

Education and Urban Society

<http://eus.sagepub.com/>

The Relationship Between Bible Literacy and Behavioral and Academic Outcomes in Urban Areas: A Meta-Analysis

William Jeynes

Education and Urban Society 2010 42: 522 originally published online 7 May 2010

DOI: 10.1177/0013124510366648

The online version of this article can be found at:

<http://eus.sagepub.com/content/42/5/522>

Published by:



<http://www.sagepublications.com>

Additional services and information for *Education and Urban Society* can be found at:

Email Alerts: <http://eus.sagepub.com/cgi/alerts>

Subscriptions: <http://eus.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations: <http://eus.sagepub.com/content/42/5/522.refs.html>

The Relationship Between Bible Literacy and Behavioral and Academic Outcomes in Urban Areas: A Meta-Analysis

Education and Urban Society

42(5) 522-544

© The Author(s) 2010

Reprints and permission: <http://www.sagepub.com/journalsPermissions.nav>

DOI: 10.1177/0013124510366648

<http://eus.sagepub.com>

 SAGE

William Jeynes¹

Abstract

A meta-analysis is undertaken, including 11 studies, to determine whether there is a relationship between Bible knowledge on one hand and academic and behavioral outcomes on the other among those living in urban areas. The results indicate that increased Bible knowledge is associated with higher levels of student academic achievement and positive behavioral patterns. The analysis indicates that the relationship, as measured by degree of statistical significance, between Bible knowledge and academic outcomes is stronger than it is between Bible knowledge and behavioral outcomes. The possible reasons for this pattern and also the reasons for relationship that Bible knowledge has with academic and behavioral outcomes are discussed.

Keywords

academic achievement, student behavior, Bible, Bible knowledge, Bible literacy, religion

¹California State University, Long Beach, CA

Corresponding Author:

William Jeynes, California State University, 1250 Bellflower Blvd., Long Beach, CA 90840

E-mail: whjharvard@post.harvard.edu

There is no question that religion and the Bible are two of the most puissant social forces in the world historically and in contemporary society (Blanshard, 1963). Peoples' religious convictions were largely responsible for the abolition of slavery, the women's suffrage movement, prison reform, and the civil rights movement but also have rested behind numerous wars of centuries past and the Middle East tension of today (Prothero, 2007). It is also true that the Bible stands all by itself as not only the most published book in history but also as the world's most published book every single year (Prothero, 2007; Van Biema, 2007). The Bible is also the world's most-cited book (Prothero, 2007; Van Biema, 2007). Shakespeare, alone, cites the Bible approximately 1,300 times, and comprehending the themes of this religious tome is essential if one is to fully fathom most of the classic works of Western literature (Prothero, 2007; Van Biema, 2007). Religion, particularly the Judeo-Christian faith, continues to play a salient role in the lives of millions of Americans (Jeynes, 1999; Grossman, 2006; Roof, 2000). According to a 2006 Gallup Poll about 84% of Americans subscribe to a Judeo-Christian faith and nearly 5% subscribe to another faith tradition, bringing the total to about 89% of Americans who adhere to a certain kind of faith (Grossman, 2006).

As influential social forces as the Bible and religion are, as a series of three U.S. Supreme Court decisions in 1962 and 1963, American public schools have largely been a zone free from religious expression and the literary instruction of the Bible (Flowers, 1994; Kliebard, 1969; Sikorski, 1993). The dearth of student religious expression and acknowledgment of the place of the Bible in world history and literature has been the source of immense controversy in the country. On one hand, some scholars assert that religion and the Bible should have no place in the public schools, because of the principle of "separation of church and state" (Doerr & Menendez, 1991; Flowers, 1994). They assert that to teach about religion and the Bible is equivalent to proselytizing and that should be avoided (Doerr & Menendez, 1994; Flowers, 1994). However, other academics assert that the Bible is such a pivotal piece of literature that to eschew its teaching will only lead to student ignorance and an inability to comprehend world affairs (Hirsch, 1987; Prothero, 2007). These advocates further assert that to appreciate the wealth of the classic literature of four or five continents, the knowledge of the Bible is assumed (Hirsch, 1987; Prothero, 2007). The absence of such knowledge will, therefore, handicap the student's understanding of numerous key works of literature (Hirsch, 1987). Some of these proponents also note that although the "separation of Church and State" is a principle, it does not appear in the constitution.

The debate over the place of the Bible in the classroom gained new momentum when Bill Clinton commented on the issue, aware of concurrent Hearings before the House Committee on the Judiciary investigating discrimination against people of faith based on attempts to keep American classrooms free from religion (Jeynes, 2007). The Hearings before the House Committee on the Judiciary created such a stir that shortly after the completion of the hearings, on July 12, 1995, President Bill Clinton felt compelled to speak to the issue of religious freedom in the public schools (Religious Tolerance, 2002). In a speech at James Madison High School in Vienna, Virginia, Clinton stated, “. . . nothing in the first Amendment converts our public schools to religion-free zones or requires all religious expression to be left at the school-house door” (Religious Tolerance, 1995).

The fact that President Clinton was patently not a religious zealot caused his words to resonate with myriad moderates who thought that as long as the Bible was taught objectively, public schoolteachers should instruct students about its influence and teachings (Jeynes, 2007; Van Biema, 2007). Since the mid-1990s, two efforts have been launched to introduce the Bible as literature courses to America’s public schools. These efforts are called the National Council on Bible Curriculum and the Bible Literacy Project (Boston, 2006). Together these initiatives have established the Bible as literature courses in hundreds of school districts in nearly 40 states (Van Biema, 2007).

In spite of the efforts, the fact remains that little is known about what the influence of the presence of Bible literacy courses might be on the achievement and behavior of students. Whether one agrees or disagrees with these efforts to include some Bible education in the public schools, if one can show that Bible knowledge is not related to student outcomes, the argument in favor of including courses about the Bible is seriously weakened. Those individuals involved in the Bible Literacy Project and the National Council on Bible Curriculum aver that their goal of including a Bible course in public high schools is to promote general education and to enhance overall literacy among students (Van Biema, 2007). Therefore, this meta-analysis will examine whether there is a relationship between Bible knowledge and student achievement. Whether one is religious or not, virtually all Americans want to see improved educational outcomes. Therefore, whether or not a relationship can be established as existing between Bible knowledge and achievement is fundamental if one is to present a strong case in favor of these courses.

Although proponents of the Bible Literacy Project and the National Council on Bible Curriculum focus their attention on Bible courses ameliorating school outcomes, other social scientists have suggested that Bible courses

could ultimately have a positive effect on student behavior. This is a reasonable possibility, particularly because for three and a half centuries moral education in American schools possessed a biblical base (Jeynes, 2006, 2007; Cohen & Rudolph, 1977; Hunt & Maxson, 1981). The assumption in this practice is that given that the Bible promotes virtuous behavior such as love, compassion, loyalty, and self-discipline, children who receive instruction in the Bible will manifest certain benefits in their character (Bourne, 1870; Cohen & Rudolph, 1977; Hunt & Maxson, 1981). In addition, theorists have engaged in a significant degree of research examining the relationship between religious knowledge and practice and outcome variables such as criminological behavior, recidivism, juvenile delinquency, and other forms of antisocial behavior (Johnson, Jang, Larson, & Li, 2001; Johnson, Jang, & Li, 2000). Therefore, given that social scientists and historians over the years have demonstrated such a considerable degree of interest in the relationship between Bible knowledge and behavior, this study examines this relationship as well.

There is no question that academics have engaged in the study of the sociological and psychological influences of religion for numerous decades (Jeynes, 1999; Cochran, 1992, 1993). Max Weber (1958) made perhaps the most renowned declaration of the sociological implications of religious belief in his assertion that a "Protestant work ethic" existed in many Western countries. Sociologists have also examined the influence of religious revival on crime rates, alcohol consumption, family life, drug abuse, and other social outcomes (Jeynes, 2005; Hammond, 1974; Smith, 1980). Researchers have also examined the relationship between contemporary religious commitment and criminal behavior, substance abuse, premarital sex, and a plethora of other measures (Jeynes, 1999, 2001, 2003, 2006; Cochran, 1992, 1993).

Social scientists have examined the influence of religiosity, even to the extent of undertaking meta-analyses and examining nationwide data sets (Jeynes, 1999, 2001, 2003, 2006a). However, the research focusing on Bible literacy is much less extensive. One reason for this is probably that the effects of Bible knowledge are very complex in nature. For example, to whatever extent increased Bible knowledge is associated with higher achievement scores it is not clear what factor is most salient in producing this relationship. For example, such an association could result from the fact that the student's understanding of copious other pieces of literature is facilitated because the authors refer to Bible passages. Second, one's enhanced understanding could result from the fact that reading the Bible requires higher-order reading skills that will indubitably enhance the ability to read other

intellectually challenging pieces of literature. Third, the teachings of the Bible advocate qualities such as self-discipline and the quest for truth, which when practiced are some of the qualities that are most conducive to high levels of academic achievement. To the extent that the first two reasons are scholastic in nature, it would seem that whether or not there is an association between Bible literacy and school outcomes, the causes are more likely academic than they are religious. This is consistent with the claims of those who advocate the teaching of the Bible as literature in the classroom (Jeynes, 2010; Van Biema, 2007).

If, however, the results indicate that Bible literacy is associated with improved student behavior, it is more likely that this is due to the moral and religious nature of the Bible. It is conceivable that the higher-order reading required to comprehend the Bible could result in more logical thinking that improves student behavior. However, it is more plausible that the moral and religious nature of the Bible has the greater influence on student behavior because of the moral nature of the book.

With these facts in mind, it appears wise to conduct a meta-analysis to address whether the overall body of research on the influence of Bible literacy indicates that is a relationship between Bible literacy, on one hand, and positive academic and behavioral outcomes on the other. A meta-analysis statistically combines all the relevant existing studies on a given subject to determine the aggregated results of said research. Conducting a meta-analysis will help lay people and academics alike fathom what will emerge as the likely effects if a course on the Bible as literature were permitted in the public schools.

Method

Analytical Approach

This meta-analysis examined the relationship between Bible literacy, on one hand, and achievement and behavioral outcomes on the other in urban areas. The first analysis included determining effect sizes for the overall Bible literacy variable for all the studies included in the analysis, that is, for all those studies examining either behavioral or academic outcomes (Research Question 1). The second analysis examined the association between Bible literacy and behavioral outcomes (Research Question 2). The third analysis examined the relationship between Bible literacy and academic achievement (Research Question 3). The procedures employed to conduct the meta-analysis are outlined under this heading (Analytical Approach) and the following

headings below: Data Collection Method, Study Quality Statistical Methods and Effect Size Statistics, and Defining of Variables.

Each study included in this meta-analysis met the following criteria:

1. It needed to examine Bible literacy in urban areas in a way that could be conceptually and statistically distinguished from other primary variables under consideration. For example, if a researcher implemented a program that involved nine key features, including an attempt to increase Bible literacy or Bible knowledge, and the influence Bible literacy could not be statistically isolated from the other features; the study was not included in the analysis.
2. It needed to include a sufficient amount of statistical information to determine effect sizes. That is, a study needed to contain enough information so that test statistics, such as those resulting from a *t* test, analysis of variance, and so forth, were either provided in the study or could be determined from the means and measures of variance listed in the study.
3. If the study used a control group, it had to qualify as a true control group and, therefore, be a fair and accurate means of comparison. Moreover, if the research utilized a control group at some times but not others, only the former comparisons were included in the meta-analysis.
4. The study could be a published or unpublished study.

Because the nature of the criteria listed previously, qualitative studies were not included in the analysis. Although qualitative studies are definitely valuable, they are difficult to code for quantitative purposes and any attempt to do so might bias the results of the meta-analysis.

Data Collection Method (Coding and Rater Reliability)

To obtain the studies used in the meta-analysis, a search was undertaken to locate the relevant studies on the effects Bible literacy in urban areas. The first procedures used to locate these studies involved a computer search using 25 research databases (e.g., Psych Info., ERIC, Dissertation Abstracts International, Wilson Periodicals, Sociological Abstracts, etc.) to find studies examining the relationship between Bible literacy and behavioral and academic achievement outcomes. The search terms included *Bible literacy*, *Bible knowledge*, *Bible study*, *religious instruction*, *religious knowledge*, *religion*, *catechism*, *religiosity*, *religious commitment*, and many other similar terms.

Reference sections from journal articles on Bible literacy were also examined to find additional research articles.

Two direct contact strategies were also utilized to gain access to other Bible literacy research that would not have been available in these databases. First, we submitted requests to seven different researchers who our reference database search indicated had published two or more articles on Bible literacy or related areas of study between 1970 and the end of 2007. Second, we contacted the dean or chair of 50 colleges or departments of education at Research 1 institutions of higher education and requested that they ask their faculty to share with us any research they had completed relevant to Bible literacy in urban areas.

Although this search yielded more than 800 articles and papers on Bible literacy, and the study and knowledge of the Bible, nearly all of these articles were not quantitative in nature. This process yielded a total of nonduplicate 18 studies that quantitatively examined the relationship between Bible literacy and urban behavioral outcomes and academic achievement. Of these, 11 possessed a sufficient degree of quantitative data to include in this meta-analysis.

A number of different characteristics of each study were included for use in this study. These characteristics included (a) report characteristics, (b) sample characteristics, (c) intervention type, (d) the research design, (e) the grade level or age of the students, (f) the outcome and predictor variables, (g) the attrition rate, and (h) the estimate of the relationship between Bible literacy and behavioral and academic outcomes.

Report characteristics. Each study entry began with the name of the author of the study. Then the year the study was recorded, followed by the type of research report. Research reports were defined either as a journal article, book, book chapter, dissertation, master's thesis, government, school or private report, conference paper, or other type of report.

Sample characteristics. These included the number of students sampled, their locations, and how they were selected, for example, via random selection, stratified random selection, or via advertisement.

Intervention type. We recorded the experimental or procedural manipulation used, if any, to determine the effects of Bible literacy.

Research design. The studies in this meta-analysis were categorized into three basic types of designs. First, we noted the studies that employed some type of manipulations to assess the effects of Bible literacy.

The second type of design included studies that took cross-sectional measures of the amount of Bible knowledge or familiarity that students possessed and related these to behavioral or achievement-related measures, without

utilizing any type of manipulation. The third type of design involved the calculation of a correlation coefficient between Bible Literacy and the behavioral or academic measures.

For studies that employed a manipulation of Bible instruction, we recorded (a) the length, frequency, duration, and total number of training sessions, (b) the method of training (workshop, individual meetings, phone calls, videotape, email communication, newsletter), (c) the type of behavioral or achievement-related outcome measure (e.g., standardized achievement test, nonstandardized achievement test, or class grades), (d) the unit of analysis (individual student or classroom) at which the effect size was calculated, and (e) the magnitude of the relationship between Bible literacy and behavioral or academic outcomes.

- For the cross-sectional studies and correlation studies, if it was available, we also recorded (a) the socioeconomic status of participants in the sample, and (b) the types of behavioral and academic measures that were used.
- *The grade level or age of the students* was coded, including means and standard deviations when they were available.
- *The outcome and predictor variables* from each study were coded to include the behavioral and academic outcome variables and the different ways Bible literacy was measured.
- *Attrition rate*. When available, the attrition rate of each study was coded.
- *The estimate of the relationship between Bible literacy and behavioral and academic outcome*—the process of the effect size estimation is described in the next section.

Statistical Methods and the Effect-Size Statistic

Among the 11 studies that possessed a sufficient degree of quantitative data to include in this meta-analysis, the total number of participants exceeded 50,000. Effect sizes from data in such forms as t tests, F tests, p levels, frequencies, and r values were computed via conversion formulas provided by Glass and his colleagues (Glass, McGaw, & Smith, 1981). When results were not significant, studies sometimes reported only a significance level. In the unusual case that the direction of these not significant results was not available, the effect size was calculated to be zero.

For studies with manipulations we used the standardized mean difference to estimate the effect of Bible literacy or Bible knowledge. The d index

(Cohen, 1988) is a scale-free measure of the separation between two group means. Calculating the d index for any comparison involves dividing the difference between the two group means by either their average standard deviation or by the standard deviation of the control group. In the meta-analysis, we subtracted the control group control from the experimental group mean and divided the difference by their average standard deviation. Hence, the level of positive effect sizes indicate that students who had received some Bible training had better behavioral or academic outcomes than those that did not.

For studies that involved cross-sectional measures of the effects of Bible literacy and related these to behavioral and achievement outcomes we undertook the following procedures. For those studies that attempted to statistically equate students on other variables, our preferred measure of relationship strength was the standardized beta weight, β . These parameters were determined from the output of multiple regression analyses. In a few instances, beta weights could not be obtained from study reports, so the most similar measures of effect (e.g., unstandardized regression weights) were retrieved.

For studies that involved cross-sectional measures but included no attempt to statistically equate students on third variables, we used the results from the t tests, F tests, and correlation studies provided by the researchers in the study. Probability values were used as a basis for computation only when the researchers did not supply any of information on the test statistics just mentioned.

Calculating average effect sizes. We used a weighting procedure to calculate average effect sizes across all the comparisons. First, each independent effect size was first multiplied by the inverse of its variance. The sum of these products was then divided by the sum of the inverses. Then, 95% confidence intervals were calculated.

Fixed and random error. As Hedges and Vevea (1998) recommend, we conducted all our analyses using fixed-error assumptions in one analysis and applied random-error assumptions in the other. The advantage of undertaking both fixed- and random-effects analyses is that we can examine the effects of different assumptions on the outcomes of the synthesis. Tests of homogeneity were completed on the different studies to gain a sense of the consistency of Bible literacy measures across studies.

Study Quality Rating

Two researchers coded the studies independently for quality, the presence of randomization, and whether the definitional criteria for Bible literacy were met. Study quality and the use of random samples were graded on a 0 (*lowest*) to 3 (*highest*) scale. Quality was determined using the following:

1. Did it use randomization of assignment?
2. Did it avoid mono-method bias?
3. Did it avoid mono-operation bias?
4. Did it avoid selection bias?
5. Did it use a specific definition of parental involvement?

We calculated interrater reliability by computing percentage of agreement on: the definition of Bible literacy, issues of randomization, and quality of the study. Interrater reliability was 100% on whether a study examined Bible literacy and 91% for the quality of the study. For the specific components of quality, interrater agreement percentages were 100% for randomization, 91% for avoiding mono-method bias, 91% for avoiding mono-operation bias, and 91% for avoiding selection bias.

A supplementary analysis was done to include only those studies with quality ratings with quality ratings of 2 to 3.

Defining of Variables

Independent Variable. For the purposes of this study, Bible literacy was defined as a high level of Bible knowledge or Bible study versus other individuals or versus a previous point in time for a given individual.

Dependent Variables. Behavior was defined as actions or attitudes associated with behaviors that are generally regarded as morally or socially either positive or negative. For example, helpfulness, cooperation, and appropriate school behavior would be regarded as positive behaviors and drug abuse and verbally abusive behavior would be regarded as negative behaviors.

Academic achievement was defined as such measures as grade point average (GPA), standardized test scores, class rankings, and teacher ratings.

Results

The results indicate that Bible literacy is associated with positive behavioral and academic effects. In fact, all 11 studies included in the meta-analysis showed a definitive positive relationship between Bible literacy and behavioral and/or academic outcomes. Figure 1 shows the extent of the relationship between Bible literacy and behavioral and academic outcomes, for each of the studies included in the meta-analysis. As Figure 1 and Table 1 indicate, all of the 11 studies included in the meta-analysis demonstrated a positive relationship between Bible literacy and behavioral and academic outcomes. It is highly unusual for a meta-analysis to indicate that the studies are in 100% agreement

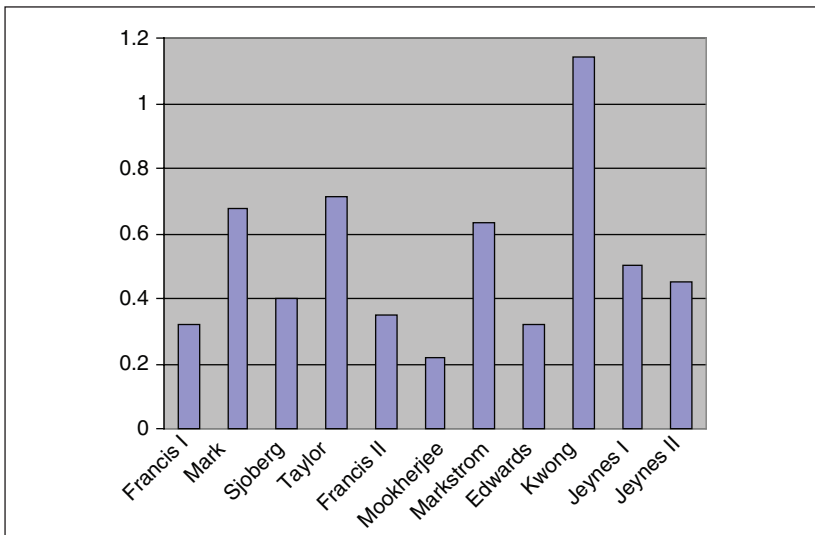


Figure 1. Effects in standard deviation units for the 11 studies included in the meta-analysis

on the direction of the relationship. Beyond this, statistically speaking, analysis of these data indicate that for each study examined there is less than a 1 in 20 likelihood that the results emerged by chance. Moreover, for some of the studies included that had larger sample sizes, the chances of a single study's result emerging by chance was under 1 in 1,000.

Research Question 1: The Relationship Between Bible Literacy and Behavioral and Academic Outcomes

Table 2 lists the results of various facets of the meta-analysis. The first analysis included determining effect sizes for the overall Bible literacy variable for all the studies included in the analysis, that is, for all those studies examining either behavioral or academic outcomes (Research Question 1). In other words, the overall Bible literacy variable reflects the calculation for what the overall body of research literature indicates is the strength of the relationship between Bible literacy and behavioral and academic outcomes. Table 1 indicates that the overall effect size for Bible literacy is .33. Given that Bible literacy is only one component of religious orientation, this number is quite

Table 1. Studies Included in the Meta-Analysis Listed by Author, Year of Study, Type of Document, Sample Size, and a Variety of Other Characteristics

Study and Year	Type of Document	Sample Size	Sample Characteristics	Grade or Age of Students	Intervention	Outcome Variable	Covariates	Effect Size
Edwards (1984)	Doctoral dissertation	190	Students were from a combination of private and state universities	Collegger freshmen, sophomores, juniors, and seniors	Not applicable	Reading levels	None	0.32
Francis (2000)	Journal article	25,888 from original 26,977	Students located in England & Wales	9th and 10th grade	No intervention, only an examination given	Purpose in life	Church attendance, belief in God, lie scale, neuroticism, extraversion, psychoticism	0.32
Francis, (2002)	Journal article	25,888 from original 26,977	Students located in England & Wales	9th and 10th grade	No intervention, only an examination given	Attitude toward drug use	Church attendance, belief in God, lie scale, neuroticism, extraversion, psychoticism	0.35
Jeynes, (2009b)	Conference presentation	140	Private school students	7th-12th grade	No intervention, only an examination given	Behavior in school, GPA, and achievement tests	Race and gender	0.50
Jeynes, (2009a)	Journal article	160	A combination of private and public school students and recent graduates	7th grade through adult	No intervention, only an examination given	Behavior in school, GPA, and achievement tests	Race and gender	0.45

(continued)

Table 1. (continued)

Study and Year	Type of Document	Sample Size	Sample Characteristics	Grade or Age of Students	Intervention	Outcome Variable	Covariates	Effect Size
Kwong, (2004)	Doctoral dissertation	40	20 students were in their control group and 20 in the experimental group	High school students	Two hour Bible training once a week	Spiritual character and behavior measures	None	1.14
Mark, (1982)	Journal article	58	Students from two schools of approximately 1,500 students each	Ages 11-16	No intervention, but rather students were given interviews based on Bible and religious knowledge	Cognition test	Attitude toward others	0.68
Markstrom (1999)	Journal article	125	62 African American students and 63 Euro-American students	11th grade	Not applicable	Psychological development	Limited psychological measures	0.63
Mockherjee (1994)	Journal article	1,481	A sample of adults. An adult was defined as 18 years of age.	Ages 18 and above	Not applicable	Well-being	SES, sex, race, and marital status	0.22
Taylor and Powers (1928)	Journal article	98	Students were from two different high schools, 69 from one and 29 from the other. The subjects were not randomly selected.	9th-12th grades	No intervention, only achievement and intelligence tests given	Terman group test & Otis intelligence test	None	0.71
Sjoberg (2000)	Journal article	117	62 boys and 55 girls based on previous interviews and records	Ages 7-16	No intervention, but rather examined previous interviews and records	Lying on their testimony	None	0.40

Table 2. The Meta-Analysis Effect Sizes for Overall Bible Literacy, Bible Literacy on Behavior, and Bible Literacy on Academic Achievement for Both the Primary and Specific Analyses

	Including All 11 Studies	Including Only High Quality Studies	Including Only Data Since 1980	Including Studies With Student-Aged Students Only (i.e., Excluding Mookherjee's Study)
Overall Bible literacy (on both behavior & academic achievement combined)	.33	.33	.32	.35
Bible literacy on behavior	.32	.32	.32	.34
Bible literacy on academic achievement	.73	.73	.48	.73

significant. It is rare, for example, for effect sizes measuring even combined dimensions of a causal factor to exceed .5.

Supplemental analyses were undertaken to consider whether the .33 outcome would change if the quality of the study was considered, only recent studies were included in the analysis, and if one study that also included many nonstudents (the Mookherjee 1994 study) was excluded from the analysis. Table 2 shows that when one includes only those studies with high-quality ratings (2 or 3 on a 0-3 scale) the effect size was still exactly .33. Clearly, then, high-quality studies showed the same strength of relationship between Bible literacy and behavioral and academic outcomes that the entire group of studies did.

Next, to demonstrate that the findings also reflect current trends, only those studies (9) that included data gathered since 1980 were included in the analysis. Table 1 indicates that when this is done, the overall Bible literacy effect size changes only slightly, to .32. From a statistical standpoint as well as a mathematical standpoint, this difference is not significant. Finally, although all the studies included students and all the studies except one included only students (and occasionally adolescent dropouts), the Mookherjee (1994) study included a large percentage of adults who were no longer students. Therefore, another analysis was performed to exclude this study to obtain a purer effect size for the student population. When this study was excluded, the effect size was .35.

Research Question 2: The Relationship Between Bible Literacy and Behavioral Outcomes

The second analysis examined the association between Bible literacy and behavioral outcomes achievement (Research Question 2). For this measure, as well, Table 2 indicates that the overall effect size for Bible literacy is .32. This analysis is particularly important because many people are most interested in the influence of Bible literacy on behavioral outcomes even more than they are academic ones.

The same supplemental analyses that were done to assess the effects of the overall Bible literacy variable were also conducted to determine the specific effects of Bible literacy on behavioral outcomes. When only high-quality studies were included in the analysis, the effect size was .32. When only studies that were undertaken since 1980 were included, the effect size was .32, and when the Mookherjee (1994) study, which also included many adult non-students, was excluded, the effect size was .34. Overall, the pattern of results that emerged for the relationship between Bible literacy and behavior specifically was very similar to that for the overall Bible literacy variable, which examined the combined results of studies examining the relationship with behavioral and/or academic outcomes.

Research Question 3: The Relationship Between Bible Literacy and Academic Outcomes

The third analysis examined the relationship between Bible literacy and academic achievement (Research Question 3). Table 2 indicates that the relationship between Bible literacy and academic outcomes was greater than that between Bible literacy and behavioral outcomes. However, it should be noted that all 11 studies examined behavioral outcomes and only 3 studies focused on academics. Nevertheless, Table 1 shows that the effect size was .73. This effect size is quite large. When only high-quality studies were included in the analysis, the effect size was also .73. When only studies that were undertaken since 1980 were included the effect size was .48. The Mookherjee (1994) study did not examine educational outcomes. Therefore, the exclusion of this study did not influence the effect size and, therefore, it was also .73.

Discussion

The results of this meta-analysis indicate that Bible literacy is associated with positive behavioral and academic outcomes. The relationship between Bible literacy and academic outcomes was especially large. Also notable is

the fact that every single study that examined Bible literacy indicated positive effects.

To the extent that a cause and effect relationship likely exists between Bible literacy on one hand and behavior and academic outcomes on the other, one can suggest a number of reasons why this relationship exists. The first reason is that reading, studying, and applying the Bible could make one more intellectually sophisticated, in much the same way that reading Shakespeare or the "great books" would (Hutchins & Adler, 1963). It may well be that this relationship is less likely than others that will be discussed to produce changes in behavior, but it could conceivably help explain why in the overall body of literature, Bible literacy has a stronger relationship with academic achievement than it does with behavioral outcomes.

Second, if a student possesses a sufficient degree of Bible knowledge it could well help one comprehend copious other works of literature that either cite or allude to the Bible. Moreover, a significant knowledge of the Bible may also help students more easily grasp many historical trends and events that have definitive historical roots.

Third, historically one of the most fundamental sociological effects of reading the Bible has been the development of a work ethic in the adherent. Although this expression is commonly referred to as the "Protestant work ethic," recent research indicates that this ethic may extend beyond the Protestant sphere to other religious groups as well. Mentzer (1988), for example, has found that Catholics in America possess a strong work ethic. Research in the social sciences has indicated consistently the existence of a religious work ethic (Furnham, 1987; Gerhards, 1996; Giorgi & Marsh, 1990; Mudrack, 1992). Busto (1996) and Ter Voert (1993) found that this religious work ethic transcends differences in race and nationality. Giorgi and Marsh produced evidence suggesting that a religious work ethic can become strong enough to pervade an entire culture. Although there are some studies such as that undertaken by Chusmir and Koberg (1988) that suggest that the relationship between religious commitment and a work ethic is overstated, most studies have found a consistent relationship between the two.

It is also possible that there is some direction of causality in the opposite direction, that is, that high academic achievement and positive social behavior makes it more likely that someone will be familiar with the Bible. Although this direction of causality is possible, certain studies included in the meta-analysis controlled for this possibility and showed little or no causal relationship. Nevertheless, such a relationship is possible.

One of the most interesting features of these findings is that there emerged a stronger relationship between Bible knowledge and achievement than there was between Bible knowledge and behavior. Nevertheless, there was a

definitive relationship between Bible knowledge and behavior. This relationship most likely developed as a result of a different set of factors than for the association between Bible knowledge and achievement. Although many individuals read and study the Bible because of its educational value, others peruse it because of its moral instruction and wisdom. One can reasonably argue that those who study the Bible for its educational value are more likely to procure academic benefits and those who study it for its moral and religious value are more likely to obtain behavioral benefits.

Given that the Bible is renowned for the wisdom and guidance that it offers, the fact that these results indicate that Bible literacy influences student behavior should come as no surprise. Nevertheless, what may be unexpected to some is why Bible literacy would influence school outcomes more than student behavior. However, if one considers the nature of the predictor variable, that is, Bible literacy, the results should not be surprising. Bible literacy is an educational concept more than a behavioral one. After all, the question addressed in this study is not how much one applies the content of the scripture but rather the extent to which one is familiar with its content. Had the question been on the extent to which one applies biblical teachings, the association between this and student behavior would have likely been greater.

Although one can argue that the reasons why Bible literacy influences student achievement and behavior are quite different, there are some common reasons as well. Most prominent among these is that the Bible encourages people to abstain from behaviors that are often regarded as undisciplined and harmful to academic achievement. A number of studies demonstrate that religiously committed teens are less likely to become involved in drug and alcohol abuse (Jeynes, 2006b; Bahr, Hawks, & Wang, 1993; Brownfield & Sorenson, 1991; Nylander, Tung, & Xu, 1996). Other studies indicate that religiously committed teens are less likely to engage in sexual behavior or become pregnant while they are still teenagers (Beck, Cole & Hammond, 1991; Holman & Harding, 1996; Miller & Olson, 1988).

Beyond the specific results of this study emerges a broader question of the extent to which the U.S. Supreme Court deems as permissible the teaching the Bible as literature in the public schools. Ironically, the clearest answer to this question appears in the *Abington v. Schempp* (1963) case, which has been viewed as almost an anathema among those who in the past have supported Bible reading in the public schools and possessed no desire to cite the case or parse its contents (Jeynes, 2009a). In *Abington v. Schempp* the court declares:

It might well be said that education is not complete without a study of comparative religion or the history of religion and its relationship to

the advancement of civilization. It certainly may be said that the Bible is worthy of study for its literary and historic qualities. Nothing we have said here indicates that such study of the Bible or of religion, when presented objectively as part of a secular program of education may not be effected consistently with the First Amendment. (Schempp 374 U.S. 225)

Examining the specific wording of the 1962 and 1963 U.S. Supreme Court decisions led religious liberty advocates to recognize that the justices actually appeared to encourage the academic study of the Bible as long as it was done in an objective way. The reanalysis of these decisions spawned initiatives to reintroduce the Bible back into the schools both for its historical value and as a tome of great literary import.

Limitations of Study

The primary limitation of this meta-analysis, or any meta-analysis, is that it is restricted to analyzing the existing body of literature. Therefore, even if the researcher conducting the quantitative integrations sees ways the studies included could have been improved, there is no way to implement those changes. A second limitation of a meta-analysis is that the social scientist is limited to addressing the same research questions addressed in the aggregated studies. For example, it would be advisable to have parental expectations measures from all the studies included, but one can only aggregate the existing results.

Conclusion

The results of this study suggest that academic and behavioral benefits could possibly accrue if the Bible as literature is taught in the public schools. However, one should note that the studies that are included in this meta-analysis are in a variety of settings. Therefore, given that a growing number of public schools are now teaching the Bible as literature, the results of this study should encourage further research into this area of inquiry. A next step for social scientists would appear to be conducting research in some of the schools that have initiated the Bible as literature course. As this research is undertaken, sociologists and educators would be wise to wait a year or two after these classes are in place to begin their research. Given that this is a new endeavor for many schools, the first year of class will likely be one of adjustment and may not reflect the ultimate content and influence of the class.

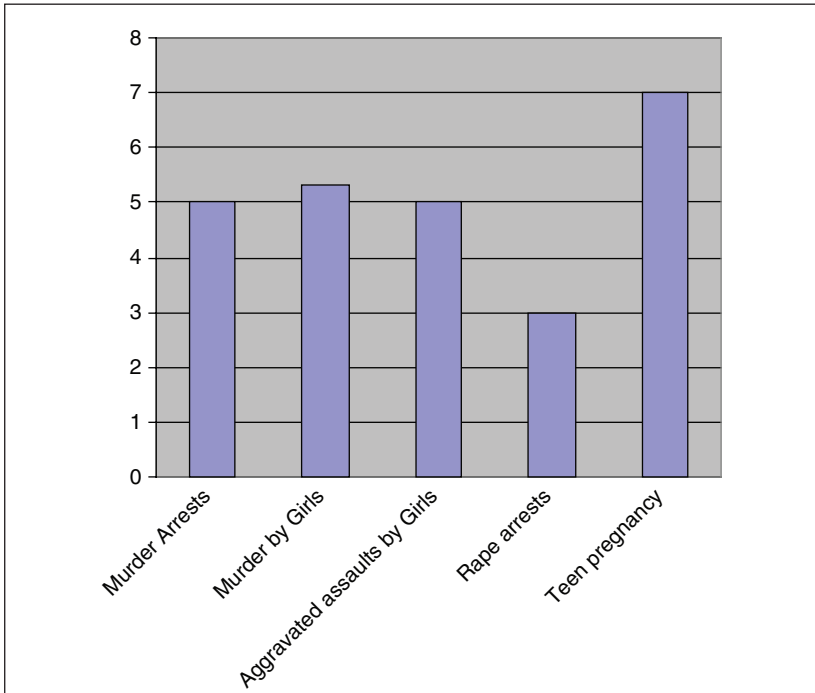


Figure 2. Number of times increase in per capita violent and sexually promiscuous behavior between 1962 and 1997/1998

The findings of this study also suggest that added student knowledge of the Bible may have ameliorative effects behaviorally as well. Numerous social scientists believe that when the Supreme Court removed Bible reading and prayer from the public schools, U.S. students and society began a moral slide from which this nation has never recovered (U.S. Department of Health and Human Services, 1998; U.S. Department of Justice, 1999). Rates of juvenile crime, violence, rape, and premarital pregnancy have soared since 1962, adding some credence to this claim (U.S. Department of Health and Human Services, 1998; U.S. Department of Justice, 1999). It is conceivable that if the United States should reintroduce character education for all grades across the nation, these numbers could fall. Although teachers would not use the Bible to teach moral education, its content would help students ask questions about character and seek answers about issues regarding appropriate student behavior. Figure 2 shows these dramatic increases in

juvenile antisocial and criminological behavior since the U.S. Supreme court decisions of 1962 and 1963.

All in all, such research as described previously, along with the results of this meta-analysis, will give the academic community insight into the potential effects of Bible literacy and knowledge.

Declaration of Conflicting Interests

The author declared that he had no conflicts of interests with respect to the authorship or the publication of this article.

Funding

The author received no financial support for the research and/or authorship of this article.

References

*-Indicates study was included in the meta-analysis.

- Bahr, S. J., & Hawks, R. D., & Wang, G. (1993). Family and religious influences on adolescent substance abuse. *Youth and Society, 24*, 443-465.
- Beck, S. H., Cole, B. S., & Hammond, J. A. (1991). Religious heritage and premarital sex: Evidence from a national sample of adults. *Journal for the Scientific Study of Religion, 30*, 173-180.
- Blanshard, P. (1963). *Religion and the schools*. Boston: Beacon Press.
- Boston, R. (2006). The Bible makes a comeback in public schools. *Humanist, 66*, 40-41.
- Bourne, W. O. (1870). *History of the public school society*. New York: Wood.
- Brownfield, D., & Sorenson, A. M. (1991). Religion and drug use among adolescents: A social support conceptualization and interpretation. *Deviant Behavior, 12*, 259-276.
- Busto, R. V. (1996). The gospel according to the model minority?: Hazarding an interpretation of Asian American evangelical college students. *Amerasia Journal, 22*, 133-147.
- Chusmir, L. H., & Koberg, C. S. (1988). Religion and attitudes toward work. *Journal of Organizational Behavior, 9*, 251-262.
- Cochran, J. K. (1992). The effect of religiosity on adolescent self-reported frequency of drug and alcohol use. *Journal of Drug Issues, 22*, 91-104.
- Cochran, J. K. (1993). The variable effects of religiosity and denomination on adolescent self-reported alcohol use by beverage type. *Journal of Drug Issues, 23*, 479-491.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Cohen, D. H., & Rudolph, M. (1977). *Kindergarten and early schooling*. New York: Prentice Hall.

- Doerr, E., & Menendez, A. J. (1991). *Church schools and public money*. Buffalo: Prometheus.
- *Edwards, S. E. (1984). *Factors of reading attitude, religious background, class standing, and the type of school related to the Bible reading habits of college students*. Doctoral dissertation, Indiana University, Bloomington, Indiana.
- Flowers, R. B. (1994). *That godless court?* Louisville: Westminster John Knox Press.
- *Francis, L. (2000). The relationship between Bible reading and purpose in life among 13-15-year olds. *Mental Health, Religion & Culture*, 3, 27-36.(referred to as Francis I).
- *Francis, L. (2002). The relationship between Bible reading and attitude toward substance abuse among 13-15 year olds. *Religious Education*, 97, 44-60.(referred to as Francis II).
- Furnham, A. (1987). Predicting Protestant work ethic beliefs. *European Journal of Personality*, 1, 93-106.
- Gerhards, J. (1996). Religion and the spirit of capitalism: A comparison of attitudes toward work and the economic order in the USA and Spain. *Berliner Journal for Sociologie*, 6, 541-549.
- Giorgi, L., & Marsh, C. (1990). The Protestant work ethic as a cultural phenomenon, *European Journal of Social Psychology*, 20, 499-517.
- Glass, G. V., McGaw, B., & Smith, M. L. (1981). *Meta-analysis in social research*. Beverly Hills: SAGE.
- Grossman, C. L. (2006, September). View of God can reveal values and politics. *USA Today*, 12, p. A1.
- Hammond, J. L. (1974). Revival religion and antislavery politics. *American Sociological Review*, 39, 175-186.
- Hedges, L. V., & Vevea, J. L. (1998). Fixed and random effects models in meta-analysis. *Psychological Method*, 3, 486-504.
- Hirsch, E. D. (1987). *Cultural literacy*. Boston: Houghton Mifflin.
- Holman, T. B., & Harding, J. R. (1996). The teaching of nonmarital sexual abstinence and members' sexual attitudes and behaviors: The case of the Latter-day Saints. *Review of Religious Research*, 38, 51-60.
- House Committee on the Judiciary. (1995). *Hearings on religious freedom in the schools*. Washington, DC: U.S. House of Representatives.
- Hunt, T. C., & Maxson, M. M. (1981). *Religion and morality in American Schooling*. Washington, DC: University Press of America.
- Hutchins, R. M., & Adler, M. J. (1963). *Gateway to the great books*. Chicago: Encyclopedia Britannica.
- Jeynes, W. (1999). The effects of religious commitment on the academic achievement of black and Hispanic children. *Urban Education*, 34(4), 458-479.

- Jeynes, W. (2001). Religious Commitment and Adolescent Behavior. *Journal of Interdisciplinary Studies*, 23(1/2), 31-50.
- Jeynes, W. (2003). The Effects of Black and Hispanic Twelfth Graders Living in Intact Families and being Religious on their Academic Achievement. *Urban Education*, 38(1), 35-57.
- Jeynes, W. (2005). The Relationship Between Urban Students Attending Religious Revival Services and Academic and Social Outcomes. *Education & Urban Society*, 38(1), 3-20.
- Jeynes, W. (2006a). Adolescent Religious Commitment and Their Consumption of Marijuana, Cocaine, and Alcohol. *Journal of Health and Social Policy*, 21(4).
- Jeynes, W. (2006b). Standardized Tests and the True Meaning of Kindergarten and Preschool. *Teachers College Record*, 108(10), 1937-1959.
- Jeynes, W. (2007). *American educational history School, society, and the common good*. Thousand Oaks: SAGE Publications.
- Jeynes, W. (2009a). The relationship between Bible literacy and academic achievement and school behavior. *Education & Urban Society*, 41(4), 419-436.
- Jeynes, W. (2009b). The relationship between Bible literacy and academic achievement and school behavior among Christian and public-school students. *Journal of Research on Christian Education*, 18(1), 36-55.
- Jeynes, W. (2010). *The Case for Restoring Character Education in the Public Schools*. Westport, CT: Praeger.
- Johnson, B. R., Jang, S. J., & Li, L. S. (2001). The invisible institution and black youth crime: The church as an agency of local social control. *Journal of Youth & Adolescence*, 29, 479-496.
- Johnson, B. R., Jang, S. J., Larson, D. B., & Li, L. S. (2001). Does adolescent religious commitment matter? *Journal of Research in Crime & Delinquency*, 38, 22-24.
- Kliebard, H. M. (1969). *Religion and education in America*. Scranton, PA: International Textbook Company.
- *Kwong, K. S. (2004). *The influence of spirituality training on teenagers*. Doctoral dissertation, Oral Roberts University, Tulsa, Oklahoma.
- *Mark T. J. (1982). A study of religious attitudes, religious behavior, and religious cognition. *Educational Studies*, 8, 209-216.
- *Markstrom, C. A. (1999). Religious involvement and adolescent psychological development. *Journal of Adolescence*, 22, 205-221.
- Mentzer, M. S. (1988). Religion and achievement motivation in the United States: A structural analysis. *Sociological Focus*, 21, 307-316.
- Miller, B. C., & Olson, T. D. (1988). Sexual attitudes and behavior of high school students relation to background and contextual factors. *Journal of Sex Research*, 24, 194-200.

- *Mookherjee, H. N. (1994). Effects of religiosity and selected variables on the perception of well-being. *Journal of Social Psychology, 134*, 403-405.
- Mudrack, P. E. (1992). 'Work' or 'Leisure'? The Protestant work ethic and participation in an employee fitness program. *Journal of Organization Behavior, 13*, 81-88.
- Nylander, A. B., Tung, Y., & Xu, X. (1996, August). *The effect of religion on adolescent drug use in America: An assessment of change, 1976-1992*. Paper presented at the American Sociological Association meeting in New York.
- Prothero, S. (2007). *Religious literacy*. San Francisco: Harper.
- Religious Tolerance. (2002). *News*. Retrieved June 11, 2002, from www.religioustolerance.org
- Roof, W. C. (2000). *Contemporary American religion*. New York: Macmillan.
- Sikorski, R. (1993). *Controversies in constitutional law*. New York, Garland.
- *Sjoberg, R. L. (2000). The catechism effect: Child testimonies during a 17th-century Witch panic as related to educational achievement. *Memory, 8*, 65-69.
- Smith, T. L. (1980). *Revivalism and social reform: American Protestantism on the Eve of the Civil War*. Baltimore: Johns Hopkins University Press.
- *Taylor, H. R., & Powers, F. F. (1928). Bible study and character. *Journal of Genetic Psychology, 35*, 294-302.
- Ter Voert, M. (1993). The effect of religion on work attitudes in the Netherlands. *Social Compass, 40*, 33-44.
- U.S. Department of Health and Human Services. (1998). *Statistical abstracts of the United States*. Washington, DC: Author.
- U.S. Department of Justice. (1999). *Age-specific arrest rate and race-specific arrest rates for selected offenses, 1965-1992*. Washington, DC: Author.
- Van Biema, D. (2007). The case for teaching the Bible. *Time, 169*, 40-46.
- Weber, M. (1958). *The Protestant ethic and the spirit of capitalism* (T. Parsons, Trans.). New York: Charles Scribner's Sons.

Bio

William Jaynes is a professor of education at California State University, Long Beach. He is a graduate of Harvard University and the University of Chicago. He has conducted numerous meta-analyses. His work has appeared in *Ivy League* journals and the nation's finest newspapers. He has spoken at the White House and for both the Bush and Obama administrations.