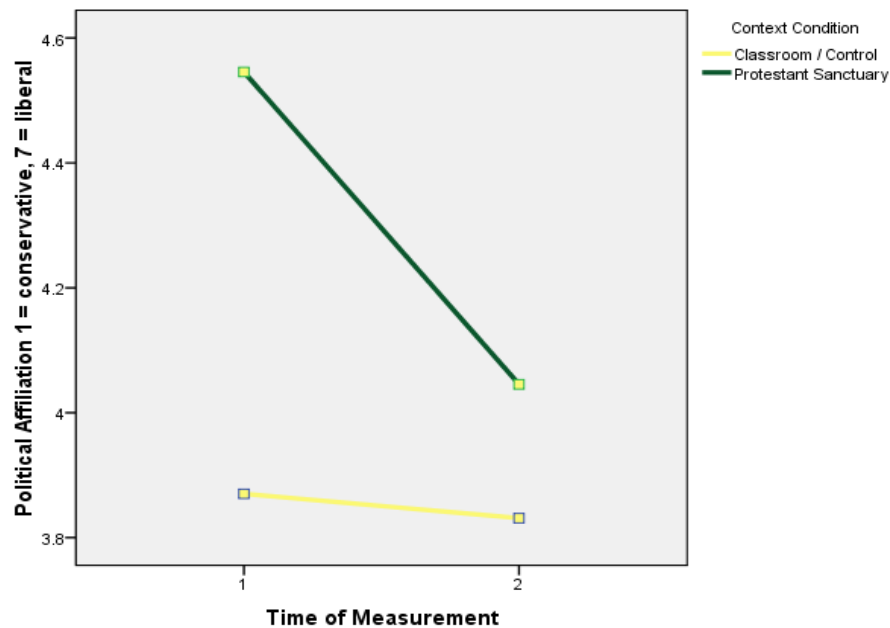


Figure 2. Mean political preference at time 1 (online) and time 2 (context condition)

Since the publication of some studies investigating the effects of polling locations on election results using archival techniques (e.g., Berger et al., 2008), there have been several organizations that have suggested public elections in churches might influence the results of those elections. Given the possibility that churches are among the most common polling places in the United States (Berger et al., 2008) this appears to be an important question. The data from this study support the idea that religious contexts can influence political attitudes to be more conservative both generally and on specific political issues that may appear on ballots. That is, people reported greater conservatism in a religious context than in an educational context.

It appears that real-world religious primes might not operate as cleanly as laboratory methodologies. Religious environments likely do not differentiate between the priming of God concepts and the priming of religious concepts as many recent

laboratory studies do (see Randolph-Seng & Nielsen, 2008; Shariff & Norenzayan, 2007). Rather, real-world religious primes may be activating organized religious norms.

The remaining dependent variables did not vary systematically by context but almost universally showed a main effect between participation online and participation in a social context. The manipulation check reveals a possible source of the reported main effects. It is possible that this effect is driven by a variety of factors. The particular population used for this study self-selected a private religious university and was tested in that environment. Several different types of social pressure may be operating in these particular contexts, not the least of which could be normative social influence (Aarts & Dijksterhuis, 2003) or social facilitation (Lambert et al., 2003).

If that is the case, it is worth examining other possible threats to validity in the development of subsequent studies that could provide an even less religious context to serve as a control. First, participants may simply be influenced by the presence of other participants regardless of context. Second, the high baseline of religion in the sample population may result in ceiling effects on religious measures or floor effects on attitudes towards outgroups or politics. Third, this data demonstrates some pre-existing differences in participants between conditions. A study that could rule out these possible alternative conclusions and still demonstrate these important changes in attitudes and self-reported behaviors across contexts might be able to effectively identify a cause of changing attitudes that actually occurs outside of a laboratory in the day to day lives of American citizens.

CHAPTER THREE

Study Two

Introduction

The primary goal of the second study is to address lingering questions from study one. In order to effectively test the overarching hypothesis, some alternate interpretations of the data in study one must be addressed experimentally, namely, the possible effects of high levels of baseline religiousness in the sampled population and the presence of other participants. Further, the second study will examine an intergroup bias theory of self-reported religiousness and attitudes towards outgroups.

The following predictions will be examined in study two:

Participants in a religious context (e.g., a protestant church) will self-report higher general religiousness and more frequent state-level religious experiences and cognitions than participants in a non-religious context (e.g., a university classroom).

The presence of a religious context will increase participants' self-reported conservative political and moral attitudes relative to pre-testing or testing in a non-religious context (e.g., increases in prejudice towards value-violating outgroups, religious fundamentalism, right-wing authoritarianism.)

Methods

Participants and Recruitment

Participants were recruited through announcements in online and traditional classrooms at McLennan Community College (Waco, TX) and through Baylor

University's Sona Systems website. They were instructed to first complete an online battery of tests through the Qualtrics survey administration tool and were then scheduled for an in-person testing session in a religious or non-religious context¹. During the online survey, participants generated a unique five-digit identifier (the last digits of their student ID or social security number) for which they were asked during the in-person testing session. Data were analyzed only for participants with both online and in-person data ($n = 88$; 72 women; M age = 23.5 yrs.) who were recruited from Introductory Psychology classes to participate in a Personality and Situation study. Participants were somewhat ethnically diverse (57% White, 17% Hispanic, 14% African American, 8% Asian/Pacific Islander, 1% Native American and 3% Other) but predominantly Protestant (65%) or Catholic (20%). There were a small minority of participants with other religious affiliations (2% Muslim, 2% Hindu, 2% Buddhist) and 9% Atheist/Agnostic. Participants received 1 hour of research participation credit.

Measures and Procedures

Online self-report measures. Participants were asked to complete a series of self-report items through the Qualtrics survey administration tool. After consenting to participate, each person was asked to complete a survey that included the following measures in a randomized order of presentation.

- Religious orientation was measured using the *Intrinsic and Extrinsic Religious Orientation Scales* (Allport & Ross, 1967) and the *Quest Scale* (Batson & Schoenrade, 1991). Intrinsically religious persons engage in religious behaviors as an

¹ The online survey is available at http://baylorpsych.qualtrics.com/SE/?SID=SV_aW7dZ9vmJhahadK.

- important end. Extrinsically religious persons use religion for personal or social reasons (e.g., coping, fellowship). Quest religiousness involves openness to existential questioning, religious doubts, and religious change.
- The *Attitudes Towards Lesbians and Gay Men Scale – Short Form* (ATLG; Herek, 1994) was utilized to assess negative attitudes and prejudices directed towards gay men and lesbian women (e.g., “I think male homosexuals are disgusting.” “Lesbians just can’t fit into our society.” 1 = very strongly disagree; 7 = very strongly agree). Scores were aggregated such that higher scores indicate more negative attitudes towards lesbian women and gay men
 - Attitudes towards a variety of target groups were assessed using single item thermometer measures. The groups assessed include: African Americans, Latin Americans (Mexican, Puerto Rican, etc.), Caucasian Americans (White), Men, Women, Homosexual men, Homosexual women, Protestant Christians (Baptist, Methodist, Presbyterian, etc.), Muslims, Agnostics, Atheists.
 - Altemeyer and Hunsberger’s (1992) *Right-Wing Authoritarianism Scale* was used to measure self-reported authoritarian aggression/submission (e.g., “Our country will be destroyed someday if we do not smash the perversions eating away at our moral fibers and traditional beliefs.”), and conventionalism [e.g., “Atheists and others who have rebelled against established religion are no doubt as good and virtuous as those who attend church regularly.” (reverse-keyed) 1 = very strongly disagree; 9 = very strongly agree.]
 - Several items designed to assess specific political opinions were adapted from the Baylor Religion Survey (Bader et al., 2007) (e.g., “How do you feel about the

morality of embryonic stem cell research?” “The federal government should protect the environment.” etc.)

- Portions applicable to a college sample of the *Brief Multidimensional Measure of Religiousness/Spirituality* (Fetzer Institute, 1999) were administered to assess several sub-dimensions of religiousness-spirituality including daily spiritual experiences (as both trait and state qualities), religious meaning, forgiveness, private religious practices, organizational religiousness, and overall religious-spiritual self-rating.
- Several demographic items assessing age, race, religious affiliation, education level, political affiliation and baseline belief in God as well as distraction while completing the survey were included (e.g., “Where are you completing this survey?” “How many other people are present?” etc.).

Manipulations. Participants were then asked to attend an in-person testing session at one of four randomly determined contexts either individually or with other participants. Two of these contexts were religious in nature [$n = 59$, Seventh and James Baptist Church (mass testing) and Bobo Chapel at Baylor University (individual testing)] while two of the contexts were non-religious [$n = 29$, a classroom in the Michaelis Academic Center at McLennan Community College (mass testing) and a laboratory setting at Baylor University (individual testing)]. Non-religious contexts were neutral rooms with no decoration on university campuses. Religious contexts were traditional Southern Protestant sanctuaries or chapels. Participants were seated near the front of the room where an altar with a cross faced them.

Procedure. Upon arrival in either the mass ($n = 40$) or individual ($n = 48$) testing contexts², participants were asked to remove all distractions and sit quietly while materials were prepared.

Participants were first lead through a *Paper Format Implicit Association Test (IAT)* developed by Lemm and colleagues (2008) and adapted to measure implicit attitudes towards lesbian women and gay men. Researchers followed a script developed by Lemm et al. (2008; see Appendix) and explained to participants that they would be categorizing stimuli into paired categories (e.g., “Good – Flower” and “Bad – Insect”). Participants indicated the correct category for the stimulus by marking the correct side for the appropriate group. Participants were given three seconds to examine the categories for each task, and then 20 seconds to categorize up to the 40 stimuli on the page. For each participant the first task was a training task in which they were required to correctly categorize “Good – Flower” and “Bad – Insect”. For the critical trials, participants were required to categorize “Homosexual – Pleasant” and “Heterosexual – Unpleasant” and then switch the pairing to “Homosexual – Unpleasant” and “Heterosexual – Pleasant.” The order of the critical trials as well as the left or right column placement of the categories was counterbalanced across all conditions. The following stimulus words were categorized by participants: *homosexual* (Gay, Lesbian, Homosexual); *heterosexual* (Straight, Heterosexual); *pleasant* (good, love, terrific, joy, happy); *unpleasant* (hatred, poison, evil, vomit, bad). Responses on the *Paper Format IAT* were scored and analyzed using the “product: square root of difference” approach (Lemm et al., 2008). This approach uses the square root of the difference between the number of items completed in

² There were no significant differences on any self-report or implicit measure between mass tested or individual testing conditions.

the two critical blocks and allows the researcher to retain both difference score and ratio information in the IAT effect and appears to be most resilient to extreme scores. The resulting scores were interpreted as participants' implicit attitudes towards homosexual men and women.

Following the three paper format IATs, participants were asked to complete a very brief version of the online survey described above. It contained measures of self-reported religiousness and spirituality including both a state and trait version of the daily spiritual experiences subscale of the *Brief Multidimensional Measure of Religiousness/Spirituality* (Fetzer Institute, 1999), the *Attitudes Towards Lesbians and Gay Men Scale – Short Form* (Herek, 1994), a three-item version of the *Right-Wing Authoritarianism Scale* (Altemeyer & Hunsberger, 1992), the thermometer attitude items including all of the groups from the online survey, several items to assess specific political opinions and finally items assessing participant history were included (e.g., “Have you ever been in this particular room before?”). After completing the survey participants were debriefed as a group or individually.

Results

Consistent with previous research, across all contexts (in-person and online) self-reported religiousness/spirituality and associated constructs (i.e., daily spiritual experiences and right-wing authoritarianism) correlated with more negative attitudes towards value violating outgroups (e.g., homosexual persons, atheists, etc. Table 4 provides descriptives and correlations between self-reported religiousness/spirituality measures and attitudes towards outgroups.) However, across all contexts self-reported religiousness/spirituality and associated constructs did not systematically correlate with

Table 4
Zero-Order Correlations Between Religiousness/Spirituality and Attitudes Towards Social Groups.

Variable	1	2	3	4	5	6	7	8	9	10	11	<i>M</i>	<i>SD</i>	α
1. Religiousness	--											4.76	1.58	--
2. Spirituality	.68†	--										5.24	1.60	--
3. Intrinsic	.65†	.67†	--									5.86	1.86	.92
4. Extrinsic	-.14	-.25*	-.25*	--								4.15	1.64	.88
5. DSE	.55†	.67†	.69†	-.39†	--							3.97	1.34	.93
6. RWA	.26*	.21	.16	.01	.25*	--						5.10	1.12	.68
7. Implicit Prejudice	-.18	-.12	-.17	.01	.26*	-.14	--					4.94	5.02	--
8. ATLG	-.38†	-.51†	-.50†	.45†	-.60†	-.24*	.32*	--				4.33	1.69	.95
9. Muslims	-.04	.07	.05	.32**	-.03	-.06	.05	.30**	--			6.39	2.58	--
10. Atheists	-.29**	-.24*	-.20	.15	-.28**	-.16	.11	.53†	.64†	--		5.49	2.97	--
11. Agnostics	-.22*	-.11	-.11	.24*	-.24*	-.22*	.05	.40†	.71†	.76†	--	6.11	2.72	--
12. Protestants	.32**	.33**	.34†	.01	.34†	.13	-.27*	-.23*	.35†	.08	.30**	8.02	1.94	--

Note: Data represent post-test scores. DSE = state level spiritual experience, RWA = Right Wing Authoritarianism, ATLG = Attitudes towards Lesbians and Gay Men. * $p < .05$, ** $p < .01$, † $p < .001$.

more conservative political attitudes (e.g., more restrictive attitudes towards abortion, marijuana, physician assisted suicide, and immigration. Table 5 provides descriptives and correlations between self-reported religiousness/spirituality measures and political attitudes).

Analyses of Variance (ANOVAs) were performed to examine the potential influence of physical context on in-person ratings of attitudes towards outgroups and political attitudes. Between the four possible physical contexts, participants tested in a non-religious context in the presence of other participants reported significantly colder attitudes towards African American and Hispanic persons, and more conservative political attitudes towards physician-assisted suicide, the separation of church and state, and egalitarian initiatives (see Table 6). An examination of differences in online pre-test scores revealed that participants in the non-religious, mass tested condition reported higher right-wing authoritarianism, religious fundamentalism, more negative attitudes towards outgroups and more conservative political attitudes in the online pre-test. Entering online pre-test attitudes as covariates in Analyses of Covariance demonstrated that differences in post-test attitudes between conditions were likely due to pre-existing attitude differences between groups (see Table 6). Further, due to unequal distribution of participant errors across conditions, data from only nine participants in the mass-test non-religious condition were analyzed.

Consequently, subsequent analyses examined differences between religious contexts and non-religious contexts grouped across massed or solitary testing conditions. A series of one way ANOVAs revealed no significant differences between religious and non-religious conditions on attitudes towards outgroups or political attitudes.

Table 5
Zero-Order Correlations Between Religiousness/Spirituality and Political Attitudes.

Variable	1	2	3	4	5	6	7	8	9	10	11	<i>M</i>	<i>SD</i>	α
1. Religiousness	--											4.76	1.58	--
2. Spirituality	.68†	--										5.24	1.60	--
3. Intrinsic	.65†	.67†	--									5.86	1.86	.92
4. Extrinsic	-.14	-.25*	-.25*	--								4.15	1.64	.88
5. DSE	.55†	.67†	.69†	-.39†	--							3.97	1.34	.93
6. RWA	.26*	.21	.16	.01	.25*	--						5.10	1.12	.68
7. Implicit Prejudice	-.18	-.12	-.17	.01	.26*	-.14	--					4.94	5.02	--
8. Liberalism	-.37†	-.33**	-.24*	.22*	.23*	-.26*	-.08	--				3.56	1.25	--
9. Abortion	-.20	-.30**	-.40†	.24*	.39†	-.02	.01	.34†	--			2.86	1.18	--
10. Marijuana	-.17	-.11	-.21	.12	.15	-.31**	-.26*	.20	.18	--		2.26	1.02	--
11. Physician Suicide	-.17	-.07	-.13	.18	.14	-.11	-.23	.26*	.37†	.24*	--	1.98	1.02	--
12. Immigration	-.20	-.13	.05	.19	.03	-.36†	.21	.40†	.10	.12	.02	2.71	1.33	--

Note: Data represent post-test scores. DSE = state level spiritual experience, RWA = Right Wing Authoritarianism. * $p < .05$, ** $p < .01$, † $p < .001$.

Table 6
Means, Standard Deviations and ANOVAs/ANCOVAs for Political and Racial Attitudes.

Attitude Variable	Religious Context				Control Context				<i>F</i>
	Mass Test		Individual		Mass Test		Individual		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
African Americans	7.82	1.79	8.20	1.51	6.11	2.76	7.75	1.74	2.80*
Latino Americans	8.13	1.63	8.35	1.46	5.78	2.91	8.10	1.68	5.05**
Physician Suicide	2.08	1.11	1.70	.92	1.33	.71	2.35	.88	2.90*
Church/State	4.38	1.80	3.80	2.19	2.33	2.06	4.25	2.05	2.89*
Minority Aid	5.00	1.73	5.56	1.35	3.56	2.30	5.05	1.79	2.76*
African Americans†	7.74	.22	7.56	.32	7.60	.50	7.88	.31	.207
Latino Americans†	7.96	.48	7.85	.29	7.64	.48	8.09	.29	.263
Physician Suicide†	2.00	.11	1.80	.16	1.63	.23	2.22	.15	2.00
Church/State†	4.28	.26	3.87	.36	2.81	.54	4.08	.38	2.04
Minority Aid†	4.98	.19	5.14	.27	4.54	.40	5.05	.26	.71

Note: *F* values are for the overall model. * = $p < .05$, ** = $p < .01$. For all variables, the control mass tested condition was significantly different from all other conditions ($p < .05$). †: These rows present estimated means with pre-test measures entered as covariates. Reported *F* values are for effect of condition.

Participants in religious contexts did not report significantly higher religiousness, spirituality or state-level spiritual experiences. Including online pre-test scores as covariates in a series of ANCOVAs produced a similar pattern of results (see Table 7).

Implicit Attitudes

There was, however, a significant difference between religious context conditions on implicit attitudes towards homosexual men and women as assessed by the Paper Format IAT¹ [religious context: $M = -5.88$, $SD = 5.47$; control context: $M = -2.96$, $SD = 3.22$; $F(1,60) = 4.89$, $p = .031$] Across context conditions significant correlations were observed between the implicit and explicit measures of attitudes towards lesbians and gay men (ATLG). In order to further investigate the influence of context on the implicit measure of attitudes towards homosexual men and women, pre-existing attitudes and self-reported religiousness were entered as covariates. The ANCOVA was significant [$F(3,56) = 4.27$, $p = .009$]. Participants in a religious context expressed significantly greater implicit prejudice towards homosexual persons even when controlling for self-reported pre-existing attitudes and religiousness (see Table 8).

Discussion

The present study provides support for an intergroup bias (Hewstone et al., 2002) interpretation of the relationship between religion and prejudice. Religious intergroup bias is expressed through both *outgroup derogation* (Harper, 2007) and *ingroup favoritism* (Jackson & Hunsberger, 1999).

¹ Twenty six participants for whom data were collected were excluded from the analysis based on criteria set forth by Lemm et al. (2008). Participants with fewer than three correct responses on the categorization task or with systematic errors (e.g., categorizing only one set of terms, categorizing only one term wherever it appeared on the page, ignoring the target labels switching) resulting in more than 50% error rates were removed from the analysis.

Table 7
Means, Standard Deviations and ANOVAs for Political and Racial Attitudes, Merging Mass and Individual Contexts

Attitude Variable	ANOVA					ANCOVA				
	Religious		Control		<i>F</i>	Religious		Control		<i>F</i> *
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
African Americans	7.95	1.70	7.24	2.20	2.77	7.68	.26	7.68	.18	.13
Atheists	5.19	2.79	6.10	3.27	1.85	5.29	.31	5.98	.44	1.60
Religiousness	4.80	1.66	4.68	1.42	.11	4.79	.14	4.70	.20	.13
Politics	3.68	1.23	3.32	1.28	1.60	3.63	.11	3.42	.16	1.12
Physician Suicide	1.95	1.06	2.03	.94	.14	1.93	.09	2.03	.13	.43
Church/State	4.19	1.94	3.66	2.21	1.33	4.14	.21	3.66	.31	1.57
Minority Aid	5.19	1.62	4.59	2.04	2.23	5.03	.15	4.90	.22	.24

Note: * Reported *F* values are for effect of condition with pre-tested measures entered as covariates.

Table 8
Analysis of Co-Variance for Implicit Homosexual Prejudice by Pre-existing Attitudes and Self-reported Religion

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Context Condition	115.22	1	115.22	5.17	.027
ATLG	27.71	1	27.71	1.24	.269
Religiousness	78.25	1	78.25	3.51	.066
Error	1246.99	56	22.27		
Total	3014.98	60			

Note: $R^2 = .19$

That is, religious persons express more negative attitudes and disfavor outgroup members while simultaneously expressing more positive attitudes and favoring ingroup members. In the present study, across all contexts participants who self-reported higher levels of personal religiousness and religious experiences reported colder attitudes towards value-violating or value-opposed outgroups (e.g., homosexual persons and atheists) while simultaneously expressing more positive attitudes towards the relevant ingroup (i.e., Protestant Christians).

These results were consistent with previous research demonstrating that increased religiousness is associated with more positive attitudes towards Christians (Rowatt et al., 2005) and more negative attitudes towards gay men (Whitley, 2009), Muslims (Rowatt et al., 2005) and atheists (Johnson et al., in press).

Some theorists (e.g., Islam & Hewstone, 1993; Johnson et al., in press; Preston et al., 2010) have explained the paradoxical relationship between religiousness and prejudice (Allport, 1954) from an intergroup bias perspective. Specifically, Preston et al.

(2010) suggested that the overarching construct of religiousness is composed of both a *group* component and a *supernatural* component. Whereas the supernatural component of religiousness (e.g., individual morality, ideals, etc.) promotes egalitarianism and inclusion across nearly every major world religion (Coward, 1986), religiousness also functions as a social identity and is thus subject to pressures of ingroup protection and intergroup bias (Preston et al., 2010).

Further, and consistent with previous research, differences in religious orientation were associated with differences in attitudes towards different types of outgroups. Intrinsic or ends-driven religious orientation was associated with more egalitarian attitudes towards non value-violating outgroups (e.g., African Americans, Asian Americans) but with more prejudicial attitudes towards value violating outgroups (e.g., homosexual men and women, atheists and agnostics), replicating Hunsberger and Jackson's (2005) meta-analytic findings. Extrinsic, or means-driven religious orientation was associated with more egalitarian attitudes towards religious value-violating outgroups (e.g., homosexual men and women, agnostics). This relationship, however, may be due to covariance with more liberal political orientation ($r = .33, p = .002$) and lower personal interest in religion ($r = -.34, p = .001$).

Some researchers have suggested that persons high in intrinsic religiousness may hold these attitudes partially due to the expressed opinions of their organized religious groups (Hood et al., 2009; Rosik, 2007). That is, many religious groups in the United States forbid prejudice against racial groups, but do not forbid prejudice towards sexual orientation groups. Thus, examining the relationship between self-reported religiousness and attitudes towards various types of outgroups in a population with greater religious

diversity might elucidate the influence of expressed opinions of organized religious groups on intergroup attitudes.

The present data provided no evidence for a significant effect of presence in a religious or non-religious context on self-reported attitudes towards outgroups or political attitudes, even when controlling for potential differences in pre-existing attitudes. There was, however, evidence that religious contexts promoted more negative implicit attitudes towards homosexual persons, even when controlling for pre-existing attitudes and self-reported religiousness. These findings provide further evidence that religious context primes might influence implicit attitudes more strongly than explicit attitudes (Wittenbrink et al., 2001).

Although it is possible that context was simply ineffective as a religious prime, there are a few limitations to the present method that provide alternative explanations. First, as mentioned previously, there was an unequal distribution of participant errors across conditions, resulting in unequal cell sizes. Although the recruitment of a more religiously diverse sample by utilizing a more representative community population potentially would have increased the generalizability of results, the resulting attrition associated with asking participants to locate and be tested in a frequently novel environment limited the analysis and interpretation of data.

Second, the novelty of these contexts may have obscured any effects of their religious or non-religious nature. Several researchers have demonstrated that awareness of a subtle prime may influence the effectiveness of the prime (Bargh, 1989; Holland et al., 2005; Li, Moallem, Paller, & Gottfried, 2007). The contexts utilized as manipulations in the present study were novel to almost all participants (83% reported having never

been in the specific context before), were highly structured, and relatively obvious in their intent.

Although the present method succeeded in collecting data from participants inside religious and non-religious contexts that they might encounter in their daily lives, due to the nature of the study those contexts no longer resembled the religious and non-religious settings that participants might actually encounter. The result was that the contexts were less ecologically valid than originally intended, and thus may have obscured the influence of a more subtle and natural presentation. This may not have impacted context-based changes in implicit attitudes, as these attitudes are less subject to deliberate control (Fiedler & Bluemke, 2005). The development of more subtle context priming methods to allow a passive, unintentional and more non-conscious influence may avoid the complexities associated with deliberative processing and allow the activation of religious constructs outside of conscious awareness (Bargh & Chartrand, 2000).

CHAPTER FOUR

Study Three¹

Introduction

A sizable portion of the empirical work in the science of religiousness has focused on understanding the relationship between religiousness and prejudice. Early studies (e.g., Adorno, Frenkel-Brunswik, Levinson, & Stanford, 1950) have been reviewed several times in the literature (see Batson et al., 1993; Hunsberger, 1995; Hunsberger & Jackson, 2005) and focus on the positive relationships between various approaches to religiousness and increased prejudiced attitudes. Recent meta-analyses have further supported these findings. A recent analysis of 55 studies demonstrated that greater religiousness significantly predicted negative attitudes towards racial outgroups (Hall, Matz, & Wood, 2010). Further, a meta-analysis of 64 studies of religiousness and attitudes towards lesbian women and gay men demonstrated that nearly all measures of religiousness were negatively associated with attitudes towards homosexual persons (Whitley, 2009). Given that nearly every world religion contains some encouragement to include others and treat others as one wishes to be treated, these findings seem paradoxical.

This paradox could be partially explained by intergroup bias (Hewstone et al., 2002). Religious intergroup bias has been shown to take two forms: 1) *ingroup favoritism*, in which religious individuals show favor towards their own ingroup members

¹ Study Three as provided in this chapter is accepted for publication in the International Journal for the Psychology of Religion (LaBouff, Rowatt, Johnson, & Finkle, 2011).

(Jackson & Hunsberger, 1999), and 2) *outgroup derogation*, in which religious individuals show disfavor towards outgroup members (Harper, 2007). Religious intergroup bias exists among multiple religious groups, including non-Christians (Islam & Hewstone, 1993) and is suggested to underlie the *group* component of religion. The *group* component represents religion as a social identity or category and has goals associated with protecting and cooperating with the ingroup (Preston et al., 2010). Other traits which serve to protect the ingroup are associated with religiosity as well, such as traditionalism (Inglehart & Baker, 2000) and political conservatism (Roccas, 2005). In contrast to the *group* component, the *supernatural* component of religion represents the virtue or morality associated with religiosity (e.g., Biblical teachings). Whereas the supernatural component of religion promotes tolerance towards outgroups, the group component of religion promotes intolerance towards outgroups (Preston et al., 2010). This dualistic nature of religiosity may help explain the paradox of religiosity and attitudes towards others.

Priming Methods in the Psychology of Religion

The link between religion and intergroup bias extends to findings in priming research. For instance, when primed with religious concepts, individuals have shown increases in both racial prejudice (Johnson et al., 2010; Preston & Ritter, 2011) and value-violating prejudice (e.g., gay men/lesbian women, Muslims, atheists; Johnson et al., in press). These increases in prejudice occur despite pre-existing levels of religiosity (Johnson et al., in press). Further, McKay et al. (2009) found that activating religious concepts subliminally may increase the probability of altruistic punishment of ingroup defectors. Altruistic punishment has been suggested as a mechanism for human

cooperation (Bernhard et al., 2006) and thus could indicate an increase in favoritism or protection of the ingroup when religiousness is activated. Further, Shariff (2009) demonstrated that religious concept activation resulted in allocation of more money to ingroup members than to outgroup members in an anonymous dictator task.

Johnson et al. (2010) recently investigated negative attitudes towards African Americans as a possible outcome of activation of religious concepts. In a series of studies, participants completed a lexical decision task (LDT) which subliminally presented Christian words (e.g., Bible, Jesus, heaven) or neutral words (e.g., shirt, butter, hammer) as priming stimuli. Regardless of the preexisting religiousness of the participant, activation of religious concepts significantly increased both negative affect towards African Americans and covert prejudice towards African Americans. These findings indicate that the activation of religious concepts in a laboratory setting may increase both ingroup favoritism and outgroup derogation.

Ecological validity of priming. Rarely, however, are people confronted with carefully controlled subtle stimuli outside of a laboratory. The more specific and intricate priming methods become in the psychology of religion, the less likely they are to emulate activation that might occur spontaneously in everyday life. Nisbett (2003) has suggested that everyday human life is full of constant contexts in which a variety of constructs might be activated depending on attention, salience, previous experience, and a multitude of other factors.

A handful of studies have indicated that subtle presentations of seemingly irrelevant stimuli in a broad context can function as an effective concept prime. For instance, the presence of briefcases rather than backpacks increased the likelihood of

competitive behavior and attributions (Kay et al., 2004). Persons voting in a church were more likely to endorse conservative candidates and policies, and those primed with religion were less supportive of value-violating outgroup members (Rutchick, 2010). Persons who voted in a school were more likely to support school funding initiatives than persons voting in other buildings (Berger et al., 2008). Presenting a sports drink rather than a bottle of water resulted in the construal of challenge as positive and resulted in increased endurance on physical tasks (Friedman & Elliot, 2007). And supermarket shoppers were more likely to purchase French wine when French (rather than German) music played nearby (North et al., 1999).

Priming religion with situational context. A few studies have demonstrated the possibility of activating religious concepts using religious contexts. Participants in Belgium were more likely to help a homeless person rather than an immigrant when the person in need of help was presented outside a church rather than outside a civic building (Pichon & Saroglou, 2009). Given the reviewed research, it appears that the situational context prime may have been effective in influencing attitudes and behavior in the direction of religious norms and stereotyped attitudes that a religious person may possess (Pichon et al., 2007).

Similar methods have indicated that situational context primes may be effective in altering attitudes towards outgroups. The presentation of an African American face with an urban or blank background significantly increased the speed of categorizing negative African American stereotypes relative to the presentation of an African American face in a religious background (i.e., a church; Barden, Maddox, Petty, & Brewer, 2004; Wittenbrink et al., 2001).

One limitation of these studies is that they use images of religious contexts instead of more ecologically valid presentations of religious stimuli. Considering the complexity of the stimuli that might be encountered in everyday life, it is worth investigating the relationships between presence in a natural religious context and attitudes towards outgroups relevant to a particular culture, particularly in a sample outside the North American Protestant “box” (Hood et al., 2009).

The primary goal of the present study was to examine the effects of religious or non-religious contexts on self-reported attitudes towards various groups. Given research demonstrating that laboratory-based priming methods increase intergroup bias, it is reasonable to assume that the presence of a genuine religious context may effectively prime religious norms and thus ingroup defense even in a multinational, multicultural sample.

The following predictions will be examined:

The presence or absence of a religious physical context will be associated with differences in self-reported religiousness. Constructs associated with religiousness (e.g., self-reported general religiousness and spirituality, political conservatism) will be significantly higher when tested in a religious context (i.e., a churchyard) than when tested in a non-religious context (i.e., a town square.)

Participant ratings of attitudes towards target outgroups will reflect increased negativity towards outgroups. Multicultural participants will self-report significantly stronger negative attitudes towards a variety of outgroups in a religious context than in a non-religious context.

Methods

Participants

Ninety-nine ($n = 99$) adults (48 men and 51 women; M age = 32 years, $SD = 13$) were recruited for this study as they were walking by either a religious or non-religious landmark in Maastricht, the Netherlands or London, England. Participants were diverse in both religious affiliation (39% no affiliation, 28% Catholic, 23% Protestant, 3% Muslim, 2% Jewish, 1% Buddhist and 2% “other”) and nationality (28% Dutch, 12% American, 12% British, 5% German, 4% Belgian, 4% Canadian, 3% Italian, 2% each Indian, Polish, Irish, Spanish and Australian, 1% each Hungarian, Romanian, Japanese, Chinese, Greek, New Zealander, Ethiopian, Brazilian and Welsh). More than 94% of participants self-reported English language proficiency at “average” or higher.

Measures and Procedures

Context condition. Pretesting for appropriate context locations in Maastricht, the Netherlands was conducted to locate two sites that produced similar ratings of beauty, familiarity and pedestrian traffic density while one contained wholly religious architecture and the other contained civic buildings (see Figures 3 and 4). Researchers selected only participants who were passing by the structures. At no time during data collection did any participant enter or leave either building. Researchers randomly determined in which context data would be collected each day, and then utilized a table of random numbers to approach the n th adult who passed by a particular location. Participants were asked (in English) if they were willing to complete a short survey (also in English) about their attitudes and opinions, and after agreeing were presented with an

informed consent form detailing the procedure and their rights as a participant. When participants were approached, the researcher stood in a particular location to ensure the participants' visual field included the religious ($n = 39$) or non-religious ($n = 60$) context. To examine possible influences of language barriers or local culture, some data were collected at religious (Westminster Abbey) and non-religious (Parliament) sites in London, England ($n = 19$). For each data collection session, the researchers collected information regarding the weather, temperature and time of day¹.

Self-report measures. After a participant agreed to participate, they were provided with a two page survey. The survey first included items measuring several demographic variables (i.e., gender, age, ethnicity, English language proficiency, religious affiliation); followed by several attitude thermometer items designed to measure general psychological warmth or coldness towards the following groups (0 = very cold; 10 = very warm): Africans, Asians, Europeans, Arabic persons, Foreigners, Rich, Poor, Christians, Jews, Muslims, Gay men, and Lesbian women²; and finally items designed to assess self-reported religiousness, spirituality, belief in God and religious importance measured through single item measures (e.g., "To what extent do you consider yourself a RELIGIOUS person?" 1 = Not at all; 7 = Very much; "How important is religion to you?" 1 = not at all important; 7 = extremely important; "Do you believe in God?" yes, no, uncertain), and a single-item measure of political conservatism/liberalism (1 = extremely conservative; 7 = extremely liberal).

¹ There were no significant differences between nationalities of participants, countries of collection, weather conditions or times of day.

² Given the expected diversity of the sample, target groups were selected to represent attitudes towards a wide variety of groups unrelated to the religious context. Groups were selected to represent religious outgroups, religious value violating outgroups, racial outgroups and social status outgroups.



Figure 3. Pretested religious context in Maastricht, the Netherlands – Sint Janskirk & Sint Servaasbasilik



Figure 4. Pretested control context in Maastricht, the Netherlands – Markt Square

Results

Self-reported belief in God did not differ between or across conditions. In the religious context condition, 54% of participants indicated they believed in God while 46% indicated they did not believe in God or were uncertain. In the control condition, 42% indicated belief while 58% did not believe or were uncertain, $\chi^2 = 1.58$, *n.s.*

Self-reported religiousness and spirituality differed between groups. Scores on a single item measure of religiousness were higher in the religious ($M = 3.85$, $SD = 1.23$) than the control condition ($M = 3.07$, $SD = 1.86$), $F(1,97) = 5.34$, $p < .05$. Scores on a single item measure of spirituality were also higher in the religious ($M = 4.08$, $SD = 1.31$) than the control condition ($M = 3.44$, $SD = 1.48$), $F(1,96) = 4.77$, $p < .05$.

There was a significant difference between context conditions for self-reported political conservatism/liberalism. Participants in a religious context expressed significantly more conservative attitudes ($M = 3.91$, $SD = 1.28$) than participants in a control context ($M = 4.62$, $SD = 1.55$), $F(1,84) = 4.91$, $p < .05$.

Finally, participants in the religious context self-reported significantly more negative attitudes towards nearly every target group. The only non-significant difference between conditions was for attitudes towards Christians³. Please see Table 9 for descriptives and one-way ANOVAs for each target group.

³ All attitude items remained significant when participants from London were removed from analysis except for attitudes towards foreigners $p = .12$

Table 9
Mean differences between religious and control conditions on attitudes towards groups

Group	Condition		<i>F</i>
	Religious	Control	
African	6.12 (1.93)	7.75 (1.93)	15.98***
Asian	6.24 (2.05)	7.75 (1.96)	12.51***
European	7.16 (2.20)	8.42 (1.60)	10.05**
Arabic	5.67 (2.45)	7.24 (2.25)	9.90**
Foreigners	6.81 (1.70)	7.62 (1.89)	4.37*
Rich	6.35 (1.96)	7.40 (2.10)	5.83*
Poor	6.11 (2.03)	7.49 (1.95)	10.71**
Christian	6.62 (1.93)	7.27 (2.51)	1.77
Jewish	6.46 (2.06)	7.44 (2.21)	4.54*
Muslim	5.81 (2.05)	6.84 (2.37)	4.58*
Gay men	5.78 (1.90)	7.29 (2.39)	10.33**
Lesbian women	5.69 (1.96)	7.24 (2.38)	10.43**

Note: * $p < .05$, ** $p < .005$, *** $p < .001$

Discussion

Participants in a religious context self-reported higher levels of religiousness and spirituality than persons in a non-religious context. Both the religious and non-religious contexts were located along major pedestrian paths and neither were entered by any participant in the study (i.e., participants were passing by the buildings). Although it could be that people who have higher baseline religiousness may be more likely to pass by a religious context, the random selection of passersby as participants, the heavy pedestrian traffic and particularly the insignificant difference between proportion of individuals reporting belief in God across conditions help reduce this possibility. The differences observed in these single-item measures could represent increased salience and accessibility of religious concepts and norms, the presumed result of laboratory-based religious priming studies.

Consistent with the theory that ecological priming may increase intergroup bias, participants in a religious context self-reported significantly more negative attitudes towards every non-Christian group (see Table 9). Most interestingly, these more negative attitudes towards non-Christian groups were held by a very diverse (and largely non-Christian) sample.

This finding coincides with the emerging literature on priming religion and prejudice, particularly since the only group for whom persons in a religious context were not significantly more negative towards was the group represented by the religious context (i.e., Christians) even if participants were not themselves members of the group their attitudes may have been defending. Previous research has indicated that religious persons show favoritism in attitudes towards other religious persons but not towards

non-religious groups (Jackson & Hunsberger, 1999). The increased salience and accessibility of religiousness has led to both ingroup favoritism (McKay et al., 2009; Shariff, 2009) and outgroup derogation (Johnson et al., 2010) in laboratory settings and appears to function similarly with more ecologically valid priming methods. The present study not only adds to the growing body of evidence that religious primes are effective in influencing attitudes towards target groups for both religious and non-religious persons but also demonstrates that these effects can occur outside of a laboratory in the daily life of persons who pass by religious spaces by choice or by chance.

It is possible that these subtle situational context primes may operate through the activation of norms and group stereotypes associated with the context. For example, participants primed with images of a library and the goal to visit the library demonstrated increased concept accessibility of silence and actually spoke more softly in a subsequent task (Aarts & Dijksterhuis, 2003). Because participants did not have extensive experience being in libraries, the authors argued that normative social influence may be responsible for changes in behavior after these subtle presentations. Further, persons voting in religious contexts were more likely to support policies consistent with stereotyped religious opinion (i.e., conservatism, anti-homosexual attitudes) and religious participants shown ecclesiastical images were less likely to extend aid to value-violating outgroup members and more likely to extend aid to persons who did not indicate group membership (Rutchick, 2010). Thus, even though participants may not themselves be overtly religious, normative cultural knowledge and the salience of religious concepts may encourage participants to respond more conservatively and negatively towards outgroups when exposed to religious contexts.

The present study was limited by only being able to examine mean differences between groups. The increased generalizability of an ecological and multi-national sample came with the consequence of being unable to examine changes in participant attitudes as is often done in laboratory-based studies. Whereas the demonstration that groups did not differ significantly in their belief in God and that no participants actually visited the religious or non-religious structures helps to mitigate concerns about sampling bias, a demonstration of similar effects that allows for the measurement of preexisting attitudes would be beneficial.

One strength of the studies on situational context primes of religion (including the present study) is that participants come from diverse populations. Since situational context primes may operate on the basis of norm activation, and norms are learned culturally (Aarts & Dijksterhuis, 2003), it is particularly interesting that such a diverse and multi-cultural sample was consistent with research on priming religion in American undergraduate students. Given that the largest differences between Protestant religious norms across political cultures involve attitudes towards outgroups and political ideals (e.g., when primed with religiousness, Americans demonstrate more conservatism and work harder at a task than Canadians; Uhlmann, et al., 2011), scientists interested in the subtle activation of religious concepts would benefit from a line of research comparing the effects of ecologically valid religious stimuli across religious and political cultures that are even more diverse than the present study. Research investigating the effect of priming dominant and non-dominant religions in traditionally non-Christian cultures would help to clarify the possibility of intergroup bias activation as a mechanism for the

effects of priming religion across religious and political cultures (Cohen & Hill, 2007; Cohen & Rozin, 2001).

Study three is an important step towards understanding the effects of religious stimuli in ecologically valid contexts. If the effects of priming religiousness in a laboratory setting are to be understood and applied effectively, researchers must understand how controlled priming methods generalize to everyday life. Given the fact that religious contexts are among the most common political polling places in the United States (Berger et al., 2001) and the present study indicates differences in political and social attitudes associated with those contexts, a clear understanding of these effects could have far-reaching implications even outside the realm of the psychology of religion.

CHAPTER FIVE

Study Four

Introduction

The previous three studies provide some indication that subtle presentations of religious stimuli in a natural context can activate representations of religiousness. The primary goal of the fourth study was to investigate the possibility of merging laboratory control and subtle ecologically valid manipulations in a relatively religious American sample. Williams and Bargh (2008) demonstrated that brief exposures to everyday stimuli influenced attitudes and behaviors as complicated as impression formation. In their classic study, participants were asked to hold a hot or iced coffee beverage for a few moments while the experimenter took down their information on the way to the research lab. They found that the temperature of the beverage held momentarily by the participant significantly influenced the participant's report of the psychological warmth or coldness of a subsequently described person.

This type of ecologically valid priming method is particularly interesting because it combines stimuli that are not only conceivable in the average participant's life (e.g., being asked to hold a cup of coffee, attending an event in or around an overt religious setting) but also stimuli that are likely to occur to an average participant with some frequency. That is, the goal is to develop priming methods that produce non-conscious activation of religious cognition in a way that is reliably mimicked outside of the laboratory. Study four was designed to adapt the method of Williams and Bargh (2008) to religious priming and examine the effect of even more subtle and commonplace

religious stimuli on intergroup attitudes (e.g., intergroup bias, evaluations of a hypothetical group member) and political attitudes.

The following predictions will be examined in study four:

The brief presentation of subtle religious stimuli (e.g., a religious text) will influence participants' self-reported general religiousness and personal religious experiences relative to the presentation of non religious stimuli (e.g., a dictionary). Participants presented with a religious text will self-report significantly higher levels of general religiousness and personal religious experiences than participants presented with a similar non-religious text.

The presentation of different religious and cultural stimuli will subtly influence a variety of dependent measures. Further, presentation of a religious stimulus congruent with the participant's religion will produce different results from the presentation of a religious stimulus not congruent with the participant's religion. The presentation of an incongruent religious stimulus (e.g., a religious text from another religion) will significantly increase self-reported fundamentalism, authoritarianism, and political conservatism relative to a congruent religious text and a non-religious text.

The effect of a presentation of religious stimuli will differ from the effect of a presentation of non-religious but theoretically associated stimuli (e.g., a patriotic American text). While both stimuli may be likely to activate conservative political values, religious stimuli will show a greater change in attitudes for more morally based political attitudes (e.g., stem cell research as opposed to economic concerns).

Methods

Participants

A total of 152 undergraduate students (41 males, 112 females, M age = 19.95) were recruited for this study by visiting both online and traditional classrooms at McLennan Community College in Waco, Texas or through Baylor University's Sona research participation website. The sample was moderately racially diverse (56.6% Caucasian, 16.4% Hispanic, 11.8% African American, 9.9% Asian/Pacific Islander, .7% Native American, and 4.6% selected "other"). The sample was again largely Christian (66% Protestant, 19% Catholic) with other religious groups and irreligious persons comprising a minority of the sample (11% No religion, 2% Hindu, 1% Buddhist, 1% Muslim). Participants completed the same battery of tests through the Qualtrics online survey administration tool as in study two and were scheduled for an in-lab session at their convenience.

Measures and Procedures

Priming stimuli and procedure. Before arriving at their in-lab testing session each participant was randomly assigned to experience one of four levels of the priming treatment: Christian, Muslim, patriotic American, or control. Following the procedure described by Williams and Bargh (2008), each participant was met in the downstairs lobby of a university building by a research assistant. The research assistant wore a lab coat and was carrying a clip board with sign-in sheet, a cup of coffee, and two large books (which contained the priming stimulus.) The assistant introduced him or herself to the participant and asked if he or she would be willing to hold the books on the elevator

ride up to the lab so that the assistant could complete the sign-in form. All participants held the books while providing the researcher with their university ID number for participation credit.

The bottom and larger book was always the same Oxford Russian Dictionary (Dimensions: 10.2 x 7.9 x 2.3 inches. 4.8lbs. Covered in paper). The top book, cover facing the participant, was the religious prime manipulation. The stimuli included The Bible (Christian priming condition, $n = 41$), The Koran (Muslim priming condition, $n = 35$), Democracy in America (patriotic American condition, $n = 37$) and a blank white cover (control condition, $n = 39$). See Figure 5 for examples of the stimuli. All stimuli were pretested through Amazon's Mechanical Turk website¹ to ensure that they effectively represented the target groups and to assess evaluative differences between stimuli. Participants in the online stimulus pilot study were asked to what extent they felt happy, neutral, sad, afraid, angry, religious, spiritual, disgusted, patriotic, American, aggressive, part of a group, alone and peaceful for each stimulus.

Self-report measures. After reaching the laboratory participants were asked to place the books on a central table and were immediately provided with a self-report battery. First, participants were asked to rate their impressions of a hypothetical person. Adapted from the classic impression formation studies of Solomon Asch (1946, see Williams & Bargh, 2008), participants were given a brief description of “Donald” who was described as either a Christian ($n = 76$) or a Muslim ($n = 76$, randomly assigned), surrounded by generally positive dispositional qualities. In detail, Donald was described as intelligent, skillful, industrious, Christian/Muslim, determined, practical, and cautious.

¹ <https://www.mturk.com/mturk/welcome> See Buhrmester, Kwang, and Gosling (2011) for a review of Mechanical Turk as a data source

Participants were then asked to rate their impression of Donald on a twenty-one dispositional traits² using a one to seven Likert-like scale.

The survey further contained several measures from the self-report battery of study two. Participants rated the same series of target groups through attitude thermometers, and completed measures of self-reported religiousness and spirituality including single-item self-report measures, a version of the daily spiritual experiences subscale of the *Brief Multidimensional Measure of Religiousness/Spirituality* (Fetzer Institute, 1999), the 10-item version of the *Right-Wing Authoritarianism Scale* (Altemeyer & Hunsberger, 1992), a measure of *Revised Religious Fundamentalism Scale* (Altemeyer & Hunsberger, 2004). Participants also completed several items taken from the Baylor Religion Survey (Bader et al., 2007) designed to assess attitudes towards specific political issues (e.g., “How do you feel about the morality of embryonic stem cell research?”, “The federal government should protect the environment.”, etc.)

After completing the survey, participants were debriefed using an adapted version of the funneled debriefing method adapted from Bargh and Chartrand (2000) which both explained the nature of the study and probed for suspicion.

Results

An online pre-test of the stimuli utilized as primes in the present study (see Figure 5 for examples, data were collected through Amazon’s Mechanical Turk website, $n = 103$) demonstrated that the vast majority of participants were able to correctly identify the group each prime was designed to represent.

² The twenty one pairs of traits included the following traits and their direct antonyms: generous, wise, happy, good natured, humorous, sociable, popular, reliable, important, humane, religious, good-looking, persistent, serious, talkative, altruistic, imaginative, strong, honest, peaceful, and humble.

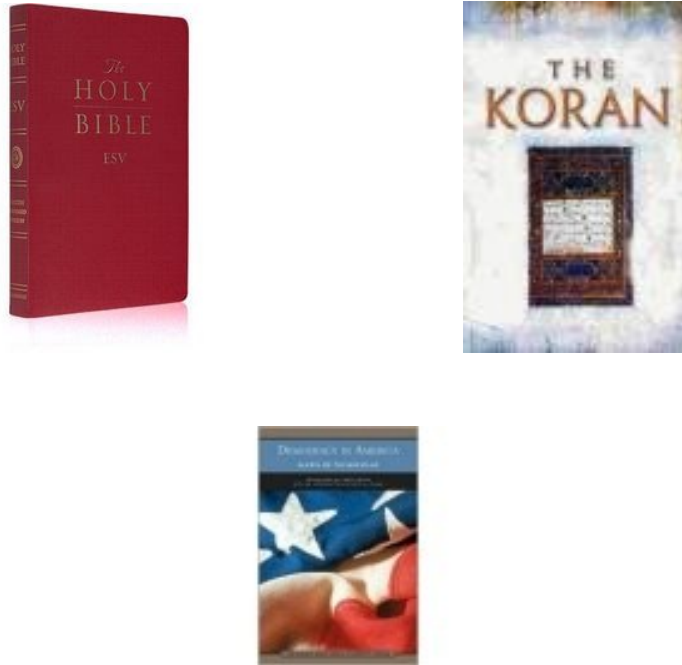


Figure 5. Priming stimuli for Study 4

Ninety-nine percent of respondents correctly paired the Bible with Christianity, 98% correctly paired Democracy in America with no religious group, and 97% correctly paired the Koran with Islam.

A brief examination of these pre-testing self-reported responses to images of each stimulus revealed subtle differences between reactions to an image of the Bible, Koran and Government text. A series of paired-samples t-tests reveals that images of the Koran were associated with significantly more negative responses than images of the Bible or a government text (e.g., greater sadness, fear, anger, disgust, and aggression with less happiness, patriotism, support, and peace. See Table 10). Further, comparisons between the government text and the Bible demonstrated that participants felt more religious and spiritual when presented with the Bible, and more patriotic and American when presented with the government text.

Similarly, participants in the laboratory study overall rated Donald more positively when he was presented as a Christian (ingroup member) rather than a Muslim (value-violating outgroup member.) To reduce the number of analyses, positive traits describing Donald were aggregated into a general positivity index composed of perceptions of Donald as wise, happy, good-natured, reliable, humane, altruistic, honest, and peaceful ($\alpha = .80$). Across priming conditions, Donald was viewed more positively when described as a Christian ($M = 5.38, SD = .62$) than when he was described as a Muslim [$M = 5.05, SD = .85, F(1,144)=6.38, p=.01, \eta^2=.04$].

Consistent with the previous studies, self-reported measures of religiousness and spirituality were associated with more negative attitudes towards value violating outgroups, more positive attitudes towards value-consistent ingroups and more conservative political attitudes across all priming conditions (see Table 11 for descriptives and correlations between self-reported religiousness and attitudes towards target groups).

Examining all four priming conditions simultaneously demonstrated that there were no significant differences between groups on self-reported religiousness and spirituality, right-wing authoritarianism, and religious fundamentalism, even when controlling for pre-existing self-report measures of the same constructs (See Table 12). This pattern of results persisted when collapsing across priming conditions and examining differences between primes including religious imagery and primes not containing such imagery (i.e., the Koran and Bible conditions compared to the government and control conditions, see Table 13).

Similarly, examining all four priming conditions simultaneously revealed no significant differences between priming conditions on single-item thermometer ratings of attitudes towards target groups, even when controlling for pre-existing attitudes by entering online pre-test ratings of the same groups as covariates in an ANCOVA (See Table 14). Again these patterns largely persisted when collapsing across religious priming conditions (See Table 15).

Finally, the examination of differences in evaluations of Donald across all four priming conditions revealed no systematic effect of prime condition on evaluations of Donald measured either through single-item attributes or the general positivity index. Further, there was no interaction between priming condition and Donald's religious affiliation. Across all individual traits, the presentation of Donald as a Muslim influenced attitudes much more than the book priming stimuli. Again, when collapsing across religious priming conditions there were significant effects for Donald's religious affiliation, but not for religious or non-religious priming conditions.

Discussion

Again the present self-report data support an intergroup bias theory of religious group relations. Both the stimulus pre-test and the in-lab self-report battery reveal associations between attitudes towards Christian value-violating outgroups (e.g., Muslims, atheists, etc.) and personal religiousness/spirituality. Across all conditions, participants demonstrated religious intergroup bias through both *outgroup derogation* (Harper, 2007) and *ingroup favoritism* (Jackson & Hunsberger, 1999).

Table 10
Paired-Samples T-tests for emotional response to priming stimuli

Reaction to image	Koran		Bible		<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Happy	2.54	.86	3.25	1.21	-4.74	.000
Sad	2.35	1.15	1.92	.97	3.38	.001
Afraid	2.24	1.18	1.92	1.04	2.67	.009
Angry	2.25	1.19	1.93	1.10	2.24	.027
Religious	2.54	1.16	3.29	1.38	-5.65	.000
Spiritual	2.55	1.17	3.31	1.32	-5.10	.000
Disgusted	2.20	1.20	1.87	1.09	2.26	.026
American	2.01	.98	2.35	1.07	-2.78	.007
Aggressive	2.03	1.06	1.64	.90	3.74	.000
Part of a Group	2.35	1.15	2.99	1.32	-4.31	.000

Table 11
Zero-Order Correlations Between Religiousness/Spirituality and Attitudes Towards Social Groups

Variable	1	2	3	4	5	6	7	8	9	10	11	<i>M</i>	<i>SD</i>	α
1. Religiousness	--											4.69	1.66	--
2. Spirituality	.57†	--										5.28	1.48	--
3. DSE	.71†	.65†	--									4.16	1.24	.93
4. Fundamentalism	.67†	.55†	.72†	--								.43	2.11	.94
5. Authoritarianism	.51†	.34†	.55†	.71†	--							4.83	1.39	.79
6. Lesbian women	-.22**	-.20*	-.27†	-.46†	-.50†	--						6.23	2.67	--
7. Muslims	-.07	.00	-.08	-.21**	-.21**	.63†	--					6.73	2.42	--
8. Atheists	-.33†	-.20*	-.32†	-.43†	-.35†	.64†	.66†	--				5.79	2.86	--
9. Protestants	.34†	.27†	.33†	.34†	.30†	.17*	.38†	.11	--			8.25	1.86	--
10. Liberalism	-.19*	-.07	-.17*	-.38†	-.44†	.32†	.14	.08	-.19*	--		3.61	1.36	--
11. Stem cell	-.33†	-.24**	-.38†	-.38†	-.31†	.28†	.22**	.17*	-.14	.31†	--	2.97	.91	--
12. Church/State	-.32†	-.19*	-.17*	-.36†	-.32†	.23**	.09	.27†	-.21**	.18*	.07	4.05	1.78	--

Note: Data represent post-test scores. DSE = daily spiritual experiences. * $p < .05$, ** $p < .01$, † $p < .001$.

Table 12
Estimated Means, Standard Error and ANCOVAs for Measures of Religiousness and Associated Constructs.

Measure	Religious Stimuli				Non-Religious Stimuli				F
	Bible		Koran		Government		Control		
	M	SE	M	SE	M	SE	M	SE	
Religiousness	4.59	.25	4.64	.28	4.56	.27	4.99	.26	.59
Spirituality	5.40	.23	5.21	.25	4.99	.24	5.50	.23	.90
Authoritarianism	4.38	.23	5.03	.24	4.81	.24	5.13	.22	2.08
Fundamentalism	.40	.33	.36	.36	.29	.34	.78	.33	.47

Note: All rows present estimated means with pre-test measures entered as covariates. Reported *F* values are for effect of condition.

Table 13
Estimated Means, Standard Error and ANCOVAs for Measures of Religiousness and Associated Constructs.

Measure	Religious Stimuli		Non-Religious Stimuli		<i>F</i>
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Religiousness	4.78	.19	4.61	.19	.41
Spirituality	5.31	.17	5.25	.17	.14
Authoritarianism	4.98	.16	4.69	.17	1.49
Fundamentalism	.55	.24	.38	.24	.25

Note: All rows present estimated means with pre-test measures entered as covariates. Reported *F* values are for effect of condition.

Table 14
Estimated Means, Standard Error and ANCOVAs for Measures of Attitudes Towards Groups and Political Attitudes.

Measure	Religious Stimuli				Non-Religious Stimuli				<i>F</i>
	Bible		Koran		Government		Control		
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Lesbian women	6.57	.42	5.83	.45	6.17	.44	6.29	.42	.50
Muslims	6.28	.38	6.90	.42	6.84	.40	6.89	.38	.61
Atheists	5.84	.45	5.94	.48	5.73	.47	5.66	.45	.07
Protestants	8.38	.29	8.08	.31	8.16	.31	8.37	.29	.25
Liberalism	3.72	.21	4.10	.22	3.46	.22	3.27	.21	2.70
Stem cell	3.08	.14	3.10	.15	3.10	.14	2.63	.14	2.70
Church/State	4.14	.28	4.25	.30	3.85	.30	3.98	.29	.35

Note: All rows present estimated means with pre-test measures entered as covariates. Reported *F* values are for effect of condition.

Table 15
*Estimated Means, Standard Error and ANCOVAs for Measures
of Attitudes Towards Groups and Political Attitudes.*

Measure	Religious Stimuli		Non-Religious Stimuli		<i>F</i>
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	
Lesbian women	6.23	.30	6.23	.31	.00
Muslims	6.56	.28	6.87	.28	.60
Atheists	5.89	3.25	5.70	.32	.18
Protestants	8.24	.21	8.27	.21	.01
Liberalism	3.90	.15	3.36	.15	6.21*
Stem cell	3.09	.10	2.86	.10	2.46
Church/State	4.19	.21	3.92	.20	.90

Note: All rows present estimated means with pre-test measures entered as covariates. Reported *F* values are for effect of condition. * = $p < .05$

That is, religious persons expressed more negative attitudes and disfavored outgroup members (e.g., homosexual persons and atheists) while simultaneously expressing more positive attitudes and favored ingroup members (i.e., Protestant Christians).

These results are consistent across all four of the presented studies, and are consistent with previous research indicating that increased religiousness was associated with more positive attitudes towards Christians (Rowatt et al., 2005) and more negative attitudes towards gay men (Whitley, 2009), Muslims (Rowatt et al., 2005) and atheists (Johnson et al., in press). These results continue to indicate that the paradoxical relationship between religiousness and prejudice may be explained through this intergroup bias perspective. Whether pre-existing in a predominantly protestant population or activated through the presence of a normatively religious context, the *group* component of religiousness (see Preston et al., 2010) promotes defense of the ingroup.

This component may promote the acceptance and internalization of attitudes overtly promoted by the religious groups of which participants are members (Duck & Hunsberger, 1999). Thus, future research investigating these relationships might benefit from a population of participants who are overtly religious but belong to religious groups that stress the *supernatural* component of religiousness (see Preston et al., 2010) or who proscribe prejudice against even these value-violating outgroups (e.g., members of a reform Jewish synagogue, students at Bangor Theological Seminary, etc.).

Researchers are converging on the idea that various nuances in priming methodologies may activate the religious group component or supernatural component of religiousness differently. Preston and Ritter (2011), for example, demonstrate that priming “religion” led to increases in cooperation among the ingroup (an activation of the group component which may lead to intergroup bias) whereas priming “God” led to increases in cooperation with outgroups. It appears that the subtle exposure to religious stimuli in the present studies (i.e., the religious structures in the previous studies and Donald’s group affiliation in study four) may better activate the *group* rather than *supernatural* components of religious cognition. Future research on the effects of subtle and ecologically valid religious primes would benefit from a focus on what types of religious cognitions these exposures may represent. Even though these data and others (see Rutchick, 2010) indicate that exposure to a religious context may encourage group-defensive attitudes and behaviors, there may be methods to subtly activate the more positive, moralistic and inclusive attitudes that are associated with the *supernatural* component of religiousness (Norenzayan & Shariff, 2008).

Study four was an attempt to develop a subtle method of activating religiousness in participants. Although the adaptation of Williams and Bargh's (2008) method was theoretically sound, it was, however, superseded by another religious prime. After participants were presented with a religious or non-religious text in passing, they were immediately asked to imagine themselves meeting a hypothetical person who was described as a member of a religious ingroup or an outgroup. Any potential effect of the religious or non-religious text presentation may have been superseded by activation associated with forming an impression of a target Muslim or Christian person.

Donald's religious affiliation, however, seemed to influence only perceptions of him. Being asked to imagine forming an impression of a hypothetical religious person did not significantly influence self-reported religiousness, spirituality, and related constructs, or attitudes towards outgroups when controlling for pre-existing self-reported religiousness and attitudes towards outgroups. Future research on the influence of religiousness and the activation of religiousness on impression formation should utilize a non-religious target, or a non-religious but still value-violating outgroup, in order to avoid potential interactions with priming stimuli.

General Discussion

Across four studies, the paradox of religiousness and prejudice was examined through self-report and priming methods in both a culturally evangelical laboratory setting and a culturally agnostic field setting. Across all cultures and methods, whether religious concepts were already salient in the culture examined, or whether they were activated by presence in a religious context, increased religiousness was associated with a

pattern of evaluative attitudes towards groups that is consistent with intergroup bias theory (Hewstone et al., 2002).

These data are consistent with findings reviewed in recent reviews of religion and intergroup attitudes, indicating that religiousness is associated with more negative attitudes towards racial and cultural outgroups, particularly value-violating groups (Hall et al., 2010; Johnson et al., 2011; Whitley, 2009). Further, the present data support previous research indicating that the relationship between religious orientation and attitudes towards various groups is relatively complex and culturally dependent (Hunsberger & Jackson, 2005). Participants in these present studies demonstrated that approaches to religiousness that were relatively cognitively rigid (e.g., fundamentalism and authoritarianism) were associated with attitudes that disfavored specific threatening outgroups and favored ingroups.

Perhaps most strongly, the present studies indicate that priming religiousness, particularly through subtle ecologically valid methods, is possible but difficult. Bargh (2006) discussed the difficulty encountered in these studies as the reduction problem of priming. That is, in a given context, participants have dozens of stimuli competing for their conscious and non-conscious attention, each of which may influence cognitions and attitudes in various ways (Nisbett, 2003). Several research teams have demonstrated that the activation of religious constructs through priming methods is seated in the culture in which those constructs are activated (see Sedikides & Gebauer, 2010; Uhlmann, et al., 2011). The primary limit for the presented studies conducted in the United States is that rates of personal religiousness and presumably religious activation were high in the pre-test of each sample. Across the 374 participants represented by the three American

samples, the average personal religiousness was 5.26 on a 7-point scale, and only 13% of participants expressed religious affiliations other than Protestant or Roman Catholic, compared to the 58% percent of participants reporting anosticism or atheism in study two in a pan-European sample.

While many models for mechanisms of the effect of activating religiousness through priming methods have been suggested (Newton & McIntosh, 2009), they all depend in some way upon stimuli increasing the salience and accessibility (see Higgins & King, 1981; Taylor & Fiske, 1978) of religiousness. For the American samples presented in these studies, it is possible that religiousness was already both salient and accessible and that the priming stimuli were not the most novel stimuli in the research scenario. If accessibility was already high and stimuli were subtle enough and not particularly novel, the stimuli intended to function as primes may have had limited effects. Given the effectiveness of religious contexts in a relatively atheistic sample in study three, combined with previous studies demonstrating effectiveness of subtle contextual primes (see Berger et al., 2008; Pichon et al., 2007; Wittenbrink et al., 2007), it seems that cultural differences between samples may influence which primes in a context have an effect on cognition and which may not (Duck & Hunsberger, 1999; Hood, Hill, & Spilka, 2008; Rosik, 2007). That is, since religious primes may function on the basis of the activation of norms (Aarts & Dijksterhuis, 2003; Hertel & Kerr, 2001), attempting to activate those norms in a culture where they are chronically active may be ineffective. Future studies should examine the influence of subtle religious stimuli in American populations that are more representative of American religious diversity. Similarly,

future studies should investigate the possibility of activating a culturally non-prevalent religion (e.g., Bhuddism in specific North American samples.)

Finally, the present data suggest that religious constructs, whether chronically active or activated by religious priming seem to activate the *group* component of religiousness (Preston et al., 2010) and promote attitudes that protect the religious ingroup (see Johnson et al., 2010; McKay et al., 2009; Shariff, 2009). Previous data have demonstrated how the activation of this *group* component of religiousness can ultimately result in support for egregious acts of war and terrorism in defense of the group (Ginges et al., 2009; Rothschild et al., 2009). Whereas the religious culture in the United States thankfully does not often provide opportunities for religious justifications of violence, there is mounting evidence in the present studies and in other published data that the activation of religious constructs promotes the institutionalization of prejudice and discrimination. Archival and experimental data (Berger et al., 2008; Rutchick, 2010) indicate that regardless of personal religiousness, persons primed with religion through incidental exposure or through voting in a church were more supportive of conservative initiatives that would promote intergroup bias institutionally (e.g., prohibition of homosexual unions).

In order to more fully investigate these potential patterns, future research should be conducted utilizing more religiously diverse samples and should focus on the development of priming methods that activate the *supernatural* rather than *group* components of religiousness (see Preston et al., 2010). These more *supernatural* components are associated with more egalitarian attitudes and are present in nearly every major world religion (Coward, 1986). Given the pattern of findings presented here

indicating that religious concept activation may influence even non-religious and politically liberal persons to shift towards more politically conservative attitudes, and the fact that religious contexts are the most common polling location in America, a pressing question remains regarding the influence of religious activation associated with voting in a religious context (Rutchick, 2010). Future research should investigate the effect of religious priming in polling places on voting behavior using real policy issues as the outcome of interest.

Whereas these data take an important step towards understanding the results of spontaneous and incidental religious activation, an underlying mechanism for the consistent relationship between religious activation and intergroup bias detailed here has yet to be uncovered (Newton, & McIntosh, 2009). Recent research on the effects of the hormone oxytocin, however, has revealed a promising avenue for future research. De Dreu et al. (2010) have demonstrated that male participants who self-administered oxytocin via inhalation demonstrated behavioral intergroup bias in a series of financial tasks. The pattern of ingroup defense and defensive aggression towards outgroups perceived to be in competition mirrors the types of intergroup bias that appears to result from both laboratory-based and field-based exposure to religious stimuli. Future studies investigating potential changes in oxytocin as a result of religious activation, or using the administration of oxytocin as a manipulation in concert with religious activation might reveal a biological mechanism for the pattern of results associated with priming religion. Further, differences in levels of oxytocin associated with different priming stimuli (e.g., “God” or “Religion”; Preston & Ritter, 2011) may elucidate subtle differences in the activation resulting from these primes.

These data are an example of the difficulties associated with the second generation of priming problems. Bargh (2006) describes investigations like those presented here as attempts to prevent the “running without yet knowing how to walk” (p. 148) that occurs when psychologists utilize priming methods without understanding the mechanisms through which they operate, their interactions with other stimuli and their interactions with pre-existing attitudes. The pattern of relationships within and between cultures in the present studies provides a first step towards addressing some of these second generation problems in priming research and towards a better understanding of how subtle differences in context may influence everything from intergroup attitudes to voting behavior.

APPENDIX

APPENDIX

Research Assistant Script and Materials for the Paper Format IAT

Once the Research Participant (RPs) is seated you begin by saying:

“You will be asked to complete a few self-report measures of personality and attitudes. But first, we need to measure your reaction time. When I tell you to turn the page, you will see two columns of circles. On the top of each of these columns will be two categories. On one side, you might see the words Flower and Good. On the other side, you might see the words Insect and Bad. Between each of the circles will be a word that fits in to one of these four categories. You might see the word “cockroach.” So you would place a checkmark in the box for the column “Insect and Bad.” You might see the word “Happiness,” a good word, so you would place a checkmark in the column for “Flower and Good.” Please start on the top left and work your way down and then across to the next column. Be as fast as possible and try not to make any errors. If you do make a mistake, don’t try to correct it, just move on to the next item.

You will have 3 seconds once I tell you to turn the page to look at the labels at the top, and then I will say “Go.” When I say go, start categorizing the terms in the middle until I say “Stop.” When I say stop, please do not turn the page, just put your pen down and listen to the instructions that follow.”

Using a stopwatch, have the participant turn the page. Pause three seconds and then say GO. Wait 20 seconds and then say STOP. The timing on this is very important, so please be conscientious. After they have finished the first page, say:

“There are two more of these categorization tasks. The next one will have different category labels from the first one. When I tell you to turn the page, you will have 3 seconds to look at the category labels before you start categorizing the words in the middle. When I say go, go. When I say stop, please stop and wait to turn the page until I tell you.”

Repeat these instructions for the 3rd piece of the categorization task telling them that the labels will be swapped on the final one and they should be aware of that before they turn the page. Give them the 3 seconds, and then the 20.

Homosexual Pleasant		Heterosexual Unpleasant	Homosexual Pleasant		Heterosexual Unpleasant
<input type="radio"/>	Gay	<input type="radio"/>	<input type="radio"/>	Lesbian	<input type="radio"/>
<input type="radio"/>	love	<input type="radio"/>	<input type="radio"/>	poison	<input type="radio"/>
<input type="radio"/>	Straight	<input type="radio"/>	<input type="radio"/>	Heterosexual	<input type="radio"/>
<input type="radio"/>	evil	<input type="radio"/>	<input type="radio"/>	good	<input type="radio"/>
<input type="radio"/>	Lesbian	<input type="radio"/>	<input type="radio"/>	Gay	<input type="radio"/>
<input type="radio"/>	terrific	<input type="radio"/>	<input type="radio"/>	evil	<input type="radio"/>
<input type="radio"/>	Homosexual	<input type="radio"/>	<input type="radio"/>	Straight	<input type="radio"/>
<input type="radio"/>	poison	<input type="radio"/>	<input type="radio"/>	love	<input type="radio"/>
<input type="radio"/>	Heterosexual	<input type="radio"/>	<input type="radio"/>	Homosexual	<input type="radio"/>
<input type="radio"/>	vomit	<input type="radio"/>	<input type="radio"/>	hatred	<input type="radio"/>
<input type="radio"/>	Straight	<input type="radio"/>	<input type="radio"/>	Heterosexual	<input type="radio"/>
<input type="radio"/>	joy	<input type="radio"/>	<input type="radio"/>	joy	<input type="radio"/>
<input type="radio"/>	Gay	<input type="radio"/>	<input type="radio"/>	Lesbian	<input type="radio"/>
<input type="radio"/>	hatred	<input type="radio"/>	<input type="radio"/>	vomit	<input type="radio"/>
<input type="radio"/>	Heterosexual	<input type="radio"/>	<input type="radio"/>	Gay	<input type="radio"/>
<input type="radio"/>	bad	<input type="radio"/>	<input type="radio"/>	happy	<input type="radio"/>
<input type="radio"/>	Straight	<input type="radio"/>	<input type="radio"/>	Straight	<input type="radio"/>
<input type="radio"/>	good	<input type="radio"/>	<input type="radio"/>	hatred	<input type="radio"/>
<input type="radio"/>	Lesbian	<input type="radio"/>	<input type="radio"/>	Homosexual	<input type="radio"/>
<input type="radio"/>	happy	<input type="radio"/>	<input type="radio"/>	bad	<input type="radio"/>

Figure A.1. Example of the Pencil and Paper IAT.

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