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REEXAMINATION OF THE INTRATEXTUAL FUNDAMENTALISM SCALE STRUCTURE: THE IMPACT OF ADDITIONAL ITEMS

Ryan M. Tuggle

72 Pages

Hood, Hill, and Williamson (2005) proposed a new way of defining religious fundamentalism - one based on the principle of intratextuality. The principle of intratextuality states that fundamentalists derive truth through interpreting their sacred text. The six attitudes proposed as extensions of the principle of intratextuality were divine, inerrant, self-interpretive, privileged, authoritative, and unchanging (Williamson, Hood, Ahmad, Sadiq, & Hill, 2010). Exploratory factor analysis (EFA) was used to develop the Intratextual Fundamentalism Scale (IFS). The authors sought a multidimensional model with the six attitudes as latent variables, using principal components extraction and a Varimax (orthogonal) rotation. The authors failed to obtain a multidimensional model, however, and settled with a 12-item, unidimensional model.

The current study reexamined the IFS, improving the factor analytic procedures used by Williamson et al. (2010), including increasing the number of items per factor, using different factor extraction and rotation methods, and determining sample size through a power analysis. An EFA resulted in a 36-item, two-factor model – two methodological factors representing positively and negatively worded items. Adding a

general factor explaining religious fundamentalism to the two methodological factors was the best-fitting model tested through confirmatory factor analysis. For completeness, other plausible and theoretical models were tested, but the three-factor model fit the data better than the others, including the originally hypothesized six-factor model. Ultimately, the 36-item IFS model was similar to the 12-item IFS model presented in Williamson and Hood (2005) – a general factor representing religious fundamentalism in terms of the principle of intratextuality. The difference between the two models, however, was the presence of the two methodological factors, indicating a difference in response patterns between positively and negatively worded items. Regardless of what version of the IFS is used in the future, it is important that researchers account for the differing response patterns.

KEYWORDS: Religious Fundamentalism, Intratextual Fundamentalism Scale, Religion

REEXAMINATION OF THE INTRATEXTUAL FUNDAMENTALISM SCALE
STRUCTURE: THE IMPACT OF ADDITIONAL ITEMS

RYAN M. TUGGLE

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STRUCTURE: THE IMPACT OF ADDITIONAL ITEMS

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R. M. T.

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CHAPTER I

INTRODUCTION

Religious fundamentalism has become an increasingly popular subject among researchers in recent years. This popularity likely stems from the rise in terrorist acts across the world, and news coverage of these acts is commonplace and ubiquitous. Such coverage has led to a fear of terrorism, which, in turn, has led to a religiophobia and xenophobia. These fears are mostly tied to Islam and people from countries with a Muslim majority. Since terrorist attacks are often viewed as attacks driven by a terrorist's religious beliefs, it is not uncommon to hear the term "religious fundamentalist" used to describe a terrorist.

Religious fundamentalism, once being viewed in terms of social influence, was initially applied to those reacting negatively to modernity and desiring a "separation from the world" (Ammerman, 1987, p. 3). Using this application, the terrorists we are familiar with can be referred to as religious fundamentalists, as terrorists are often a part of terrorists groups that have an extreme hatred for the Western way of life – a life viewed by many to have embraced modernist trends. The world is currently heavily occupied with combating terrorism, because of the damage it has caused and continues to cause the world around us. Currently in the United States we are: attempting to remove ourselves from the Afghanistan and Iraq wars that attempted to dispel groups such as al-Qaeda and

the Taliban and were initiated by the terrorist attacks of 9/11; finding ourselves more involved in Syria and, again, Iraq to combat the Islamic State of Iraq and Syria (ISIS); mourning the loss of 14 people killed in a terrorist attack in San Bernardino, California; and debating the effectiveness of President Obama's dealings with Iran and their desire for nuclear power. All of these situations in some way can be viewed through the lens of religious fundamentalism.

So, as a society, it is important to understand what religious fundamentalism really is. Does religious fundamentalism have an aggressive component? If not, which fundamentalists will use aggression? Understanding religious fundamentalism will allow researchers to differentiate between those fundamentalists who are peaceful versus aggressive. This differentiation will, among other things, help society come to the realization that not all fundamentalists are aggressive (or, in terms of Islam, not all Muslims are terrorists). The actions of a few should not define the whole. Thus, understanding religious fundamentalism will help guide society to a more fair perspective toward those who are religiously devout and isolating themselves from a world that operates in a way that is not compatible with their view of how life should be lived.

CHAPTER II

REVIEW OF THE LITERATURE

History of Religious Fundamentalism Conceptualizations

Religious fundamentalism has been defined many different ways since the term was first applied to the Protestant movement in the early 1900s. One of the first uses of fundamentalism in research, found in Sandeen (1970), was an attempt to understand an observed reaction by American Protestants toward modernist trends (e.g., embracing higher biblical criticism and the theory of evolution). From this, fundamentalism was described as the level of one's commitment to certain "fundamentals of faith" that are used to defend against such modernist trends (Ammerman, 1987). Fundamentalism was thus defined by adhering to six particular beliefs: (1) the authority of the Bible, (2) the virgin birth of Jesus, (3) substitutionary atonement for sin, (4) the literal resurrection of Jesus, (5) miracles, and (6) millennialism (Ammerman, 1987). The next important conceptualization of religious fundamentalism came from Marty and Appleby (1991–1995). These volumes used a definition of religious fundamentalism that held militancy – the idea that fundamentalists, beginning as traditionalists, react or fight back when they feel their core identity is being challenged or threatened (Marty & Appleby, 1991) – as its defining feature. Furthermore, this was the first attempt to move beyond a belief-based definition (e.g., Allah revealing the Qur'an to Muhammad would only apply to Islamic

doctrine) and develop a cross-cultural conceptualization. A second cross-cultural conceptualization of religious fundamentalism also had aggression or militancy in its core. This was the extension of religious fundamentalism as an expression of right-wing authoritarianism (Altemeyer, 1988, 1996). Right-wing authoritarianism has been shown to consist of three constructs: authoritarian submission, authoritarian aggression, and conventionalism. Authoritarian aggression is “a general aggressiveness, directed against various persons, that is perceived to be sanctioned by established authorities” (Altemeyer, 1996, p. 7). Authoritarian aggression is essentially what Marty and Appleby (1991–1995) meant when referring to militancy, and thus the terms can be used interchangeably. For consistency, I will use the term *aggression* from here on out. Hood et al. (2005), however, point out that not all fundamentalists use aggression to defend their beliefs, and thus a new conceptualization of religious fundamentalism arose.

The Principal of Intratextuality

Recently, Hood et al. (2005) proposed religious fundamentalism with the principle of *intratextuality* as its defining feature. The principle of intratextuality refers to “(1) the tendency of fundamentalists to give centrality to a sacred text as the foundation of objective truth, and (2) the interpretive process through which the particulars of that objective truth are derived” (Williamson et al., 2010, p. 723). Sacred texts, for example, include the Torah for Jews, the Bible for Christians, and the Qur’an for Muslims. There are other texts (e.g., Hadiths for Muslims, the Book of Mormon for Mormons, and the Watchtower publications for Jehovah’s Witnesses) that the religious value in addition to their sacred text. One text is typically given more weight over the others, however, and it is this sacred text that the principle of intratextuality is based upon. The non-

fundamentalist counterpart to the principle of intratextuality is the principle of *intertextuality*, where a person may consult the sacred text as well as other authoritative texts (e.g., history, science, other sacred texts, scholarly criticism, etc.) to derive meaning about the world. The intertextual perspective does not hold any text above all others (Hood et al., 2005). Williamson et al. (2010) argue that it is the sacred text and *intratextual* interpretation that “lead the fundamentalist to the discovery of absolute truths that are non-negotiable and that stand beyond the person as a ground of objective reality against which the person makes sense of life and interprets the meaning of personal experiences” (p. 723).

Based on the principle of intratextuality, Williamson and Hood (2005) identified six attitudes that “fundamentalists maintain toward their sacred text” (p. 8). The following definitions of the attitudes were found verbatim in Williamson et al. (2010).

- (1) Divine – The sacred text is considered to be of divine origin. The text is not a product of the human mind, although certain humans were chosen by the deity to receive its truth and write it down in text form. Since it was given by the deity, it is accepted to be absolutely divine as a revelation to all humanity.
- (2) Inerrant – Without question, the sacred text is held to be inerrant. It stands as objective truth and contains no inconsistencies, errors, or contradictions whatsoever. Any “so-called” inconsistencies pointed out by critics always are reconciled in some way to sustain this attitude.
- (3) Self-interpretive – The sacred text is sufficient in and of itself for understanding the divine intent and meaning of the author. For the fundamentalist, no outside sources, such as scholarly criticism, science, or

history, are necessary for deriving the true interpretation of the text. Outside sources may be consulted, although their offerings are accepted only in so far as they support and illuminate what is perceived as the abiding truth in the text.

- (4) Privileged – The sacred text is given a privileged status above all other texts, even though other texts may be regarded by others also as sources of divine truth. Fundamentalists may even acknowledge and respect sacred texts of other religious traditions; however, they do not consider them in any way to be on the same footing as their own sacred text.
- (5) Authoritative – The sacred text is considered to be authoritative. Its claims on truth are superior to those of other texts or other sources of authority such that, whenever conflict arises among them, the sacred text is the final authority.
- (6) Unchanging – The sacred text is immutable and timeless; thus, it never changes. Therefore, the absolute truths that emerge from interpretation of the text are eternal and always dependable for understanding reality and dictating life. Although the world and times may change, the unchanging text serves as a steadfast anchor and point of reference for how that life is to be lived and understood. (pp. 723-724)

These six attitudes served as the initial theoretical model and guided item development of the authors' new religious fundamentalism scale – the IFS.

Expressions of Religious Fundamentalism

The principle of intratextuality has been used to explain different expressions of religious fundamentalism. Hood et al. (2005) provided examples of religious

fundamentalism among different Protestant groups, the Amish, Muslims, and several others. The following paragraphs use two of their examples to explore some faith-to-faith differences in religious fundamentalism, as well as emphasize how the principle of intratextuality can be used to explain these vastly different expressions of fundamentalism.

American Protestants

The first example of fundamentalism given by Hood et al. (2005) was the American Protestants. The authors state that the American Protestant fundamentalist movement arose based on two challenges: (1) the theory of evolution and (2) Biblical “higher criticism,” which refers to the consideration of other texts – texts viewed as reliable sources of information – in an attempt to critique the Bible. As a result, American Protestant fundamentalists today, according to Ammerman (1991), believe in inerrancy of the scripture, evangelism, premillennialism, separatism, and biblical literalism. These characteristics can be explained well by using the principle of intratextuality.

The American Protestants are clearly using the Bible to develop beliefs about the world. They believed that the Bible is incapable of being wrong, and they take the text literally, hence the belief in premillennialism. Premillennialism refers to the Second Coming of Jesus Christ and is presented in the books of Daniel and the Revelation (Ammerman, 1987). Furthermore, separatism can be explained by the second part of the definition of the principle of intratextuality (i.e., “the interpretive process through which the particulars of that objective truth are derived” [Williamson et al., 2010, p. 723]). From reading the Bible, the American Protestants have sought uniformity of beliefs and expressions of those beliefs in the way they live their lives. Thus, they distance

themselves from others who do not share those beliefs and live their lives differently.

The expression of American Protestant fundamentalism can thus be explained through the lens of the principle of intratextuality.

Amish

A second example of religious fundamentalism can be found when examining the Amish – a sectarian society that emphasizes “the necessity of absolute separation from all other religious and civic loyalties” (Hood et al., 2005, p. 133). The Amish are distinct from most fundamentalist groups in that they do not attempt to propagate their beliefs to others. The Amish find salvation through a community that is separate from larger society. Although different from the stereotypical fundamentalists, the principle of intratextuality can still be used to explain the Amish. The Amish, a Christian sect, supplement the Bible with the use of unwritten oral narratives (the charter and *Ordnung*) and teachings to develop an understanding of the world. The Amish continue to maintain their social structure by the values taught within their sacred text and oral teachings, and, thus, the principle of intratextuality can be used to accurately explain the process and structure of beliefs without concern for the specific beliefs.

These examples help highlight the point Lawrence (1989) made in regards to understanding religious fundamentalism. Lawrence stated that in order to understand fundamentalism, one must consider the *context* and *countertext* of the social movement. By this, he meant that the context is the same across religions, as all fundamentalist movements are a reaction to modernity. The differences between movements, however, arise in how they respond to the modernity (i.e., the countertext). Thus, the principle of intratextuality can explain the common process and structure that ensues once a

fundamentalist group reacts to modernism. Furthermore, the principle of intratextuality does not attempt to explain the differences between fundamentalist groups. The conceptualization of fundamentalism allows for groups to differ in their expression of fundamentalism.

The Intratextual Fundamentalism Scale

The IFS was developed to measure religious fundamentalism as defined by Hood et al. (2005). The IFS ignores possible differences between religious traditions and looks generally at religious fundamentalism. Furthermore, the scale was made content free by using “the Sacred Writing” in place of a specific sacred text (e.g., the Bible, Torah, or Qur’an). The development of the measure began with pilot work using EFA methods, as referenced in Williamson and Hood (2005). The authors started with a 12-item pool, using one pro-trait and one con-trait for each of the six attitudes. The goal, according to the first author (W. P. Williamson, personal communication, August, 27, 2014), was to develop a multidimensional scale with latent factors representing each of the six attitudes. A multidimensional model, however, never fit the data well. Several attempts were made to produce a multidimensional model, each time tweaking the wording of items and collecting new data. Ultimately, the authors settled on a 12-item, unidimensional model, with the single factor representing religious fundamentalism as explained by the principle of intratextuality. Williamson et al. (2010), using CFA techniques, produced two plausible models: a 4-item, unidimensional model (including one item representing the inerrant, authoritative, privileged, and unchanging factors), and a 5-item, unidimensional model (including one item representing the divine, inerrant, authoritative, privileged, and unchanging factors). The authors ultimately settled on the 5-item model, as goodness-of-

fit statistics, overall, were better for the 5-item IFS. The models that Williamson and Hood (2005) and Williamson et al. (2010) settled upon were unexpected, however, and several alternate procedural decisions throughout the development of the IFS could have aided in identifying a plausible multidimensional model.

IFS Development Issues

Before discussing the alternate decisions, it is necessary to emphasize the importance of having a clean factor structure – a result of making sound procedural decisions throughout the factor analytic process. The usefulness of identifying the factor structure is that it will help researchers understand how the pieces (i.e., the attitudes or factors) fit into the bigger puzzle (i.e., religious fundamentalism as explained by the principle of intratextuality). Furthermore, factor analysis techniques will allow researchers to understand the relation between factors. Many of the attitudes that Williamson et al. (2010) proposed appear to be highly related (e.g., divine and inerrant), and thus factor analytic techniques will help show whether these attitudes are indeed unique and necessary for capturing religious fundamentalism. Finally, having a clean factor structure would allow the use of subscale scores in future research. For example, researchers may be interested in how religious fundamentalism differs across fundamentalist groups. A theoretically backed and empirically derived factor structure, with adequate subscales measuring each factor, would allow researchers to examine the differences between fundamentalist groups at the factor level. Thus, identifying a clean factor structure will help researchers not only understand the relation between factors of religious fundamentalism, but also give researchers the power to see which factors are

most important when analyzing the relation of religious fundamentalism with other constructs.

Factor analysis is a useful technique for, among other things, helping guide researchers to an initial theoretical understanding of constructs (Fabrigar, Wegener, MacCallum, & Strahan, 1999) and scale development and validation (Floyd & Widaman, 1995). Many procedural decisions have to be made by researchers employing factor analytic techniques, and often these decisions can significantly impact the final results. Although factor analysis is a commonly used technique within the Psychology discipline, researchers, prior to using such techniques, should be acquainted with the purpose and use of factor analysis. Many researchers have guidelines to follow for properly employing factor analytic techniques (e.g., Fabrigar et al., 1999; Floyd & Widaman, 1995; Kahn, 2006). In my assessment of the factor analytic techniques employed by Williamson and Hood (2005) and Williamson et al. (2010) in developing the IFS, I found several deviations from these guidelines. The impact of many of the deviations appears to be minor, but the collection of all of them may have prevented the authors from obtaining an adequate measure for religious fundamentalism as explained by the principle of intratextuality – a measure that conforms to the underlying structure of religious fundamentalism – and an understanding of how the factors relate – an understanding that will be useful to researchers who continue to study religious fundamentalism in such terms. With that, I will now discuss the issues with the development of the IFS that I identified.

One issue with the development of the 12-item IFS was the limited number of items per hypothesized attitude (i.e., latent factor). The authors had only two items per

latent factor. Fabrigar and Wegener (2012) suggest having between three and five items per latent factor, with more always being better. If it is the case that religious fundamentalism is a multidimensional construct, increasing the ratio of measured variables, p , to latent factors, r , results in an increased likelihood of recovering population parameters (Browne, 1968). Thus, Williamson and Hood (2005) may have needed to increase the number of measured variables per hypothesized latent factor to determine if religious fundamentalism is likely multidimensional.

Another issue regarding the development of the IFS was the authors' use of principal components analysis (versus common factor analysis). Principal components analysis (PCA) and common factor analysis are both used to reduce a set of measured variables into a smaller number of variables, while retaining as much variability as possible. The two approaches, however, differ mathematically and conceptually (Fabrigar & Wegener, 2012). Mathematically, common factor analysis partitions the variance into common variance (i.e., variance shared between measured variables) and unique variance (i.e., variance unique to a given measured variable). PCA does not partition variance and attempts to explain all of the variance in the measured variables. This mathematical distinction guides how researchers interpret the results from each analysis. Conceptually, the components extracted using PCA should not be interpreted as meaningful latent constructs, as the components are simply linear combinations of the measured variables explaining as much variance as possible in the measured variables. With common factor analysis, however, researchers can interpret the factors as meaningful latent constructs, as the factors represent only the common variance (Floyd & Widaman, 1995).

Although these two techniques differ mathematically and conceptually, some researchers believe the two methods can be used interchangeably, or even prefer PCA to common factor analysis (e.g., see Velicer & Jackson, 1990a, 1990b). Researchers' rationale for preferring to use PCA (versus common factor analysis) tends to be that: (1) PCA is less computationally intensive; (2) the results between the two are often similar; (3) PCA will never produce a Heywood case – a situation in which an estimated communality is equal to or greater than 1.00, which is a “conceptually implausible or impossible estimate” (Fabrigar & Wegener, 2012, p. 32); and (4) individual scores can be computed (Fabrigar & Wegener, 2012). Counterarguments to such rationale have been provided, however, for all four of the reasons for using PCA over common factor analysis listed above. As found in Fabrigar and Wagener (2012), the counterarguments are as follows: (1) the issue of computational time is now essentially irrelevant with the advancements in computer technology; (2) results will differ in certain situations, most notably when communalities are low (below .40) and few measured variables are used per factor (Widaman, 1993); (3) the Heywood case is a useful indicator of a misspecified model or assumptions being violated in the data; and (4) the primary goal of factor analysis does not typically involve the need to compute factor scores. Given the mathematical and conceptual differences, along with the arguments researchers have presented for using common factor analysis over PCA, common factor analysis may have been a better approach to use for assessing the underlying structure of religious fundamentalism for scale development purposes.

The next development issue was the authors' use of Varimax rotation - an orthogonal rotation method. When examining a multidimensional model (i.e., making an

assumption of multiple factors), an infinite number of solutions fit the data equally well. Since a unique solution does not exist, rotation methods were developed to help choose a solution that is “most easily interpretable, psychologically meaningful, and replicable” (Fabrigar et al., 1999, p. 281). Such a solution will result in a linear combination of factor loadings that preserve the same association between factors. Two common types of rotation methods exist to find such a solution – orthogonal and oblique. Orthogonal rotations keep factors uncorrelated, whereas oblique rotations allow for correlations between factors. Williamson and Hood (2005) used Varimax rotation, a popular orthogonal rotation. I argue that, due to the uncertainty in how the attitudes relate to one another, an oblique rotation may have helped increase the understanding of the relation between attitudes. It may be the case that the factors are orthogonal, but an oblique rotation would be necessary to first show that the factors are not correlated. Ultimately, though, the authors were unable to identify a plausible multidimensional model. Factor rotations are not performed on unidimensional models, and thus the rotation method used by the authors in prior modeling attempts never altered the unidimensional, 12-item IFS. In this thesis, however, I will be evaluating several multidimensional models, and thus using an oblique rotation method will be important for understanding the relation between factors.

The final issue is the Williamson et al.’s (2010) use of modification indices. The 12-item IFS derived through EFA in Williamson and Hood (2005) was analyzed with two different samples in Williamson et al. (2010) using CFA techniques. Using modification indices, the authors removed items that would improve their model fit. Modification indices show the degree to which the χ^2 statistic will improve if the parameter is

removed. The authors ultimately proposed a 5-item IFS. As is shown in Table 1, however, both models failed to overall meet the standards required for acceptable model fit. Thus, I am unsure of why the authors cut out more than half of their items – items that were soundly developed through many item revisions and samples, other than to develop a shorter scale. Furthermore, as Kahn (2006) mentions, a theoretical rationale should guide model modification, rather than empirically-based results. Based on Williamson et al.'s (2010) results showing poor model fit for both of the 5- and 12-item models, further examination of the IFS is needed.

Table 1

Comparing Fit Indices of the 5-item and 12-item IFS Models Presented by Williamson et al. (2010)

	χ^2	<i>df</i>	NNFI	CFI	RMSEA	SRMR
12-item	187.15	54	.84	.87	.13	.07
5-item	20.00	5	.92	.96	.15	.05

Purpose of Thesis and Hypotheses

Religious fundamentalism has long been studied by researchers. In 2005, Williamson and Hood developed the original IFS to capture religious fundamentalism as explained by the principle of intratextuality. The IFS does not attempt to explain aggression directly, which is the notable difference with other common measures of religious fundamentalism (e.g., the Religious Fundamentalism Scale [RFS] and Right-Wing Authoritarianism Scale [RWAS]).

Factor analysis techniques were used to attempt to understand the underlying structure of the latent construct of religious fundamentalism and develop the IFS. After understanding the process undertaken to develop the IFS, however, I realized that a few procedural factor analysis decisions may have prevented the authors from accurately understanding the underlying structure of religious fundamentalism as explained by the principle of intratextuality.

The purpose of this thesis was to develop additional IFS items and reexamine the IFS structure using different factor analysis techniques. Note, several different IFSs are discussed throughout and I will qualify each IFS with the number of items when clarification regarding which IFS is being used is needed. EFA was used to understand the underlying structure of religious fundamentalism as explained by the principle of intratextuality. Also, the EFA was used to assess the degree to which the new items load onto their intended factor. Items not loading well will be dropped. That is, if a new item's variance was not explained by the intended underlying construct, then the item was not included in subsequent analyses. The resulting EFA-produced model was then compared to the models identified by Williamson and Hood (2005) and Williamson et al. (2010) to determine the best-fitting, most parsimonious, and theoretically meaningful model. Specifically, CFA techniques were used to compare all of the plausible models identified at this point: the EFA-produced model(s), Williamson and Hood's (2005) 12-item, unidimensional model, and Williamson et al.'s (2010) 5-item, unidimensional model. Furthermore, the 36-item IFS was again compared to other measures of religious fundamentalism to examine differences, if any, focusing on whether aggression is

important to understanding religious fundamentalism. Thus, my hypotheses were as follows:

1. The principle of intratextuality, as measured by the 36-item IFS, will suggest a multidimensional construct, aided by the inclusion of more items per hypothesized factor.
2. The six hypothesized factors will be correlated, as evidenced by the use of an oblique rotation method.
3. The 36-item IFS will result in a better fitting model than the original, 12-item IFS and the 5-item IFS.
4. The 36-item IFS will positively correlate with other measure of religious fundamentalism and religiosity.
5. The 36-item IFS will correlate more strongly with the RWAS once removing RWAS items tapping into the right-wing authoritarian construct of authoritarian aggression.

CHAPTER III

METHODS

Participants

Participants were recruited through Amazon's Mechanical Turk (MTurk). MTurk is an online resource for, among other things, researchers to post surveys and compensate willing workers for survey completion (Aguinis & Lawal, 2013). In 2007, Pontin reported that MTurk had over 100,000 workers in more than 100 countries. Using an MTurk tracker for the most updated demographic information, Ipeirotis' (2015) blog showed that, of the current MTurk workers: almost 80% were from the U.S. (most of the rest being from India and China); 50% were male; 50% were born in the 1980s (versus 20% from both the 1970s and 1990s); 40% were single (versus 40% married and 10% cohabitating); and the median household income was around \$50,000 for those living in the U.S. Buhrmester, Kwang, and Gosling (2011) argued that MTurk resulted in data at least as reliable and valid as traditional sampling methods and samples that were more demographically diverse than typical American college samples. Furthermore, the authors determined that reasonable compensation did not significantly alter the quality of data collected. Given MTurk's ability to provide reliable and valid data while providing a potentially demographically diverse sample, I posted my survey on MTurk.

A total of 988 participants were recruited through MTurk in less than two weeks. Of the 988 participants, 637 (64%) identified as religious and 351 identified as non-

religious (36%). See Table 2 for a breakdown of religious affiliation. Given the importance of the religious fundamentalism measures to this study, 129 participants were removed for not answering at least 75% of items for all three religious fundamentalism scales. Furthermore, the three participants who selected “Other” for religious affiliation were removed for denoting an unidentifiable religious affiliation or non-religious affiliation, leaving 505 participants to be analyzed. Additionally, those who selected “Other” and reported a religious affiliation that was included in the list of possible religious affiliations were changed to the correct religious affiliation (e.g., those selecting “Other” for religious affiliation and identifying as Catholic were changed to “Christian”). Table 2 also provides a breakdown of religious affiliation for only the religious participants. Finally, of the 15 religious participants selecting “Other” for religious affiliation, 1 (7%) participant each identified as a Gnostic Christian and Pantheist; 2 (13%) identified as Unitarian Universalist; 3 (20%) identified as Thelemite; 7 (47%) identified as Wiccan, and 1 (7%) did not specify. Note, analyses from this point on will refer to the sample of 505 participants, although certain analyses will differ due to incomplete responses and due to randomly splitting the sample in half (for the EFA and CFA portions of the analyses).

Table 2

Frequency and Percent for All (N = 988) and Only Religious (N = 505) Participants

Religious Affiliation	All Participants		Religious Participants	
	<i>N</i>	%	<i>N</i>	%
Agnostic	171	17%	-	-
Atheist	138	14%	-	-
Buddhist	10	1%	7	1%
Christian	493	50%	400	79%
Hindu	9	1%	7	1%
Jewish	21	2%	13	3%
Muslim	4	1%	3	1%
Spiritual but not Religious	71	7%	60	12%
None	37	4%	-	-
Other	28	3%	15	3%
I'd rather not say	5	1%	-	-

Basic participant demographic information was collected for this study. The mean age of the participants was 39.62 ($SD = 13.31$). Of those reporting their gender, 175 (35%) were male; 322 (64%) were female; 1 (<1%) was transgender, and 1 (<1%) did not want to say. Of those reporting their race, 385 (76%) identified as Caucasian; 29 (6%) identified as Latino(a) or Hispanic; 54 (11%) identified as African-American or Black; 1 (<1%) identified as Arab or Middle Eastern; 23 (5%) identified as Asian or Pacific

Islander; 5 (1%) identified as bi-racial or multi-racial, and 3 (1%) did not want to disclose their race.

Measures

If participants identified as religious (i.e., selecting “Buddhist”, “Christian”, “Hindu”, “Jewish”, “Muslim”, “Spiritual but not Religious”, or “Other”), they received the measures below. Furthermore, to determine if “Other” was a religious or non-religious affiliation, participants selecting “Other” were asked to report their specific religious affiliation. If participants identified as non-religious (i.e., selecting “Agnostic”, “Atheist”, “None”, or “I’d rather not say”), they received unrelated pilot study measures.

Intratextual Fundamentalism Scale

The IFS, created by Williamson and Hood (2005), was originally a 12-item scale measuring one’s attitude toward his or her sacred text. Each of the six attitudes (i.e., extensions of the principle of intratextuality) had one pro-trait and one con-trait (i.e., two items per attitude). The items were assessed on 9-point Likert scale with 1 being “Strongly Disagree” and 9 being “Strongly Agree.” A pro-trait example item is, “The Bible is without question the words of God” (Divine), and a con-trait example item is, “The words of the Bible have at least some contradictions and/or errors” (Inerrant). Williamson et al. (2010) replaced “Bible” with “Sacred Writing” to use the IFS in multiple religious contexts, and instructions were placed before the survey telling participants to consider “Sacred Writing” a reference to the sacred text of their religion.

Williamson and Hood (2005) reported a Cronbach’s alpha of .94 for scores from the 12 items. Furthermore, the authors provided validity evidence for the IFS by reporting that the measure positively correlated with other measures of religious fundamentalism

(convergent validity) and correlated to a lesser degree with Batson and Schoenrade's (1991) Quest Scale and Altemeyer's (1988) Religious Doubts Scale (divergent validity).

The revised IFS used in this study, however, has a total of 36 items – the 12 original IFS items and 24 newly developed items. The 24 new items are intended to continue to measure one's attitude toward his or her sacred text and were based on the factor definitions provided by Williamson et al. (2010). Due to time constraints, the new items were not pilot tested, but they were improved through feedback from graduate student colleagues, and from W. P. Williamson and R. W. Hood (two of the three original authors who developed the IFS). The same 9-point scale was used, with the same directions regarding how to interpret "Sacred Writing." A new pro-trait example item is, "The Sacred Writing is an expression of God's intent" (Divine), and a new con-trait example item is, "Scholars and historians have pointed out valid errors that question the truthfulness of the Sacred Writing" (Inerrant). See Appendix A for a complete list of the 36-item IFS items. Con-trait items were reverse coded, so higher scores indicate a more fundamentalist attitude (i.e., an intratextual interpretation), whereas lower scores indicate a non-fundamentalist attitude (i.e., an intertextual interpretation).

Reliability was measured using Cronbach's alpha. The reliability of the composite scores of all 36 items was .97, a slight improvement over the reliability among the present data of the original 12-item IFS items ($\alpha = .94$) and the items included in Williamson et al.'s (2010) 5-item IFS ($\alpha = .90$). Reliability for hypothesized factor scores were also adequate (Divine: $\alpha = .89$; Inerrant: $\alpha = .93$; Authoritative: $\alpha = .85$; Self-Interpretive: $\alpha = .82$; Privileged: $\alpha = .88$, and Unchanging: $\alpha = .82$).

Religious Fundamentalism Scale

Altemeyer and Hunsberger's (2004) revised RFS is a 12-item scale developed with religious fundamentalism operationalized in Altemeyer and Hunsberger (1992) as

the belief that there is one set of religious teachings that clearly contains the fundamental, basic, intrinsic, essential, inerrant truth about humanity and deity; that this essential truth is fundamentally opposed by forces of evil which must be vigorously fought; that this truth must be followed today according to the fundamental, unchangeable practices of the past; and that those who believe and follow these fundamental teachings have a special relationship with the deity. (p. 118)

The original RFS was a 20-item scale developed by Altemeyer and Hunsberger (1992), but it was thought to have problems such as measuring some aspects of the definition more than others and having redundant items (Altemeyer & Hunsberger, 2004). Due to such problems, Altemeyer and Hunsberger (2004) shortened the RFS to the 12 items that, across multiple samples, fixed the issues mentioned above. Scores from the revised RFS, when compared to the original RFS, has been shown to have just as good internal consistency ($\alpha = .91$ for both measures) and improved construct validity (Altemeyer & Hunsberger, 2004). Given the improvements in the revised RFS over the original RFS, I used the revised RFS. Any reference to the RFS from here on refers to the 12-item, revised RFS.

The RFS items were measured on a 9-point Likert scale with 1 being “Very Strongly Disagree” and 9 being “Very Strongly Agree.” A pro-trait example item is, “God has given humanity a complete, unfailing guide to happiness and salvation, which must be totally followed,” and a con-trait example item is, “No single book of religious teachings contains all the intrinsic, fundamental truths about life.” See Appendix B for a complete list of RFS items. Con-trait items were reversed coded, so higher scores indicate a more fundamentalist attitude. The reliability for scores from the RFS items was high ($\alpha = .95$).

Right-Wing Authoritarianism Scale

Altemeyer and Hunsberger’s (2005) RWAS is a 20-item scale based on Altemeyer’s (1996) operationalization of fundamentalism as a “religious manifestation of authoritarianism” (p. 161). Right-wing authoritarianism is composed of three distinct attitudinal facets:

- (1) Authoritarian submission—a high degree of submission to the authorities who are perceived to be established and legitimate in the society in which one lives.
- (2) Authoritarian aggression—a general aggressiveness, directed against various persons, that is perceived to be sanctioned by established authorities.
- (3) Conventionalism—a high degree of adherence to the social conventions that are perceived to be endorsed by society and its established authorities.

(Altemeyer, 1996, p. 7)

The RWAS was originally a 34-item scale, but the 20-item, revised version, as discussed in Williamson et al. (2010), has been shown to produce scores with similar

levels of internal consistency ($\alpha \approx .90$). Furthermore, in a U.S. and Pakistani sample, the 20-item, revised RWAS positively correlated with the RFS (.59 and .63) and the 5-item IFS (.50 and .47), respectively. Given that the 20-item, revised RWAS's scores did not drop in internal consistency and the measure correlated with other measures of religious fundamentalism, I used the 20-item, revised RWAS. Any reference to the RWAS from here on refers to the 20-item, revised RWAS.

The RWAS was assessed on a 9-point Likert scale with 1 being "Very Strongly Disagree" and 9 being "Very Strongly Agree." A pro-trait example item is, "This country would work a lot better if certain groups of troublemakers would just shut up and accept their group's traditional place in society" (Conventionalism); a con-trait example item is, "A 'woman's place' should be wherever she wants to be; the days when women are submissive to their husbands and social conventions belong strictly in the past" (Submission and Conventionalism). See Appendix C for a complete list of the RWAS items. Con-trait items were reversed coded, so higher scores indicate a more fundamentalist attitude. The reliability of the RWAS scores was high ($\alpha = .95$).

Religious Orientation Scale

The Religious Orientation Scale (ROS) was used to measure the religiosity of the sample for primarily descriptive purposes. Allport and Ross (1967) developed the original 20-item ROS that made a distinction between intrinsic and extrinsic religious orientations. Extrinsic religious orientation refers to how one uses his or her religion for some other purpose, whereas intrinsic religious orientation refers to how someone is motivated by his or her religion in and of itself (Allport & Ross, 1967). In 1983, Gorsuch and Venable adapted the original measure to make it more useful for 5th graders and

above. Additionally, the authors reworded the questions to focus on the motivational aspects of religion, not the behavioral aspects. The adapted measure is referred to as the “Age Universal” I-E Scale and was shown to be a reliable and valid alternative to the 20-item ROS. Thus, I chose the “Age Universal” I-E Scale questions over the original, 20-items.

Researchers made an additional distinction within religious orientation. Kirkpatrick (1988) showed that the intrinsic/extrinsic factor structure could be further broken down into intrinsic, extrinsic-personal, and extrinsic-social factors, so I also made this distinction. Since it has been shown that one item per factor can assess intrinsic, extrinsic-personal, and extrinsic-social religious orientations reasonably well and the purpose of using the ROS was primarily to check the religiosity of the sample, I only used the three-item scale presented in 1989 by Gorsuch and McPherson (versus all 20 items of the “Age Universal” form of ROS). The intrinsic item, “My whole approach to life is based upon religion,” measures one’s “commitment to religion based on the value of religion itself;” the extrinsic-personal item, “What religion offers me most is comfort in times of trouble and sorrow,” measures one’s “use of religion for gain of personal comfort, protection, and security,” and the extrinsic-social item, “I go to church mainly because I enjoy seeing people I know there,” measures one’s “concern with religion for the benefit of social relationships” (Williamson et al., 2010, p. 726).

Gorsuch and McPherson (1989) assessed items with a 5-point Likert scale from 1 being “Strongly Disagree” to 5 being “Strongly Agree,” so I maintained the integrity of the original scale. All three items are pro-trait items, and thus higher scores indicate higher religiosity. Gorsuch and McPherson (1989) demonstrated sufficient reliability for

all three items, as well as construct, convergent, and discriminant validity. Furthermore, the ROS has been shown to have concurrent validity (Miller, Maskaly, Peoples, & Sigillo, 2014; Ryan, Rigby, & King, 1993).

Procedure

To recruit participants through MTurk I included relevant search terms, such as “Religion,” “Bible,” “Qur’an,” “Torah,” “God,” “Allah,” “Temple,” “Church,” and “Mosque.” After finding and selecting the posting (i.e., HIT) on MTurk, workers were given a one-sentence description of the research and told the survey would take approximately 20 minutes to complete. The survey was restricted to only those living in the U.S, due to the potential language barrier from those participating in other countries. The following restrictions were placed: a HIT approval rate (percentage of worker’s HITs that are accepted by the researcher) of greater than or equal to 90%, and 50 or more HITs approved. These restrictions were used to reduce the chance of poor quality responses and to get reasonably experienced workers, respectively. If choosing to continue, participants were asked to follow a link to my SelectSurvey questionnaire. Participants were randomly assigned to one of three SelectSurvey questionnaires. To prevent ordering effects, the three questionnaires presented the three religious fundamentalism scales in differing orders, with order developed using a Latin square design to come up with all unique possibilities. Before beginning, participants were asked to read the informed consent. Underneath the informed consent was an “Accept” button. Clicking “Accept” served as their signature to the informed consent and took them to the beginning of the questionnaire. The demographic information was presented first, regardless of which of the three questionnaires the participants were piped to. The religious or non-religious

measures were presented next, based on their response to the religious affiliation question. Religious participants received the ROS next, and the survey ended with the three religious fundamentalism measures. Items within each measure were also randomized. Participants were compensated \$0.20 for participation, regardless of whether they completed all of the items. Note that religious affiliation was required, however, as a response was necessary for determining whether participants should receive the religious or non-religious measures. This approach was employed so as to reduce the likelihood of participants saying they are religious just so they can participate and be compensated. At the end of the survey, participants were debriefed and provided a randomly generated completion code. The completion code was required for participants wanting to be compensated. Participants entered the code in MTurk and were automatically compensated six hours later. The delay was used to reduce the chance of poor-quality data (i.e., if the survey said compensation was automatic, participants may have been inclined to skip items, knowing that they were going to get paid immediately, regardless of the quality of their responses). Compensation was restricted to first-time participants only.

CHAPTER IV

RESULTS

Descriptive Statistics

The information below contains descriptive summaries, broken down by scale (and subscale for the 36-item IFS). Total scores for each scale, except the ROS, were computed using the mean item score with missing values being imputed. A total score was not computed for participants not answering at least 75% of the items for a given scale. Mean scores were used instead of sums for easy comparison between scales, as each religious fundamentalism scale had a different number of items. A total score for the ROS items was not calculated because it was used for descriptive purposes only. Again, the intent with the ROS was to compare the single-item factor scores of this sample to that of Williamson et al.'s (2010) reported scores.

The three religious fundamentalism measures were measured on a 9-point scale. The mean 36-item IFS score was 5.10 ($SD = 1.77$). Table 3 contains means and standard deviations for each hypothesized, 36-item IFS factor, as well as the intra-attitude correlations. The mean RFS score was 5.17 ($SD = 2.15$), and the mean RWAS score was 4.51 ($SD = 1.82$). The total scores for the three religious fundamentalism measures were approximately normal. All three total scores, however, showed some positive kurtosis (heavy tails) and a higher number of neutral responses (than would be expected for conforming to a normal distribution). Williamson et al. (2010) reported total scores,

whereas I used mean scores. With access to their data, I computed mean scores for all three religious fundamentalism measures. The mean of the IFS, RFS, and RWAS found was 4.43, 4.21, and 3.67, respectively. Williamson et al.'s (2010) distributions of mean scores, however, were left-skewed, especially for the IFS and RFS. Thus, my sample averaged higher mean scores on all religious fundamentalism measures, whereas Williamson et al. (2010) had a high proportion of more fundamentalist scores.

Table 3

Means, Standard Deviations, and Correlations for Hypothesized IFS Factors

Factor	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Divine	5.94	1.92	-				
2. Inerrant	4.35	2.27	.74	-			
3. Authoritative	5.00	1.89	.81	.85	-		
4. Self-Interpretive	4.81	1.74	.69	.78	.81	-	
5. Privileged	5.20	2.01	.81	.79	.88	.78	-
6. Unchanging	5.32	1.82	.85	.82	.85	.76	.84

Note. All correlations were significant at $p < .001$.

ROS item means were also calculated. The mean was 3.32 ($SD = 1.25$) for intrinsic; 3.59 ($SD = 1.10$) for extrinsic personal, and 2.26 ($SD = 1.01$) for extrinsic social. Like Williamson et al. (2010), extrinsic personal and intrinsic orientations were the highest. Williamson et al. (2010) used a 9-point Likert scale for the ROS items,

whereas I used a 5-point Likert scale. Thus, due to the difference in scales, there is no way to accurately compare the ROS items across samples.

Power Analysis

To determine the total sample size needed, a preliminary power analysis was conducted for both the EFA and CFA portions. Many different recommendations have been made regarding sample size in factor analysis, and the following information was found in MacCallum, Widaman, Zhang and Hong (1999). Some researchers have recommended a minimum necessary sample size, with sample sizes varying from $N \geq 100$ to $N \geq 1,000$. Additionally, other researchers have recommended using a $N:p$ or $p:r$ ratio, where p is the number of observed variables and r is the number of hypothesized factors, with minimum ratios ranging from 3 to 10. A more evidence-based approach, and the approach recommended by the authors, is one where sample size needed is determined using previously reported communalities. Communalities refer to the proportion of variance in measured variables accounted for by the common factors. Williamson and Hood's (2005) data had communalities falling in the *wide communality* category (i.e., communalities between 0.20 and 0.80). With wide communalities and a reasonable $p:r$ ratio (at least 20:7), MacCallum et al. (1999) showed that a sample size of 200 would sufficiently recover population factors. Thus, I sought to collect at least 200 participants for the EFA portion of the analyses.

The CFA power analysis was based on the findings of MacCallum, Browne, and Sugawara (1996). With 36 items, 36 error terms, and 15 correlations between factors, the degrees of freedom for my hypothesized model was 579. MacCallum et al. (1996) showed that with degrees of freedom greater than 100 and a sample size of 200,

researchers would achieve 95% power. Therefore, I sought to collect at least 200 participants for the CFA portion of the analyses.

In total, then, with 200 participants needed for the both the EFA and CFA, I needed at least 400 participants. Once data collection ended and after cleaning the data, I had a sample of 505 participants. The sample was randomly split in half, resulting in 250 participants for the EFA and 254 participants for the CFA. No significant differences were found between the two data sets when examining various demographic items, religious orientation, and the religious fundamentalism scales.

Exploratory Factor Analysis

Before beginning, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to determine if the data was factorable. The KMO measure of sampling adequacy is a ratio of “the squared correlation between variables to the squared partial correlations between variables” (Field, 2013, p. 684) and bound between 0 and 1. Values closer to 1 represent factorable data, with values greater than .80 being sufficient for continuing with factor analysis of the data (Hutcheson & Sofroniou, 1999). Examination of the KMO measure of sampling adequacy for the 36-item IFS items in the EFA sample suggested that the items were factorable ($KMO = .96$). Thus, an EFA was conducted.

An EFA using principal-axis factoring (PAF) was conducted on the 36 IFS items with 191 complete cases (out of 250) from the EFA sample, using IBM SPSS Statistics (Version 22.0). Note, participants not answering at least 75% of the 36-item IFS items (i.e., 27 items) were removed when cleaning the data, so the 59 participants that were not included in the EFA were participants not responding to an item here and there (versus participants failing to respond to a large number of items). The purpose of the EFA was

to identify common factors among variables, so PAF was used instead of PCA.

Furthermore, because the data were not multivariate normal, maximum likelihood could not be used due to violations of the assumption of multivariate normality. Table 4 lists the means and standard deviations for all items, and Table 5 lists the eigenvalues and percent of variance explained for the first five factors (i.e., the factors greater than 1.00).

Table 4

IFS Item's Sample Size, Mean, and Standard Deviation

Item	<i>N</i>	<i>M</i>	<i>SD</i>
ifs1_d1	245	5.86	2.65
ifs2_d2	249	5.72	2.60
ifs3_d3	246	6.57	2.14
ifs4_d4	246	6.20	2.50
ifs5_d5	248	5.90	2.48
ifs6_d6	250	4.98	2.33
ifs7_i1	247	4.75	2.95
ifs8_i2	250	4.34	2.54
ifs9_i3	250	4.11	2.78
ifs10_i4	244	4.59	2.42
ifs11_i5	245	4.04	2.61
ifs12_i6	246	4.32	2.61
ifs13_a1	250	4.94	2.83

(Table Continues)

Item	<i>N</i>	<i>M</i>	<i>SD</i>
ifs14_a2	247	5.10	2.56
ifs15_a3	250	5.24	2.62
ifs16_a4	247	4.34	2.32
ifs17_a5	250	5.69	2.56
ifs18_a6	249	4.82	2.56
ifs19_si1	250	5.17	2.61
ifs20_si2	247	5.52	2.31
ifs21_si3	250	5.16	2.64
ifs22_si4	247	3.68	2.16
ifs23_si5	249	5.42	2.56
ifs24_si6	247	4.11	2.29
ifs25_p1	248	5.37	2.75
ifs26_p2	246	4.88	2.63
ifs27_p3	243	5.57	2.73
ifs28_p4	247	4.58	2.55
ifs29_p5	247	5.21	2.59
ifs30_p6	248	5.13	2.48
ifs31_u1	246	6.01	2.52
ifs32_u2	250	4.81	2.59
ifs33_u3	247	4.88	2.76
ifs34_u4	249	4.59	2.41

(Table Continues)

Item	<i>N</i>	<i>M</i>	<i>SD</i>
ifs35_u5	247	6.58	2.31
ifs36_u6	250	5.08	2.49

Table 5

Factor Eigenvalues, Percent of Variance Accounted For, and Cumulative Percent

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
1	19.13	53%	53%
2	3.11	9%	62%
3	2.16	6%	68%
4	1.08	3%	71%
5	1.02	3%	74%

In determining the number of factors to retain, several different criteria were used. The Kaiser criterion (i.e., eigenvalues-greater-than-one rule) suggested the extraction of five factors. As noted in Kahn (2006), however, this method for determining how many factors to extract is only appropriate for PCA. Examination of the scree plot (i.e., plotting the eigenvalues for each item and examining the number of eigenvalues occurring before the scree – the point where the eigenvalues begin to flatten out) suggested the extraction of three factors. A third method, parallel analysis, plots the eigenvalues of the scree plot, along with the eigenvalues produced by randomly generated datasets using the same

number of variables and number of cases. The number of factors to extract, then, is the number of eigenvalues from the sample that are greater than the corresponding eigenvalue from the random dataset. As stated in Kahn (2006), this is the most effective way to determine the number of factors to extract. As can be observed in Figure 1, the parallel analysis suggests extracting three factors.

Figure 1. Parallel analysis based on EFA sample. $N = 191$.

Several different factor solutions were forced, including one-, two-, three-, four-, and five-factor solutions, and all multidimensional models were rotated using Promax rotation. My starting point, based on the parallel analysis, was the three-factor model.

The rotated sums-of-squared loadings for the three factors were 17.26, 14.45, and 6.39. Examination of the structure coefficients showed (a) Factor 1 comprised all positively worded items; (b) Factor 2 comprised the majority of the negatively worded items, and (c) Factor 3 comprised the remaining negatively worded items. The four- and five-factor models showed a similar pattern of (a) a strong factor comprised positively worded items, and (b) weaker, uninterpretable factors comprised the negatively worded items, with one of those weaker factors comprising the majority of the negatively worded items. The six-factor model was examined for completeness, as that was the model originally hypothesized. Like the aforementioned models, the six-factor model was not interpretable and suggested the likelihood of methodological factors existing.

The possible presence of methodological factors based on positively and negatively worded items led me to force a two-factor solution. Extracted sums-of-squared loadings for the two factors (18.77 and 2.67) were evened out after rotation (17.57 and 14.92), and the two factors correlated by .71. A second rotational method, Direct Oblimin, was used in addition to Promax. Furthermore, different kappa (for Promax) and delta (for Direct Oblimin) values were used. The results were all nearly identical, and thus I settled on using Promax rotation with the default kappa value of 4. Examination of structure coefficients showed one factor with all of the positively worded items and a second with all of the negatively worded items. Based on the structure coefficients (i.e., the correlations between variables and factors, attenuated by the degree of relation between factors), it seems likely the factors are methodological and can tentatively be named based on the directionality of the items (for naming factors, see Gorsuch, 1983 or Kahn, 2006). Table 6 contains the pattern and structure coefficients for the two-factor

solution. Structure coefficients are also commonly used for identifying poor items. Researchers typically suggest removing items with structure coefficients below .40, although different thresholds are used depending on how stringent the researcher wants to be (Kahn, 2006). Based on the structure coefficients for ifs16_a4 and ifs22_si4, the items were identified as potentially poor items. Because the largest of the two structure coefficients were above .38 for both items (i.e., just below the commonly used .40 cut-off), I decided not to remove the items from future analyses.

Table 6

Pattern and Structure Coefficients for IFS Items

Item	Structure		Pattern	
	Coefficients		Coefficients	
	Factor 1	Factor 2	Factor 1	Factor 2
ifs1_d1	.88	.64	.85	.03
ifs2_d2	.58	.76	.09	.70
ifs3_d3	.72	.49	.75	-.04
ifs4_d4	.50	.66	.07	.61
ifs5_d5	.88	.62	.89	-.00
ifs6_d6	.57	.77	.05	.74
ifs7_i1	.90	.62	.92	-.03
ifs8_i2	.65	.80	.17	.68
ifs9_i3	.76	.55	.74	.03

(Table Continues)

Item	Structure		Pattern	
	Coefficients		Coefficients	
	Factor 1	Factor 2	Factor 1	Factor 2
ifs10_i4	.67	.79	.22	.63
ifs11_i5	.81	.62	.74	.10
ifs12_i6	.72	.75	.37	.49
ifs13_a1	.91	.63	.93	-.03
ifs14_a2	.61	.78	.11	.71
ifs15_a3	.87	.56	.95	-.11
ifs16_a4	.08	.39	-.39	.66
ifs17_a5	.88	.64	.85	.04
ifs18_a6	.72	.85	.25	.67
ifs19_si1	.80	.51	.88	-.11
ifs20_si2	.42	.60	.00	.60
ifs21_si3	.82	.57	.83	-.01
ifs22_si4	.18	.38	-.17	.50
ifs23_si5	.81	.56	.84	-.03
ifs24_si6	.46	.58	.10	.51
ifs25_p1	.87	.67	.80	.10
ifs26_p2	.58	.71	.16	.59
ifs27_p3	.89	.61	.92	-.04
ifs28_p4	.53	.72	.03	.70

(Table Continues)

Item	Structure		Pattern	
	Coefficients		Coefficients	
	Factor 1	Factor 2	Factor 1	Factor 2
ifs29_p5	.78	.49	.87	-.12
ifs30_p6	.56	.79	.01	.78
ifs31_u1	.83	.60	.81	.03
ifs32_u2	.63	.80	.13	.71
ifs33_u3	.68	.52	.64	.07
ifs34_u4	.43	.63	-.03	.65
ifs35_u5	.71	.50	.72	-.00
ifs36_u6	.46	.69	.04	.71

Note. Pattern coefficients above $\pm .40$ were bolded.

Confirmatory Factor Analysis

Upon completion of the exploratory analyses, LISREL 8.8 and R 3.3.1 was used for confirming dimensionality via CFAs. Several goodness-of-fit indices were used for examining how well the data fit the model and model comparison. The chi-square statistic indicates the difference between the model-reproduced covariance matrix and the actual covariance matrix, with larger values representing more of a difference between the two matrices. The chi-square statistic, however, is biased by sample size, as is the ratio of the chi-square statistic to degrees of freedom (Kahn, 2006). The chi-square statistic is inflated when sample size is high, which is generally the case with CFAs (Hu & Bentler, 1995). Furthermore, the chi-square statistic is inflated with violations of

multivariate normality. The Satorra-Bentler (SB) scaled chi-square statistic is an alternative to the normal-theory chi-square statistic. The SB scaled chi-square statistic corrects for multivariate nonnormality using a correction factor based on the amount of multivariate kurtosis (Bryant & Satorra, 2012). The SB scaled chi-square statistic, in addition to being used for examining model fit, can be used for model comparison. Specifically, the SB scaled chi-square difference test was used for comparing nested models. Several pieces of information are required for calculation of the SB scaled chi-square difference test. Specifically, the Normal Theory Weighted Least Squares (NTWLS) chi-square statistic, SB scaled chi-square statistic, and correction factor are used for calculations (for an explanation of the calculations, see Bryant & Satorra, 2012). For comparisons of models not nested, the Akaike information criterion (AIC) was used.

The other fit indices used included the Nonnormed Fit Index (NNFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean-Squared Residual (SRMR). The NNFI and CFI are comparative fit indices that compare the hypothesized model to a null model (i.e., a model in which the variables are assumed to be uncorrelated). Comparative fit indices, then, are the improvement in the hypothesized model over the null model, with the statistic bound between 0 and 1. Through Monte Carlo studies, Hu & Bentler (1999) found values of .95 or better were indicative of good model fit. Another group of fit indices, absolute fit indices, measure the degree to which the hypothesized model fits in comparison to no model. The RMSEA and SRMR are two examples of absolute fit indices. These fit indices are also bound between 0 and 1, and the recommended cutoffs are .06 and .08, for the RMSEA and SRMR, respectively (Hu & Bentler, 1999).

The data set used for the CFA-portion of the analyses included the other half of the randomly sampled data set and contained 254 participants, but only the 206 complete cases were used for the CFAs. Maximum likelihood (ML) was used for model estimation, with the estimation procedure using the covariance and asymptotic covariance matrices. The asymptotic covariance matrix was provided to reduce the potential effects of multivariate nonnormality.

Four different models were compared. First, a unidimensional model was tested, with the single factor representing religious fundamentalism. A unidimensional model was proposed by Williamson and Hood (2005) and Williamson et al. (2010). The unidimensional model was also tested to determine if two (or more) factors were even necessary. The next model tested was the two-factor model derived through EFA, with each factor representing methodological factors for positively and negatively worded items. The third model, a unidimensional model with two methodological factors representing positively and negatively worded items, was tested for theoretical reasons. Two methodological factors helps explain the differing response patterns for positively and negatively worded items, but the question remained as to whether or not a general factor explaining religious fundamentalism could further improve model fit. Figure 2 shows the path diagram of the third model. And finally, again for completeness, the originally hypothesized, six-factor model was tested, with each factor representing one of the six principles of intratextuality proposed by Williamson et al. (2010). All four models were confirmed to be identified, using Bollen's (1989) guidelines.

Figure 2. Three-factor model. Path diagram with one general factor representing religious fundamentalism in terms of the principle of intratextuality and two methodological factors representing positively and negatively worded items. Note, not all observed variables were shown, but the “...” was used to represent the missing items.

The first model tested, the unidimensional model, fit the data poorly, as can be seen in Table 7. None of the four fit indices used for examining goodness-of-fit met the standard thresholds used, although the NNFI, CFI, and SRMR were within .02 of the recommended cutoffs for a well-fitting model. Given that the model was a poor fit, the two-factor model was tested next. Examination of the chi-square statistics shows a large improvement in the two-factor model over the one-factor model. The NNFI, CFI, and SRMR all met the recommended cutoffs, and the RMSEA was only .02 above the recommended .08 cutoff. Due to the high correlation between factors (.82), as well as the theoretical importance in having a general factor to explain religious fundamentalism, a

third model – a unidimensional model with two methodological factors – was tested. The third model met all of goodness-of-fit indices’ cutoffs and, when examining the AIC, provided further evidence of improved model fit. See Table 8 for a list of estimated parameters for the three-factor model. The fourth model – a six-factor model, performed slightly better than the first model based on the chi-square statistic but failed to meet any of the recommended cutoffs for the goodness-of-fit statistics. Thus, the six-factor model was a poor-fitting model.

Table 7

CFA Fit Indices for the Four 36-item IFS Models Examined (N = 206)

Model	SB χ^2	df	AIC	NNFI	CFI	RMSEA	SRMR
1-Factor	3186.93	594	3330.93	.93	.94	.15	.10
2-Factor	1797.92	593	1943.92	.97	.97	.10	.08
3-Factor	967.35	557	1185.35	.99	.99	.06	.06
6-Factor	2971.60	579	3145.60	.94	.94	.14	.10

Note. SB χ^2 = Satorra-Bentler Scaled chi-square; *df* = degrees of freedom; AIC = Akaike information criterion; NNFI = Non-Normed Fit Index; CFI Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean-Squared Residual.

Table 8

Completely Standardized Solution for the Three-Factor IFS Model

	RF	Positive	Negative	θ_{δ}
ifs1_d1	-0.08	0.87	-	0.23
ifs2_d2	0.11	-	0.82	0.31
ifs3_d3	0.23	0.86	-	0.21
ifs4_d4	0.42	-	0.80	0.17
ifs5_d5	0.09	0.89	-	0.19
ifs6_d6	-0.16	-	0.72	0.45
ifs7_i1	-0.28	0.91	-	0.10
ifs8_i2	-0.37	-	0.82	0.18
ifs9_i3	-0.49	0.81	-	0.11
ifs10_i4	-0.23	-	0.82	0.28
ifs11_i5	-0.52	0.76	-	0.15
ifs12_i6	-0.32	-	0.77	0.30
ifs13_a1	-0.24	0.89	-	0.15
ifs14_a2	-0.05	-	0.87	0.25
ifs15_a3	-0.27	0.82	-	0.26
ifs16_a4	-0.39	-	0.21	0.81
ifs17_a5	-0.05	0.88	-	0.22
ifs18_a6	-0.19	-	0.86	0.22

(Table Continues)

	RF	Positive	Negative	θ_{δ}
ifs19_si1	-0.23	0.82	-	0.27
ifs20_si2	0.11	-	0.74	0.44
ifs21_si3	-0.29	0.77	-	0.33
ifs22_si4	-0.38	-	0.42	0.68
ifs23_si5	-0.14	0.75	-	0.42
ifs24_si6	-0.43	-	0.59	0.47
ifs25_p1	-0.11	0.89	-	0.19
ifs26_p2	-0.16	-	0.67	0.53
ifs27_p3	-0.07	0.91	-	0.16
ifs28_p4	-0.09	-	0.53	0.71
ifs29_p5	-0.16	0.87	-	0.22
ifs30_p6	-0.01	-	0.83	0.32
ifs31_u1	0.06	0.85	-	0.27
ifs32_u2	-0.07	-	0.78	0.38
ifs33_u3	-0.35	0.70	-	0.39
ifs34_u4	-0.23	-	0.57	0.62
ifs35_u5	0.17	0.88	-	0.19
ifs36_u6	-0.04	-	0.69	0.52

Note. RF = Religious Fundamentalism factor; Positive = Positively worded items factor; Negative = Negatively worded items factor; θ_{δ} = Unique variance

Correlational Analyses

Correlations between the 36-item IFS, RFS, and RWAS were examined, and the results are presented in Table 9. The 36-item IFS was highly correlated with the RFS ($r = .93$) and to a lesser degree with the RWAS ($r = .77$). To further examine the relationship between the 36-item IFS and RWAS, like Williamson et al. (2010), two RWAS subscales were constructed using RWAS items related to aggression. The first subscale, Right-Wing Aggression (RWAG), included all items related to aggression (Items 1, 5, 8, 12, 14, 15, and 17 in Appendix C). The second subscale, Right-Wing People Aggression (RWPAG), included only the aggression items referring to aggression towards people (Items 5, 14, 15, and 17). Unlike Williamson et al. (2010), the correlations between the IFS and RWAG ($r = .60$) and IFS and RWPAG ($r = .60$) remained significant. Like Williamson et al. (2010), however, both of the RWAS subscales correlated to a lesser degree than the original correlation between the IFS and RWAS ($r = .77$).

Table 9

Correlations between 36-item IFS, RFS, RWAS, Aggression Items of RWAS – RWAG, and Aggression Toward People Items of RWAS – RWPAG (N = 505).

	IFS	RFS	RWAS	RWAG
RFS	.93	-		
RWAS	.77	.78	-	
RWAG	.60	.63	.90	-
RWPAG	.60	.64	.89	.98

Note. All correlations were significant at $p < .001$.

Correlations between the 36-item IFS, demographic variables, and ROS items were also examined, and the results are presented in Table 10. The IFS significantly correlated with age as well as intrinsic and extrinsic personal religious orientations. Intrinsic religious orientation significantly correlated with age and the extrinsic personal item, while extrinsic social significantly correlated with age (negatively) and extrinsic personal.

Table 10

Correlations between the 36-item IFS, Sex, Age, and ROS Items (N = 505).

	Age	Intrinsic	Extrinsic-P	Extrinsic-S
Intrinsic	.12**	-		
Extrinsic-P	.00	.38**	-	
Extrinsic-S	-.15**	.06	.20**	-
IFS-R	.18**	.67**	.34**	-.00

Note. ** = $p < .01$.

Correlations between the different IFSs were also examined. The correlation between the 36-item IFS and 12-item IFS was .98 ($p < .01$), and the correlation between the 36-item IFS and 5-item IFS was .97 ($p < .01$). Finally, the correlation between the 12-item IFS and 5-item IFS was .98 ($p < .01$). Additional correlations can be found in Appendix D.

CHAPTER V

DISCUSSION

Implications of Findings

The current study aimed to reexamine the IFS's structure. There were several reasons for undertaking such a study. First, it was important to determine if the procedural errors made during the original development of the scale impacted the results. Second, this study served as a replication study. Given the IFS's strength in measuring religious fundamentalism without referring to specific religious beliefs or aggression, this replication study will help to further validate the IFS.

This study determined that the procedural errors minimally impacted the original results. Through EFAs and CFAs, I determined that a general factor of religious fundamentalism in terms of the principle of intratextuality still holds, like what Hood and Williamson (2005) and Williamson et al. (2010) found. The key difference, however, was the methodological factors that were identified as a result of adding more items to the scale. The presence of methodological factors suggests that religious fundamentalists differ in how they respond to positively and negatively worded items.

This first step in the current study was creating additional items. As previously mentioned, it is important to have at least three to five items per hypothesized factor when conducting factor analyses (Fabrigar & Wegener, 2012). This study increased the number of items per hypothesized factor to six, whereas Williamson and Hood (2005)

only had two items per factor with the original, 12-item IFS. The quality of items was judged during the EFA. Almost all of the 24 newly developed loaded well onto at least one factor. The two items that were questionable, ifs16_a4 (When attempting to understand the world, there are times when other texts are more useful than the Sacred Writing) and ifs22_si4 (To fully understand God's intent, one must not only read the Sacred Writing but also consult additional sources of information), were included in all of the analyses throughout the study. Future researchers using these items, however, may want to tweak the wording or simply leave them out.

Several different EFAs were conducted for this study. Of the many EFAs conducted, only two were interpretable. The first plausible model was the one-factor model – a model with a single religious fundamentalism factor. The two-factor model, however, was also plausible. Based on the alternating pattern of pattern coefficients, corresponding to positively and negatively worded items, I decided to further investigate the notion of methodological factors through CFA.

Several different CFAs were tested next, with two plausible models existing among them. The two-factor model, again representing positively and negatively worded items, fit the data well (i.e., all fit indices met the recommended cutoffs except the RMSEA). The two-factor model, however, is not all that interesting because it does not account for religious fundamentalism. The two factor model simply explains a response bias due to the directionality of the items. Given that the focus of this study was religious fundamentalism in terms of the principle of intratextuality through the IFS (and not response biases between positively and negatively worded items), it was important to investigate whether or not a general religious fundamentalism factor could further

improve model fit. Thus, a three-factor model was tested, with a general factor representing religious fundamentalism and two methodological factors accounting for the difference in responses between positively and negatively worded items. The three-factor model fit the data better than the two-factor model on all fit statistics used to compare models and met all recommended thresholds for a well-fitting model. Furthermore, as stated before, the three-factor model is theoretically meaningful. The three-factor model accounts for religious fundamentalism with the general factor and the response bias with the two methodological factors.

There are two things about the CFAs that I will now discuss. The first issue is in regards to the correlation between methodological factors. The correlation was added because of the noticeably high correlation that exists between factors. Methodological factors often have small loadings compared to substantive factors (W. J. Schneider, personal communication, October 3, 2016). With the correlation estimated, we get generally large loadings for the methodological factors and small loadings for the general, religious fundamentalism factor. If I remove the correlation, the opposite is true – the larger loadings are now with the general, religious fundamentalism factor and the methodological factors have smaller loadings. Theoretically, I believe removing the correlation is the best approach. It is more theoretically meaningful to have religious fundamentalism explaining most of the common variance, while the two methodological factors explain small differences in responses based on the directionality of the items.

The second issue is in regards to the methodological factors actually being substantive factors. Rather than being positively and negatively worded factors, the factors could be referred to as threat and social desirability or affirming and defending

one's beliefs. That is, the negative IFS items may threaten one's beliefs about their religious text (Jonas et al., 2014), whereas the positive items may trigger socially desirable responses. Empirically, the results would look the same, so to be conservative, I referred to the factors as methodological factors.

The final focus of the study included examining the correlation between the 36-item IFS and RWAS, as well as developing two RWAS subscales that included all items related to aggression (RWAG) and then only aggression items focusing on aggression towards people (RWPAG). Williamson et al. (2010) used this method to show that the IFS measured religious fundamentalism without including aggression-related items, as the correlation between the IFS and RWAS was stronger than the correlation between the IFS and RWAG and RWPAG. Although a decrease in correlation was observed, the 36-item IFS, RWAG, and RWPAG were all significantly correlated, unlike the results of Williamson et al. (2010). Note, the pattern of significant correlations holds true regardless of whether the 5-item, 12-item, or 36-item IFS is used (see Appendix D). The difference in correlations between my sample and Williamson et al.'s (2010) could be due to the larger sample size from my sample or differences in sample demographics. It is difficult to speculate on this issue because the RWPAG subscale only includes four items. With so few items, I believe a reliable and valid result is difficult to obtain, although a large sample size will help improve reliability. The significant correlations between the IFS, RWAS, and RWAS subscales may even be expected. The IFS does not measure aggression directly, but an aggressive fundamentalist may respond to items with extreme responses (1s or 9s, depending on the directionality of the item), especially negative items that may come across as threatening. If this is the case, we would expect the

correlations between the IFS, RWAS, and RWAS subscales to remain significant. Thus, the IFS would be measuring aggression indirectly, which still considers the fact that not all fundamentalists are aggressive.

Limitations of Study

While the study did improve upon some of the limitations of the original IFS, the study had its own limitations. First, the sample was collected on MTurk, which has been shown to include participants who are more secular and less committed to their religious traditions than undergraduate college samples (Lewis, Djupe, Mockabee, & Su-Ya Wu, 2015). Williamson and Hood (2005) and Williamson et al. (2010) collected participants at a university located in the “Bible Belt”, a region aptly named due to the high religiosity (Moore & Ovadia, 2006; Woodberry & Smith, 1998). I was concerned with two potential problems regarding my sample: 1) that my sample would not get a wide range of fundamentalist responses, specifically the intratextual or fundamentalist direction, unlike the “Bible Belt” samples from Williamson et al. (2010) and Williamson and Hood (2005), and 2) that any potential nonnormality would bias my factor analysis results. Regarding the first potential issue, I first confirmed that mean IFS scores approximated a normal distribution, implying that my sample had both intertextual and intratextual responses. Furthermore, mean IFS, RFS, and RWAS scores were actually higher than those reported by Williamson and Hood (2005) and Williamson et al. (2010). Regarding the second potential issue, I corrected for any nonnormality by not using maximum likelihood estimation (which requires multivariate normality) for EFAs and providing an asymptotic covariance matrix for all CFAs. Thus, although my sample was collected on MTurk, I am confident that my sample was not significantly different than samples from

Williamson and Hood (2005) or Williamson et al. (2010), nor was my sample biased by any nonnormality that existed in the data.

A second limitation of the study is sample size. Although the correlational analyses utilized all 505 participants, the factor analyses used approximately half as many. I sought to collect at least 200 participants for both the EFAs and CFAs based on the power analyses conducted, but after cleaning the data and omitting incomplete cases, I ended up with only 191 and 206 complete cases for the EFAs and CFAs, respectively. Thus, only the EFA failed to reach 200 participants. Future researchers may consider examining the number of incomplete cases to guide their decision regarding when to stop collecting data. Such a strategy may help researchers avoid falling below their desired sample size number after cleaning the data and considering that factor analyses only use cases where all items in question have responses.

Another limitation of this study is the lack of pilot testing the 24 new IFS items. Williamson et al. (2010) pilot tested the original 12 items over several samples, so the final product was a set of well-developed items. The 24 items I created, although reviewed by my colleagues and two of the original authors (W. P. Williamson and R. W. Hood), would certainly have been improved through pilot testing. Fortunately, of the 24 items, it seems that only two of the items had serious flaws.

A final limitation is that I used the original, 5-point scale for the three ROS items, whereas Williamson et al. (2010) used the same 9-point scale that all of the other scales were measured on. This was an oversight on my part. I intended to compare my ROS scores to Williamson et al.'s (2010) scores to show that the religiosity of my sample was not different than theirs. Even though ROS comparisons were not possible, I was able to

at least compare the religious fundamentalism measures, given access to Williamson et al.'s (2010) data. Ultimately, it was shown that the samples did not differ significantly across the three religious fundamentalism measures.

Future Directions

This study, like most, left many questions unanswered. If researchers are interested in using the longer, 36-item IFS, they may consider pilot testing the items. Although it appears that all but two of the new items loaded well onto their expected factors, some tweaking of the new items' wording may help increase the loadings, especially the loadings for the general religious fundamentalism factor.

Given that the methodological factors appeared in this study and not in Williamson et al. (2010), it may be useful to examine why response patterns differ between positively and negatively worded items. Specifically, researchers could examine whether the factors are methodological factors or substantive factors (for examples, see Kahn & Hessling, 2001; Marsh, 1996; Tomas & Oliver, 1999).

A third possible direction is settling on the "best" version of the IFS. Currently there is the 5-item IFS proposed by Williamson et al. (2010), the original, 12-item IFS developed by Williamson and Hood (2005), and the 36-item IFS used in this study. The 5- and 12-item IFSs will be more convenient to use because of the shorter length but have yet to meet the thresholds needed for acceptable model fit. The 36-item IFS, although a well-fitting model, may be too lengthy of a measure for researchers to use. Thus, further research may help determine if the IFS can be represented by fewer than 36 items while still maintaining adequate model fit.

A fourth possible direction is whether or not the IFS can be broken down into meaningful subscales. Williamson et al. (2010) proposed six attitudes that help explain the principle of intratextuality. Based on their definitions, it is clear that the attitudes are both distinct and seemingly necessary for accounting for all aspects of the principle of intratextuality. In both this study and Williamson et al. (2010), however, the high degree of correlation between the attitudes led to a single factor for religious fundamentalism (versus distinct factors for each attitude). As mentioned previously, the identification of reliable subscales accounting for these attitudes would help researchers determine whether or not differences in attitudes exist across different religious traditions. Future research, therefore, may try to identify new attitudes that encompass the notion of intratextuality or further examine the six attitudes initially proposed by Williamson et al. (2010).

Finally, future research is needed to address whether or not aggression is important to religious fundamentalism. I was initially drawn to the IFS because it did not directly measure aggression yet still reliably measured religious fundamentalism and correlated with other measures of religious fundamentalism. Given that the results of my study differed slightly from Williamson et al. (2010) in terms of the correlations among the IFS, RWAS, RWAG, and RWPAG, further research is needed to help clarify the relationship of aggression and religious fundamentalism. As it stands, scores from the IFS seem to be reliable and valid indicators of religious fundamentalism without the possible stereotype of aggression that is included in the RFS and RWAS. The RWAS subscales, however, are limited by the small number of items. Future research may seek to address

this issue by using a scale that includes more items related to aggression and aggression towards people, and then examining the correlation between those items and the IFS.

Concluding Remarks

The current study provides empirical support for a new, 36-item IFS. The most notable difference found in the results of the study compared to Williamson et al. (2010) is the identification of methodological factors for positively and negatively worded items. Researchers must be mindful of the differing responses based on the directionality of the item. Overall, however, the results of this study overwhelmingly align with those of Williamson et al. (2010). This study provides further evidence that the scores from the IFS are reliable and valid indicators of religious fundamentalism – a measure that does not directly measure aggression or refer to any specific religious beliefs. While future research may help further understand the dimensionality of the IFS and the relationship of aggression and religious fundamentalism, the current study showed the procedural errors in developing the IFS did not impact the IFS structure found by Williamson et al. (2010), but the inclusion of more items did bring to light the methodological factors.

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APPENDIX A

INTRATEXTUAL FUNDAMENTALISM SCALE (36-ITEM)

Item Number	Hypothesized IFS Factors and IFS Items
	Divine
+1	The Sacred Writing is without question the words of God.
-2	The Sacred Writing is not really the words of God, but it is an extraordinary book of human wisdom, truths, and understanding about life.
+3*	The Sacred Writing is an expression of God's intent.
-4*	The Sacred Writing was written by man with no directive from God.
+5*	The Sacred Writing may have been written by man, but the words came directly from God.
-6*	God's message may have been altered or distorted when the Sacred Writing was converted into text or passed down through oral traditions.
	Inerrant
+7	Everything in the Sacred Writing is absolutely true without question.
-8	The words of the Sacred Writing have at least some contradictions and/or errors.
+9*	There are absolutely <i>no</i> errors contained in the Sacred Writing.
-10*	Scholars and historians have pointed out valid errors that question the truthfulness of the Sacred Writing.
+11*	There are absolutely <i>no</i> inconsistencies within the Sacred Writing.
-12*	Inconsistencies can be found within the Sacred Writing.
	Authoritative
+13	The Sacred Writing should never be doubted, even when scientific or historical evidence outright disagrees with it.
-14	If what the Sacred Writing says disagrees with the findings or discoveries of science, then what science says is probably closer to what is really true.
+15*	Regardless of what information is sought, the Sacred Writing will <i>always</i> provide a better account of that information than any other text.
-16*	When attempting to understand the world, there are times when other texts are more useful than the Sacred Writing.
+17*	If a message in the Sacred Writing disagrees with a message in a different sacred text, one should always follow the message in the Sacred Writing.
-18*	At times, other sources of information may provide a more accurate account of the truth than the Sacred Writing.

Item Number	Hypothesized IFS Factors and IFS Items
	Self-interpretive
+19	To understand the true interpretation of the Sacred Writing, you should NOT give final say to outside sources like science and history, but you should rely mainly on studying the Sacred Writing itself and seeking God to find its true meaning.
-20	Authorities like science and history are much better at unraveling the real meaning of the Sacred Writing than a person just reading and studying the plain truth of what the Sacred Writing says for itself.
+21*	God's intent can be completely understood by reading the Sacred Writing (that is, no other texts are needed).
-22*	To fully understand God's intent, one must not only read the Sacred Writing but also consult additional sources of information.
+23*	The Sacred Writing is sufficient in and of itself for understanding the divine intent and meaning of the author.
-24*	The Sacred Writing needs to be complimented with other sources of information (for example, scholarly criticism or other sacred texts) to fully understand the meaning and intent of the author.
	Privileged
+25	The Sacred Writing is the only one that is true above all Holy Books or sacred texts of other religions.
-26	The Holy Books of other religions are just as divine as the Sacred Writing, and should be viewed as equal with the Sacred Writing.
+27*	The Sacred Writing should be favored above any other text.
-28*	The Sacred Writing of my religion and the Sacred Writing of a different religion are equally useful in understanding life.
+29*	Scientific and historical perspectives may help explain the world we live in, but those perspectives are inferior to the Sacred Writing.
-30*	Scientific and historical perspectives are equivalent to or preferred over the Sacred Writing for understanding the world.
	Unchanging
+31	The truths of the Sacred Writing will never be outdated, but will always apply equally well to all generations.
-32	Some of the truths expressed in the Sacred Writing are out of touch with the modern world and do not really relate to the world today.
+33*	The truths expressed in the Sacred Writing are not variable.
-34*	The truths expressed in the Sacred Writing have become less relevant over the course of time.
+35*	The truths found in the Sacred Writing will withstand the test of time.
-36*	The Sacred Writing was more useful for understanding reality and dictating life in the time it was written than it is in modern times.

Note. * = New item.

APPENDIX B

RELIGIOUS FUNDAMENTALISM SCALE

Item Number	RFS Items
+1	God has given humanity a complete, unfailing guide to happiness and salvations, which must be totally followed.
-2	No single book of religious teachings contains all the intrinsic, fundamental truths about life.
+3	The basic cause of evil in this world is Satan, who is still constantly and ferociously fighting against God.
-4	It is more important to be a good person than to believe in God and the right religion.
+5	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.
+6	When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by God; and the rest, who will not.
-7	Scriptures may contain general truths, but they should NOT be considered completely, literally true from beginning to end.
+8	To lead the best, most meaningful life, one must belong to the one, fundamentally true religion.
-9	"Satan" is just the name people give to their own bad impulses. There really is no such thing as a diabolical "Prince of Darkness" who tempts us.
-10	Whenever science and sacred scriptures conflict, science is probably right.
+11	The fundamentals of God's religion should never be tampered with, or compromised with others' beliefs.
-12	All of the religions in the world have flaws and wrong teachings. There is no perfectly true, right religion.

APPENDIX C

RIGHT-WING AUTHORITARIANISM SCALE

Item Number	RWAS Items	Authoritarianism Categories
+1	Our country desperately needs a mighty leader who will do what has to be done to destroy the radical new ways and sinfulness that are ruining us.	<ul style="list-style-type: none"> • Submission • Aggression • Conventionalism
−2	Gays and lesbians are just as healthy and moral as anybody else.	<ul style="list-style-type: none"> • Conventionalism
+3	It is always better to trust the judgment of the proper authorities in government and religion than to listen to the noisy rabble-rousers in our society who are trying to create doubt in people's minds.	<ul style="list-style-type: none"> • Submission
−4	Atheists and others who have rebelled against the established religions are no doubt every bit as good and virtuous as those who attend church regularly.	<ul style="list-style-type: none"> • Conventionalism
+5	The only way our country can get through the crisis ahead is to get back to our traditional values, put some tough leaders in power, and silence the troublemakers spreading bad ideas.	<ul style="list-style-type: none"> • Submission • Aggression • Conventionalism
−6	There is absolutely nothing wrong with nudist camps.	<ul style="list-style-type: none"> • Conventionalism
−7	Our country <i>needs</i> free thinkers who have the courage to defy traditional ways, even if this upsets many people.	<ul style="list-style-type: none"> • Conventionalism
+8	Our country will be destroyed someday if we do not smash the perversions eating away at our moral fiber and traditional beliefs.	<ul style="list-style-type: none"> • Aggression • Conventionalism
−9	Everyone should have their own lifestyle, religious beliefs, and sexual preferences, even if it makes them different from everyone else.	<ul style="list-style-type: none"> • Conventionalism
+10	The “old-fashioned ways” and the “old-fashioned values” still show the best way to live.	<ul style="list-style-type: none"> • Conventionalism
−11	You have to admire those who challenged the law and the majority's view by protesting for women's abortion rights, for animal rights, or to abolish school prayer.	<ul style="list-style-type: none"> • Conventionalism
+12	What our country really needs is a strong, determined leader who will crush evil, and take us back to our true path.	<ul style="list-style-type: none"> • Aggression • Conventionalism

Item Number	RWAS Items	Authoritarianism Categories
-13	Some of the best people in our country are those who are challenging our government, criticizing religion, and ignoring the “normal way things are supposed to be done.”	• Conventionalism
+14	God’s laws about abortion, pornography and marriage must be strictly followed before it is too late, and those who break them must be strongly punished.	• Conventionalism • Aggression
+15	There are many radical, immoral people in our country today, who are trying to ruin it for their own godless purposes, whom the authorities should put out of action.	• Aggression • Conventionalism
-16	A “woman’s place” should be wherever she wants to be; the days when women are submissive to their husbands and social conventions belong strictly in the past.	• Submission • Conventionalism
+17	Our country will be great if we honor the ways of our forefathers, do what the authorities tell us to do, and get rid of the “rotten apples” who are ruining everything.	• Conventionalism • Submission • Aggression
-18	There is no “ONE right way” to live life; everybody has to create their <i>own</i> way.	• Conventionalism
-19	Homosexuals and feminists should be praised for being brave enough to defy “traditional family values.”	• Conventionalism
+20	This country would work a lot better if certain groups of troublemakers would just shut up and accept their group’s traditional place in society.	• Conventionalism

APPENDIX D

COMPLETE CORRELATION TABLE

	Age	ROS_I	ROS_EP	ROS_ES	RFS	RWAS	RWAG	RWPAG	IFS_36	IFS_18+	IFS_18-	IFS_12
ROS_I	.12**	-										
ROS_EP	.00	.39**	-									
ROS_ES	-.15**	.06	.20**	-								
RFS	.12**	.67**	.36**	.01	-							
RWAS	.10*	.54**	.33**	.07	.78**	-						
RWAG	.04	.43**	.35**	.10*	.63**	.90**	-					
RWPAG	.03	.44**	.35**	.13**	.63**	.89**	.98**	-				
IFS_36	.18**	.67**	.34**	-.00	.93**	.77**	.60**	.60**	-			
IFS_18+	.14**	.69**	.41**	.08	.90**	.76**	.68**	.68**	.94**	-		
IFS_18-	.19**	.53**	.19**	-.10*	.81**	.65**	.40**	.39**	.91**	.70**	-	
IFS_12	.20**	.67**	.34**	-.00	.93**	.75**	.58**	.58**	.98**	.93**	.89**	-
IFS_5	.17**	.67**	.38**	.05	.90**	.73**	.61**	.61**	.95**	.94**	.85**	.96**

Note. * = $p < .05$; ** = $p < .01$; ROS_I = Religious Orientation Scale – Intrinsic; ROS_EP = Extrinsic Personal; ROS_ES =

Extrinsic Social; RFS = Religious Fundamentalism Scale; RWAS = Right-Wing Authoritarianism Scale; RWAG = Right-Wing

Aggression; RWPAG = Right-Wing Aggression Towards People; IFS_36 = 36-item Intratextual Fundamentalism Scale; IFS_18+

= 18 positive items from IFS_36; IFS_18- = 18 negative items from IFS_36; IFS_12 = 12-item IFS; IFS_5 = 5-item IFS.