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Individual differences in religiosity as a function of cognitive ability and cognitive style

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ABSTRACT

The current study examines the degree to which individual differences in cognitive ability and cognitive style (rational thinking vs. experiential thinking) uniquely and jointly account for differences in religiosity. Using an array of measures of religiosity, results show that cognitive ability has a medium to large negative effect on various aspects of religiosity. Though also negatively related to religiosity, rational thinking style did not add significant unique effects, nor did it convey a significant indirect effect from cognitive ability. Experiential thinking was generally unrelated to ability but was positively related to some aspects of religiosity. Overall the results confirm that those with higher cognitive ability are less likely to accept religious doctrine or engage in religious behaviors and those with lower ability are more likely to accept religious doctrine and exhibit higher levels of fundamentalism. Cognitive style appears to play a lesser role in explaining individual differences in religiosity than cognitive ability.

1. Introduction

Religious or supernatural beliefs have been a part of human consciousness throughout human history. History also shows us that humans have invented multiple religions and a pantheon of deities. The acceptance of these myriad religious beliefs and concepts have waxed and waned throughout history. This clearly demonstrates two things. First, humans on average have a tendency to adopt supernatural systems to give meaning to and understand the world around them. Indeed, Park (2007) has codified religion as a *meaning system* consisting of cognitive, emotional and motivational components that shapes an individual's global belief, goals and as a result, sense of meaning. In other words, according to this perspective, religious beliefs work as a paradigm through which individuals observe, understand, interpret and evaluate their experiences and direct their behaviors. Indeed, for many people, particularly in the US, religion is a core part of their lives (Gallup, 1995; Pew Research Center, 2012). For these people, belief in supernatural deities and the associated doctrines shape a major part of their belief system and helps them to understand existential questions (Peterson, 1999). In addition, theological beliefs may provide a subjective sense that one's life is a part of larger system (Inzlicht, Mcgregor, Hirsh, & Nash, 2009; Inzlicht & Tullett, 2010).

Second, history demonstrates that the acceptance of religious beliefs will vary across individuals and across time. During the past century, psychologists have investigated the role that individual differences in core psychological traits play in the acceptance of these supernatural beliefs. In addition to personality, (e.g., Kandler & Riemann, 2013), education (e.g., Reeve & Basalik, 2011), and neurological structure (Inzlicht et al., 2009), it has been well established that cognitive ability is (inversely) related to the belief in deities and other aspects of religiosity (e.g., Argyle, 1958; Bertsch & Pesta, 2009; Howells, 1928; Larson & Witham, 1998; Lewis, Ritchie, & Bates, 2011; Nyborg, 2009; Reeve, 2009). For example, Bertsch and Pesta (2009) found that sectarianism (e.g., belief that one's religion is the only path to God) and scriptural acceptance (e.g., degree to which one

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accepts sacred texts as truth) are negatively correlated with IQ scores and measures of information processing ability. Likewise, Lynn, Harvey, and Nyborg (2009) show that IQ scores predict atheism rates across 137 nations: the higher the average IQ for a nation, the higher the rate of atheism. Similar findings have been reported at state level in the US. For example, Reeve and Basalik (2011) found that differences in the average IQ of states correlate $r = -.55$ with the average religiosity of residents in the state. Regardless of the specific conclusions one draws, this literature clearly demonstrates that there is a reliable inverse association between intellectual abilities and religiosity.

To explain this relationship, Nyborg (2009), Dawkins (2006) and others have suggested that people tend to gravitate toward belief systems that match their level of cognitive complexity. For example, Dawkins posited that individuals of higher intelligence have a capacity for scientific and skeptical thinking, which is incompatible with the concept of "faith" or unquestionable acceptance of religious beliefs. Additionally it has been hypothesized that individuals of lower intelligence are less likely to have the capacity for abstract thought and critical thinking, and thus more likely to either be unable to identify logical inadequacies in religious explanations or to willingly subscribe to religious doctrine as a means to find "uncontested and uncontestable answers" to cognitive complex questions. More generally, Reeve (2009) posited that these relations appear consistent with predictions from the *g*-nexus. Briefly, it has long been argued that *g* attains its importance because it reflects individual differences in the ability to successfully comprehend and function rationally in an increasingly cognitively complex world (Gottfredson, 1997, 2004; Hunt, 1995; Jensen, 1998). In such environments, high-*g* affords success, self-esteem, and effective rational decision making, whereas low-*g* places people at risk for failure, frustration, confusion, and reliance on mystical thinking. Thus, high-*g* people are better equipped to construct a complex cognitive framework consistent with a rational world, and make post-conventional moral decisions. As such, they are likely to reject dogmatic meaning systems that contain irrational beliefs; that is, they are likely to gravitate away from dogmatic religious beliefs and towards liberal religious beliefs, or scientific belief systems (Nyborg, 2009). In contrast, lower-*g* people are likely to find the world frustratingly complex, and thus are more likely to gravitate towards social systems that provide scripted and easily comprehended belief systems. In short, for lower-*g* individuals, it is likely that religion provides a substitute for a rational, scientific (and often cognitively complex) meaning system with a dogmatic (i.e., simplified and stable) belief system by which to make sense of the world.

These perspectives on the association between cognitive ability and religiosity suggest that some people are more likely apply rational analysis to the evaluation of religious concepts, whereas others less likely to do so. Such propositions appear quite consistent with dual-processing theories of cognition that posit that there are two systems of information processing: a rational (or analytic) system and an experiential (or intuitive) system (Epstein, 1994; Evans, 2008). The rational system is evolutionarily more recent, and operates according to an individual's understanding of rules, logic and reasoning. This system relies heavily on available cognitive resources, is slower, more deliberative and affect free. In contrast, the evolutionarily older experiential system operates in a more unconscious, rapid basis, based on the use of implicit cognitive heuristics, and often affect laden. For example, according to Cognitive Experiential Self-Theory (CEST; Kirkpatrick & Epstein, 1992), the experiential system itself is shaped by emotionally significant past experience.

Although these systems can operate either independently or and interactively, research suggests individuals vary in their natural tendencies to rely on one system or the other (Pacini & Epstein, 1999). These stable preferences for or habitual tendencies to engage in these systems of thinking are typically referred to as cognitive style (Messick & Fritzky, 1963; Pacini & Epstein, 1999). Although related, it is important to note the distinction between cognitive ability and cognitive style; the former reflects what people actually can do whereas the later reflects what they are inclined to do. Consistent with this distinction, prior research has shown positive associations between general cognitive ability and rational thinking style, whereas cognitive ability is generally unrelated to experiential thinking (Evans, 2008). That is, although the propensity to engage in rational thinking is related to the ability to do so, the propensity to engage in the evolutionarily familiar experiential style is not related to cognitive ability.

Based on this description of cognitive style, we would predict that rational thinking style would also be negatively related to religiosity similar to *g*. In contrast, one would expect that reliance on experiential thinking would lend itself towards the acceptance of religious belief systems. To date, only one study we know of has investigated this possibility. Shenhav, Rand, and Greene (2012) found that individuals who exhibit more intuitive thinking have a higher tendency to believe in God, and that these individuals also tend to believe in God with greater confidence. These authors also found that IQ scores and a measure of rational thinking style were correlated. Unfortunately, no attempt was made to disentangle or model the shared variance between ability (as measured by the IQ test) and thinking style. As such, it remains unknown whether cognitive style explains some of the intelligence-religiosity association, adds to it, or is independent of it.

1.1. Current study

The goal of this study is to examine the degree to which both cognitive ability and cognitive style influence religiosity. Based on prior research, we predict that both cognitive ability and rational thinking will be inversely related to measures of religiosity, and experiential thinking will be positively related to religiosity. Further, given prior research and theory on dual process models of cognition, we posit that cognitive ability will be associated with the propensity to use the rational system, but not the experiential system. Thus, rational thinking may mediate some of the influence of ability on religiosity.

2. Methods

2.1. Participants

The sample was drawn from an urban university in the southeastern US. Undergraduate students (N = 150; 70