

The cognitive signature of belief: Differing implicit and explicit beliefs among lifetime and convert believers and atheists



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Introduction

Previous experimental work priming religion among atheists has shown mixed results. Variation in priming effects may be the result of different roads to non-belief: one can a) reject the beliefs one was raised with or b) never have exposure to these beliefs in the first place. We examine potential cognitive differences across four believer groups: those raised to believe in God but currently do not believe (Atheist Converts: AC), not raised to believe in God and currently do not believe (Lifetime Atheists: LA), raised to believe in God and currently still believe (Lifetime Theists: LT), and not raised to believe in God but now do believe (Theist Converts: TC). Though we predict current atheists and believers will be more similar to each other, we seek to identify differences between lifestimers and converts. These differences may help explain how early exposure to particular sources of cultural information can influence adult cognition, even when those beliefs are explicitly rejected.

Materials & Methods

Participants

201 (133 women) psychology students participated for course credit; 11 dropped due to incomplete answers. Believer groups are defined by combinations of childhood and current belief (see Table 1).

- Atheist Converts (AC) n=46 (26 women)
- Lifetime Atheists (LA) n=50 (31 women)
- Lifetime Theists (LT) n=85 (60 women)
- Theist Converts (TC) n=20 (16 women)

| | | Raised to believe in God | |
|--------------------|-----|--------------------------|----|
| | | Yes | No |
| Believe in God now | Yes | LT | TC |
| | No | AC | LA |

Table 1 Combinations of current and childhood belief to define believer groups.

Belief variables: Implicit & Explicit

- Single-target Implicit Attitude Test
 - Speed to pair synonyms of True with religion-related words subtracted from speed to pair synonyms of False and religion-related words
- Intrinsic Religiosity (Hoge, 1972)
- Dimensions of Non-religiosity Scale (Gibson, Barnes & White, n.d.), 6 components:
 - Attitude towards religion; Higher = more positive
 - Avoid discussing religion; Higher = more avoidance of discussing views
 - Flexibility of beliefs about religion; Higher = more flexible
 - Indifference towards religion; Higher = more indifferent
 - Scientific worldview; Higher = more reliance on science
 - Sharing beliefs about religion; Higher = more proselytizing

Cognitive variables:

- Mind-body Dualism (Stanovich, 1989)
- Individual Differences in Anthropomorphism Questionnaire (IDAQ: Waytz, Cacioppo & Epley, 2010)
- Empathy Quotient (EQ: Baron-Cohen & Wheelwright, 2004)

Belief and cognitive variables were significantly correlated (see Table 2).

| | IAT d score | Intrinsic Religiosity | Non-religiosity | Mind-body Dualism | IDAQ | Empathy Quotient |
|-----------------------|-------------|-----------------------|-----------------|-------------------|------|------------------|
| Intrinsic Religiosity | 0.18** | - | | | | |
| Non-religiosity | -0.12' | -0.38*** | - | | | |
| Mind-body Dualism | 0.13' | 0.53*** | -0.2** | - | | |
| IDAQ | 0.18** | 0.07 | -0.01 | 0.15* | - | |
| Empathy Quotient | 0.04 | -0.04 | -0.27*** | 0.06 | 0.05 | - |
| | <.01 | *<.05 | **<.01 | ***<.005 | | |

Table 2 Zero-order correlations among belief and cognitive variables show significant correlations. MANOVA was used to control for these correlations.

Results

We determined if believer groups significantly differ across belief and cognitive variables by using MANOVA. Potential sex and age differences were controlled for by adding sex and age as covariates. Figure 1 shows variables by believer group.

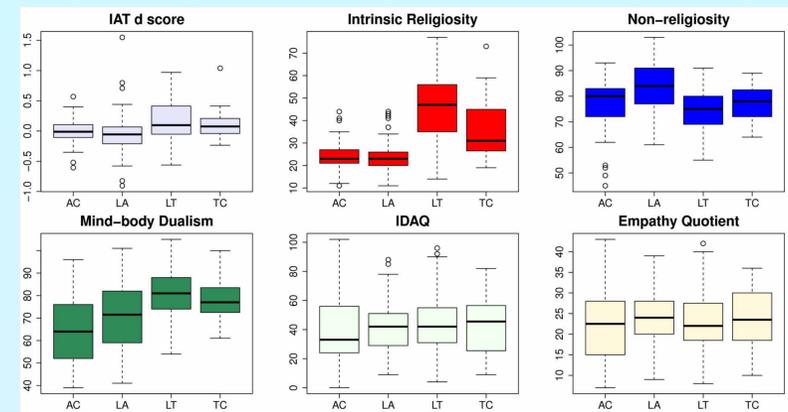


Figure 1 Boxplots of belief and cognitive variables by believer group. Believer groups significantly differed for Intrinsic Religiosity, Non-religiosity, and Mind-body Dualism, but not for IAT d scores, IDAQ, or EQ.

MANOVA results indicate a significant difference across Believer Groups ($F(3,187)=0.96, p<0.001$) but not sex ($F(1, 186)=0.04, p=0.37$) or age ($F(1, 185)=0.06, p=0.3$).

Univariate ANOVA tests revealed that believer Groups significantly differ for:

- Intrinsic Religiosity ($F(3,187)=0.79, p<0.001$)
- Non-Belief Scale ($F(3,187)=0.16, p<0.001$)
- Dualism ($F(3,187)=0.26, p<0.001$)

Post-hoc Games-Howell tests used to allow for unequal cell sizes (see Figs. 2-4).

- Intrinsic Religiosity: Atheists < theists, TC marginally lower than LT
- Non-Belief Scale: Atheists > theists, AC significantly lower than LA
- Dualism: Theists more dualist; tracks materialism/ belief in science

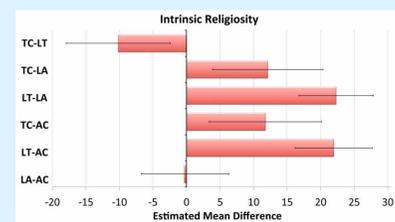


Figure 2 Mean differences of intrinsic religiosity across believer groups. Error bars represent confidence intervals. Dualism distinguishes current atheists from theists, but does not differ between converts and lifestimers.

Figure 3 Mean differences of dimensions of non-religiosity scale scores across believer groups. Error bars represent confidence intervals. Atheist converts significantly differ from lifetime atheists.

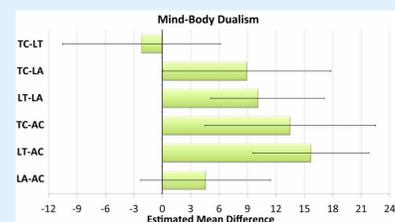


Figure 4 Mean differences of mind-body dualism across believer groups. Error bars represent confidence intervals. Dualism distinguishes current atheists from theists, but does not differ between converts and lifestimers. Dualism seems to track materialism and/or faith in science.

Further Games-Howell tests, with a Bonferroni corrected alpha set at $p<0.008$, on AC vs LA non-religiosity scores (Fig. 5) showed:

- Attitude: AC are marginally more negative about religion (LA-AC = 2.41, $p=0.02$)
- Indifference: AC think about religion significantly more (LA-AC = 4.36, $p=0.002$)

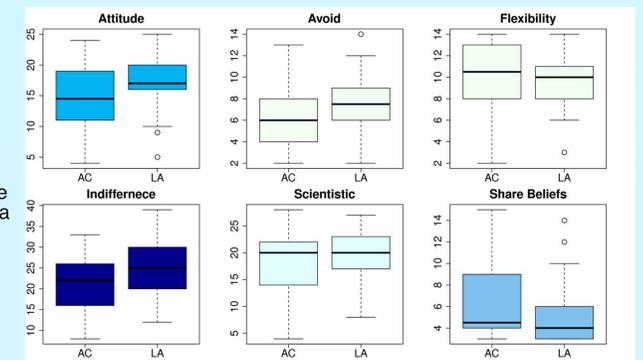


Figure 5 Boxplots of non-religiosity scores for AC and LA. AC are more likely to think about religion and more likely to see religion in a negative light.

Discussion

Though current belief status predicts a great deal of individuals' approach to both belief and cognitive processes related to belief, we find evidence of non-trivial differences based on one's childhood exposure to belief in God. Interestingly, though implicit belief as measured by a single-target IAT correlated with explicit belief, the current sample did not show significant differences in implicit belief across believer groups. This may lend support to the hypothesis that even life-long atheists are at some level "implicit theists." Alternatively, this may reflect exposure to religious ideas pervasive in North American society. Mind-body dualism significantly distinguished current atheists from current theists, regardless of childhood belief. With mind-body monism's relationship to scientific thinking and materialism, an unwillingness to see minds and bodies as separate may be a strong influence in pulling individuals out of religious belief. Conversely, separating minds and brains may pull others into belief. Finally, atheists who were raised to believe in God think about religion significantly more than those raised without belief in God. Further, atheists who have actively rejected religious belief are marginally more negative about religion in general. Atheist converts' chronic activation of religious ideas, even if only to deny them, suggests they may be more likely to respond to religious priming than atheists who were never actively taught to believe in God as a child.

Future Directions

- Do believer groups differ in what mental capacities they ascribe to God?
- Do believer groups differ in expectations of God's likelihood to punish?
- How do these differences translate into behavior after religious primes?

References

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More Information

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