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Relationships Between Religious Orientation and Academic Attitudes

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**RELATIONSHIPS BETWEEN RELIGIOUS ORIENTATION AND
ACADEMIC ATTITUDES**

by

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A Dissertation Submitted to the Faculties of

The College of William and Mary
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ABSTRACT

RELATIONSHIPS BETWEEN RELIGIOUS ORIENTATION AND ACADEMIC ATTITUDES

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The goal of this study was to examine whether there is an underlying consistency between college students' approaches to religion and their approaches to higher education. A sample of 234 undergraduate students completed the Religious Life Inventory (Batson, Schoenrade, & Ventis, 1993), which assesses orientation to religion, and the Academic Attitude Scale (Wong, 1998), which identifies factors that motivate students to pursue higher education. The three dimensions (Means, End, and Quest) extracted from the Religious Life Inventory were compared to the six subscales (Intrinsic, Instrumental, Personal Development, External Pressure, Social Interest, No Better Option) of the Academic Attitude Scale to determine if significant positive relationships exist between aspects of students' religious orientation and specific factors influencing their decision to pursue higher education. To further assess consistency between approaches to religion and higher education, scores on the Religious Life Inventory and Academic Attitude Scale were compared to scores on the Christian/Humanist Implicit Association Test (Ventis, Ball, & Viggiano, 2010) and on the Need for Cognition Scale (Cacioppo & Petty, 1982).

The Means religious orientation was found to be significantly positively correlated with the Academic Attitude Scale subscales External Pressure, Social Interest, and No Better Option, and the Quest orientation was significantly positively correlated

with the Personal Development subscale of the Academic Attitude Scale. No significant positive correlations were found between the Academic Attitude Scale subscales and the End religious orientation. A significant positive relationship was found between the Intrinsic Value Academic Attitude Scale subscale and a measure of implicit attitudes toward Christian and Humanist perspectives. The Intrinsic Value Academic Attitude Scale subscale was also found to moderate the relationship between an implicit and an explicit measure of preference for a Christian or Humanist perspective. Need for Cognition also moderated this relationship. Need for Cognition was found to be significantly positively related to both the Quest religious dimension and to the Personal Development subscale of the Academic Attitude Scale.

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This work is dedicated to my parents,

Jeffrey and Karen Everitt,

and to my sister,

Lindsey Everitt Sussman

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CHAPTER I

INTRODUCTION

The goal of this study was to examine whether there is an underlying consistency between college students' approaches to religion and their approaches to higher education. While the experiences of following one's faith and attending college are in many ways vastly different from one another, there are aspects that are similar. These include the voluntary nature of participation in each and the fact that both involve a person's affiliating with a social institution external to the individual. Prominently also, both contexts have extensive implications for how individuals come to view themselves and the world. Sociologists have identified a number of social institutions that emerge in modern societies. In his book *Human Institutions*, Jonathan Turner (2003) defines social institutions as "population-wide structures and associated cultural systems that humans create and use to adjust to the exigencies of their environment" (p. 2). He identifies six core institutions of modern human society: economy, kinship, religion, polity, law, and education. The current study examined college students' motivations for maintaining involvement with two of these institutions: religion and education.

Psychology researchers have assessed individuals' motivations for adhering to religion and for persisting in college; however, these empirical inquiries have, for the most part, taken place independently of one another. The current study attempted to bridge these two areas of inquiry by seeking evidence as to whether similar motives and influences play a part in a person's deciding to attend college as they do in determining how a person orients to his or her religion. Findings may provide direction for future research investigating how broadly or narrowly individuals apply certain values when

making decisions about their own affiliations, and may inform the work of clinicians, educators, and policy-makers.

Religious Orientation

In his work in the area of religion and psychology in the 1950s and 1960s, Gordon Allport discriminated between two distinct orientations towards religion. He originally labeled these orientations *immature* and *mature*, but eventually renamed them *extrinsic* and *intrinsic*. Allport described the extrinsic orientation as one in which an individual endorses beliefs or engages in religious acts in an effort to facilitate the attainment of worldly goals (e.g., acquiring social status, feeling protected, pleasing others). People with an extrinsic orientation were seen as using religion and the idea of God in an instrumental manner to benefit personally and socially. The intrinsic orientation, on the other hand, referred to an individual's being motivated in his religious practice by the religion itself and the goals outlined within it. Allport wrote that a person with an extrinsic orientation *uses* his religion, while a person with an intrinsic orientation *lives* his. Stemming from this intrinsic/extrinsic model of religion, Allport developed the Religious Orientation Scale to measure these two constructs (Allport & Ross, 1967). This measure continues to be used widely in research.

Batson, Schoenrade, and Ventis (1993) identified that several important elements of Allport's idea of mature religion were dropped from the concept as it evolved into the concept of an intrinsic orientation. Specifically, mature religion had incorporated three important components that were not encompassed by the intrinsic dimension: 1) the tendency to face complex religious issues without reducing their complexity; 2) a readiness to doubt and be self-critical, and 3) considering religious understanding as a

continuous search, without end. Batson and Ventis (1982) introduced a third dimension, *Quest*, which is characterized by these elements of complexity, skepticism, and tentativeness. Based on this conceptualization, Batson and colleagues developed the 3-dimensional “Means-End-Quest” model of understanding religious orientation. In this model, the Means dimension is drawn from Allport’s extrinsic orientation and the End dimension is based upon Allport’s intrinsic orientation. The third dimension, Quest, encompasses more of a sense of complexity and active questioning than is captured by the End (intrinsic) dimension. To assess individuals’ personal orientations using this model, Batson et al. (1993) introduced the Religious Life Inventory (RLI), a 78-item self-report measure comprised of six subscales and from which the Means, End, and Quest dimensions can be derived. Although Allport had posited that individuals could be classified into types, as having *either* an intrinsic *or* an extrinsic orientation, an empirical examination by Batson and colleagues of the Religious Orientation Scale and the Religious Life Inventory suggested that Means, End, and Quest should be treated as dimensions that are statistically independent of one another.

Research utilizing the Religious Orientations Scale and the RLI has included studies examining relationships between religious orientation and a wide range of social behaviors and individual characteristics. In a meta-analysis of 55 independent studies, Hall, Matz, and Wood (2009) found that an extrinsic approach to religion has been related positively to self-reported racism whereas the intrinsic and quest dimensions have been found to be negatively related to racism. The quest dimension was also found to be significantly positively associated with racial tolerance. A meta-analysis of 61 independent studies demonstrated that intrinsic religion was associated with negative

attitudes toward lesbians and gay men, extrinsic religion was unrelated to either positive or negative attitudes, and quest was associated with positive attitudes toward lesbians and gay men (Whitley, 2009). The quest orientation has been demonstrated to correlate positively with post-conventional moral reasoning (Glover, 1996; Sapp & Jones, 1986), negatively with right wing authoritarianism (Leak & Randall, 1995), and positively with cognitive complexity in dealing with religious questions (Batson & Raynor-Price, 1983).

Academic Attitude

Researchers have examined a multitude of variables in studying students' attitudes toward academics, but much of the existing literature in this area has studied adolescents in middle school and high school rather than students at the post-secondary level. Guay and Vallerand (1997) found a significant positive relationship between 9th and 10th-grade students' feelings of competency and autonomy and their academic achievement; Miller and Byrnes (2001) demonstrated that high school students' perceived competency predicted academic achievement; and Bong (2001) reported positive relationships between feelings of self-efficacy and achievement among middle-school and high-school students.

The few studies that have studied academic attitude among college students have focused primarily upon its relation to course selection. For example, Feather (1988) found that students' choice of college courses is consistent with their personal values: among students he studied, choosing to study math was positively related to values designated as "restrictive control" and "intellectual orientation" while choosing to study English was positively related to a student's valuing "prosocial concern."

In an effort to address how academic attitudes may relate to a student's decision to pursue a post-secondary education, Wong (1998) developed a scale designed to measure the degree to which a student values specific elements of the experience of attending college. The resulting measure, the Academic Attitude Scale (AAS) (Wong, 1998), is a 29-item self-report questionnaire comprised of six subscales: Intrinsic Value, Instrumental Value, Personal Development, External Pressures, Social Interest, and No Better Option. These subscales are intended to identify prominent reasons, motives, and attitudes in one's approach to higher education. Wong suggested that students who attach certain values to their education will experience greater academic success, and this idea has been supported by the outcomes of his and others' research. Gender differences on the AAS subscales have not been reported in literature, but Wong has presented evidence for age differences among the AAS subscales. He reported that younger college students (those in their 20s) endorsed the External Pressure and Social Interest subscales significantly more strongly than did more mature (age 30 and older) students, whereas the older students endorsed the Intrinsic Value scale significantly more strongly than the younger students. Wong found no significant age differences for the Instrumental Value, Personal Development, or No Better Option AAS subscales (Wong, 1998).

Using the AAS to assess academic attitude, Morrow and Ackermann (2005) investigated the contribution of academic attitude to persistence among college students. They found that the more that students agreed that personal development was an important factor in their attending college, the more likely they were to return after their first year of college for their second year. Students who endorsed Instrumental Value subscale items were more likely than others to report an intention to obtain a degree from

their college, and students who endorsed No Better Option subscale items were less likely than others to report an intention to obtain a degree (Morrow & Ackerman, 2005).

Religious Orientation and Academic Attitude

Although a historical review of the long-standing relationship between religion and education is beyond the scope of this discussion, it is appropriate to discuss relevant research that has examined the relationships that exist between religious involvement and academic orientation. Of particular interest in the current study is an examination of these relationships among college students and college-bound students.

Cheung and Yeung (2011) conducted a meta-analysis of 40 studies that examined religious involvement and behaviors among adolescents with a mean age of 16. The authors found evidence that religious involvement maintains a stronger relationship with what they described as “constructive” behaviors, including academic achievement, than it does with destructive behaviors (e.g., substance use, risky sexual behavior), and that private religious involvement maintains a stronger relationship with adolescent behaviors than does public religious involvement. No studies in this meta-analysis examined future college attendance as an outcome variable in relation to religious involvement among the adolescents studied.

Although literature in this area is limited, some research suggests that a positive relationship exists between religious involvement and academic performance at the post-secondary level. Religion has been identified as a variable predicting academic success among college students (Walter & Dixon, 2002) and graduate students (Clark, Brooks, Lee, Daley, & Crawford, 2006) who identify with diverse ethnic backgrounds. The religious interest of post-secondary students has also been examined in relation to the

likelihood that those individuals will attain a college degree. Analyzing longitudinal data from a national database, Loury (2004) found that the frequency of individuals' church attendance during adolescence was significantly related to the total years of schooling that they eventually attained. In another study that utilized longitudinal data, high school students' self-reported level of religiosity was significantly positively related to future bachelor degree attainment (Lee, Puig, & Clark, 2007). Zern (1989) found that college students who reported that they were more religious at the time of the study than they had been in years prior to college had higher GPAs than did those who reported lower levels of religious interest.

In most of the aforementioned studies examining religion and academics, participants' religiosity has been assessed with single open-ended questions such as "To what extent do you think that you are a religious person?" (Lee et al., 2007) rather than with a measure for which validity and reliability has been established with previous research. No studies were found which employed the RLI to measure Means, End, and Quest orientations or the Religious Orientations Scale to measure Allport's mature/immature religion in relation to academic performance. Another limitation of the literature is that religion has not been examined in relation to students' underlying motivations in pursuing higher education. Instead, students' religion is assessed in regard to academic performance. Performance has been indicated by such things as GPA, years of schooling, and degree attainment. Research that employs a measure such as the AAS, which targets underlying motivations behind pursuing a college education, might broaden the scope of the literature. By utilizing both the RLI and the AAS, research could address

questions about what similarities or differences, if any, exist between individuals' approaches to two major areas of life experience: religion and education.

Goals of the Study

The goal of the current study was to examine whether there is consistency in the way in which students approach religion and education. Academic attitude was assessed through the use of the AAS and religious orientation was assessed with the RLI. Predictions as to which subscales of the AAS might correlate positively with each of the Means, End, and Quest dimensions are based upon conceptual similarities between what the AAS subscales and religious dimensions represent.

The Means religious dimension, which reflects Allport's original concept of extrinsic religion, suggests an approach to religion that places emphasis upon the usefulness of religion in helping a person to attain worldly goals such as personal and social gain. Of the AAS subscales, those that seem to reflect this concept of an extrinsic approach – one that in the context of education places an importance upon its usefulness in helping a person attain personal and social gain – are the Instrumental Value, Social Interest, External Pressures, and No Better Option subscales. Therefore, it was predicted that these four AAS subscales would be significantly positively related to the Means dimension of the RLI.

The End religious dimension was based largely upon Allport's concept of intrinsic or mature religion, in which a person is motivated in his or her religious practice by the religion itself and the goals outlined within it. The End dimension was predicted to be significantly positively correlated with the Intrinsic Value subscale of the AAS, as these two variables seem to be conceptually similar. Wong (1998) describes the Intrinsic

Value subscale of the AAS as reflecting “the inherent and immediate rewarding nature of academic pursuit” (p. 279). It seems plausible that individuals who endorse Allport’s mature religion might approach education by placing value on the immediacy and intrinsic reward found in academic pursuit, therefore endorsing the Intrinsic Value subscale of the AAS.

Based on the assumption described above that the Intrinsic Value subscale of the AAS is conceptually similar to the End religious dimension, it was also predicted that the Intrinsic Value subscale of the AAS and the End religious dimension would relate similarly to a third variable: performance on the Christian/Humanist Implicit Association Test (CH IAT), which is an implicit measure of one’s preference for Christian or Humanist views. When Ventis, Ball, and Viggiano (2010) compared CH IAT data with scores on each of the Means, End, and Quest dimensions, they found a significant positive correlation between the CH IAT and the End religious dimension (CH IAT scores that are in the positive direction represent a more positive evaluative response toward a Christian perspective, whereas negative scores represent a more positive evaluative response toward Humanist views). Based on these findings, and due to the conceptual similarities explained above between the End religious dimension and the Intrinsic Value subscale of the AAS, a significant positive correlation was expected to be found in the present study when the CH IAT was compared with the Intrinsic Value subscale of the AAS.

The Quest scale was designed to capture three aspects of Allport’s mature religion that were not incorporated into his intrinsic religion: readiness to face existential questions without reducing their complexity; self-criticism and a positive perception of

religious doubts; and openness to change. Of the six AAS subscales, each of which captures a different value or set of related values in education, the subscale that seems most conceptually similar to the Quest dimension is Personal Development. The Personal Development subscale of the AAS reflects the degree to which an individual values education for the long-term impact that it may have on cognitive and character development. Items within this subscale assess the degree to which an individual values critical and creative thinking as well as the degree to which he or she believes that difficulties and obstacles in life can be instructive and can facilitate “becoming a better person” and reaching one’s potential. These values, as applied to an educational context, are related to some of the core ideas addressed by the Quest religious dimension. For example, in a review of creativity research, Feldhusen and Goh (1995) identify tolerance of ambiguity and openness – both concepts associated with the Quest dimension – with creative thinking, which is a concept of value to individuals who endorse items on the Personal Development AAS subscale. Also implicit in both the Personal Development subscale and the Quest dimension is a readiness to not just face challenges (or doubts), but to use them in order to achieve greater understanding and growth. Considering these conceptual similarities, it was predicted that in the current study individuals who endorsed the Quest dimension would also endorse the Personal Development subscale of the AAS.

It was predicted in the current study that the Quest dimension would be positively correlated with a measure developed by Cacioppo and Petty (1982) to assess Need for Cognition, which they defined as the degree to which an individual engages in and enjoys thinking. Such results would be consistent with the findings of Barrett, Patock-Peckham,

Hutchinson, and Nagoshi (2005), who in a study relating religious orientation and cognitive motivations found that individuals with greater Need for Cognition Scale scores were more likely than others to endorse the Quest orientation. It was also expected that the Personal Development AAS subscale, being conceptually similar to the Quest orientation, would like Quest be significantly positively correlated with Need for Cognition.

Following the rationale above, hypotheses posed by this study were:

1. The Means dimension of religion would be positively correlated with the Instrumental, Social Interest, External Pressures, and No Better Option subscales of the AAS.
2. The End dimension of religion would be positively correlated with the Intrinsic Value scale of the AAS.
3. The Quest dimension of religion would be positively correlated with the Personal Development subscale of the AAS.
4. Scores on the Intrinsic Value scale of the AAS would be positively correlated with an implicit measure of preference for Christian or Humanist views.
5. The Quest dimension of religion and the Personal Development scale of the AAS would both be positively correlated with the Need for Cognition Scale.

CHAPTER II

METHOD

Participants

Research questions were tested using data collected during the spring of 2010. Participants consisted of 234 students enrolled in Introduction to Psychology courses at a small liberal arts college in the South. Participation was voluntary, but participants received class research credit for their participation. The researchers followed the guidelines of the Protection of Human Subjects Committee of the College of William and Mary, which approved this study.

The sample consisted of 84 males and 150 females, and included 156 first-year, 35 second-year, 17 third-year, and 26 fourth-year students. Please see Table 1 for related demographic information. Of the 234 participants, 165 (71%) identified themselves as Christian, 19 as atheist, 15 as agnostic, 12 as having no religion or as being unsure of their beliefs, 6 as Jewish, 2 as Buddhist, 2 as Hindu, and 13 as other. Due to an error in the data collection process, no data relating to ethnicity or age was collected from the respondents. This limitation greatly reduces the generalizability of the study's findings. Information regarding ethnicity and age for a fairly comparable group of respondents to those who participated in the current study may be found in Ventis et al. (2010). Because the participants in both studies were recruited from an Introduction to Psychology class at the same college within the same year, demographic information for these participants may be expected to be fairly similar.

Table 1

Frequency Table of Demographic Variables

Variable	<i>n</i>	%
Gender		
<i>Male</i>	84	35.9
<i>Female</i>	150	64.1
Year in College		
<i>First-year</i>	156	66.7
<i>Second-year</i>	35	15.0
<i>Third-year</i>	17	7.3
<i>Fourth-year</i>	26	11.1

Measures

Christian/Humanist Implicit Association Test (CH IAT). Recognizing the limitations of relying solely on self-report, explicit instruments to measure religious beliefs and preference, Ventis et al. (2010) developed the Christian/Humanist Implicit Association Test (CH IAT). This is an implicit measure which assesses a respondent's preference for a Christian or a Humanist perspective. In developing the CH IAT the authors assumed that particularly among college students, traditional religious views may often be in conflict with a humanistic perspective. Social pressure may influence the extent to which individuals accurately report their attitudes toward religion. If individuals question or reject traditional Christian views, for instance, they may feel reluctant to express those views openly or even to confront them inwardly, due to internalization of social pressure. The CH IAT was developed to address the impact that this type of conflict might have upon the validity of self-report data. It measures an individual's implicit preference for Christian or Humanist views. For analyses involving CH IAT data, respondents are excluded if they identify as being religious in a way that does not easily lend itself to Christianity or Humanism.

The CH IAT instrument is a computer administered measure that presents individuals with stimulus terms relating to Christian and Humanist ideas and asks the individual to pair these Christian and Humanist ideas with positive or negative evaluative terms. Response times during these tasks are analyzed to produce a score reflective of the individual's implicit attitudes towards Christian and Humanist ideas (Ventis et al., 2010). In the current study the CH IAT was administered using SuperLab Pro 2.0

software run on a Dell Inspiron 300m laptop computer. Reaction times were recorded using a Cedrus RB830 keypad.

In the CH IAT, Christian belief terms include: *eternal life, Biblical authority, personal God, miracles, Jesus divine, supernatural, religious faith, Biblical creation, divine plan, and resurrection*. Humanist belief terms include: *human mortality, evolution, Bible as literature, impersonal universe, scientific laws, Jesus merely human, religious skepticism, death as final, human understanding, trust experience*. Positive evaluative terms indicating endorsement include: *true, valid, accurate, correct, credible, accept, affirm, support, genuine, and agree*. Negative evaluative terms indicating rejection include: *false, invalid, inaccurate, incorrect, incredible, reject, negate, oppose, fake, and disagree*.

CH IAT administration began with participants reading a series of slides which introduced them to the CH IAT process and explained their task. The CH IAT procedure then commenced with 7 sequences. In the first sequence, participants completed 20 trials in which they were presented with Christian and Humanist terms and asked to classify them into “Christian” and “Humanist” categories. The purpose of these trials was to ensure that the participants appropriately classified these terms. The second sequence consisted of 20 trials and asked participants to appropriately classify the “endorse” and “reject” terms. Following this was a third sequence intended to further familiarize the participants with the CH IAT procedure. It consisted of 20 trials in which “Christian” and “endorse” labels were presented in the upper left corner of the screen and “Humanist” and “reject” labels were presented in the upper right corner of the screen. Participants were asked to press a key on the left side of the keyboard when a

“Christian”/ “endorse” term was presented and a key on the right side when a “Humanist”/ “reject” term was presented. In the fourth sequence, in which conditions were identical to those in the third sequence, 40 trials were presented in which participants were asked to again classify paired terms (“Christian”/“endorse” or “Humanist”/“reject”). Reaction times in milliseconds were recorded for the responses for these 40 trials. The fifth and sixth sequences were practice sequences. The fifth sequence consisted of 20 trials in which “Humanist” appeared in the upper left corner of the screen and “Christian” appeared in the upper right corner of the screen. The sixth sequence consisted of 20 trials in which “Humanist” terms and “endorse” labels appeared in the upper left corner of the screen and “Christian” and “reject” labels appeared in the upper right corner of the screen. Participants were asked to classify the presented stimulus terms into their appropriate categories. In the seventh, and last, sequence conditions were identical to those in sequence 6, and participants were presented participants with 40 trials. Reaction times in milliseconds were recorded for their responses in the seventh sequence.

The CH IAT effect score is calculated following the improved scoring algorithm recommended by Greenwald, Nosek, and Banaji (2003). Ventis et al. (2010) found the test-retest reliability for the CH IAT to be consistent with that documented in prior research for other CH IAT measures. They also found strong evidence for construct validity by comparing CH IAT scores to the three religious dimensions on the RLI. For instance, consistent with the authors’ expectations, the correlation of the CH IAT with the End dimension was significant, with $r(137) = .19, p < .05$ (Ventis et al., 2010).

Demographic Questions. Participants were asked for demographic information including their year in college and religious affiliation. A full list of demographic questions is presented in Appendix B.

Christian and Humanist Ratings. Three brief explicit measures of evaluative responses to Christianity and Humanism were included in the current study. Participants were asked to rate their preference for Christianity or Humanism on a 5-point scale. At one end of the scale was “I strongly prefer Christian beliefs to Humanist beliefs” (later assigned a numerical value of 1), and at the other end of the scale was “I strongly prefer Humanist beliefs to Christian beliefs” (later assigned a numerical value of 5). Participants were also asked, “Please rate how warm or cold you feel toward the following perspectives: Christian beliefs _____, Humanist beliefs _____” and asked to provide a numerical value according to a 10 point scale on which 0 represented coldest feelings, 5 represented neutral feelings, and 10 represented warmest feelings.

Religious Life Inventory (RLI). The Means, End, and Quest dimensions of religion were assessed using the 78-item Religious Life Inventory (RLI) developed by Batson et al. (1993). The RLI is a self-report instrument consisting of six subscales: the Intrinsic scale, which is comprised of 9 items; the Extrinsic scale, which is comprised of 11 items; the Internal scale, which is comprised of 9 items; the External scale, which is comprised of 6 items; the Quest scale, which is comprised of 12 items; and the Religious Orthodoxy scale, which is comprised of 12 items. The Intrinsic and Extrinsic scales are the original Extrinsic and Intrinsic scales that Allport developed to assess immature and mature religion, respectively. The External scale measures the degree to which a person’s religion is influenced by external social elements, such as figures of authority.

The Internal scale was developed to measure the extent to which a person's religion is influenced by internal needs such as those for certainty and direction. The Quest scale measures the degree to which a person's religion is influenced by acceptance of complexity, doubt, and tentativeness. The sixth scale, Religious Orthodoxy, measures the importance an individual places on traditional religious doctrine and orthodox Christian beliefs. The Means, End, and Quest dimensions are calculated by scoring each of these six subscales and subjecting them to principal component factor analysis, specifying a three factor solution, with varimax rotation. The resulting three components, which represent the Means, End, and Quest dimensions, are generally treated in research as statistically independent (Batson et al., 1993).

For the current study, the internal consistency of each of the six RLI subscales was assessed by computing Cronbach's alpha. The results of these reliability analyses are as follows: Intrinsic: .92; Extrinsic: .75; External: .82; Internal: .91; Quest: .80; Orthodoxy: .98. These reliability values are consistent with those demonstrated in past research (Ventis et al., 2010).

Per convention in research investigating religious orientation dimensions (Batson, Denton, & Vollmecke, 2008), analyses in the current study that included data obtained from the RLI were limited to participants who reported a Christian denomination and who rated their interest in religion as greater than 3 on a 9-point scale. These inclusion criteria have been established to help enhance the validity of the data collected by the RLI. By including only respondents who hold at least a moderate level of interest in religion, researchers attempt to ensure that RLI data reflects consistent religious attitudes from individuals who are invested in religion and have given the topic some

consideration. Because the content of the RLI draws from a Christian ideological framework, individuals who did not identify as Christian at the time of the study were excluded. This decision was based on the rationale that they would not consider the RLI items as personally relevant as would Christian respondents. A total of 154 out of the total 234 respondents met these inclusion criteria for analyses involving RLI data.

Academic Attitude Scale (AAS). The Academic Attitude Scale (AAS) is a 29-item self-report scale developed by Wong (1998) which measures a student's reasons for attending college and his or her general attitude towards university education. The scale contains six subscales: 1) Intrinsic Value, which consists of six items; 2) Instrumental Value, which consists of five items; 3) Personal Development, which consists of three items; 4) External Pressure, which consists of six items; 5) Social Interest, which consists of four items; and 6) No Better Option, which consists of five items. Each of the 29 items is scored using a 7-point Likert scale (Strongly Disagree to Strongly Agree). The Intrinsic Value subscale measures one's appreciation of the inherent and immediate reward of academic pursuit. It includes such items as, "I like the intellectual stimulation of the university." An example of an item from the Instrumental Value subscale is, "University education improves my chances of getting a good job." The Personal Development subscale reflects the student's value of the long-term benefits of a university education on his or her cognitive skills and development of character. This scale contains items such as, "The discipline and rigor of academic pursuit will make me a better person." The External Pressure subscale includes, "There is a great deal of pressure on me to do as well as my brothers, sisters, or cousins." Social Interest items refer to the importance placed on social experiences by the student. An item from this

scale is, “I stay in school more for social than academic reasons.” An example of the No Better Option items is, “I’m at college because I’m afraid of entering the real world.” High convergent validity has been demonstrated by previous research (Wong, 1998). To assess the internal consistency of each of the six AAS subscales in the current study, Cronbach’s alpha was computed for each. The results of these reliability analyses are as follows, with all scales but Social Interest reflecting good internal consistency: Intrinsic Value subscale: .78; Instrumental Value subscale: .79; Personal Development subscale: .83; External Pressure subscale: .72; Social Interest subscale: .52; No Better Option subscale: .85. These results are consistent with those demonstrated in past research such that Morrow and Ackerman (2005) found reliability levels to range from .51 (Social Interest) to .86 (No Better Option).

Need for Cognition (NFC) Scale. The Need for Cognition Scale is an 18-item self-report instrument developed by Cacioppo and Petty (1982), who define “need for cognition” as the degree to which an individual engages in and enjoys thinking (Cacioppo & Petty, 1982). The first version of the Need for Cognition Scale consisted of 34 items, but in 1984 Cacioppo, Petty, and Kao introduced a shortened version. This shortened version, which was used in the current study, was developed by calculating Cronbach’s alpha as each successive item of the original 34 items was added to the scale. It was determined that after the 18th item was added, little internal consistency was gained by adding additional items. The authors administered both the full 34-item version and the shortened 18-item version of the Need for Cognition scale to 527 undergraduate students and found that the versions correlated with each other strongly and significantly. Factor analysis revealed that, like the longer version, the 18-item Need for Cognition Scale

captured one dominant factor. Furthermore, the variance attributable to this factor was greater in the 18-item version than in the 34-item version. The shortened scale was determined to be a more efficient measure of need for cognition than its longer predecessor (Cacioppo et al., 1984). Further support of the structure and internal consistency of the 18-item shortened Need for Cognition scale has been provided by subsequent research, which has also suggested that the scale is not biased towards either gender (Sadowski, 1992). In the current research Cronbach's alpha for the Need for Cognition scale was .92, reflecting high internal consistency.

Procedures

Students who wished to participate in the study signed up through an online research participation management system (SONA) provided by the university. Upon arriving at the lab at their designated time, each student signed a consent form which informed students of their rights as participants. Each student then individually completed the CH IAT. After completing the CH IAT, a participant was provided with a web address for the online site on which they would complete the remainder of the study. The online site is part of an online data collection software system (Opinio) licensed to the university. Once on the site, participants answered demographic questions and responded to self-report questionnaire measures. Measures used in this study, beginning with the CH IAT, are described above and provided in the appendices.

Data collection was coordinated with two other studies to minimize the necessity for students to complete the same instruments multiple times in order to get credit for the study participation hours. The CH IAT was administered by a research assistant and completed on a laptop computer in a research laboratory. Students were

able to complete the online portion in one session, from any computer connected to the internet, at any location they chose. After the completion of both the CH IAT and the online self-report measures, students were provided with a debriefing summary via the online site. The total time required by an individual to participate in this study was an hour or less.

Analyses

As has been explained, in establishing the Means, End, and Quest dimensions from RLI data, data was analyzed only for those students who reported Christianity as their religious affiliation and who rated their interest in religion as being greater than 3 on a 9-point scale. Data from the RLI was used to calculate scores on its six subscales – Extrinsic, Intrinsic, Internal, External, Orthodoxy, and Quest. Once the six RLI subscale scores were calculated, the Means, End, and Quest dimensions were obtained by subjecting the RLI subscale scores to confirmatory principal component factor analysis with varimax rotation, specifying a three-factor solution. Subscale scores were calculated for each of the six subscales of the AAS.

To test hypotheses 1-3, each of the six AAS subscale scores were compared to each of the three Means, End, and Quest dimensions through correlation analyses. To test hypothesis 4, the CH IAT data was compared to the six subscale scores of the AAS using correlation analyses. To test hypothesis 5, the Need for Cognition Scale score was calculated and compared through correlation analyses with each of the six AAS subscales. Correlation analyses were also used to compare the Need for Cognition Scale score with the Means, End, and Quest dimension scores. To detect gender and year-in-college group differences, independent t-tests were performed on the AAS, religious

dimensions, CH IAT, and explicit religious measures. Exploratory multiple regression analyses were performed to determine whether there were significant interaction effects between the CH IAT and the AAS subscales, and between the CH IAT and Need for Cognition, in relation to explicit measures assessing preference for Christian or Humanist perspectives.

CHAPTER III

RESULTS

Prior to performing analyses, data were examined and descriptive statistics performed. Descriptive statistics for variables are presented in Table 2. Table 3 displays significant intercorrelations found among AAS subscale scores; these results are consistent with relationships found among the AAS subscales in previous research by Wong (1998). Pairwise deletion was used for all correlation analyses.

Calculating Means, End, and Quest Religious Dimensions

Per convention in research investigating religious orientation dimensions (Batson, Denton, & Vollmecke, 2008), analyses that included RLI data were limited to participants who identified as Christian and who rated their interest in religion as greater than 3 on a 9-point scale. Inclusion criteria help enhance the validity of the data collected by the RLI, as a moderate or higher level of interest in religion implies that an individual is somewhat invested in his or her religion and therefore may provide more thoughtful, consistent responses on the RLI. The content of the RLI draws from a Christian ideological framework, and respondents who did not identify as Christian were excluded from analyses since the RLI items may hold a different meaning for them than they would for Christian respondents. A total of 154 out of the total 234 respondents met the inclusion criteria.

Table 2

Descriptive Statistics for Variables

Variable	Scale	Mean	SD
<u>AAS Subscales</u>			
Intrinsic Value	(1-7)	5.44	.97
Instrumental Value	(1-7)	6.13	.89
Personal Development	(1-7)	5.84	1.05
External Pressure	(1-7)	4.80	1.16
Social Interest	(1-7)	4.48	1.01
No Better Option	(1-7)	2.11	1.21
<u>Explicit Religious Measures</u>			
Christian (warmth)	(0-10)	6.48	2.86
Humanist (warmth)	(0-10)	5.51	2.54
Christian/Humanist Preference Scale	(0-5)	2.75	1.47
<u>Implicit Religious Measure</u>			
CH IAT		.40	.30
<u>Other Variable</u>			
Need for Cognition	(1-5)	3.54	.69

Means and standard deviations are based on the total sample of respondents ($N = 234$), though N varied by variable due to missing data.

Table 3

Intercorrelations Among AAS Subscales

AAS Subscale	1	2	3	4	5	6
1. Intrinsic	--	.54***	.24***	.11	.63**	-.31***
2. Instrumental		--	.31***	.44***	.70***	-.29***
3. Social Interest			--	.30***	.32***	.13
4. External Pressure				--	.33***	.19**
5. Personal Development					--	-.26***
6. No Better Option						--

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

Note: Ns ranged from 220 to 228, with differences due to missing data.

Once the six RLI subscale scores were calculated, the Means, End, and Quest dimensions were obtained by subjecting the RLI subscale scores to confirmatory principal component factor analysis with varimax rotation, specifying a three-factor solution. Table 4 illustrates the respective RLI subscale loadings onto these three factors as a result of the factor analysis.

Correlations of Religious Dimensions with Academic Attitudes

Pearson r correlations were conducted to examine relationships between the Means, End, and Quest religious dimensions and the six AAS subscales. Results of these analyses are presented in Table 5. Means and Quest, but not End, were each demonstrated to be significantly related to specific AAS subscales. It had been predicted (Hypothesis 1) that the Means dimension would be significantly positively correlated with the Instrumental Value, Social Interest, External Pressure, and No Better Option AAS subscales. The Means dimension was found to be significantly positively correlated with External Pressure, $r(126) = .44, p < .001$; No Better Option, $r(128) = .30, p < .001$; and Social Interest, $r(131) = .22, p < .05$. The correlation of Means with the Instrumental Value subscale was not significant. Means was found to be significantly negatively related to the Intrinsic Value AAS subscale: $r(129) = -.19, p < .05$. The End religious dimension, which had been predicted to be significantly positively related to the Intrinsic Value AAS subscale (Hypothesis 2), was not found to be significantly correlated with any AAS subscale. As predicted (Hypothesis 3), the Quest religious dimension was positively correlated with the Personal Development AAS subscale: $r(131) = .18, p < .05$. Quest was not found to be significantly positively correlated with any other AAS subscale.

Table 4

Component Loadings of Religious Life Inventory (RLI) Subscales

RLI Subscales	Religious Dimensions		
	Religion as Means	Religion as End	Religion as Quest
1. Extrinsic	.971*	- .128	.102
2. Intrinsic	- .339	.864*	- .007
3. External	.169	.898*	- .086
4. Internal	- .156	.924*	- .134
5. Quest	.097	- .144	.982*
6. Orthodoxy	- .172	.858*	- .195

Note: Principal-components analysis with a varimax rotation. N = 132.

* Indicates highest component loading for each scale.

Table 5

Correlations of AAS Subscales with Religious Dimensions, NFC, and CH IAT

AAS Subscale	Means	End	Quest	NFC	CH IAT
Intrinsic Value	-.19* 129	.08 129	.07 129	.30*** 212	-.16* 188
Instrumental	.14 129	.09 129	-.05 129	-.04 211	-.08 186
Social Interest	.22* 131	-.01 131	.16 131	-.15* 212	-.06 188
External Pressure	.44*** 126	.00 126	-.01 126	-.27*** 206	-.08 184
Personal Development	.17 131	.12 131	.18* 131	.15* 214	-.05 191
No Better Option	.30*** 128	-.15 128	.08 128	.24*** 213	.09 189

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

Note: Ns for analyses are noted under correlation coefficients.

Gender and Year-in-College Differences for Religious Dimensions

To test whether scores on each of the Means, End, and Quest dimensions might differ by gender, independent t-tests were performed comparing the mean scores of male and female respondents. Results of these analyses revealed no significant gender effect for any of the three religious dimensions. T-tests were also performed to determine whether significant differences existed between the mean score for first-year respondents and the mean score for a combined group of third- and fourth-year ("upper class") respondents on each of the Means, End, and Quest dimensions. Means was the only dimension for which there was a significant difference between these groups, with $t(109) = 3.79, p < .001$. First-year students (Mean = .16, SD = .84) scored significantly higher on the Means dimension than did the upper class students (Mean = -.63, SD = 1.10).

Gender Differences for AAS Subscales

Independent t-tests were performed to test whether scores on each of the six AAS subscales differed significantly by gender. The results of these analyses revealed a significant difference between male and female respondents for three of the six AAS subscales: Intrinsic Value, Instrumental Value, and Personal Development. Women scored significantly higher than men on all three of these subscales. Women (Mean = 5.57, SD = .89) scored significantly higher than men (Mean = 5.20, SD = 1.07) on the Intrinsic Value subscale, with $t(223) = -2.77, p < .01$. For the Instrumental Value subscale, $t(225) = -2.54, p < .05$, with Mean = 6.25 and SD = .77 for women and Mean = 5.91 and SD = 1.05 for men. For the Personal Development subscale, $t(226) = -2.30, p < .05$, with women (M = 5.96, SD = .96) scoring significantly higher than men (M = 5.63, SD = 1.17).

Year-in-College Differences for AAS Subscales

Independent t-tests revealed significant differences between the scores of first-year and the scores of upper class (third- and fourth-year) students on four of the six AAS subscales: Instrumental Value, Social Interest, External Pressure, and Personal Development. For the Instrumental Value subscale, $t(187) = 4.18, p < .001$, with first-year students (Mean = 6.29, SD = .69) scoring significantly higher on the Instrumental Value subscale than upper class students (Mean = 5.65, SD = 1.26). For the Social Interest subscale, $t(190) = 4.09, p < .001$, with first-year students (Mean = 4.65, SD = .92) scoring significantly higher than upper class students (Mean = 3.94, SD = 1.19). For the External Pressure subscale, $t(184) = 3.50, p < .05$. Again, first-year students (Mean = 4.96, SD = .99) scored significantly higher than did upper class students (Mean = 4.26, SD = 1.48). First-year students (Mean = 5.94, SD = .96) also scored significantly higher than upper class students (Mean = 5.56, SD = 1.29) on the Personal Development subscale, with $t(191) = 2.06, p < .05$.

Correlations of Need for Cognition with Means, End, and Quest

Results of Pearson r correlations comparing Need for Cognition with the Means, End, and Quest religious dimensions are displayed in Table 6. Need for Cognition was found to be significantly negatively correlated with the Means religious dimension, with $r(122) = -.32, p < .001$, and significantly positively correlated with the Quest religious dimension, with $r(122) = .41, p < .001$.

Table 6

Correlations of Religious Dimensions with Need for Cognition and CH IAT

Religious Dimension	NFC	CH IAT
Means	-.32***	.08
End	.06	.25**
Quest	.41***	.07

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

Note: N ranged from 116 to 122, with differences due to missing data.

Results of Pearson r correlations comparing Need for Cognition with AAS subscales are displayed in Table 5. Need for Cognition was significantly positively related to Intrinsic Value, with $r(212) = .30, p < .001$ and to Personal Development, with $r(212) = .15, p < .05$. Need for Cognition was also significantly negatively related to External Pressure and No Better Option. Correlating Need for Cognition with External Pressure yielded $r(206) = -.27, p < .001$, and Need for Cognition with No Better Option yielded $r(213) = -.24, p < .05$.

Gender and Year-in-College Differences for Need for Cognition

T-tests revealed no gender differences for Need for Cognition scores, but did reveal a year-in-college difference. The group of third- and fourth-year students scored significantly higher (Mean = 3.74, SD = .70) on Need for Cognition than did first-year students (Mean = 3.46, SD = .69), with $T(184) = -2.27, p < .05$.

Correlations of CH IAT with Religious Dimensions

Analyses that included the Christian/Humanist Implicit Association Test (CH IAT) were limited to participants whose stated religious affiliation was compatible with either a Christian or a Humanist perspective. There is precedent for the use of this inclusion criterion in past research involving the CH IAT (Ventis et al., 2010).

Respondents who adhere to a perspective that is incompatible with a Christian or Humanist perspective may not be invested enough in the CH IAT procedure to yield results that would be meaningful in the context of implicit attitude assessment. On the basis of this exclusion criterion, 13 people were removed from the overall participant group to bring the total from 234 to 221.

Results of Pearson r correlations comparing the CH IAT data with AAS subscales and with Means, End, and Quest religious dimensions are reported in Tables 5 and 6, respectively. Positive CH IAT data values reflect a preference for a Christian perspective over Humanist perspective, whereas values in the negative direction reflect a preference for a Humanist perspective. The CH IAT data was found to have a significant positive relationship with the End religious dimension: $r(116) = .25, p < .05$, but no significant relationships were found between CH IAT data and the Means or Quest religious dimensions.

Correlations of CH IAT with AAS Subscales

It was expected that the Intrinsic Value subscale of the AAS would be significantly positively correlated with the CH IAT (Hypothesis 4), such that higher Intrinsic Value scores would be associated with a stronger preference for a Christian perspective over Humanist perspective. However, the results of Pearson r correlations comparing CH IAT data to AAS subscale scores revealed a significant negative relationship between CH IAT data and the Intrinsic Value subscale of the AAS, with $r(188) = -.16, p < .05$. No other significant relationships were found between the CH IAT data and the AAS subscale scores. A significant negative relationship was found between CH IAT data and Need for Cognition, with $r(181) = -.17, p < .05$. T-tests revealed no group differences in CH IAT scores for gender or for year-in-school.

Explicit Measures of Religious Preference

To measure explicit, self-reported attitudes toward Christian and Humanist perspectives, respondents were asked to rate their “warmth” toward Christianity and Humanism using a scale from 0 to 10. Warmth toward Christianity and warmth toward

Humanism were significantly negatively correlated, with $r(234) = -.62, p < .001$, as would be expected given that Christianity and Humanism represent antithetical constructs and the scales have identical structures. T-tests revealed no significant group differences based on gender or year-in-college for Warmth toward Christianity, Warmth toward Humanism, or the Christian/Humanist Preference Scale.

Explicit and Implicit Religious Measures at Different Levels of Intrinsic Value

To investigate the relationship between the implicit and explicit measures of preference for Christian or Humanist perspectives, a multiple regression analysis was performed to assess whether respondents' endorsement of the Intrinsic Value subscale of the AAS might moderate the relationship between their scores on an implicit measure of preference for a Christian perspective and an explicit measure of warmth toward Christianity. Regression of warmth toward Christianity on the CH IAT at differing levels of the Intrinsic Value AAS subscale was conducted to assess possible interaction between the latter two variables. A significant interaction effect was revealed. Please see Figure 1 for a display of these results.

Explicit and Implicit Attitudes toward Christianity at Different Levels of Need for Cognition

To further investigate the relationship between implicit and explicit measures of preference for Christian or Humanist perspectives, a multiple regression analysis was performed to assess whether Need for Cognition might moderate the relationship between scores on the CH IAT and a report of warmth toward Christianity. Regression of warmth toward Christianity on the CH IAT at differing levels of NFC was conducted to assess

possible interaction between the latter two variables, and a significant interaction effect was found. Please see Figure 2 for a display of these results.

Table 7

Intercorrelations Among Religious Variables and Means, End, and Quest

Variable	1	2	3	4	5	6	7
1. Christian (warmth)	--	-.62*** 234	-.87*** 234	.36*** 196	-.28** 132	.25** 132	-.19* 132
2. Humanist (warmth)		--	.77*** 234	-.32*** 196	.18* 132	-.59*** 132	.20* 132
3. CH Preference Scale			--	-.40*** 196	.25** 132	-.81*** 132	.13 132
4. CH IAT				--	.08 116	.25** 116	.07 116
5. Means					--	.00 132	.00 132
6. End						--	.00 132
7. Quest							--

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

Note: Ns for analyses are noted under correlation coefficients.

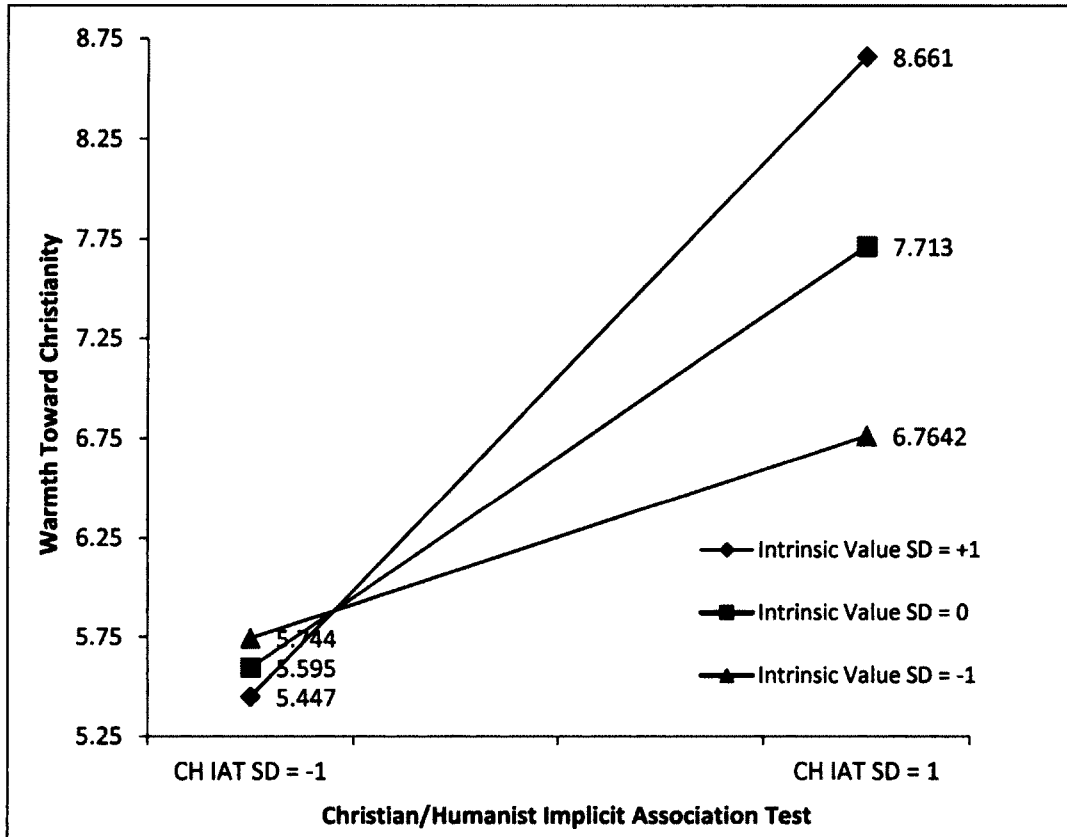


Figure 1. Regression of Warmth toward Christianity on the Christian Humanist Implicit Association Test at differing levels of the Intrinsic Value Subscale of the Academic Attitude Scale.

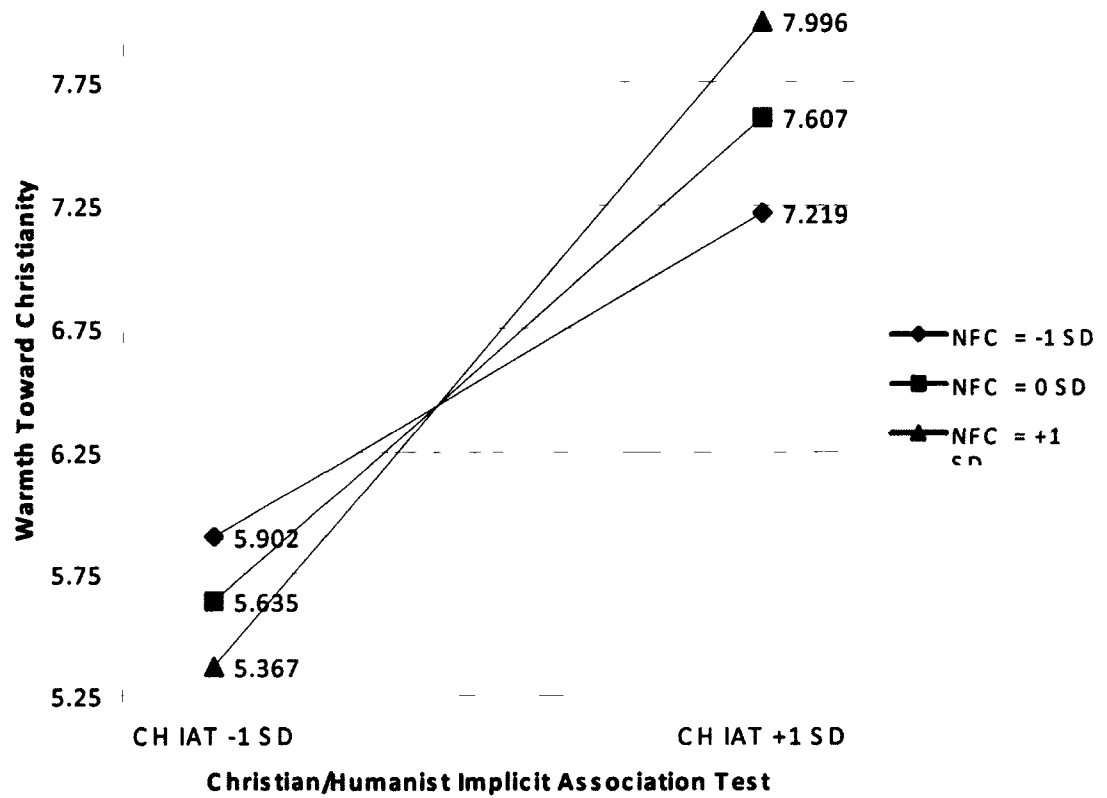


Figure 2. Regression of Warmth toward Christianity on the Christian Humanist Implicit Association Test at differing levels of Need for Cognition.

CHAPTER IV

DISCUSSION

Correlations of Means, End, and Quest with Academic Attitudes

It was expected that significant positive relationships would be found between religious dimensions and academic attitudes due to the conceptual similarities inherent in measures of these variables. One expectation was that the more students report valuing religion for the personal and social gains that it helped them attain (Means dimension), the more they would report having been influenced in the decision to attend college by the instrumental value that holding a college degree offers (Instrumental Value). It was also predicted that higher scores on the Means religious dimension would be associated with higher scores on the Social Interest AAS subscale, which measures the value a student places on the role of higher education in facilitating personal and social gains. The Means religious dimension was also expected to be significantly positively related to a greater amount of influence that parents' opinions had on a student's decision to attend college, and Means was also expected to be significantly positively related to a greater degree of feeling that there had been no better option than attending college at the time the student decided to enroll (No Better Option). The author's prediction of significant positive relationships between the Means religious dimension and these four AAS subscales was based on the idea that elevations on these subscales reflect a more extrinsic, or, to use Allport's language, *immature* approach to education than an intrinsic or *mature* approach.

This study found that the Means religious dimension was significantly positively related to the AAS subscales Social Interest, External Pressure, and No Better Option.

The higher the scores on these subscales, the greater the influence that prospects for social opportunities, feelings of pressure from important others, and not having a more attractive option had upon a student's decision to attend college, respectively. The significant positive relationships that were found between Means and these particular AAS subscales are not surprising if one considers that someone who values social and personal gains in the religious context may behave similarly in an educational context. The Social Interest AAS subscale refers to the value that a student places on the social experiences offered by the college environment. Since the Means religious dimension reflects a high degree of value placed on the social experiences afforded by a religious affiliation, it is not surprising that a significant positive relationship exists between the two variables. External Pressures relates to the pressure a student feels is placed on him or her by important figures (e.g., parents) to attend college. The significant positive relationship that was found between the Means religious dimension and the External Pressures AAS subscale may be understood by considering the function that it may serve to act in accordance with the opinions, expectations, and desires of important people in one's life. A student who endorses the External Pressures AAS subscale may feel pressure to please other people by fulfilling their wish that the student attends college. The student might fear the consequences (e.g., loss of support, hurt feelings) that could result from not acting in accordance with a person's wishes. The findings of this study support the idea that these functions and motivations apply within a religious context as well as in an academic context. An individual may choose to adhere to a religious practice in part so as to maintain relationships and interpersonal support and avoid disappointing loved ones.

The significant positive relationship between the No Better Option AAS subscale and the Means religious dimension may reflect a common approach that involves “going with the flow” and passively making decisions about one’s education based upon social norms. If a student is graduating from high school and many of his or her friends are attending college, he or she might be compelled to follow suit since there is no alternative plan post-graduation that seems more attractive. That same person might be more likely than others to endorse a Means religious dimension, due to its emphasis using the religious context to attain social and personal goals. That individual might “go with the flow” and attend church so as not to conform to norms, rather than by any other motivation.

The Instrumental Value subscale of the AAS had been predicted to be significantly positively related to the Means religious orientation, but no significant relationship was found between these two variables. This finding may be related in part by the differences in the types of benefits and costs that individuals experience in the contexts of religion and education. For many individuals pursuing higher education requires a great deal of investment of money, time, energy, and other resources. It requires sacrifices such as that of short-term financial security and, for some, opportunities for “real-world” work experience since the demands of academic work often preclude a student’s working a part- or full-time job while enrolled in school (though many attempt to do both). In the personal realm, the quality of relationships may suffer when by necessity students relocate away from their friends and family or have fewer resources with which to maintain these relationships when they attend college. It can be assumed that students are aware of many of these costs that associated with

attending college before they commit to enrolling. It might also be assumed, based on the fact that they do ultimately enroll, that these students believe that the benefits outweigh these costs. Since so many of the costs of being a student relate to resources such as time and finances, perhaps in order to justify these costs a student must believe that similar resources will ultimately be increased as a result of their commitment to education. The instrumental value of a college education may be very important to individuals who have invested so many resources into higher education. Because, in contrast, commitment to religion requires (for most) fewer investments and sacrifices in relation to finances and time than does a college education, it is understandable that students who report being motivated in their academic pursuits by the instrumental value of an education do not necessarily endorse a similar “instrumental” (assumed by the author to be reflected by the Means dimension) approach to religion.

Another expectation was that the more likely a student was to report valuing religion for the inherent goals and practices that it involved (consistent with Allport’s concept of intrinsic religion, and believed to be reflected by the End religious dimension), the more he or she would report valuing similarly inherent and immediate aspects of higher education. When the End religious dimension and the Intrinsic Value subscale of the AAS were compared, however, no significant relationship was found between these two variables.

It was expected that a significant positive relationship would be found between the Quest dimension of religion and the Personal Development subscale of the AAS. These two scales are conceptually similar in that among the qualities that they assess is a readiness to view challenges to previously held beliefs as opportunities to achieve greater

understanding and growth. The current study found a significant positive relationship between Quest and the Personal Development AAS subscale; they were also both significantly positively related to a third variable, Need for Cognition. Research by Barrett et al. (2005) suggests that a greater tendency to engage in and enjoy thinking (Need for Cognition) is a feature of individuals who tend to orient toward religion with a relatively high degree of tolerance for ambiguity and doubt (Quest). The current study's findings suggest that people who are more likely to engage in and enjoy thinking may also be more likely to orient toward academics in a similar way – with a tendency to value challenges as opportunities for personal growth (Personal Development).

Gender and Year-in-College Differences for Means, End, and Quest Dimensions

No gender effect was found among the Means, End, and Quest dimensions, which is surprising given that literature has consistently reported differences between men's and women's levels of interest in and participation in religion (Batson et al., 1993). It may be that the sample used in this study was not diverse enough demographically to accurately reflect the patterns of gender difference that emerge in the greater population. First-year students were found to have scored significantly higher on the Means religious dimension than did upper class (the combined group of third- and fourth-year) students. The higher Means score among first-year students suggests that they have a less mature religious orientation than the more advanced students, and it raises the question of whether religious orientation changes and matures over the college years. It is important to note that the "first-year" and "upper class" groups of students who were compared were in many ways not representative of the greater population of college students at their school or at other colleges. For instance, the third- and fourth-year students who comprise the

upper class group are not representative of the greater population of third- and fourth-year students in that they are enrolled in an introductory-level class – typically, third- and fourth-year students are taking advanced-level courses as opposed to introductory-level courses.

Gender and Year-in-College Differences for Academic Attitude Scale Subscales

Significant gender differences were found on three of the six AAS subscales: Intrinsic Value, Instrumental Value, and Personal Development. Women scored significantly higher than did men on all three subscales. Gender differences are not addressed in the existing literature involving the AAS, so the findings of gender difference cannot be directly compared to those of previous research using the AAS. Interestingly, the three scales on which women scored significantly higher than men are three which in the earlier stages of the AAS's development Wong (1998) referred to as "positive" academic values due to their significant positive relationship with college performance (as measured by grades) and with a measure of global self-concept. No gender differences were found for any of the three religious orientations, so these AAS gender differences do not provide additional support for the idea that male and female respondents relate similarly to education as they do to religion. The fact that the respondents were all students enrolled in an Introduction to Psychology course may be considered as a possible variable affecting the difference in male and female students' Intrinsic Value, Instrumental Value, and Personal Development AAS subscale scores. If the subject of Psychology attracts to it women who have a relatively high global self-concept, then there might be an overrepresentation of women in this respondent group

who endorse the AAS subscales that Wong found to be significantly positively related to high self-concept.

Year-in-College Differences for AAS Subscales

First-year students were found to score significantly higher than upper class students on the Instrumental Value, Social Interest, External Pressure, and Personal Development AAS subscales. The finding that first-year students endorsed the External Pressure and Social Interest AAS subscales significantly more strongly than did upper class students is consistent with Wong's finding that younger college students endorse these two subscales significantly more strongly than do older students (Wong, 1998) (while age was inadvertently omitted as a demographic variable in this study, everyday observations suggest that first-year students are generally younger in age than are upper class students). The findings that first-year students score significantly higher than upper class students on the External Pressure and Social Interest AAS subscales as well as score higher than upper class students on the Means religious dimension suggest that first-year students may view not just individual areas of their lives, but a range of life experiences, with a less mature "lens" than do older students. This might be a worthwhile line of inquiry for future research. At the same time, the first-year group's scoring significantly more highly than the upper class group on the Instrumental Value and Personal Development AAS subscales may suggest that students' level of engagement – and possibly motivation - in many areas of college life is higher when they are relatively new to college than it is when they have been in college for several years.

Correlations of Need for Cognition with Religious Dimensions

Need for Cognition was found to be significantly negatively correlated with the Means religious dimension and significantly positively correlated with the Quest religious dimension. The latter result is consistent with past research by Barrett et al. which identified an association between elevation on Need for Cognition and the Quest religious orientation. If Quest, as a more “mature” religious approach, is positively correlated with Need for Cognition, it seems plausible that Means, an “immature” religious approach, would have an inverse relationship with Need for Cognition.

Correlations of Need for Cognition with Academic Attitude

Need for Cognition was found to be significantly positively related to the Intrinsic Value and Personal Development AAS subscales, both of which Wong initially termed “positive” academic values due to their significant positive relationships with measures of academic success (e.g., grades) and with measures of global self-concept (Wong, 1998). As higher Need for Cognition Scale scores represent a greater degree of engagement and enjoyment of thinking, it seems very reasonable that a higher Need for Cognition score would be associated with academic values associated with academic success. If the act of thinking is inherently rewarding to a student (as a higher Need for Cognition score suggests), then one might expect that that student to endorse the Intrinsic Value AAS subscale, as it emphasizes the value to a student of the inherent reward of academic pursuit. Need for Cognition’s significant negative relationships with the External Pressure and No Better Option AAS subscales might be understood to reflect the relative disharmony between the concept of Need for Cognition and each of these values. If a student reports that he or she was strongly influenced by external pressure to attend

college, it may be likely that the student capitulated to someone else's needs when making a potentially very important life decision rather than engaging in problem-solving in order to reach a compromise with the person who was exerting the pressure to go to school. People who score higher on the Need for Cognition Scale are more inclined to enjoy problem-solving and challenges, and might be less likely to capitulate if they are having a difference of opinion with someone else. The No Better Option subscale seems also to reflect a relatively low level of enjoyment of problem-solving. As the name implies, a student who endorses the No Better Option AAS subscale might feel like he or she is attending college by default, because there was no more attractive option available when the decision had to be made. It seems that they arrived at the decision to attend college rather passively. Someone who would elevate the Need for Cognition Scale, however, might be more likely in that situation to actively contemplate and seek out more inspiring and rewarding options than deciding to attend college by default.

Gender and Year-in-College Group Differences for Need for Cognition

No gender differences were found for Need for Cognition, a result consistent with past research suggesting that the scale lacks bias toward either gender (Sadowski, 1992). A year-in-college effect was demonstrated, with upper class students scoring significantly higher than first-year students on Need for Cognition. This finding may be compatible with Wong's (1998) findings that older (age 30+) college students scored significantly higher than first-year students on the Intrinsic Value subscale. As discussed above, the Intrinsic Value subscale and Need for Cognition were significantly positively related in the current study. These findings together offer further indication that as students progress through college, their outlook shifts and matures over time so that they may

become more inclined to engage in and enjoy novel ways of thinking (as measured by the Need for Cognition Scale) and may become more inclined to value the rewards inherent in academic pursuits (as measured by the Intrinsic Value AAS subscale).

Correlations of CH IAT with Academic Attitudes and Religious Dimensions

The CH IAT data was found to have a significant positive relationship with the End religious dimension, which is consistent with the findings of Ventis et al. (2010). The author had predicted that the Intrinsic Value subscale of the AAS would not only be significantly positively correlated with the End religious dimension, but would also relate to a third variable – the CH IAT – in a similar manner. As has been reported, no significant correlation existed between End and Intrinsic Value. Furthermore, instead of being significantly positively related to the CH IAT in a manner similar to the End dimension, the Intrinsic Value subscale was significantly negatively related to the CH IAT. Need for Cognition was also significantly negatively related to the CH IAT.

The Influence of Intrinsic Value/Need for Cognition on the Relationship between Implicit and Explicit Measures of Religious Preference

Interestingly, Need for Cognition and the Intrinsic Value AAS subscale were each revealed through regression analyses to play a role in moderating the relationship between an implicit measure (CH IAT) of preference for a Christian or Humanist perspective and an explicit, self-report measure of warmth toward Christianity. Figures 1 and 2 illustrate these relationships graphically. Warmth toward Christianity scores were most congruent with the CH IAT's measure of implicit preference for Christianity or Humanism at higher levels of Intrinsic Value. Conversely, lower Intrinsic Value scores were related to a greater degree of discrepancy between a person's self-reported degree of

warmth toward Christianity and their preference for Christianity or Humanism as assessed by the CH IAT. A similar interaction effect was found with Need for Cognition as the interacting variable with the CH IAT and Warmth toward Christianity. The interaction effects were stronger as individuals endorsed a stronger preference for a Christian (versus Humanist) perspective on the CH IAT. If an individual's CH IAT scores reflect a strong preference for Christianity and that person has a low Intrinsic Value (or Need for Cognition) score, he or she is more likely to report a lower level of warmth toward Christianity than would an individual with the same CH IAT score but with a high Intrinsic Value (or Need for Cognition) score.

Using an implicit measure versus an explicit measure to assess a person's religious preferences has many advantages. One is that by assessing preference implicitly rather than through overt question-asking, the researcher can spare a respondent the distress of having to confront opinions about religion that may be the source of internal conflict for him or her. For instance, if an individual is feeling doubt about his or her faith and is asked in a research setting to share his or her opinions about religion, one can imagine a range of potentially upsetting internal responses that that person might have. How the individual copes with this distress can affect the accuracy and validity of the invalid data. An implicit measure, on the other hand, assesses preference without asking the respondent to examine his or her feelings and then share them with a stranger.

Social desirability can also impact the validity of data in research relating to religion. Individuals may shape their answers to questions in a way that they believe is socially desirable but that does not adequately represent their views. Different levels of

sensitivity to social desirability may be contributing to the interaction effect illustrated above. Individuals who score lower on Intrinsic Value (or Need for Cognition) may be more influenced in their responses on an explicit measure by socially desirability than are people who score higher on the Intrinsic Value (or Need for Cognition). If they believe that it would be more socially desirable to report a lower level of warmth toward Christianity, then they may adjust their explicit measure responses accordingly.

In the current study Intrinsic Value was found to be significantly positively correlated with Need for Cognition, which suggests that high Intrinsic Value scorers may have a higher tendency than lower scorers to engage in thinking and contemplating ideas and problems (a feature of high Need for Cognition scorers). If that is the case, then high Need for Cognition/high Intrinsic Value scorers might be more likely than others to have considered and faced difficult questions about their religious beliefs and other personal issues. Due to their greater degree of experience contemplating often confusing and conflicting ideas and emotions, they may possess more self-awareness and sense of clarify about their opinions and beliefs than do those with a lower degree of Need for Cognition. This greater self-awareness might result in greater congruence between implicit and explicit measures of religious preference.

By exposing themselves to difficult ideas (e.g., doubts about their faith) that may trigger distressing emotions, individuals with higher Need for Cognition scores may be better-practiced at applying appropriate coping strategies to help manage these distressing emotions. Having a greater tolerance for distress might result in a person responding to an explicit measure such as Warmth toward Christianity in a more open and honest manner, since that person might be more likely than those with lower distress tolerance to

maintain objectivity in the face of social desirability demands and questions about potentially distressing personal topics, such as religious belief.

Limits of the Study

One limitation to this study is the lack of information that was collected relating to ethnicity, age, and other demographic variables. The researchers intended to include age and ethnicity among the demographic variables; however, these variables were inadvertently omitted from the final set of demographic questions. As was discussed earlier, the demographic information of college student sample that is relatively comparable to that used in this study is available in the article “A Christian Humanist implicit association test: Validity and test-retest reliability” (Ventis et al, 2010).

All of the AAS subscales demonstrated good internal consistency except for the Social Interest AAS subscale, which exhibited a relatively low level of internal consistency (Cronbach’s $\alpha = .52$). So as not to limit the range of exploratory analyses, this subscale was included in analyses. However, findings relating to this subscale should be considered conservatively, with its low level of internal consistency taken into account.

Comparisons that were made between a group of first-year students and a group of third- and fourth-year students should be interpreted conservatively due to the relatively small size of the latter group ($N = 43$). This upper class group should not be treated as representative of the greater third-year/fourth-year college population, as is not typical of third- and fourth-year students to be enrolled in introductory-level classes as were the individuals in this group.

Future Research

Future research may continue to assess consistencies in how individuals value and affiliate with social institutions. In addition to continued research comparing religious orientation to academic attitude, comparisons may also be made between these and other institutions such as marriage, parenthood, and politics. In the area of academic attitude research, the inclusion of questions about socioeconomic information, parents' levels of education; and geographical location(s) of origin would allow for more comparisons to be made between the AAS subscales and environmental/social factors that might be related to the formation of academic values. Also, personality variables can be compared to the AAS subscales to explore relationships among these variables. Because the No Better Option and External Pressure subscales reflect a more passive stance toward decision-making than do the other AAS subscales, it might be informative to compare these subscale scores with scores on measures of assertiveness. One might expect to find that a lower degree of assertiveness is associated with deferring to important others (reflected in the External Pressures subscale) and opting to attend college because there seems to be no better option available. Future research comparing the CH IAT with the AAS might include the Religious Pressures Scale, which would provide data about the perceptions individuals have about the impact of their leaving their religion would have upon their family, friends, and other important people in their lives. Religious Pressures data could be compared to the External Pressures AAS scale to determine whether similar processes are at work in the context of education and in the context of religion regarding the influence of one's parents and other authority figures on individuals' decisions to commit to institutions and pursuits. How an individual's ability to balance his or her

needs against the perceived needs of others relates to mature and immature approaches to religion and academics might also be explored.

Clinical Implications

It can be argued that an individual's life is comprised of an endless series of decisions. From moment to moment a person chooses whether or not to do "this" and not "that." Some decisions – such as whether to eat or whether or not to swerve out of oncoming traffic – may be easier to make than others because they are more immediately influenced by survival needs. Others – such as whether to pursue a certain career or enter into a social contract with a particular person – may be more difficult to navigate, and may require that person to consider competing or conflicting values.

Professionals who work in fields such as mental health, ministry, education, and career counseling witness clients grappling with such decisions every day. Professionals apply a range of techniques to help support clients and facilitate their understanding of the factors affecting their decision-making processes. Practitioners in the field have developed and adopted techniques to help clients investigate what their particular motivations and values are in different contexts. For example, Acceptance and Commitment Therapy (ACT) is an example of a treatment modality that employs exercises to help clients identify and clarify their values in different life domains. In the area of career counseling, the Campbell Interests and Skills Survey (CISS) may be employed to assist individuals in deciding what occupations or areas of study to pursue. The CISS asks a client to evaluate different activities based upon how rewarding he or she finds each one to be. Techniques such as motivational interviewing may be used in talk therapy to help assist clients clarify the degree to which they are motivated to act.

College counselors and other advising or counseling professionals in educational settings could benefit from a greater awareness of consistencies between individuals' approach to education and his or her approach to other important domains, such as religion or family matters. As an example, a college counselor might observe that a client in his or her first year of college endorses an immature/extrinsic (Means) approach to religion. If this counselor was familiar with the relationship of Means to some of the AAS scales that reflect a more immature approach to education, he or she might be better prepared for some of the struggles that the client might address later in the treatment, as his or her first year in college progresses. However, due to the counselor being aware of year-in-school and age (Wong, 1998) differences for the academic attitudes, he or she might also expect to observe a shift over the college years from the client's applying a more immature to a more mature approach to different life domains. Such findings about consistencies and patterns between academic and religious approaches might also inform what techniques the counselor uses in supporting the client through the formative experiences of college.

Other applications of these findings might include their use in marketing higher education to prospective students. If an institution of higher education could identify the elements of college that were most strongly valued by students, then it could highlight those elements in its marketing and make commitments to invest in those resources that relate to aspects of college that students report valuing most.

Knowledge about students' academic attitudes can help not just professionals, but also parents and the students themselves as students consider whether or not to pursue higher education. As was discussed earlier, this decision involves the weighing of many

costs and benefits. Identifying the student's own academic values might help that student more objectively evaluate whether the benefits of attending college would be likely to outweigh the costs.

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APPENDIX A

INFORMED CONSENT FORM

The present research study examines the ways in which people orient themselves towards two realms of experience in life: religion and higher education. We are interested in determining whether relationships exist between the values that people attach to religion and those that they associate with higher education. Additionally, the present study examines how individuals relate to two alternative world views: Christianity and Humanism.

I understand that in the study “Relationships between Religious Orientation and Academic Attitudes,” conducted by Lauren Everitt, I will be asked to answer a series of questionnaires presented online via Opinio computer software and respond onscreen to stimuli presented via computer software. My participation in this study should take a total of about 45 minutes. I understand that my responses will be confidential and that my identity will not be associated with my responses or with the results of this study. I acknowledge that I may refuse to answer any question asked and that I may discontinue participation at any time. I also understand that credit for participation will not be affected by my responses or by my exercising any of my rights. I am aware that I must be at least 18 years of age to participate. I am aware that I may report dissatisfactions with any aspect of this experiment to the Chair of the Protection of Human Subjects Committee, Dr. Michael Deschenes, 757-221-2778 or mrdesc@wm.edu. My signature below signifies my voluntary participation in this project.

Date: _____

Name (printed): _____

Signature: _____

Instructor: _____

APPENDIX B

DEMOGRAPHIC QUESTIONS

Please enter the four digits you presented during Part 1 of this study (when you took the computerized test). This number is most likely the last four digits of your social, or whatever four digits you presented instead.

Please enter your gender.

Please indicate your interest in religion on a scale of 1-9, with one being "completely uninterested" and 9 being "completely interested."

Please enter your year in college.

Please enter your personal religion (the religion you currently identify with).

Please list all academic majors and minors you currently hold. If there is a major or minor you are SURE you are going to declare, you may enter it in here as well. If you do not possess a major or minor and have no solidified plans yet, please enter "Unsure."

APPENDIX C

CHRISTIAN AND HUMANIST RATINGS

Which statement best describes you?:

- a. I strongly prefer Christian beliefs to Humanist beliefs.
- b. I moderately prefer Christian beliefs to Humanist beliefs.
- c. I like Christian beliefs and Humanist beliefs equally.
- d. I moderately prefer Humanist beliefs.

Please rate how warm or cold you feel toward the following perspectives.
(0 = coldest, 5 = neutral, 10 = warmest feelings)

Christian beliefs ____

Humanist beliefs ____

APPENDIX D

RELIGIOUS LIFE INVENTORY

This questionnaire includes some commonly heard statements about one's religious life. They are very diverse. Your task in each of the three parts of the questionnaire is to rate your agreement or disagreement with each statement. For each statement there is a scale on which to make your judgment. The scale ranges from strongly disagree (SD) through disagree (D) and agree (A) to strongly agree (SA); it is numbered from 1-9. Simply circle the number you feel best represents your own agreement or disagreement with the statement.

SD				D		A		SA
1	2	3	4	5	6	7	8	9

Part I: Part I concerns statements about your religious development. There is no consensus about right or wrong answers; some people will agree and others will disagree with each of the statements.

1. The church has been very important for my religious development.
2. Wordly events cannot affect the eternal truths of my religion.
3. As I grow and change, I expect my religion to also grow and change.
4. My religious development is a natural response to our innate need for a devotion to God.
5. I am constantly questioning my religious beliefs.
6. It might be said that I value my religious doubts and uncertainties.
7. My religious leader ad had a profound influence on my personal religious development.
8. I was not very interested in religion until I began to ask questions about the meaning and purpose of my life.
9. God's will should shape my life.
10. On religious issues, I find the opinions of others irrelevant.
11. For me, doubting is an important part of what it means to be religious.
12. It is necessary for me to have a religious belief.
13. When it comes to religious questions, I feel driven to know the truth.
14. I find my everyday experiences severely test my religious convictions.
15. A major factor in my religious development has been the importance of religion for my parents.
16. I do not expect my religious convictions to change in the next few years.
17. I find religious doubts upsetting.
18. Religion is something I have never felt personally compelled to consider.
19. I have not yet arrived at what I feel is the truth about religion.

20. I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world
21. My religion serves to satisfy needs for fellowship and security.
22. My religious development has emerged out of my growing sense of personal identity.
23. My religion is a personal matter, independent of the influence of organized religion.
24. Whether I turn out to be religious or not doesn't make much difference to me.
25. My life experiences have led me to rethink my religious convictions.
26. Certain people have served as "models" for my religious development.
27. There are many religious issues on which my views are still changing.
28. I have found it essential to have faith.
29. It is important for me to learn about religion from those who know more about it than I do.
30. God wasn't very important for me until I began to ask questions about the meaning of my own life.
31. I find it impossible to conceive of myself not being religious.
32. The "me" of a few years back would be surprised at my present religious stance.
33. Questions are far more central to my religious experience than are answers.
34. Outside forces (other persons, church, etc.) have been relatively unimportant in my religious development.
35. For me, religion has not been a "must".

Part II: Part II concerns the prevalence of various types of religious ideas and practices. Again, there is no consensus about right or wrong answers; some people will agree and others will disagree with each of the statements.

1. Although I believe in my religion, I feel there are many more important things to me in life.
2. Church is important as a place to go for comfort and refuge from the trials and problems of life.
3. It is important to me to spend periods of time in private religious thought and meditation.
4. It doesn't matter so much what I believe so long as I lead a moral life.
5. If not prevented by unavoidable circumstances, I attend church.
6. The primary purpose of prayer is to gain relief and protection.
7. The church is most important as a place to formulate good social relationships.
8. I try hard to carry my religion over into all my other dealings in life.
9. What religion offers me most is comfort when sorrows and misfortune strike.
10. I pray chiefly because I have been taught to pray.
11. The prayers I say when I am alone carry as much meaning and personal emotion as those said by me during services.
12. Although I am a religious person I refuse to let religious considerations influence my everyday affairs.
13. A primary reason for my interest in religion is that my church is a congenial social activity.

14. Quite often I have been keenly aware of the presence of God or the Divine Being.
15. I read literature about my faith (or church).
16. Prayer influences my dealings with other people.
17. I pray even when I have no problems.
18. Nothing is as important to me as serving God as best I know how.
19. One should seek God's guidance when making every important decision.
20. If I were to join a church group I would prefer to join a Bible study group rather than a social fellowship.
21. Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic well-being.
22. One reason for my being a church member is that such membership helps to establish a person in the community.
23. My religious beliefs are what really lie behind my whole approach to life.
24. Religion is especially important to me because it answer many questions about the meaning of life.
25. The purpose of prayer is to secure a happy and peaceful life.
26. In my life I experience the presence of the Divine.
27. My faith involves all of my life.
28. Sunday morning can often be spent more profitably than in regular church going.
29. If I have the opportunity to explain my beliefs to a non-believer, I do it.
30. Religion helps to keep my life balanced and stead in exactly the same way as my citizenship, friends and other memberships do.
31. My faith sometimes restricts my actions.

Part III: We now turn to another area of religious life: religious belief. Each of the following statements expresses a belief. As on the previous statements, circle the number that best indicates your agreement or disagreement with the belief stated. Again, there are not right or wrong answers.

1. I believe in the existence of a just and merciful personal God.
2. I believe God created the universe.
3. I believe God has a plan for the universe.
4. I believe Jesus Christ is the Divine Son of God.
5. I believe Jesus Christ was resurrected.
6. I believe Jesus Christ is the Messiah promised in the Old Testament.
7. I believe one must accept Jesus Christ as Lord and Savior to be saved from sin.
8. I believe in the "second coming" (that Jesus Christ will one day return to judge and rule the world).
9. I believe in "original sin" (we are all born sinners).
10. I believe in life after death.
11. I believe there is a transcendent realm (an "other" world, not just this world in which we live).
12. I believe the Bible is the unique authority for God's will.

APPENDIX E

ACADEMIC ATTITUDE SCALE

This questionnaire was designed to measure your reasons for attending university and your general attitude toward university education.

Please read each statement carefully and indicate the extent to which you agree or disagree by placing the corresponding numerical value in the space given beside the item. For example, if you strongly agree with an item, place a 7 in the appropriate space. If you are undecided, write 4. However, please try to use the *undecided* category sparingly.

- 1 = strongly disagree
- 2 = disagree
- 3 = moderately disagree
- 4 = undecided
- 5 = moderately agree
- 6 = agree
- 7 = strongly agree

1. University education makes me more tolerant of different points of view.
2. I find university education challenging.
3. I attend university because I want to fulfill the expectations placed on me by my family or community.
4. University education contributes to the fulfillment of my potential.
5. I will get more respect from others when I receive my university degree.
6. I am attracted by the social life offered at university.
7. I want to please my parent(s) by doing well academically.
8. I spend most of my time with students who have an active social life.
9. I'm at university because I'm delaying career decisions.
10. There is a great deal of pressure on me to do as well as my brothers, sisters, or cousins.
11. I stay in school more for social than academic reasons.
12. I find my studies intrinsically interesting.
13. University education improves my chances of getting a good job.
14. I'm at university because I don't have any other options.
15. University provides opportunities for involvement in extra-curricular activities.
16. I take my studies seriously because of the sacrifice my parent(s) have made for my education.
17. The discipline and rigor of academic pursuit will make me a better person.
18. University education is necessary to prepare me for the competitive working world.
19. I decided to attend university because I couldn't decide what else to do.
20. I enjoy university because most classes are informative and challenging.
21. I value university education, when I think of how much it costs me (or my parents).

22. University education helps develop my ability to think critically and creatively.
23. University education contributes to the attainment of my life goals.
24. I like the intellectual stimulation of university.
25. I'm at university because I'm afraid of entering the real world.
26. My parents(s) place a great deal of pressure on me to succeed academically.
27. I attend university because I enjoy listening to lectures.
28. The knowledge and skills acquired at university will enable me to make a useful contribution to society.
29. I'm at university because I don't have anything better to do.

APPENDIX F

NEED FOR COGNITION SCALE

1. I would prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun.*
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.*
5. I try to anticipate and avoid situations where there is likely change I will have to think in depth about something.*
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to.*
8. I prefer to think about small, daily projects to long-term ones.*
9. I like tasks that require little thought to make my way to the top appeals to me.*
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much.*
13. I prefer my life to be filled with puzzles that I must solve.
14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.*
17. It's enough for me that something gets the job done; I don't care how or why it works.*
18. I usually end up deliberating about issues even when they do not affect me personally.

* Reversed scoring is used on this item.

APPENDIX G

DEBRIEFING FORM

In this research, the sequence of computer sorting tasks which you completed (Christian Humanist Implicit Association Test) assesses implicit evaluative response to humanism versus Christianity. You also completed the Religious Life Inventory, which assesses how one orients to religion within three dimensions, and the Academic Attitude Scale. Wong (1998) developed the Academic Attitude Scale specifically to measure academic attitude among post-secondary students. The six subscales of the Academic Attitude Scale are Intrinsic Value, Instrumental Value, Personal Development, External Pressure, Social Interest, and No Better Option. These subscales are intended to identify prominent reasons, motives, and attitudes in one's approach to higher education. The question addressed with the Religious Life Inventory and the Academic Attitude Scale is whether, or to what extent, one's religious orientation parallels one's approach to education. For example, External Pressure, Social Interest, and Instrumental Value in education is hypothesized to be significantly associated with the Means religious orientation. Combined with a Christian Humanist Implicit Association Test, which assesses evaluative responses to Christianity and Humanism which a person may not be very consciously aware of, and additional scales, including one which assesses Religious Pressure exerted by others, the research should clarify the degree (or lack) of consistency between people's approaches to religion and education.

If you wish to be informed of the results of this study, please email Professor Ventis at wlvnt@wm.edu. Please DO NOT talk to anyone about this study until June 2010, as this study will be ongoing until that time and requires that participants are not aware of the measures they will be taking.

Thank you for your participation.

VITA

EDUCATION

- 2005-present Virginia Consortium Program in Clinical Psychology
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- 8/06-8/07 Intervention Practica I, II, III: Williamsburg Centre for Therapy
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PRESENTATIONS

- Ventis, L., Ball, C., Everitt, L. & Gersham, D. (2008, August). *Further validation of a Christian Humanist Implicit Association Test*. Poster presented at the 116th Annual Convention of the American Psychological Association, Boston, MA.
- Everitt, L. & Morrow, J. (2006, April). *Choice of college major: The influence of family income and academic attitude*. Paper presented at the Virginia Psychological Association Spring 2006 Convention, Virginia Beach, VA.