ISSN 1556-3723 (print)

Interdisciplinary Journal of Research on Religion

Volume 10 2014 Article 10

Explaining Atheism: Testing Hunter's Durkheimian Theory

Joseph Langston*

University of Colorado
Colorado Springs, Colorado

* langston1029@gmail.com

Explaining Atheism: Testing Hunter's Durkheimian Theory[†]

Joseph Langston

University of Colorado
Colorado Springs, Colorado

Abstract

The objective of this study was to test Hunter's Durkheimian theory of atheism by examining the impact of age, race, and gender on external locus of control and, in turn, the impact of external locus of control on atheist/theist identification. I hypothesized that the lower likelihood of atheist identification among women, minorities, and the elderly would be explained by their greater external locus of control. I sent a nineteen-question online survey to various atheist, Christian, Buddhist, Hindu, and Islamic organizations and conducted univariate ANOVAs to examine relevant external locus of control differences between demographic and atheist/theist groups. I then used a path analysis to examine the model in question (N = 1,002), with the variables of age, race, gender, external locus of control, and atheist/theist identification. Nonwhites, females, and theists were found to have higher external locus of control than whites, males, and atheists. After controlling for age, race, and gender, the latent variable of external locus of control showed a small capacity to explain variance in atheist/theist identification (R^2 = 0.18). Results demonstrate partial support for Hunter's Durkheimian theory. I discuss alternative explanations for atheist identification demographic patterns across age, race, and gender; examine shortcomings of Hunter's theory; and recommend specific future research into locus of control and atheism/theism.

[†] This article is an adaptation of a thesis submitted in December 2012 to the sociology faculty at the University of Colorado, Colorado Springs, in fulfillment of the degree of Master of Arts.

A new characterization of research on atheism, secularity, and nonreligion seems to be in order. The old characterization, as described by Bullivant and Lee (2012), directs attention to the lack of investigation at the outset, whereas the first decade of the 21st century witnessed more social-scientific and other scholarship in these areas than ever before. Today, there are strong signs and indicators of the growth of what may be termed secular studies, including the increasing number of academic resources and amount of scholastic attention devoted to the subjects of atheism, secularity, nonreligion, and irreligion.

During the 20th century, research on nonreligion, secularity, and atheism was found largely in publications devoted to research on religion itself. For example, a journal for research on religion might contain a study in its pages that has secularity, nonreligiosity, or atheism as a secondary focus, included for its comparative value to the main or primary focus of religion (e.g., moral behaviors, meaning making, health and well-being) (Pasquale 2007a). In other words, such a study would aim to make a discovery about religion or the religious; if something was or could be discovered about atheists, secularists, or the nonreligious, then this would be only incidental to the study's primary goal. However, the study of nonreligion and secularity is coming into its own as a multidisciplinary field (for a detailed look at the "story" of secular studies' development, see Pasquale 2012). Or, as Kosmin (2007: 12) has stated succinctly, "secularism, in all its forms" is starting to be researched "not as the mirror image of religion but as an intellectual and social force in its own right."

One subarea of secular studies awaits formation, namely, explanations of atheism. Why or how do people become atheists? Is there a general process, and are there common patterns, themes, or trajectories? What hypotheses or theories have been offered to account for where atheists come from and why certain people come to reject, abandon, or combat religion? Within a still undertheorized and underdeveloped but definitely growing literature, there is a relatively small set of studies that have sought to address such questions. The goal of the current study is to test Hunter's (2010) Durkheimian theory of atheism in hopes of contributing to the development of explanations of atheism as a subarea of secular studies. After testing and failing to find support for Bainbridge's (2005) proposed account of atheism, Hunter offers an alternative theory that invokes Durkheim's (1995 [1912]) theoretical account of the origin of religion.

Although research on atheism is on the rise, the portion of it that examines the "how" or "why" question of atheism is comparatively small and fragmented, yet it is important. Just as it is invaluable to begin a research program with operational definitions, exploratory hypotheses, and typologies as foundations, so should the research that follows be best informed by where atheists come from, that is, how or why people become atheists and which factors influence the turn to atheism. What are its origins or causes, if any (cf. Norenzayan and Gervais 2013)? Given

the recent and notable increase in research on atheism and its relative infancy, it becomes crucial to test the validity of any early empirical work on atheism if the field is to develop properly. It is to these sorts of questions that I now turn in hopes of adding to research on explaining atheism.

HUNTER'S DURKHEIMIAN THEORY

Hunter (2010) begins her examination of atheism with an analysis and rebuttal of Bainbridge's conclusions (2005), which she holds to be inadequately drawn, owing to a lack of statistical controls in his use of bivariate statistics. Her nested logistic regression analyses of Bainbridge's hypothesis essentially find no support for the contention that a lack of social obligations explains atheism. She then offers a new two-part theory of atheism to account for an individual's identification as an atheist.

The first part, comprising the social factors of exposure, support, and plausibility, relies on three hypotheses: (1) Increasing exposure to atheism increases the likelihood that an individual will identify as an atheist; (2) having social support of atheism will increase the likelihood that an individual will identify as an atheist; and (3) perceptions of decreasing social sanctions for identifying as an atheist will increase the likelihood of identifying as an atheist (Hunter 2010: 24–26).

The second part, comprising the social-psychological factor of locus of control (LOC), draws on Durkheim (1995 [1912]). This part of Hunter's theory outlines four hypotheses: that greater perceptions of external control reduce the likelihood that an individual will identify as an atheist and that gender, race, and age differences in perceptions of external locus of control are all mechanisms through which gender, race, and age differences in atheism arise. According to Hunter, controlling for perceptions of external locus of control (ELOC) will reduce or eliminate the effect of each respective factor on the likelihood of identifying as an atheist. She adds that socioeconomic status, properly measured, may be susceptible to predicting atheism with external locus of control as a mediator, though she makes no formal hypothesis regarding this potential relationship, suggesting only that future research should examine it.

Hunter's combination of Durkheimian theory of religion with ELOC is both original and innovative. In Durkheim's theory, people come to perceive the force that society exerts on them as being synonymous with a God, given that both are "outside" of the individual. Hunter ties in the concept of ELOC by noting that while societies exert pressure that individuals experience as limitations, costs, and deprivations, this process does not affect the society's members in an equal manner. That is, some groups are more subject to limitations, costs, and deprivations than others are; history and sociocultural norms have yielded hierarchies of inequality and privilege, some groups being dominant while others are subordinate to

varying degrees. This is echoed clearly by Hui (1982: 302) in his literature review on LOC cross-cultural research:

> Past research reveals social antecedents to the locus of control. Moreover, researchers have hypothesized that belief in externality is highly probable in social groups having little access to power, material resources, and social mobility. For example, blacks are more external than whites. People from the lower classes are more external than people from the middle classes.

This provides the following theoretical formulation, in Hunter's (2010: 27) own words:

> Individuals who feel strong external forces affecting their life will be more likely to identify these as a religious force, and because certain groups—women, some racial minorities, and older individuals—feel greater external locus of control in their lives, they will be less likely to identify as atheists than will individuals from groups that feel more free from external sources of control.

Hunter goes on to briefly examine the literature concerning the intersections of ELOC with religiosity, age, race, and gender, noting the evidence for each factor having a positive association with ELOC. As was mentioned above, Hunter also targets socioeconomic status as a potential predictor of atheist identification, with ELOC as a mediator. While evidence for socioeconomic status as just such a predictor is less established, there is adequate support for the notion that there are class differences and patterns in children's socialization, such that class differences in loci of control are plausible (Lareau 2003; Pugh 2009; Schmidt, Lamm, and Trommsdorff 1978; Wang et al. 1999), although Shermer (2000) found that socioeconomic status had no direct influence on religious belief. Ultimately, Hunter takes the position that it is ELOC, or the extent of ELOC, that determines the likelihood of atheist or theist identification, or, in Hunter's (2010: 28) terms, "an individual's locus of control will affect religiosity."

LOCUS OF CONTROL

The linchpin concept in Hunter's Durkheimian theory is external locus of control, which she uses as a proxy for the degree to which individuals of given groups have been subject to varying degrees of control by factors or forces outside of themselves. The concept of locus of control was introduced by Rotter (1966) in his social learning theory, which placed primary emphasis on reinforcement as determining behavior, though individual perceptions of the sources of such reinforcement were important. According to Rotter, individuals' perceptions about the sources of reinforcement result in generalized expectancies as to the extent to

which their behavior can affect their environment. External locus of control refers to locating control of one's life outside of one's self in the form of factors such as luck, fate, or even authoritative others and powerful bureaucratic structures. Individuals with high ELOC are likely to see their actions as being controlled or limited to a large degree. They do not see themselves as being able to affect the outcomes in their lives to any appreciable degree via their own actions; rather, they perceive their lives to be controlled more by other people and by other forces. Internal locus of control (ILOC), by contrast, refers to locating control within one's self. Individuals who are high in ILOC perceive that what happens to them depends largely on what they do or do not decide; good and bad things come their way as a result of what they personally do or fail to do.

Hunter notes that LOC should not be flattened into a continuum when measured but should rather be considered a dynamic measure on which individuals may actually score high or low on both ELOC and ILOC, so LOC is not conceptualized in terms of either/or dimensions but is measured orthogonally. Fiori, Brown, Cortina, and Antonucci (2006) also point out that LOC can become domain-specific with age (e.g., intelligence, health) (cf. Lachman 1986). Thus one individual may experience both high and low ELOC or ILOC, depending on which domain is relevant. Fiori and colleagues (2006) also make light of "collaborative control" in noting that ELOC is not synonymous with dependence on God in the same way in which ELOC is synonymous with fatalism or a belief in the controlling power of fate. Collaborative control refers to the integration of both ILOC and ELOC, whereby religion may increase both ELOC and ILOC. An individual's reliance on religious resources (e.g., appeals to God for strength, patience, and courage), as an instance of turning to an external source, may in turn bolster one's ILOC. Silvestri (1979) came to a similar conclusion, finding that individuals who were rated as being God-dependent had higher ILOC. In Silvestri's opinion, while respondents felt in control of their reinforcements, it was not a matter of self-control for them but rather that their greater ILOC came from the belief that God controlled their lives, ensuring their prosperity and their happiness.

A number of studies from the LOC literature contain findings that may support Hunter's theory, although one should be cautious when drawing any conclusions, as the LOC corpus is inconsistent concerning a relationship between LOC and religiosity. That is, there are problems of inadequate instruments, varying definitions of religion or religiosity, and heterogeneous populations (cf. Friedberg and Friedberg 1985). Some studies find no relationship between LOC and religiosity (Benson and Spilka 1973; Berman and Hays 1973; Sexton, Leak, and Toemies 1980), while others show religious people to have higher ILOC or low ELOC (Silvestri 1979; Shrauger and Silverman 1971; Strickland and Shaffer

1971).[1] Groth-Marnat and Pegden (1998), examining paranormal belief, LOC, and sensation seeking, found that greater ELOC was associated with paranormal beliefs about spirituality and precognition, whereas greater ILOC was associated with belief in superstition. Ai, Peterson, Rodgers, and Tice (2005) found that greater ILOC was positively associated with using private prayer for coping, an event-specific collaborative control strategy, but negatively related to subjective religiosity. Older age and minority status were linked to greater ELOC. Ai and colleagues conclude that their findings support two assumptions: (1) Religiosity is associated with personal control, and (2) general religious faith may discourage overasserting personal control but endorse spiritual surrender.

Randall and Desrosiers (1980) found a significantly greater supernatural acceptance for women and a positive correlation between supernaturalism and ELOC. Stanke (2004) also reported a positive relationship between ELOC and superstitious beliefs but no relationship between ILOC and superstitious or paranormal belief. High religiosity was negatively correlated with ILOC. Li, Feifer, and Strohm's (2000) findings suggested that Alcoholics Anonymous members were generally more spiritually oriented and exhibited greater ELOC relative to secular alcohol rehabilitation program members, though whether this was due to program effects or to self-selection could not be discerned. Murk and Addleman (1992), examining college students on moral reasoning, LOC, and demographic variables, discovered that religiosity variables were significantly related to ILOC and ELOC scores and that Catholic students tended to score higher on ELOC than Protestant students did.

Burger and Lynn (2005) detail the uncertainty hypothesis, which states that greater attribution of outcomes to forces beyond our control leads to greater superstitious behavior that is directed toward goal achievement and control. Furthermore, Scheidt (1973) found that individuals who hold supernatural and superstitious beliefs tend to be external in their outlook, though Hui (1982) notes contradictory studies (cf. Benson and Spilka 1973; Piersma 1974; Russell and Jorgenson 1978). The findings of studies using African populations (Jahoda 1970; Plug 1975) have been much the same as those of Scheidt (1973), though Hui (1982) opines that the conceptualizations of and interactions with supernaturalism in Africa and the West tend to be different in that in Africa and undeveloped or developing nations, superstitious beliefs are practical methods to manage life's difficulties and the environment. However, where a monotheistic or henotheistic scheme prevails, such that one God exists alone or is sovereign over other

[1] Certain findings are noteworthy. See Furnham (1982) for an example of fundamentalist (versus liberal) religionists showing higher ILOC. Fiori and colleagues (2006) found that for older rather than younger adults, religiosity was associated with higher levels of internal control. Ryan and Francis (2010) found a positive correlation between "God locus of control," which could be considered similar to an ELOC measure, and "internal locus of control."

spiritual agents, and where religion's role is not confined solely to a utilitarian purpose, an internal orientation of control is more often linked with religiousness (Strickland and Shaffer 1971; Tong 1978). As a result, external orientation seems more related to attitudes toward supernatural forces than to religiosity itself (Hui 1982).

In an interesting experimental study, Kay, Gaucher, Napier, Callan, and Laurin (2008) tested their compensatory control model. Having proposed that external systems of control (e.g., religion and concurrent belief in God) fulfill a basic human need (the reduction of chaos and randomness in the social order) and that by doing so, such systems serve as substitutes for individuals in times and situations of reduced personal control, Kay and colleagues performed experiments that were designed to gauge the effect of the reduction of individual perceptions of personal control on the endorsement of external systems of control. Belief in God was subsequently measured after the administration of an experimental manipulation that was designed to alter perceptions of personal control (personal-control versus no-personal-control conditions). In the first experiment, half of the study's participants were asked about the possibility of a neutral God (i.e., noncontrolling or creator), while the other half were asked about the possibility of a controlling God. Results showed that subjects in the no-personal-control condition expressed a stronger belief in the existence of a controlling God than did those in the personal control condition. A second experiment demonstrated that feelings of perceived randomness, conceived of as defensive reactions to threats to one's personal control, mediated the relationship between the control/no-control manipulation conditions and subsequent belief in God. Thus experimental evidence demonstrates a link between levels of personal control and belief in God.

Finally, in what appears to be the only instance of measuring atheist locus of control in research, Horning, Hasker, Stirrat, and Cornwell (2011) collected a sample of religious and nonreligious older adults (55+ years; $N = 134$) and assessed the relationships between religiosity and well-being, social support, locus of control, and meaning in life. The various groups (including atheists, agnostics, and individuals who were high and low on religious beliefs) were compared by analysis of covariance on Rotter's (1966) original twenty-nine-item LOC scale. The consequent finding was that religious groups did not significantly differ from atheists and agnostics on locus of control even when the researchers controlled for age, sex, and education.

Having reviewed the LOC literature for the support it might offer to Hunter's theory of atheism, I now turn to a test of whether age, race, and gender may reliably account for an individual's ELOC and whether ELOC in turn can reliably predict whether an individual identifies as an atheist or as a theist.

METHOD

Procedure

A nonrandom sample was selected from Buddhist, Muslim, Hindu, Christian, and atheist organizations. I selected approximately fifty organizations for each religious orientation (with the exception of Hindu, for which approximately twenty-five organizations were selected) from the Internet and from listings maintained by or on such organizations. I sent a recruitment e-mail to each organization's e-mail contact, identifying the research project and asking whether the organization would be willing to distribute a link for a research questionnaire to their membership via e-mail or newsletter. This recruitment e-mail specified that those under the age of 18 were ineligible to take the survey, meaning that all respondents were 18 years old or over. Collection began on April 1, 2012, and ended on July 2, 2012. The survey was designed to take ten minutes or less. Respondents were given my e-mail address for any questions about the survey.

Instrument and Measures

I constructed an online questionnaire using Google Documents, which contains a feature that takes respondents' answers and places them directly into a portable Excel spreadsheet. Standard instructions and information were included with the survey. The survey consisted of nineteen questions, capturing social, demographic, and family background; religious orientation; and locus of control, measured by six questions. The first two questions collected age and gender, respectively; females were coded as "1" for the analysis, males as "0." Racial categories were taken from the U.S. Census Bureau's listing of race categories,[2] with the exception of "Arabic," which does not appear in the Census Bureau's listing. Two additional race categories were added for "Biracial" and "Other." Nonwhite individuals, including those identifying as Asian, were coded as "1."[3] To avoid a theoretical complication that might be introduced by minority-majority racial mixing, respondents identifying as biracial, when one of the listed races was Caucasian or white, were excluded from the analysis. Question 4 asked, "What is your marital status"; responses were "Single/Not Married," "Married," "Divorced," "Widowed," and "Long term committed relationship." Question 6 asked, "Do you

[2] See www.census.gov/polupation/race/about.

[3] Given the stereotype of Asians as an "ideal minority" and because some literature suggest that Asians are more likely to lack a religious affiliation (Keysar 2007), I compared Asians' ELOC scores against those of other minority groups to determine whether their ELOC was comparable. Asians were coded as minorities on the basis of *t*-test results (not shown here) indicating that they scored higher on ELOC measures than Caucasians and both Hispanics and blacks combined.

have any children," including stepchildren from legally recognized marriages; responses ranged from "No, I do not have any children" to "Yes, I have four or more children." Questions 5, 7, and 8–12 all aimed to capture respondents' socioeconomic status through a variety of measures pertaining to education, occupation, and income of either the respondent or the respondent's parents.

To assess respondents' religious identification, question 13 asked, "What do you consider to be your current orientation towards Religion? Maybe you are Buddhist, Christian, Muslim, atheist/agnostic, Hindu, Wiccan, pagan, or some other religious orientation. Please feel free to add any descriptions you like if you think it would be helpful." Following Hunter (2010), the question is open ended, which allows the problems involved in defining atheism and theism to be bypassed. Those who answered "none," "agnostic," or some other term that was considered to be synonymous with "atheist" (cf. Galen 2009) were excluded from the analysis to keep intact a pure test of Hunter's theory.[4]

Questions 14–19 were derived from Fiori and colleagues (2006), who in turn derived their ILOC questions from the Pearlin Mastery Model Scale (Pearlin et al. 1981). While Fiori and colleagues made use of two items from this scale for ILOC, I added a third item in the current study for balance with the three questions used for ELOC. This third item (question 19 on the survey), like the first two, was listed in the Pearlin Mastery Model Scale (see Pearlin et al. 1981). Fiori and colleagues (2006) report that their ELOC questions "constitute three of the four items originally intended as an index of 'fatalism' in the ACL [Americans' Changing Lives] data (House, 1995, p. 433)."

Questions 14–19 asked about both internal and external locus of control, with three questions each, in random order (i.e., questions were typed into the survey apparatus in a random order). Questions 14, 16, and 19 covered ILOC. Questions 14 and 16 were coded as "1" for "Strongly Agree" to "4" for "Strongly Disagree." The wording of question 19 required it to be reverse-coded to reflect the coding for questions 14 and 16. Therefore higher scores reflected greater ILOC. Questions 15, 17, and 18 covered ELOC, and all three questions were coded as "4" for "Strongly Agree" to "1" for "Strongly Disagree." Higher scores here reflected higher ELOC. No other response categories were included (i.e., these were forced-choice questions).

[4] The possibility should not be ignored that individuals who listed a religious affiliation could actually be atheists. Among those who fit this description, however, it seems likely that this phenomenon would be encountered primarily in Christianity. See Baker and Smith, (2009), Ecklund and Lee (2011), and Voas and Day (2007) for discussion of affiliation or religious identity without God belief.

Respondents and Data

A total sample of 1,316 cases was collected. The elimination of unusable cases (i.e., cases missing minimal necessary responses) resulted in a final effective sample size of 1,002 cases. Most respondents were atheists (N = 922). Most respondents were white (N = 946). Gender was skewed in the direction of males (N = 634). The mean age of respondents was 41.52 years (standard deviation: 14.6), and the median age was 39, with a range of 18 to 86. Thirty-one percent of respondents had a bachelor's degree; 15.5 percent had a master's degree, and 6 percent claimed a doctorate. Forty-seven percent of respondents reported having no children, the rest having one or more, and 61 percent reported being either married or in a long-term committed relationship (5 years or more).

Analysis and Theoretical Model

Following a series of univariate ANOVAs to assess race, age, gender, and atheist/theist differences in ELOC, I performed a path analysis using AMOS [IBM SPSS AMOS V.19]. Given the coding scheme for all questions, the final analysis was conducted with no missing data, a condition that is required by AMOS. Because AMOS also requires that all variables be interval-ratio, all variables either were recoded to be dichotomies (i.e., dummy variables) so that they could be treated as interval-ratio or, in the case of all LOC variables, possessed four categories, which allowed for them to be treated as interval-ratio variables in the model (Bollen and Barb 1981).[5] Following Hunter (2010), I also logged age using SPSS with the "LN" command in the Compute Variable function. ELOC was employed in the model as a latent variable composed of the three ELOC items; factor analysis revealed that factor loadings for the three ELOC variables were 0.48, 0.61, and 0.60 for questions 15, 17, and 18, respectively. Therefore only ELOC1 failed to achieve the criterion of 0.50 for factor loadings (Field 2005). Cronbach's alpha coefficient for the ELOC scale was 0.59, suggesting questionable reliability.

The presumed causal ordering of the components in the model is as follows: (1) the independent variables of age, white or nonwhite, and male or female; (2) the mediating variable of external locus of control; and (3) the dependent variable of identification as atheist or theist.

[5] Bollen and Barb address the issues surrounding the treatment of ordinal or categorical variables as interval-ratio or continuous variables, recommending that "at a minimum five or six categories should be used" (Bollen and Barb 1981: 238). This is because the correlation between a continuous variable and the same variable collapsed into categories becomes greater with the addition of more categories. Nevertheless, the use of only four categories in the current study has proved fruitful to some extent, just as in the results of Fiori and colleagues (2006).

The theoretical model can be summarized by using the following two propositions:

> *Proposition 1*: Females, minorities, and relatively older respondents, owing to a variety of impediments, discriminations, deprivations, and mobility barriers, are more likely to have higher external locus of control.
>
> *Proposition 2*: Higher external locus of control coincides with higher likelihood of identifying as a theist; conversely, lower external locus of control coincides with lower likelihood of identifying as a theist.

RESULTS

Table 1 displays the results of univariate analyses of variance that compare theists and atheists, whites and nonwhites, males and females, and younger and older respondents. Females, nonwhites, and theists have statistically significantly higher ELOC means, although the differences between age groups when the sample is split by the median age do not reveal significant differences between those under age 39 and those over age 40. The magnitude of ELOC difference between atheists and theists is greatest of all, as is the atheist/theist variable's ability to explain variance in ELOC ($F = 59.4$, $p < 0.001$, partial $\eta^2 = 0.056$).

Figure 1 displays the results from a path analysis conducted to examine the impact of age, white or nonwhite (race), and male or female (gender) on ELOC and, in turn, ELOC's impact on identification as atheist or theist. First, minor and inverse nuisance correlations existed between age and male or female ($r = -0.06$, $p < 0.05$) and between age and white or nonwhite ($r = -0.12$, $p < 0.001$). As with the ANOVA results above, age is the only independent variable among demographics that does not obtain significance. It is also not substantive, demonstrating that age in this study's sample does not reveal meaningful patterns of older respondents having higher ELOC. Results for both white or nonwhite and male or female had statistical significance for their contributions to ELOC, though neither variable's beta coefficient breaches a 0.30 threshold for substantiveness. Ultimately, the demographics of age, race, and gender explain nearly 10 percent of overall variance in scores of ELOC ($R = 0.30$; $R^2 = 0.09$).

ELOC makes a significant and substantive contribution to identification as atheist or theist ($\beta = -0.43$, $p < 0.001$). Its negative sign here indicates that as ELOC scores go down on a range of 3–12, indicating less externality, the likelihood that an individual identifies as an atheist (coded as "1") increases. Conversely, as ELOC scores go up, closer to a maximum score of 12, indicating greater externality, the likelihood that an individual identifies as a theist (coded "0") increases. Taken together, the linear, additive combination of age, race, gender, and

ELOC explained 18 percent of the variance in identification as atheist or theist ($R = 0.43$; $R^2 = 0.18$).

Table 1: Results from Univariate ANOVAs of External Locus of Control

	ELOC Means (Standard Deviation)	***F***	**Partial η^2**
Atheist ($N = 922$)	2.79 (0.891)		
Theist ($N = 80$)	3.69 (1.00)	59.4***	0.056
Older ($N = 491$)	2.79 (0.910)		
Younger ($N = 511$)	2.81 (0.962)	0.112	0.000
Nonwhite ($N = 56$)	3.28 (1.08)		
White ($N = 946$)	2.77 (0.920)	9.31***	0.009
Female ($N = 368$)	3.00 (0.938)		
Male ($N = 634$)	2.69 (0.918)	14.16***	0.014

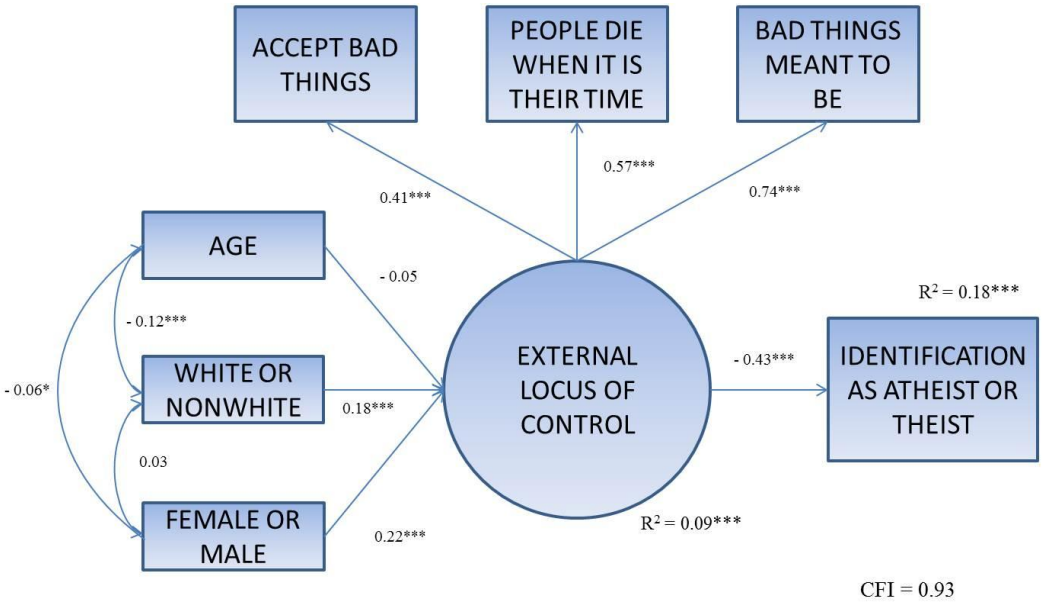
***$p < 0.001$. Scores are the grand means of each group when combining scores from the three ELOC questions into a factor-weighted additive index. Younger and older groups were determined by taking the median age (39) and splitting the sample in half (younger group: 18–39 years; older group: 40–86 years). Higher mean scores indicate higher ELOC. Tests were run while controlling for age (split by median), race, gender, marital status (married or not married), number of children (no children or one or more children), respondent's level of education, respondent's household income, and identification as an atheist or theist. $R^2 = 0.10$. Unbalanced sample sizes can violate homogeneity of variance assumptions for ANOVA, although this is not problematic if sample variances are not statistically significantly different. Levene's test for equality of variances was not observed to reach significance for any analyses in the series, meaning that the assumption was not violated for any comparisons.

The comparative fit index, which compares the theoretical model to the null model, was 0.93, just below the 0.95 threshold which suggests a well-fitting model.[6] The chi-square statistic tests the hypothesis that the restricted model in Figure 1 is identical to a saturated model that would display all possible relationships. Results indicated that the two models were different ($\chi^2 = 47.787$; $p < 0.001$). However, because sample size ($N = 1{,}002$) may interfere with actual and substantial differences between the two models, the chi-square-to-*df* ratio, that is, relative or normed chi-square, which minimizes the interference caused by sample

[6] An earlier convention used above 0.90 as a cutoff for good-fitting models, but there seems to be growing consensus that this value should be increased to approximately 0.95 (based largely on Hu and Bentler 1999); according to Byrne (1994), a model should be accepted if CFI exceeds 0.93.

size (Wheaton et al. 1977), was observed to be 4.344 (47.787/11 = 4.344), indicating that the chi-square statistic is at least four times larger than the degrees of freedom.

Figure 1: Model of Effect of External Locus of Control on Atheist or Theist Identification (*N* = 1,002; ****p* < 0.001, **p* < 0.05)



According to Hooper, Coughlan, and Mullen (2008), there is no determined consensus on acceptability standards for this statistic, although recommendations for cutoffs have ranged from 2.0 to 5.0. Kline (1998, 2005) suggests that a reasonably fitting model would not exceed 3.0. The desirable range has been suggested to be 2.0 or below (Byrne 1989, 1991) or not to exceed 3.0 (Carmines and McIver 1981; Ullman 2001), whereas the maximum threshold of acceptability has been suggested to be at 5.0 (Marsh and Hocevar 1985). The relative or normed chi-square in this case, then, surpasses the recommendation that to maintain a well-fitting model, the normed or relative chi-square statistic should not be two to three times larger than the degrees of freedom. At best, the two models would be seen as minimally identical, given a liberal threshold of 5.0.

Finally, the root mean square error of approximation (RMSEA) for the CFI was 0.058 (LO 90 = 0.042, HI 90 = 0.075), which exceeds the standard acceptable bounds of 0.06 to 0.08.[7]

[7] MacCallum, Brown, and Sugawara (1996) use 0.01, 0.05. and 0.08 as cutoffs to indicate excellent, good, and average or poor fit, respectively; see also Hu and Bentler (1999), who suggest 0.06 as a preferred cutoff value for RMSEA.

DISCUSSION

On one hand, the findings demonstrate partial support for Hunter's (2010) thesis that ELOC will affect identification as an atheist or theist. This effect does indeed emerge, and it does so in the direction predicted by Hunter's theory. Significant differences in ELOC between men and women and between whites and nonwhites also emerge. On the other hand, age, gender, and race do not play as much of a role in predicting ELOC as was hypothesized. First, for Hunter's theory to have been supported, a testing of it would need to show that race, age, and gender had substantive abilities to shape ELOC. That effect does not emerge here. While race and gender demonstrate statistically significant yet small contributions to ELOC (betas of 0.18 and 0.22, respectively) and both variables demonstrate the theoretically predicted direction of relationship (both are positive, indicating that as one moves closer to nonwhite, coded as "1," one's ELOC goes up, and as one moves closer to female, coded as "1," one's ELOC also goes up), the combined abilities of race, age, and gender to explain variance in ELOC reach only 9 percent, a figure that would be much higher if the theory were accurate.

Second, for Hunter's theory to be validated by testing, it would need to be shown that after controlling for race, age, and gender, ELOC could explain a substantial degree of variance in identification as an atheist or theist. While the contribution of ELOC to predicting such identification exceeds that of even gender and the negative sign to the ELOC beta of −0.43 is in line with Hunter's theory, indicating that as one moves closer to atheist, coded as "1," one's ELOC scores go down, indicating lower ELOC, the additive linear combination of race, age, gender, and ELOC does not explain more than 30 percent of the variance in atheist/theist identification. Nevertheless, 18 percent of the variation in atheist/theist identification is accounted for by these four variables, a number that is not necessarily inconsiderable and should provide the impetus for additional research. Thus Hunter's aim has proven accurate concerning the relationship between ELOC and atheism/theism (i.e., the results show clearly that it does exist), although the association of these variables is not as strong as her theory would predict. A different conceptualization of and approach to this relationship might need to be pursued to further clarify its inner working dynamics. It is also possible that different explanations altogether should be sought with respect to explaining atheism and its demographic patterns.

Alternative Explanations

A different explanation may be required as to why age, race, and gender differences in ELOC seem to map well on atheist/theist identification demographic differences. It is possible that some atheists identify with a religious tradition as a

matter of culture, community, or family (Sherkat 2008). This phenomenon is likely to be operative in African-American communities, simply meaning that some black atheists opt to identify with a tradition in order not to upset social networks and family relationships. Also, cultural influence is likely to be stronger for minorities or for people who share a common history of persecution and disadvantage, because belonging to a community of shared religious belief may be a means of support and solidarity. In contrast, individuals with dominant identities (white, male, younger) may be relatively freer to eschew such support and solidarity, given their lesser need of such things in relation to their position.

There may be separate or independent factors in place for each variable (age, race, gender) that are driving atheist/theist differences in each category. Addressing race, gender, and atheism, scholar and activist Sikivu Hutchinson (2009) observes that patriarchy gives men greater cultural authority to reject religion and that rationalism, individualism, and scientific inquiry are gendered in favor of masculinity. Gender and racial differences in religious observance and adherence spring from differences in socialized gender and race identity. Hutchinson refers to atheism and the rejection of religion by invoking roles and gender identity, culture and cultural values, and group ties and the internalization of norms. These are certainly complex and dynamic issues, but the factors that will adequately explain atheist/theist identification are likely to be no less complex and dynamic. Hutchinson also implies that there may be a difference in consequences between coming out as an atheist in "real time" and coming out in an online environment, an important point that I address in more detail below.

Merino (2012) examines the adult religious preferences of people who were raised with no religion. While "no religion" is certainly not to be equated with being an atheist, Merino's results provide evidence for thinking that Hunter's (2010: 16) finding that "rather than the elderly being especially unlikely to be atheists, it is the young who are especially likely to identify as atheists" could best be explained by cohort effects, though Hunter notes that Sherkat (2008) did not find evidence of cohort effects in his analysis of trends. Merino (2012: 1) reports that "compared with earlier cohorts raised with no religion, more recent cohorts have had more secular upbringings and tend to be more secular, liberal, and wary of organized religion as adults." Nonaffiliation and apostasy are not equivalent with atheism; however, Hunsberger and Altemeyer (1997) and Zuckerman (2011) have shown that some apostates do go on to identify as atheists and that some of the reasons given by atheists for their atheism are some of the same reasons given by apostates for leaving or disaffiliating from their religion. Because of this, it is likely that, according to the trends described by Merino (2012), more members of younger cohorts seem increasingly likely to come to identify as atheists rather than as disaffiliates or apostates, though it is doubtful that atheists would ever

comprise a majority of "Nones" in general. This seems especially likely given the increasing plausibility and/or visibility of atheism in America.

Furthermore, Hunter (2010: 16) reports that "the odds of being an atheist decline most rapidly during the ages of 18 to about 40 years, the difference between 18-year-olds and 25-year-olds being the greatest." Hunter's data are derived from the American Religious Identification Survey, 2001 (Kosmin, Mayer, and Keysar, 2001). Cheyne and Britton (2010: 1) opine that "it is likely the Internet, even more than works by Dawkins, Hitchens, and the others, or, the interaction between the two that has created what has been called . . . the 'new atheism,'" although notably, this form of atheism does not begin to appear in considerable strength until after 2005, after the publication of the above-mentioned atheist works. For the year 2000, the Pew Research Center (2010) reported that approximately 74 percent of both age groups 12–17 years and 18–29 years were Internet users; that statistic increased to 93 percent for both groups in 2009. While the share of both older and younger users has increased since 2000, younger users, between the ages of 13 and 34 years, are still dominant. A number of other Internet usage demographic records show the same trend of youth dominance around the world and over time. Given Internet anonymity and an attendant lack of immediate social consequences, the ease and fluidity of identity construction and projection, social mobility, and the consideration that the primary ways in which the old and young use the Internet may differ significantly and qualitatively, it is worth investigating whether and how Internet usage plays a role in driving identification differences between older and younger individuals (cf. Downey 2014; Faiia 2011; Smith and Cimino 2012).

Future Research

The possibility should not be discounted that additional measures of religiosity (e.g., attendance, self-reports, affiliation) might indicate clusters of both atheists and theists who are identifiable by differences in LOC, both internal and external. Are there potential order effects surrounding LOC and religious belief? Could religious belief precede LOC, such that it is religious belief that leads to one's level of LOC? Cognitive and religious development notwithstanding, there must be some degree of reciprocity as LOC, along with other factors, drives adoption of belief (or nonbelief), and practices, environs, and experiences associated with belief or nonbelief further affect developments in LOC. We must also take into account the notion of collaborative control (Fiori et al. 2006). A finding of high ILOC in one sense may be predicated on one's high ELOC in another sense. Future research should account for this to avoid the introduction of confounding factors; it will be important to use other scales to differentiate between God control and other (e.g., luck, chance, fate, discrimination, socioeconomic status) control.

Positing a one-way relationship, from LOC to God belief/nonbelief, becomes problematic in light of such reciprocity.

Limitations

A drawback of this study is that it is based on a nonrandom and self-selected sample. Atheists who join organizations versus nonjoining or "anonymous" atheists and the religiously affiliated versus religious "nones" may differ in important ways (cf. Pasquale 2007b). Therefore the results here might not reflect atheists in general, although Galen and Kloet (2011: 223) say that "it would be difficult to make a case why secular group members . . . should be viewed as any less representative of nonreligous people in general than church members/attenders are of religious believers in general." Furthermore, administrators of some of the sampled organizations indicated that they sent the survey link to other groups and individuals, which means that some part of the sample was collected via snowballing. The composition of the sample also reveals limited variation, in that only fifty-six respondents were nonwhite and only eighty respondents were theists.

With only four response categories per question and only three questions for both ILOC and ELOC, the measures that I used to capture LOC might be too minimal or limited. Cronbach's alpha for the ELOC scale in this study was 0.59, suggesting a less than robust reliability. For the same ELOC scale, Fiori and colleagues (2006) reported a reliability coefficient of 0.72. Furthermore, poor and mediocre factor loadings for the three questions suggest the need for either a different scale or a more robust expansion of the current scale (i.e., additional questions). Employing a different LOC measure might establish a stronger and more substantive relationship between age, race, gender, and LOC that was missed by the current scale's limitations. Therefore a scale that will at a minimum differentiate between God control and fate/luck/chance/powerful others, which might be thought of as secular control in this context, should be used (see Levenson 1974). According to Bollen and Barb (1981), ordinal measures that will be treated as interval-ratio variables during analysis are superior if they possess five or more categories, suggesting that future studies should improve beyond the use of ordinal variables with only four categories, such as were used here. (See Lefcourt (1991) and Furnham (1987) for an evaluation of a variety of LOC instruments.)

CONCLUSION

Outside of sociology, researchers have used biological, psychological, and sociological factors to explain the occurrence and position of atheism. It would seem that explaining atheism, where atheism is defined as the lack of or non-holding of a belief regarding the real existence of an all-knowing, all-powerful, nonphysical

agent, requires a healthy theoretical respect for the range of factors that influence or contribute to the formation of beliefs held by some people and not others. Therefore it is important to acknowledge the complexity underlying what it is that we do not believe, why it is that we do not believe it, and the variety of ways in which we may arrive at not believing in the existence of any given thing. Researchers who wish to seriously pursue the origins or sources of atheism must put aside academic sectarianism and the perceived powers of their home disciplines to render the workings of human phenomena most explicable. They will need an interdisciplinary approach that does not shy away from examining how various components, factors, and processes derived from the many fields of human research science combine to yield a result of atheism (cf. Barrett 2010; Bering 2010; Caldwell-Harris 2012; Geertz and Markusson 2010; Saler and Ziegler 2006). For example, Saler and Ziegler (2006) address this quite aptly in saying that "efforts to explain theism and atheism should probe for the possible significance of biological factors . . . biological mechanisms need to be taken into account if we are to widen and deepen our efforts at explanation (p. 35)."

The results of this study reveal that there is a relationship between LOC and atheist/theist identification, such that atheism is more likely to correlate with lower external locus of control than is theism. Although the strength of this relationship could be called minor because of the inability of ELOC to substantively explain variance in atheist/theist identification, the ability of ELOC to explain 18 percent of variance in atheist/theist identification is a finding that should not be shrugged off, and suggests a vast number of possibilities and combinations for examining the relationship between LOC and belief or lack thereof in God, along with religious belonging and behavior (or, again, lack thereof). The inclusion of more variables that have a stronger or more direct influence on ELOC and the inclusion of more thorough, complex, and reliable ELOC scales may demonstrate that the predictive ability of ELOC is better than what has been shown here. Finally, Hunter's theory is one among several explanations that have been offered to account for how or why an individual identifies as an atheist. At best, any given model or explanation should be considered probabilistic rather than deterministic. It should also be kept in mind that whatever predictive factors or motivating forces are found to underlie an adoption of atheism, no single factor or even conglomeration of factors can be said to cause atheism; rather, such factors merely modify the odds of lacking God belief. A particular reason offered by an individual as very important for his or her rejection of God belief may be of no importance whatsoever for some individuals while being of varying importance for others.

REFERENCES

Ai, A., C. Peterson, W. Rodgers, and T. Tice. 2005. "Effects of Faith and Secular Factors on Locus of Control in Middle-Aged and Older Cardiac Patients." *Aging and Mental Health* 9: 470–481.

Bainbridge, W. 2005. "Atheism." *Interdisciplinary Journal of Research on Religion* 1 (article 2): 1–26.

Baker, J. O, and B. Smith. 2009. "None Too Simple: Examining Issues of Religious Nonbelief and Nonbelonging in the United States." *Journal for the Scientific Study of Religion* 48: 719–733.

Barrett, J. 2010. "The Relative Unnaturalness of Atheism: On Why Geertz and Markusson Are Both Right and Wrong." *Religion* 40: 169–172.

Benson, P., and Spilka, B. 1973. "God Image as a Function of Self-Esteem and Locus of Control." *Journal for the Scientific Study of Religion* 12, 297–310.

Bering, J. 2010. "Atheism Is Only Skin Deep: Geertz and Markusson Rely Mistakenly on Sociodemographic Data as Meaningful Indicators of Underlying Cognition." *Religion* 40: 166–168.

Berman, A., and Hays, J. 1973. "Relations Between Death Anxiety, Belief in Afterlife, and Locus of Control." *Journal of Consulting and Clinical Psychology* 41: 318.

Bollen, K., and Barb, K. 1981. "Pearson's R and Coarsely Categorized Measures." *American Sociological Review* 46: 232–239.

Bullivant, S., and Lee, L. 2012. "Interdisciplinary Studies of Non-Religion and Secularity: The State of the Union." *Journal of Contemporary Religion* 27: 19–27.

Burger, J., and Lynn, A. 2005. "Superstitious Behavior Among American and Japanese Professional Baseball Players." *Basic and Applied Social Psychology* 27: 71–76.

Byrne, B. M. 1989. *A Primer of LISREL: Basic Applications and Programming for Confirmatory Factor Analytic Models.* New York, NY: Springer.

Byrne, B. M. 1991. "The Maslach Burnout Inventory: Validating Factorial Structure and Invariance Across Intermediate, Secondary, and University Educators." *Multivariate Behavioral Research* 26: 583–605.

Byrne, B. M. 1994. *Structural Equation Modeling with EQS and EQS/Windows*. Thousand Oaks, CA: Sage.

Caldwell-Harris, C. L. 2012. "Understanding Atheism/Non-Belief as an Expected Individual-Differences Variable." *Religion, Brain and Behavior* 2: 4–23.

Carmines, E. G., and J. P. McIver. 1981. "Analyzing Models with Unobserved Variables." In *Social Measurement: Current Issues*, edited by G. W. Bohrnstedt and E. F. Borgatta, 65–115. Beverly Hills, CA: Sage.

Cheyne, J. A., and F. W. Britton. 2010. "Beyond Disbelief: A Study of Some 'Nones': Atheists, Agnostics, Humanists, Freethinkers, and Skeptics: A Preliminary Report." Available at www.arts.uwaterloo.ca/~acheyne/RAVS/Beyond_Disbelief_short.pdf.

Downey, A. 2014. "Religious Affiliation, Education, and Internet Use." Available at arxiv.org/pdf/1403.5534v1.pdf.

Durkheim, E. 1995 [1912]. *The Elementary Forms of Religious Life*, translated by Karen E. Fields. New York, NY: Free Press.

Ecklund, E. H., and K. S. Lee. 2011. "Atheists and Agnostics Negotiate Religion and Family." *Journal for the Scientific Study of Religion* 50: 728–743.

Faiia, M. 2011. "E-Identities, E-Activities, and E-Political Participation: How Are College Students Embracing the Promise of the Internet." In *The Proceedings of the 11th European Conference on Egovernment*, Ljubljana, Slovenia, 234–244.

Field, A. P. 2005. *Discovering Statistics Using SPSS*, 2nd Edition. London, UK: Sage.

Fiori, K., E. Brown, K. Cortina, and T. Antonucci. 2006. "Locus of Control as a Mediator of the Relationship Between Religiosity and Life Satisfaction: Age, Race, and Gender Differences." *Mental Health, Religion, and Culture* 9: 239–263.

Friedberg, B. A., and R. D. Friedberg. 1985. "Locus of Control and Religiosity in College Students." *Psychological Reports* 56: 757–758.

Furnham, A. 1982. "Locus of Control and Theological Beliefs." *Journal of Psychology and Theology* 10: 130–136.

Furnham, A. 1987. "A Content and Correlational Analysis of Seven Locus of Control Scales." *Current Psychological Research and Reviews*, 6: 244–255.

Galen, L. W. 2009. "Profiles of the Godless: Results from a Survey of the Nonreligious." *Free Inquiry* August/September: 41–45.

Galen, L. W., and J. Kloet. 2011. "Personality and Social Integration Factors Distinguishing Nonreligious from Religious Groups: The Importance of Controlling for Attendance and Demographics." *Archive for the Psychology of Religion* 33: 205–228.

Geertz, A. W., and G. I. Markusson. 2010. "Religion Is Natural, Atheism Is Not: On Why Everybody Is Both Right and Wrong." *Religion* 40: 152–165.

Groth-Marnat, G., and J. Pegden. 1998. "Personality Correlates of Paranormal Belief: Locus of Control and Sensation Seeking." *Social Behavior and Personality: An International Journal* 26: 291–296.

Hooper, D., J. Coughlan, and M. Mullen. 2008. "Structural Equation Modelling: Guidelines for Determining Model Fit." *Electronic Journal of Business Research Methods* 6: 53–60.

Horning, S., D. Hasker, M. Stirrat, and R. E. Cornwell. 2011. "Atheistic, Agnostic, and Religious Older Adults on Well-Being and Coping Behaviors." *Journal of Aging Studies* 25: 177–188.

House, J. S. 1995. *Americans' Changing Lives: Waves I and II, 1986 and 1989*. Ann Arbor, MI: Interuniversity Consortium for Political and Social Research.

Hu, L., and P. Bentler. 1999. "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives." *Structural Equation Modeling: A Multidisciplinary Journal* 6: 1–55.

Hui, C. H. 1982. "Locus of Control: A Review of Cross-Cultural Research." *International Journal of Intercultural Relations* 6: 301–323.

Hunsberger, B. and B. Altemeyer. 1997. *Amazing Conversions: Why Some Turn to Faith and Others Abandon Religion.* Amherst, NY: Prometheus Press

Hunter, L. 2010. "Explaining Atheism: Testing the Secondary Compensator Model and Proposing an Alternative." *Interdisciplinary Journal of Research on Religion* 6 (article 6): 1–37.

Hutchinson, S. 2009. "This Far by Faith?: Race Traitors, Gender Apostates, and the Atheism Question." *Black Agenda Report*. Available at blackagendareport.com/content/far-faith-race-traitors-gender-apostates-and-atheism-question

Jahoda, G. 1970. "Supernatural Beliefs and Changing Cognitive Structures Among Ghanaian University Students." *Journal of Cross-Cultural Psychology* 1*:* 115–130.

Kay, A. C., D. Gaucher, J. L. Napier, M. J. Callan, and K. Laurin. 2008. "God and the Government: Testing a Compensatory Control Mechanism for the Support of External Systems." *Journal of Personality and Social Psychology* 95: 18–35.

Keysar, A. 2007. "Who Are America's Atheists and Agnostics?" In *Secularism and Secularity: Contemporary International Perspectives*, edited by B. A. Kosmin, and A. Keysar, 33–39. Hartford, CT: ISSSC.

Kline, R. B. 1998. *Principles and Practice of Structural Equation Modeling*. New York, NY: Guilford.

Kline, R. B. 2005. *Principles and Practice of Structural Equation Modeling*, 2nd Edition. New York, NY: Guildford.

Kosmin, B. A. 2007. "Contemporary Secularity and Secularism." In *Secularism and Secularity: Contemporary International Perspectives*, edited by B. A. Kosmin, and A. Keysar, 1–13. Hartford, CT: ISSSC.

Kosmin, B. A., E. Mayer, and A. Keysar. 2001. *American Religious Identification Survey 2001*. New York, NY: Graduate Center of the City University of New York College. Available at www.americanreligionsurvey-aris.org.

Lachman, M. E. 1986. "Locus of Control in Aging Research: A Case for Multidimensional and Domain-Specific Assessment." *Psychology and Aging* 1: 34–40.

Lareau, A. 2003. *Unequal Childhoods: Class, Race, and Family Life*. Berkeley, CA: University of California Press.

Lefcourt, H. M. 1991. "Locus of Control." In *Measures of Personality and Social Psychological Attitudes: Volume 1 in Measures of Social Psychological Attitudes*, edited by J. P. Robinson, P. R. Shaver, and L. S. Wrightsman, 413–499. San Diego: Academic Press.

Levenson, H. 1974. "Activism and Powerful Others: Distinctions Within the Concept of Internal-External Locus of Control." *Journal of Personality Assessment* 38: 377–383.

Li, E., C. Feifer, and M. Strohm. 2000. "A Pilot Study: Locus of Control and Spiritual Beliefs in Alcoholics Anonymous and Smart Recovery Members." *Addictive Behaviors* 25: 633–640.

MacCallum, R., M. Browne, and H. Sugawara. 1996. "Power Analysis and Determination of Sample Size for Covariance Structure Modeling." *Psychological Methods* 1: 130–149.

Marsh, H., and D. Hocevar. 1985. "Application of Confirmatory Factor Analysis to the Study of Self-Concept: First- and Higher Order Factor Models and Their Invariance Across Groups." *Psychological Bulletin* 97: 562–582.

Merino, S. M. 2012. "Irreligious Socialization?: The Adult Religious Preferences of Individuals Raised with No Religion." *Secularism and Nonreligion* 1: 1–16.

Murk, D., and J. Addleman. 1992. "Relations Among Moral Reasoning, Locus of Control, and Demographic Variables Among College Students." *Psychological Reports* 70: 467–476.

Norenzayan, A., and W. Gervais. 2013. "The Origins of Religious Disbelief." *Trends in Cognitive Sciences* 17: 20–25.

Pasquale, F. L. 2007a. "Empirical Study and Neglect of Unbelief and Irreligion." In *The New Encyclopedia of Unbelief*, edited by T. Flynn, 760–766. New York, NY: Prometheus Books.

Pasquale, F. L. 2007b. "The Nonreligious in the American Northwest." In *Secularism and Secularity: Contemporary International Perspectives*, edited by B. A. Kosmin and A. Keysar, 41–58. Hartford, CT: ISSSC.

Pasquale, F. L. 2012. "The Social Science of Secularity." *Free Inquiry* February–March: 1–12.

Pearlin, L. I., E. G. Menaghan, M. G. Lieberman, and J. T. Mullan. 1981. "The Stress Process." *Journal of Health and Social Behavior* 22: 337–356.

Pew Research Center. 2010. "Change in Internet Access by Age Group." Pew Internet and American Life Project. Available at www.pewinternet.org/Infographics/2010/Internet-acess-by-age-group-over-time.aspx.

Piersma, H. L. 1974. "The Relationship Between Locus of Control and Religiosity." Ph.D. Dissertation, Purdue University. *Dissertation Abstracts International* 35: 3031.

Plug, C. 1975. "An Investigation of Superstitious Belief and Behavior." *Journal of Behavioral Science* 2: 169–178.

Pugh, A. 2009. *Longing and Belonging: Parents, Children, and Consumer Culture*. University of California Press.

Randall, T., and M. Desrosiers. 1980. "Measurement of Supernatural Belief: Sex Differences and Locus of Control." *Journal of Personality Assessmen*t 44: 493–498.

Rotter, J. B. 1966. "Generalized Expectancies for Internal Versus External Control of Reinforcement." *Psychological Monographs* 80: 1–28.

Russell, G., and D. Jorgenson. 1978. "Religious Group Membership, Locus of Control, and Dogmatism." *Psychological Reports* 42: 1099–1102.

Ryan, M., and A. Francis. 2010. "Locus of Control Beliefs Mediate the Relationship Between Religious Functioning and Psychological Health." *Journal of Religion and Health* 51: 774–785.

Saler, B., and C. A. Ziegler. 2006. "Atheism and the Apotheosis of Agency." *Temenos* 42: 7–41.

Scheidt, R. J. 1973. "Belief in Supernatural Phenomenon and Locus of Control." *Psychological Reports* 32: 1159–1162.

Schmidt, R. H. Lamm, and G. Trommsdorff. 1978. "Social Class and Sex as Determinants of Future Orientation in Adults." *European Journal of Social Psychology* 8: 71–90.

Sexton, P., D. Leak, and F. Toemies. 1980. "Relationship of Locus of Control and Modernity to Certainty of Religious Beliefs." *Psychological Reports*, 46: 1285–1286.

Sherkat, D. E. 2008. "Beyond Belief: Atheism, Agnosticism, and Theistic Certainty in the United States." *Sociological Spectrum* 28: 438–459.

Shermer, M. 2000. *How We Believe: The Search for God in an Age of Science*. New York, NY: W.H. Freeman.

Shrauger, J., and R. E. Silverman. 1971. "The Relationship of Religious Background and Participation to Locus of Control." *Journal for the Scientific Study of Religion* 10: 11–16.

Silvestri, P. 1979. "Locus of Control and God Dependence." *Psychological Reports* 45: 89–90.

Smith, C., and R. Cimino. 2012. "Atheisms Unbound: The Role of the New Media in the Formation of a Secularist Identity." *Secularism and Nonreligion* 1: 17–31.

Stanke, A. 2004. "Religiosity, Locus of Control, and Superstitious Belief." *UW-La Crosse Journal of Undergraduate Research* 7: 1–5. Available at www.uwlax.edu/urc/jur-online/PDF/2004/stanke.pdf.

Strickland, B. R., and S. Shaffer. 1971. "I-E, I-E, and F." *Journal for the Scientific Study of Religion* 10: 366–369.

Tong, J.T. 1978. "Relationship Between Belief in the Sovereignty of God, Religious Orientation, and Locus of Control." Ph.D. Dissertation, University of Southern California. *Dissertation Abstracts International* 39: 2811–2812.

Ullman, J. B. 2001. "Structural Equation Modeling." In *Using Multivariate Statistics*, 4th Edition, edited by B. G. Tabachnick and L. S. Fidell, 653–771. Boston, MA: Allyn and Bacon.

Voas, D., and A. Day. 2007. "Secularity in Great Britain." In *Secularism and Secularity: Contemporary International Perspectives*, edited by B. A. Kosmin and A. Keysar, 95–110. Hartford, CT: ISSSC.

Wang, L., E. Kick, J. Fraser, and T. J. Burns. 1999. "Status Attainment in America: The Roles of Locus of Control and Self-Esteem in Educational and Occupational Outcomes." *Sociological Spectrum* 19: 281–298.

Wheaton, B., B. Muthen, D. Alwin, and G. Summers. 1977. "Assessing Reliability and Stability in Panel Models." *Sociological Methodology* 8: 84–136.

Zuckerman, P. 2011. *Faith No More: Why People Reject Religion.* New York, NY: Oxford University Press.