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The Relationship Between Bible Literacy and Academic Achievement and School Behavior

William H. Jeynes

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This study assessed the relationship between Bible literacy among secondary school students and their academic achievement and school behavior. One hundred and forty students in the 7th to 12th grade were randomly selected from a Christian school. Four measures of Bible knowledge were combined to obtain an overall measure of Bible literacy. They included a brief Bible test, the ease with which students declared that they could recite the 66 books of the Bible in order, the final grade from the last Bible course taken, and the results of previous Bible testing. The results indicate that of the three groups of students, those with the highest level of Bible literacy also had the highest average GPA, the highest ranking in test and grade results, and the best school behavior of the three groups. In contrast, those with the lowest level of Bible literacy also had the lowest average GPA, the lowest ranking in test and grade results, and the worst school behavior of the three groups.

Keywords: *Bible; literacy; achievement; behavior; education*

For the past four decades, social scientists have demonstrated a remarkable interest in examining the effects of religion on school achievement and behavior (Bryk, Lee, & Holland, 1993; Coleman, Hoffer, & Kilgore, 1982; Jeynes, 2002). Nearly all of these studies found that the religious commitment of students had a positive impact on academic outcomes and that Christian (Catholic and Evangelical) schools also influenced the educational outcomes of these students in a positive way (Jeynes, 1999, 2003a, 2003b; Sanders & Herting, 2000; Shoknaih, Olson, & Youssef, 1997; Steward & Jo, 1998). Of these two branches of research, social scientists have examined the impact of religious schools more than they have that of personal religious commitment (Jeynes, 1999, 2003a, 2003b). However, in

recent years a growing number of efforts have been undertaken to study the influence of religious commitment on academic and behavioral outcomes (Cochran, 1992, 1993; Jeynes, 1999, 2003a, 2003b; Johnson, Larson, Jang, & Li, 2000).

Within the context of religious commitment, there has arisen an increasing interest in examining the effects of Bible literacy on the academic outcomes and behaviors of individuals, particularly adolescents. This interest in Bible literacy has emerged, in large part, because of a move by some Americans to place Bible courses back in the public schools (Bradley, 2005). The focus of these courses would be to teach the Bible as literature and would be available to students who desired to deepen their knowledge of this holy book. Efforts are now underway in Texas and Georgia to make this study of the Bible available to students (Bradley, 2005). Advocates of this initiative assert that individuals who study the Bible will be more likely to excel both academically and in their school behavior (Bradley, 2005). As one might imagine, there is considerable debate about whether Bible literacy has these positive influences (Francis, 2000, 2002).

Unfortunately, there is really no consensus in the academic community about whether Bible literacy is associated with positive or negative academic outcomes or whether indeed there is any real relationship at all. A great deal of the reason for this is because there is a dearth of studies that have examined this relationship. Moreover, perhaps the primary reason why social scientists have not undertaken many studies to examine the effects of Bible literacy is because due to three Supreme Court decisions in 1962 and 1963, prayer and Bible reading are no longer allowed in the public schools (Blanshard, 1963; Michaelsen, 1970). Given that there are fresh movements to teach the Bible as literature in public schools, it is vital that academics undertake research to determine the relationship between Bible literacy with school achievement and behavioral outcomes (Bradley, 2005).

Ever since the U.S. Supreme Court removed voluntary group prayer and Bible reading from American public schools in a series of three decisions in 1962 and 1963, the topic of Bible literacy has become one of the most salient debates taking place in American educational circles (Flowers, 1994; Kliebard, 1969; Sikorski, 1993). To be sure, to the extent that educators no longer promoted Bible literacy as a result of those decisions, one can certainly make an argument that Bible literacy would go down. To whatever degree Bible literacy and voluntary prayer are designed to stimulate moral behavior, one might also expect that a subsequent decline in moral behavior would result from public schools that no longer tolerate

these religious expressions (Kliebard, 1969; Mann, 1849; Sikorski, 1993). It is these concerns that have caused a large number of people to aver that the teaching of the Bible as literature needs a place in the public schools.

Social scientists, politicians, and countless other Americans are increasingly asking whether the United States has paid a considerable price for removing a place for the Bible in the schools (Kliebard, 1969; Sikorski, 1993). Moreover, these same individuals are asking whether the forced absence of instructing students about its contents is even constitutional (Kliebard, 1969; Sikorski, 1993). To the extent that the United States Constitution guarantees freedom of religious expression, the fact that most public schools either discourage or prohibit the study of the Bible as literature causes some to wonder if this contradicts the very essence of the first amendment to the Constitution (Kliebard, 1969; Sikorski, 1993).

The interest of social scientists in Bible literacy has become prominent for two reasons especially: (a) moral education, based primarily on the teachings of the Bible, was a primary thrust in American education until the early 1960s and (b) some asserted that the deterioration in juvenile behavior since the early 1960s is a result, in part, of the removal of the Bible, prayer, and moral teachings from the public schools in the 1960s (Kliebard, 1969; Sikorski, 1993).

From the very beginning of permanent European settlements in North America, moral instruction has been a crucial aspect of American education. Stephen Yulish (1980) summed up this truth well:

The concept of moral education has always been a crucial underpinning of the American notion of a virtuous republic. Throughout its development, American leaders in education have strenuously sought to condemn mere intellectual training. (p. 80)

Horace Mann, the father of the nation's public schools, asserted that Bible and religious training should be a central focus of public school education. Mann asserted the following:

But, it will be said that this great result, in Practical Morals, is a consummation of blessedness that can never be attained without religion; and that no community will ever be religious without a Religious Education. Both of these propositions, I regard as eternal and immutable truths. Devoid of religious principles and religious affections the race can never fall so low that it may sink still lower. (as cited in Kliebard, 1969, p. 73)

For about 350 years, most American educators viewed moral education in schools as the primary task of schooling. The Supreme Court's removal of vocal prayer and Bible reading from the public schools had a significant impact on the teaching of moral education in the public schools (Jeynes, 2007; Sikorski, 1993). Prior to 1962, moral education was founded on the Bible. Once Bible reading was forbidden, schools no longer emphasized moral teachings like "turning the other cheek," "you should not covet," and "honoring your mother and father" for fear that many would interpret these as religious and moral teachings. A great deal of this change was not a product of the desires of school officials but their fear of lawsuits by antireligious parents (Jeynes, 2007; Sikorski, 1993). It is conceivable that the sudden decline in school-sponsored moral instruction that had even a greater negative impact on student behavior than the thwarting of religious freedom by banning vocal prayers in the school (Jeynes, 2007; Sikorski, 1993).

There is little debate that over the last 45 years behavioral trends have emerged among America's youth that are very disconcerting. Nearly every major measure of the adolescent delinquent behavior has surged over this period of time (U.S. Department of Health and Human Services, 1998; U.S. Department of Justice, 2006, 1999). Most of this increase occurred among the first generation of children who were raised in a nation in which the Bible could not be taught in the schools, 1963-1980 (U.S. Department of Health and Human Services, 1998; U.S. Department of Justice, 1999, 2006). Today, the measures of juvenile delinquency are similar to those in 1980 (U.S. Department of Health and Human Services, 1998; U.S. Department of Justice, 1999, 2006). Not only has adolescent delinquent behavior risen significantly but also students are assaulting teachers at a disconcerting rate, causing 1,000 teachers a month to either be hospitalized or seek medical attention (Casserly, Herbert, Raymond, Etzoni, & Shanker, 1985).

Reasons Why Bible Literacy Could Have an Ameliorative Effect

There are a few reasons to think that being familiar with and influenced by the Bible could be positively related to academic and positive behavioral outcomes. The first of these reasons, and historically probably the most acknowledged, deals with a religious, Bible-based 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.

A second reason to believe there might be a relationship between Bible literacy and educational and behavioral outcomes emerges from the tendency for the Bible to teach students to abstain from behaviors that are often regarded as undisciplined and harmful to academic achievement. A number of studies indicate that religious students and religiously oriented committed teens are less likely to become involved in drug and alcohol abuse (Bahr & Hawks, 1993; Brownfield & Sorenson, 1991; Jeynes, 2005). Other studies indicate that religiously inclined 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).

A third reason stems from the finding of some studies that suggest that religious people are more likely to have an internal locus of control, which is consistent with the many biblical exhortations to have courage and stand firm (Jackson & Coursey, 1988; Shrauger & Silverman, 1971). Educational researchers have found a rather consistent relationship between possessing an internal locus of control and performing well in school (Garner & Cole, 1986; Johnson, 1992).

Fourth, to whatever extent the Bible is a sophisticated piece of literature in much the same way that Shakespeare's plays are, fluency in reading the Bible could likely help students comprehend other literary works (Hutchins & Adler, 1963). Moreover, for centuries authors have either cited or alluded to biblical parables, events, prophecies, verses, and individuals to explicate certain points (Hutchins & Adler, 1963). An individual's Bible expertise will assist one in valuing these points.

The Importance of Bible Literacy: Three Research Questions

Studies indicate that historians and sociologists place great importance on the effects of a surge in interest for the Bible and religion in spawning improvements in social welfare and behavior (Burns & Furbish, 1901; Dieter, 1996; Orr, 1989; Smith, 1980). However, there has been almost no recent research that examines the relationship between Bible literacy and academic and behavioral outcomes among students. The study therefore addressed three research questions:

Research Question 1: To what degree were students of high overall Bible literacy more likely to achieve at high levels academically and behave well in school?

Research Question 2: To what degree were students of high specific measures of Bible literacy more likely to achieve at high levels academically and behave well in school?

Research Question 3: To what degree did the findings differ by race and gender?

Methods

Analytical Approach and Data Collection

To assess the influence of Bible literacy on the achievement and behavioral patterns of secondary school students, a survey was distributed to 7th- to 12th-grade students in a Christian school in the Los Angeles metropolitan area in California. Initially, 185 surveys were distributed among these children by the children's teachers. From these 185 students, 140 students were randomly selected to form the sample. The questionnaire included information about the student's race, gender, and grade as well as including questions relevant to the variables under study. Students were asked information about their grade point average (GPA), how they rank in their grades and tests versus their fellow students, and how their teachers rate their behavior versus other students. Bible literacy was determined by combining the following: (a) their score (0-100) on a 10-question Bible quiz, (b) the students' assessments of their ability to name the 66 books of the Bible in order, (c) their grade in their last Bible course, and (d) their self-rated percentile of Bible knowledge compared to most students their age.

Defining of Variables and Statistical Methods

Students were then divided into three groups of relative Bible literacy: high (290 total points and higher), medium (191-289 points), and low (190 points and lower). Multiple regression using a general linear model (GLM) analysis was then undertaken to determine whether there were any differences among the three groups of students in their GPA, how they rank in their tests and grades versus their fellow students (measured in percentiles, with a higher percentile being better), and how their teachers rate their behavior versus other students (measured in percentiles, with a higher percentile being better).

The study then addressed three research questions. First, to what degree were students of high overall Bible literacy more likely to achieve at high levels academically and behave well in school? Second, to what degree were

students of high specific measures of Bible literacy more likely to achieve at high levels academically and behave well in school? These specific measures of Bible literacy included the following: (a) their score (0-100) on a 10-question Bible quiz, (b) the students' assessments of their ability to name the 66 books of the Bible in order, (c) their grade in their last Bible course, and (d) their self-rated percentile of Bible knowledge compared to most students their age. These specific measures were divided into two types, present memory (Measures 1 and 2) and general knowledge (Measures 3 and 4). Third, to what degree did the findings differ by race and gender? The random sample from the school that was examined had 74 males (52.9%) and 66 females (47.1%) and had 86 (61.4%) White students and 54 (38.6%) non-White students.

Results

The results indicate that there is a strong relationship between both the overall and specific measures of Bible literacy and the educational and behavioral outcomes of secondary students.

Research Question 1

The results (see Table 1) indicate that of the three groups of students, those with the highest level of Bible literacy also had the highest average GPA (3.60), $F(2, 137) = 8.77, p < .001$; the highest ranking in test and grade results (84.7 percentile), $F(2, 137) = 5.87, p < .01$; and the best school behavior (80.3 percentile), $F(2, 137) = 4.28, p < .05$ of the three groups. In contrast, those with the lowest level of Bible literacy also had the lowest average GPA (2.47), $F(2, 137) = 9.12, p < .001$; the lowest ranking in test and grade results (54.6 percentile), $F(2, 137) = 8.85, p < .001$; and the worst school behavior (61.5 percentile), $F(2, 137) = 5.67, p < .01$ of the three groups. The group that was medium in Bible literacy had the following results: GPA (3.22), ranking in test and grades (74.0 percentile), and school behavior (77.9 percentile). The overall sample of students had the following means: GPA (3.17), ranking in test and grades (73.0 percentile), and school behavior (75.4 percentile).

Research Question 2

Analyses using each of the specific measures of Bible literacy yielded similar results to the results that emerged for the overall measure of Bible

Table 1
Overall Mean Academic Results for High, Medium,
and Low Bible Literacy Groups for GPA, Test
and Grade Ranking, and School Behavior (N = 140)

Overall Sample	GPA	Test and Grade Ranking	School Behavior
High Bible literacy group	3.60***	84.7%**	80.3%*
Medium Bible literacy group	3.22**	74.0%**	77.9%*
Low Bible literacy group	2.47***	54.6%***	61.5%**

Note: Statistically significance asterisks are for the comparison with the other two levels of Bible literacy; GPA = grade point average. High Bible literacy group versus medium Bible literacy group: GPA, $p < .01$; test and grade ranking, $p < .01$; and school behavior, $p < .01$. High Bible literacy group versus low Bible literacy group: GPA, $p < .001$; test and grade ranking, $p < .01$; and school behavior, $p < .01$. Medium Bible literacy group versus low Bible literacy group: GPA, $p < .001$; test and grade ranking, $p < .01$; and school behavior, $p < .01$. * $p < .05$. ** $p < .01$. *** $p < .001$.

literacy. When one examines the relationship between present memory Bible literacy (measures 1 and 2 described earlier) and academic and behavioral student outcomes, the data showed a similar pattern to the overall Bible literacy measures, although the differences were somewhat narrower. The results (see Table 2) indicate that of the three groups of students, those with the highest level of Bible literacy also had the highest average GPA (3.57), $F(2, 137) = 5.96, p < .01$; the highest ranking in test and grade results (78.7 percentile), $F(2, 137) = 5.68, p < .01$; and a school behavior rating (78.9 percentile), $F(2, 137) = 4.44, p < .05$ that was higher than the remainder of the sample but was not statistically significantly different from those of the medium Bible literacy group. In contrast, those with the lowest level of Bible literacy also had the lowest average GPA (2.83), $F(2, 137) = 8.05, p < .001$; the lowest ranking in test and grade results (62.6 percentile), $F(2, 137) = 5.66, p < .01$, and the worst school behavior (68.0 percentile), $F(2, 137) = 5.58, p < .01$, of the three groups. The group that was medium in Bible literacy had the following results: GPA (3.30), ranking in test and grades (73.4 percentile), and 79.4 percentile in school behavior.

When one examines the relationship between general knowledge, Bible literacy (Measures 3 and 4 described earlier), and academic and behavioral student outcomes, the data showed somewhat larger differences between the three Bible literacy groups than for either the overall measures of Bible literacy or the present memory measures. The results (see Table 3) indicate that of the three groups of students, those with the highest level of Bible literacy

Table 2
Mean Academic Results for High, Medium, and Low Bible Literacy for the Bible Test and the Bible Familiarity Measure Combined (N = 140)

Overall Sample	GPA	Test and Grade Ranking	School Behavior
High Bible literacy group	3.57**	78.7%**	78.9%*
Medium Bible literacy group	3.30**	73.4%**	79.4%*
Low Bible literacy group	2.83***	62.6%**	68.0%*

Note: Statistically significance asterisks are for the comparison with the other two levels of Bible literacy; GPA = grade point average. High Bible literacy group versus medium Bible literacy group: GPA, $p < .01$; test and grade ranking, $p < .05$; and school behavior, *ns*. High Bible literacy group versus low Bible literacy group: GPA, $p < .001$; test and grade ranking, $p < .01$; and school behavior, $p < .01$. Medium Bible literacy group versus low Bible literacy group: GPA, $p < .01$; test and grade ranking, $p < .01$; and school behavior, $p < .01$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

also had the highest average GPA (3.71), $F(2, 137) = 8.06, p < .001$; the highest ranking in test and grade results (88.2 percentile), $F(2, 137) = 6.06, p < .01$; and a school behavior rating (88.1 percentile), $F(2, 137) = 5.75, p < .01$ that was higher than the remainder of the sample but was not statistically significantly different from those of the medium Bible literacy group. In contrast, those with the lowest level of Bible literacy also had the lowest average GPA (2.43), $F(2, 137) = 9.19, p < .001$; the lowest ranking in test and grade results (53.6 percentile), $F(2, 137) = 5.87, p < .01$; and the worst school behavior (55.0 percentile), $F(2, 137) = 5.53, p < .01$ of the three groups. The group that was medium in Bible literacy had the following results: GPA (3.25), ranking in test and grades (67.6 percentile), and 74.0 percentile in school behavior.

Research Question 3

The results (see Table 4) indicate that increased Bible literacy is associated with better academic and behavioral results across variables of gender and race. Both male and female students in the high Bible literacy group procured a higher GPA, better test scores and grade ranking, and demonstrated better school behavior than their counterparts in the low Bible literacy group. This trend also held when comparing males and females in the high Bible literacy group versus the medium Bible literacy group and the medium Bible literacy group versus the low Bible literacy group, except in the case of males who showed similar patterns of school behavior for both the high

Table 3
Mean Academic Results for High, Medium, and Low Bible Literacy Groups for the Last Grade in Bible Class Combined With Self-Rated Bible Knowledge ($N = 140$)

Overall Sample	GPA	Test and Grade Ranking	School Behavior
High Bible literacy group	3.71***	88.2%**	88.1%**
Medium Bible literacy group	3.25**	67.6%**	74.0%*
Low Bible literacy group	2.43***	53.6%**	55.0%**

Note: Statistically significance asterisks are for the comparison with the other two levels of Bible literacy; GPA = grade point average. High Bible literacy group versus Medium Bible literacy group: GPA, $p < .01$; test and grade ranking, $p < .01$; and school behavior, $p < .01$. High Bible literacy group versus low Bible literacy group: GPA, $p < .001$; test and grade ranking, $p < .001$; and school behavior, $p < .001$. Medium Bible literacy group versus low Bible literacy group: GPA, $p < .001$; test and grade ranking, $p < .01$; and school behavior, $p < .01$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

and medium Bible literacy groups. Although better results for both males and females emerged with higher levels of Bible literacy, the difference in GPA between the high and low Bible literacy groups was greater for boys (1.25) than it was for girls (.99), $p < .05$.

The results (see Table 4) indicate that of the three groups of students, males with the highest level of Bible literacy also had the highest average GPA (3.49), $F(2, 67) = 8.61$, $p < .001$; the highest ranking in test and grade results (88.2 percentile), $F(2, 137) = 5.90$, $p < .01$; and a school behavior rating (88.1 percentile), $F(2, 137) = 5.76$, $p < .01$. The same trend emerged for girls high in Bible literacy. These girls obtained the highest average GPA (3.72), $F(2, 67) = 6.05$, $p < .01$; the highest ranking in test and grade results (88.2 percentile), $F(2, 137) = 5.94$, $p < .01$; and a school behavior rating (88.1 percentile), $F(2, 137) = 5.74$, $p < .01$. Both boys and girls in the lowest level of Bible literacy category likewise obtained the lowest averages in each of these categories.

Both White and non-White students in the high Bible literacy group procured a higher GPA, better test scores and grade ranking, and demonstrated better school behavior than their counterparts in the low Bible literacy group. This trend also held when comparing Whites and non-Whites in the high Bible literacy group versus the medium Bible literacy group and the medium Bible literacy group versus the low Bible literacy group, except in the case of Whites who showed similar results in school behavior for both the high and medium Bible literacy groups. Both Whites and non-Whites showed similar levels of benefit from increased Bible literacy,

Table 4
Mean Academic Results for High, Medium, and Low Bible Literacy Groups by Gender ($N = 140$; 74 males, 66 females)

Overall Sample	GPA	Test and Grade Ranking	School Behavior
High Bible literacy group	3.72** for females 3.49*** for males	86.5%** for females 83.1%** for males	86.5%** for females 74.8% for males
Medium Bible literacy group	3.31** for females 3.18** for males	70.5%** for females 77.1%** for males	78.6%* for females 77.3% for males
Low Bible literacy group	2.73** for females 2.24** for males	56.4%** for females 53.0%** for males	69.6%* for females 54.3%** for males

Note: Statistically significant effects are for comparison with the other two levels of Bible literacy for the same gender; GPA = grade point average. High Bible literacy versus low Bible literacy males, +1.25 change in GPA versus +.99 change in GPA for females, $p < .05$. High Bible literacy versus low Bible literacy males, +30.1% change in test and grade ranking versus +30.1% in test and grade ranking for females, *ns*. High Bible literacy versus low Bible literacy males, +20.5% change in school behavior versus +16.9% in test and grade ranking for females, *ns*. * $p < .05$. ** $p < .01$. *** $p < .001$.

with nonstatistically different patterns by race emerging in these results. Multiple regression analysis indicated that there were no differences by race in the relationship that emerged between Bible literacy and GPA, $F(2, 137) = 1.09$, $p > .05$, test and grade ranking, $F(2, 137) = 0.19$, $p > .05$, and school behavior, $F(2, 137) = 0.58$, $p > .05$ (see Table 5).

Discussion

Research Question 1

The results suggest that student Bible literacy is associated with higher levels of achievement and better school behavior. Conversely, lower levels of Bible literacy are associated with lower levels of achievement and poorer school behavior. Not only were the differences statistically significant but also they were quite large. For example, the average GPA for the high Bible literacy group was 1.13 GPA units higher than for the low Bible literacy group. For the overall measure of Bible literacy, for all three outcome variables (GPA, test and grade ranking, and behavior) the high level Bible literacy groups averaged the highest in all three categories, the medium level Bible literacy group was second highest in all three of these categories, and the low level Bible literacy group was the lowest in all three of these categories.

Table 5
Mean Academic Results for High, Medium, and Low Bible Literacy
Groups by Race (N = 140; 86 White and 54 non-White students)

Overall Sample	GPA	Test and Grade Ranking	School Behavior
High Bible literacy group	3.60** for Whites 3.61** for non-Whites	85.3%** for Whites 83.7%** for non-Whites	77.3% for Whites 85.0%* for non-Whites
Medium Bible literacy group	3.14** for Whites 3.34** for non-Whites	75.7%** for Whites 71.3%** for non-Whites	77.9% for Whites 77.8%* for non-Whites
Low Bible literacy group	2.42** for Whites 2.55** for non-Whites	54.8%** for Whites 54.1%** for non-Whites	56.7%** for Whites 69.1%** for non-Whites

Note: Statistically significant effects are for comparison between White and non-White students; GPA = grade point average. High Bible literacy versus low Bible literacy Whites, +1.18 change in GPA versus +1.06 change in GPA for non-Whites, *ns*. High Bible literacy versus low Bible literacy non-Whites, +30.5% change in test and grade ranking versus +29.6% in test and grade ranking for non-Whites, *ns*. High Bible literacy versus low Bible literacy Whites, +20.6% change in school behavior versus +15.9% in test and grade ranking for non-Whites, *ns*.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Research Question 2

The results were stronger for the general knowledge measures of Bible rather than either the overall measures of Bible literacy or the present memory measures of Bible literacy. This likely results from the fact that the measures of the general knowledge type of Bible literacy were broader and covered a broader time span than the more narrowly defined measure of the present memory type of Bible literacy. The present memory measures of Bible literacy may not be able to detect the differences in academic achievement and school behavior as well because it is not as effective a measure of Bible literacy as the general knowledge of Bible literacy.

Generally speaking, it also appears that the effects of Bible literacy were greater for educational outcomes, somewhat more than for behavioral outcomes. This may reflect the fact that Bible literacy is more of an intellectual facet of religious expression than a behavioral one. It is conceivable that behavioral aspects of religious commitment, such as prayer and church attendance, might influence behavior more than intellectual prowess and more mental aspects of religious expression such as Bible knowledge could influence one's thought processes especially (Johnson, Jang, Larson, & Li, 2001; Miller & Olson, 1988; Steward & Jo, 1998). One should keep in mind that this is simply a hypothesis and that further research should test its veracity.

The results also indicate that the gap in educational and behavioral outcomes is somewhat greater between those of medium Bible literacy and low Bible literacy than it is between medium Bible literacy and high Bible literacy. This may indicate that initial increases in Bible literacy may have more of an impact on school and behavioral outcomes than later increases in literacy. In other words, the marginal utility of Bible literacy is highest with early exposure and is somewhat less with later exposure to the Bible (Jeynes, 1999; Sander, 1996). Although there was some indication that this is the case, one should note that this trend is apparent but not large. Those students in the high Bible literacy group generally had significantly better educational and behavioral outcomes than their counterparts in the medium Bible literacy group.

Research Question 3

The data patterns indicate that higher levels of Bible literacy were associated with higher academic and behavioral outcomes across race and gender. The better levels of achievement for male and female students were very similar, except for GPA in which males seemed to benefit somewhat more than females from high levels of Bible literacy. However, no statistically significant effects emerged in the benefit accrued by White and non-White students. More research needs to be initiated to examine the possible reasons why boys might benefit somewhat more than girls by increased Bible literacy. However, it is conceivable that to whatever extent boys can be a little less focused than girls in the classroom, the study of the Bible may help boys to be self-disciplined enough to sufficiently focus their thoughts to do better in school (Jeynes, 2003a; Sanders & Herting, 2000).

Reasons for the Relationship Between Bible Literacy and Academic and Behavioral Outcomes

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 of these reasons, and historically probably the most acknowledged, deals with a religious work ethic. It could well be that reading, studying, and applying the Bible encourages a person to maintain a certain work ethic that could influence both their academic life and their behavior. Although this work ethic is commonly referred to as the Protestant work ethic, recent research indicates that this work 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 (1990) 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 intimated that the relationship between religious commitment and a work ethic is overstated, most studies have found a consistent relationship between the two.

A second reason to believe there might be a relationship between Bible literacy and academic and behavioral outcomes emerges from the fact that the Bible exhorts 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 (Bahr & Hawks, 1993; Brownfield & Sorenson, 1991). Other studies indicate that religiously committed teens are less likely to engage in sexual behavior or become pregnant while they are still teenagers (Beck et al., 1991; Holman & Harding, 1996; Miller & Olson, 1988).

The third 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 produce the same effect (Hutchins & Adler, 1963). Given that studying the Bible requires a certain degree of reading skill, it may be that engaging in this discipline enhances one's ability to examine other sophisticated passages of literature and other academic material. It may well be that this relationship is less likely than the other two to produce changes in behavior, 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.

Limitations of the Study

One should note that this study was undertaken at a single school in Southern California. Researchers will need to conduct further research in other areas of the country to determine the extent to which one can generalize the results of this study to other environments. One should also note that this study addresses levels of Bible literacy already in place as opposed to a program designed to augment levels of Bible literacy. Therefore, the results of this study can only suggest what the results of a Bible literacy program might be.

In addition, one should note that this study is a cross sectional study and not a longitudinal one. Therefore, although the results of this study may suggest likely causal relationships, one cannot absolutely come to conclusions regarding the direction of causality. It is conceivable, for example, that students who already excel in school are more likely to be interested in reading the Bible. It is also possible that students who are more cerebral are more likely to cogitate about religious and philosophical issues, such as the purpose of life, the first cause, and the spiritual nature of humanity.

However, having acknowledged the limitations referred to above, it is also vital to realize that it is difficult to conduct longitudinal studies until a certain number of public schools, in particular, offer courses on the Bible as literature. Hence, a major contribution of this study is that the results indicate that social scientists need to engage in more research to obtain a greater understanding of the causal relationships that this study suggests exist but have not proven. If the strong associations that emerged in this study had not appeared, these results would not necessarily lead one to the conclusion that considerably more research is needed in this area. However, the relationships are substantial enough to lead one to conclude that much work is required in this relatively new area of study.

Conclusion

The results suggest that researchers ought to further examine the effects of Bible literacy to see if it is something that schools should encourage. It is associated with positive academic and behavioral outcomes. Equally noteworthy is the fact that students from the low Bible literacy group had mean achievement and behavioral measures that were especially far from the overall mean for the school. This result suggests that low levels of Bible literacy have even more of a detrimental academic and behavioral effect than high levels of Bible literacy do, in a positive way, on academic and behavioral measures.

The findings of this study suggest that the attempt to bring Bible courses into the public schools may be a worthy endeavor. If these courses can substantially increase the Bible literacy of public school students then increased academic outcomes and improved student behavior may well result. Although this study did not seek to discern the direction of causality specifically, many theories have been propounded about the effects of religious expression on academic achievement and student behavior. These theories include the following: (a) the presence of a religious work ethic (Gerhards, 1996; Jeynes, 2003a, 2003b), (b) the fact that religious people are more likely

to have an internal locus of control (Jackson & Coursey, 1988), and (c) that Christians are less likely to engage in behaviors, such as drug and alcohol abuse, that has a deleterious effect on academic and behavioral outcomes (Fabbro, Muzor, Bellen, Calcione, & Bava, 1999; Jeynes, 2006). Further research should examine whether Bible literacy can enhance the achievement and behavior of students in school. Meta-analyses and longitudinal studies are likely the types of studies that can best provide further insight into the relationship between Bible literacy and academic and behavioral outcomes.

Most recent studies of the influence of Bible literacy have been particularly interested in its influence on student behavior, particularly given the moral qualities inherent in the Bible (Francis, 2000, 2002). In addition, most recent studies that have examined the effects of Bible literacy have either been undertaken in Europe or have been in the form of doctoral dissertations. Given the importance of the ongoing debate on the effects of Bible literacy, it is vital that social scientists examine this issue with a new level of vigor, particularly as it relates to academic achievement.

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