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Jim M.

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AN EXAMINATION OF COMMITMENT TO SCHOLARLY OPENNESS AND RELIGIOUS BELIEF AMONG ACADEMICIANS

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AN EXAMINATION OF COMMITMENT TO SCHOLARLY OPENNESS AND RELIGIOUS BELIEF AMONG ACADEMICIANS

A Thesis

Presented to

the Faculty of the Department of Psychology

Western Kentucky University

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In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Jim M. Alsdurf

August 1977

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Completing this thesis has been a demanding and valuable experience. Academically, it has taught me much by consistently requiring rigorous work which revealed my strengths and weaknesses and, thereby, helped me to improve myself as a student.

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AN EXAMINATION OF COMMITMENT TO SCHOLARLY OPENNESS AND RELIGIOUS BELIEF AMONG ACADEMICIANS

Jim M. Alsdurf July 1977 60 pages

Directed by: Sam McFarland, Dean Grice, and Leroy Metze

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The relations between faculty religiosity, changes in religious beliefs, and commitment to scholarly openness were examined through a survey of 257 faculty at three universities. A new measure of scholarly openness was developed for this study because of ambiguities in previous indirect and attitudinal measures. Patterns of faculty religiosity as a function of education, graduate school prestige, academic discipline, and educational period of religious change are generally compatible with previous studies, but patterns for scholarly openness are not. Faculty religiosity and scholarly openness were negatively correlated for those faculty who had never experienced significant religious change and for those who had changed from one religion to another, congruent with the hypothesis that religious faith and scholarly openness are incompatible, but the correlations were not strong. However, the two dimensions were uncorrelated for faculty who had changed in either more religious or less religious directions. Six factors contributing to religious change were identified by principle components analysis from responses to 31 reasons for change presented in Likert format and from scores assigned to faculty self-descriptions. Correlations between factor scores and scholarly openness suggest that the process of personal interaction concerning religious beliefs may be particularly significant in nullifying the antithetical relationship between religious faith and scholarly openness.

Chapter I

Introduction

The impact of education upon society is greatly determined by the values, goals, accomplishments and general philosophical framework of education. The range of influence these factors exert can be seen in political and social policies, distribution of government monies and enactment of social programs. But nowhere are these factors so acutely felt as in academia itself where, on the individual level, teacher-peer interactions, ideological confrontations and the general atmosphere of questioning often lead to the embracing of new priorities, viewpoints and over-all models from which to examine and interpret the world.

The effects of academia upon other societal keystones is an issue of significance. Religion, an equally fundamental social institution, may be strongly affected by social alterations brought on by academia.

A number of social scientists (Barbour, 1966; Leuba, 1916; Stark, 1963; White, 1960) claim that an incompatibility exists between the scholarly perspective and the religious outlook. Similar to others, Stark (1963) attributed this incompatibility largely to the mutually exclusive foundations of religion and academia: modern scholarship's reliance upon human reason, religion's reliance upon faith. One example of the diversity of these two foundations is seen in a scholar's approach to his data in which he is "grounded in skepticism and empirical rules of evidence" (p. 4). Alternately, for the religious person, faith

precedes reason, and therefore the significance of empirical data is minimized. Stark further states that "men will tend to be either scientific or religious but not both" (p. 5). Therefore, adoption of one perspective should automatically eliminate, or at least diminish, the chance for adoption of the other.

Such a possibility challenges us to look more closely at the interrelationship between these two areas. If, as Stark (1963) claims, "a trend in American society is making the scientific scholar into a cultural hero" (p. 14), then the potential for greater cultural influence than is frequently recognized lies within academia. Stark (1963) alludes to this influence when he states that "if by becoming a scientist a man is likely to be detached from traditional religious orientations, then we must suspect that future American society will either become increasingly irreligious, or that religions will be extensively modified" (p. 14). Stark's claim is an important one, and the present thesis will provide a new attempt to verify the thesis of incompatibility. In addition, the present study will try to identify the specific factors in academia which contribute to changes or loss of religious belief.

Chapter II

Literature Review

Leuba (1916, 1934) initiated investigation of the inter-relationship between science and religion when he examined the religious beliefs of America's scientific scholars. Through use of a questionnaire, Leuba polled almost 10% of those 23,000 scientists listed in Cattell's American Men of Science (1933) regarding their attitudes toward two core beliefs of Christianity: "a God influenced by worship, and immortality" (p. 291). Thirty percent of the total number of scientists endorsed Christian beliefs, judging by their affirmative responses to the statement: "I believe in a God to whom one may pray in the expectation of receiving an answer. By 'answer' I mean more than the natural, subjective, psychological effect of prayer" (p. 292). A breakdown of classes of scientists (physicists, biologists, sociologists, psychologists) showed that those concerned with inanimate matter (physicists) more strongly endorsed the above statement (38%), whereas for those studying behavior and the "mind" (psychologists), only 10% qualified as believers. On the question of immortality, 33% of the total respondents said they believed in life after death. Physicists once again contained the highest rate of believers (41%) and psychologists the lowest (9%).

Leuba also dichotomized scientists in each class into "greater" and "lesser" scientists according to Cattell's rating which labelled greater men as those identified as distinguished men in American Men of Science. In each of the four classes, the more eminent men contained lower percentages of believers. Leuba (1934) reported that similar relationships were present

in his earlier (Leuba, 1916) study. His comparison of the 1916 data with his 1933 data reveals a 12% decrease in the number of overall believers. From this, Leuba suggested that a marked increase in unbelief occurred during the two decades separating the research. However, Leuba only pointed to this discrepancy and did not attempt to identify the reasons for this increase.

These results are interpreted by Leuba in two major ways. He asserts that "independence of character" combined with "superior knowledge, understanding, and experience" are the traits antithetical to belief and are shared by the disbelievers. For Leuba, these qualities result in mental freedom and "the more complete the mental freedom the better the chance of rising in the world of science" (p. 300).

Leuba suggested that the different proportion of believers between psychologists (as representative of social science) and physicists (as representative of natural science) can be partly explained by the mind-sets present with the disciplines. Whereas a "physicist may think it useless to pray for divine action on physical nature" (p. 300), his ignorance of "mental law" may predispose him to believe in "divine action in response to human supplication" (p. 300). Lehman and Witty (1931) made a similar claim in suggesting that the physicist, when baffled by a natural or mysterious phenomenon, is more receptive to a religious explanation for its occurrence than the psychologist. Therefore, Leuba suggested that the discipline influences one to be open or closed to central beliefs of the Christian faith.

Leuba also noted the difference between the proportion of believers among eminent scientists (significantly fewer believers) compared to non-eminent scientists. Leuba assumed, a priori, that only non-believers

are independent thinkers, thereby suggesting independent thought as a causal explanation for disbelief. However, this assertion lacks any conclusive support from the available data since no specific question distinguished between independent thinkers and non-independent thinkers. Leuba instead assumed that independent thinking is a characteristic of eminent scholars and, because of this group's greater independence, non-belief precipitates. However, the lack of data makes such a claim only hypothetical on Leuba's part and signifies a bias.

Besides the problem of interpretation, there are limitations within the data. Although the basic finding of a lack of religiosity among scientists has been replicated by several researchers since Leuba (Anderson, 1968; Bello, 1954; Lehman, 1972; Zelan, 1968), more comprehensive measures of religiosity were employed. Each of Leuba's items is susceptible to varied interpretation by Leuba's respondents. Current research by DeJong and Faulkner (1972) suggests that when religious statements are personally re-defined, a moderately high rate of religiosity is reported among academicians. This personal interpretation was possible for Leuba's (1934) respondents, particularly on the question of immortality, ("Do you believe in life after death?"). DeJong and Faulkner asked respondents "What do you believe about immortality?" (p. 17). A large percentage of respondents (39%) perceived immortality as a social ("an individual's reputation") and not a spiritual concept. The wide range of possible interpretations on this question, evidenced by DeJong and Faulkner's respondents, may have led Leuba to misclassify people as believers. Although Leuba had no data on the variety of responses to this question, misclassification apparently occurred to some degree because not all respondents answered both religious statements in the same direction,

yet Leuba posited both questions as discriminators of those holding to the central tenets of Christianity.

A further limitation is the time which separates Leuba's study from the present research. Since 1934 many changes have occurred within the academic disciplines which Leuba investigated as well as within the total religious community.

Accompanying these problems is Leuba's personal handling of the data. Leuba believed that his basic assumption of an incompatibility between science and religion was confirmed by the level of disbelief among "prominent scientists". However, a large number of eminent scientists (for example, 20% of the eminent sociologists) did agree with the belief statements. This significant minority is sufficient to indicate that a necessary incompatibility between the scientific and religious viewpoints may not exist.

Lehman and Witty's (1931) study of biographical sketches from Who's Who in America (1927) revealed "the frequency with which scientists mention their religious affiliations when writing their biographical sketches" (p. 674). Religious denomination, as a crude index of religious faith, was mentioned frequently by eminent scientists. Earlier, Ament (1927) reported that approximately 50% of 2,000 individuals randomly selected from the 1927 edition of Who's Who in America indicated having a denominational affiliation. Thus, the presence of these studies and the limitations of Leuba's data, along with his personal biases, makes his concluding statement particularly unwarranted: "In order to be again a vitalizing and controlling power in society, the religions will have to organize themselves about ultimate conceptions that are not in contradiction with the best insight of the time. They will have to replace their specific method of seeking the welfare of humanity by appeal to, and reliance upon

divine Beings, by methods free from a discredited supernaturalism" (p. 300).

Roe (1952) also examined the religious beliefs of 64 eminent scientists from four disciplines (biology, physical science, psychology, anthropology) as part of her investigative study to answer the question: "What kinds of people do what kinds of scientific research?" (p. 1). She selected candidates based on membership in professional organizations (APA, etc.), inclusion in Who's Who in America, and ratings of prominence by fellow colleagues. Roe's personal interviews with these scholars revealed that "only 3 of these men are seriously active in any church" (p. 65). Her findings provide further support for Leuba's conclusion of an inverse relationship between eminence (scholarliness) and religion. Although the idiographic framework from which Roe collected data produced some interesting corollary information about the scientists and their religiosity, it lacked a consistent empirical standard for measuring religiosity through which the relationship between scholarship and religiousness could be explicated. Roe exemplified the limitation of this framework in her section on religion: "I usually made a point of inquiring about religious interests although I do not have definite information on this from 10 of the subjects" (p. 62).

It was not until Stark's (1963) examination of data collected from a 1958 representative national sample of American graduate students by the National Opinion Research Center (NORC) that a more wide-scale and direct effort to isolate factors which affect the relationship between scientific scholarship and religion was undertaken. Two thousand, eight hundred and forty-two graduate students were sampled from 25 universities granting the doctorate in the arts and sciences.

Stark (1963) scrutinized religious affiliation and attendance at worship services as indices of religiosity and found, among graduate

students, an unusually large proportion of persons who claimed no religious identification when compared with a cross-sectional sample of the United States population (28% vs. 3%). He therefore suggested that a major religious phenomenon associated with being a graduate student is loss of faith. To delineate factors within the scholarly community which encourage this apostasy, Stark examined three variables which affect an individual's exposure to scholarliness: kind of school (parochial or secular), quality of graduate school (rated by a quality index developed by Davis, 1962, and others), and quality of undergraduate school (those top 50 schools appearing in Knapp and Greenbaum's, 1953, overall ratings). The scientific-scholarly perspective had an "objective" measure (an index with a possible range from 0 to 6) which included: quality of undergraduate and graduate schools (high = 2, medium = 1, low = 0) and kind of school (secular = 2, parochial = 0); and a "subjective" measure, self-rating of intellectualism--"Do you consider yourself an intellectual?" (definitely = 3, in many ways = 2, in some ways = 1, definitely not = 0). Religious involvement was negatively correlated with both measures.

Stark concluded that the more exposure a student has to the scholarly perspective, the more likely he is to regard himself as an intellectual and the less likely he is to be involved in religion. Stark's final conclusion was that religious involvement varies with the degree to which a person has become a scientific scholar. This conclusion is incomplete, however, because of its strong dependence upon causal assumptions which his methodology attempted to confirm. Thus, the relationship that he did find--"neophyte scientific scholars are likely to be irreligious"-- was confirmed because of Stark's standard for the "scholarly perspective".

The validity of both measures which comprise the "scholarly perspective" scale must be evaluated. On the objective measure, Stark evidenced a bias against those attending parochial schools. Although those attending parochial schools would naturally be more religious, Stark nevertheless assumed a basic academic inferiority and penalizes them by giving them no points on the objective measure. The validity of the subjective measure is also problematic. Accepting the identity of an "intellectual" is evidence for Stark that a person has "taken on a portion of the scientific scholarly self-image" (p. 12). A similar acceptance of this measure as indicative of scholarliness can be seen in Hoge and Keeter's (1976) work. But it might also illustrate a variety of ways in which academia pressures individuals to adopt a certain self-image. Anyone with a high need for social esteem in academia would be prone to identify himself as an intellectual, even adopting behavior which superficially signifies intellectualism, despite other evidence which may reveal this intellectualism to be false.

In addition, religious academicians may be less prone to identify themselves as intellectuals and may therefore minimize their scholarliness. Because of their strong identity as religious individuals, such academicians would consider factors other than scholarliness more central to their self-conceptions. Therefore, religious scholars would have a lower need to assert their intellectualism by identifying themselves as "intellectuals," even though in actuality they may be equally intellectual to their non-religious counterparts.

Additional measurement problems can be seen from Doherty's (1964) criticism that religious affiliation and attendance at worship services are superficial indices of religiosity which may be strongly confounded

by other social motives. For example, Doherty points to the rather strong social sanctions on Catholics who fail to attend worship services regularly.

Additional data also suggests that these superficial indices are inadequate indicators of the content and quality of faculty religiosity. DeJong and Faulkner's (1972) recent study of 56 university professors found that over half belonged to a church, attended services regularly, and regarded church membership and prayer as important parts of their lives. However, many of these participants had "rather thoroughly demythologized the core beliefs of the Christian faith" (p. 15). This "demythologizing" (only 21% believed in the physical resurrection of Jesus) suggests a greater variance from religious commitment than the superficial indices (religious affiliation and church attendance) represent. Church attendance, church membership and other factors may indicate external conformity rather than true religious commitment. Verification of Stark's hypothesis, then, requires a more legitimate criterion for determining religiosity.

Greeley (1964) was particularly concerned with Stark's (1963) causal assertion that being a graduate student leads to loss of faith and with the resulting conclusion that academics is the impetus for apostasy. Greeley instead suggests that academics serve as a replacement or "functional substitute" for religion. Scholarliness does not cause apostasy, but instead apostasy leads to a self-identity need which scholarliness often satisfies.

Zelan (1968) also looked at data from the 1958 NORC study and identified some of the correlates of secularization which suggest support for the functional alternative interpretation. This alternative self-image

provides the apostate with a "package deal": an academic career, a new self-conception (intellectualism) and a political ideology (liberalism). Zelan found the highest rate of expectation of an academic job in the future present among apostate Jewish students (72%), followed by Catholic (71%) and Protestant (64%) apostates. This compared with a maximum of 53% for the non-apostates expecting such positions. Regarding the self-conception of intellectualism, there existed a minimum 12% difference in the religious groups between apostates and non-apostates in viewing themselves as intellectuals.

In the area of political ideology, apostates almost unanimously endorsed either "liberal Democrat" or "liberal Republican" political postures. Zelan believed that the quality college is both more likely to attract the actual "iconoclast" and to encourage students to examine the values they brought with them to college. Therefore, Zelan pointed to the dynamics of socialization within the academic setting as a primary stimulant in the resulting loss of religiosity. He further suggests a process called "anticipatory socialization" whereby people adopt behaviors of the group they desire to join.

Greeley (1965) scrutinized NORC's 1961 data on Ph.D. graduates from the top 12 schools (these were arbitrarily chosen by Greeley) in the United States. Although the conflict between science and religion was not obvious from the religious affiliations of first-year graduate students, he did find that those who attended church more regularly scored lower on academic values, plans for careers in academia, self-ratings as intellectuals, and higher on dissatisfactions with the schools. Thus Greeley's evidence supports Zelan's (1968) "functional alternative" thesis. Greeley additionally suggests that students deal with the

conflicts between religion and academia in one of two ways. A student either denies the existence of conflict by intellectual compartmentalization or faces the problem and works out a conciliatory resolution. Although the data does not necessitate such interpretations (no specific question polled these possibilities), Greeley believes that both responses to the conflict do occur.

There are several additional problems with information taken from the 1958 NORC study which serves as the foundation for the articles by Stark (1963) and Zelan (1968). First, many of the applied fields (engineering, education, law, medicine) are excluded from the sample. Secondly, the NORC study is almost 20 years old and thus could not take into consideration the outbreak of religious movements (cf. Hoge & Hastings, 1976), particularly among college and graduate-age people during the last decade (Jesus people movement, Sun Moon's Unification Church, the Divine Light Mission and Transcendental Meditation). These movements have undoubtedly influenced academia to some degree as seen by the proliferation of college courses under the generic label "spiritual consciousness." The effects produced by the interaction between academics and the renewed interest in religious movements necessitate new empirical studies.

A third problem, and perhaps the most basic, is the absence of information on religious commitment prior to college or graduate school. Since the NORC data reports only the respondent's religious behavior at the time of the survey, the period of life when the scholars ceased religious activity is not known and the causes of this cessation cannot be determined with certainty.

Thalheimer (1965) attempted to rectify this last problem by asking his survey respondents (all 1,451 faculty members of a West Coast

state university) to indicate their religious affiliations during five time periods: childhood, high school, college, graduate school and the present. Thalheimer's questionnaire canvassed factors of present and past beliefs, reasons for changes, and academic specialty. As in previous studies, the university faculty were less religious than the general public. Fifty-four percent of the faculty had a religious preference while, according to the 1957 census, 97% of the general population had one. Thalheimer noted that in a 1953 study by the Catholic Digest, 86% of the general population regarded the Bible as "the revealed word of God," while only 20% of his faculty members agreed with the statement.

However, Thalheimer's most important finding was that the majority of the academicians had abandoned traditional religious patterns prior to the time they began graduate work. He found that it was during the pre-college and college years that future academicians usually altered their religious affiliations, practices, and beliefs. Thalheimer attempted to further confirm this finding by asking the respondents in what ways their professional training and work had influenced their religious convictions. He found 9% of the respondents had become more religious, 9% had become less religious, and 58% did not change their convictions. Therefore, Thalheimer concluded that academic training is not a source of great apostasy.

Thalheimer (1973) re-examined his original data in a later publication and found that members of applied fields such as law, medicine, engineering, etc., were more religious than members of any other disciplines, including the humanities, natural sciences, and social sciences. This finding

is important particularly because of the relative absence of data within the NORC study regarding these applied fields. Thalheimer presented no clear, logical schema to explain why some disciplines have higher levels of irreligiosity than others.

Thalheimer saw two factors contributing to this religious difference which would encourage academicians to give up their religious beliefs: a self-selection process and a low rate of secularization. His explanation of the selection process was that the more directly the scholarly-scientific paradigm operates as a professional norm the less likely the specialty is to attract persons with traditional religious beliefs. The low rate of secularization suggests that since more members of disciplines such as law and engineering are religious, the interactions between members of these disciplines are less likely to promote apostasy and lead to the abandonment of religious beliefs and practices. Earlier findings by Leuba (1934) also implied this relationship, with Leuba suggesting that the farther distance the discipline had from the study of religion the more likely it would be to attract religious individuals. Thalheimer suggests then that the selection process alone does not determine apostasy, but that apostasy may also occur after some exposure to "scholarly-scientific research."

The earliest logical distinction to account for religious differences between disciplines was a science/non-science dichotomy (Epsy, 1959; Leuba, 1916; Leuba, 1950; Moberg, 1962). This distinction was based on the assumption that a scientific viewpoint is mutually exclusive from a religious viewpoint. Moberg (1962) illustrates this approach: "At the root of the controversy are two different normative systems which have two different approaches to reality, two different methods of

extending knowledge, and two different attitudes of mind" (p. 334). These authors basically assumed that academicians in the scientific disciplines were more likely to have adopted the scientific mind-set and, hence, to be less religious.

Lehman and Shriver (1968) suggest that the dichotomy between science and non-science disciplines is an inadequate schema from which to view the relationship between scholarly discipline and religiosity. They proposed the concept "scholarly distance" as a better predictor of religiosity.

"Scholarly distance" from religion is a construct "which refers to the extent to which a discipline's institutionalized activity includes scholarly study of religion" (p. 173). "Where religion itself is often the object of explanation in a discipline--i.e., religion is a dependent variable--scholarly distance from religion may be said to be low" (p. 317). Scholarly distance refers to the extent to which a discipline actively approaches religion as a naturally occurring phenomenon which falls under the critical, objective, and creative eye of the academician. Therefore, a field such as sociology is a low-distance field because of the close attention given to religion; whereas chemistry, a field which ignores religion, ranks as a high-distance field.

Lehman and Shriver (1968) employed this "scholarly distance" construct when they directed questionnaires to 99 faculty members at a Southeastern state university. Lehman and Shriver developed measures to correspond to four of the five areas which Glock and Stark (1965) propose as major dimensions of an individual's religiosity.[1] Lehman and Shriver found that as the scholarly distance from religion increased (i.e., psychology to chemistry), scores on the ideological, ritual and

experiential dimensions also increased, with the ideological dimension consistently showing the strongest correlations to academic discipline.

Two explanations relevant to the secularization are provided for these findings: 1) The person in the low-distance field is forced by the requirements of his discipline to place religion in the same attitude structure as other objects of scientific study; 2) Social interaction among peers in disciplines involving little or no scholarly distance from religion will provide less social support for religious beliefs and attitudes than might be had among colleagues in disciplines of greater distance. Lehman and Shriver suggested, then, similarly to Zelan (1968) and Thalheimer (1973), that a crucial part of the relationship between religiosity and academics is the manner in which people within the discipline encourage and support their colleagues to adopt, examine or reject religiosity.

Lehman (1974) again confirmed "scholarly distance" as a predictor of religiosity when he sent out a questionnaire to faculty members of 15 secular and denominational colleges in a large Midwestern metropolitan area. Within secular settings, he found that teachers in low-distance disciplines were consistently less religious on the ideological, ritual and experiential dimensions. In church-related schools, however, the science/non-science model served as a better predictor of religiosity than did the scholarly-distance model. Faculty members from scientific fields were consistently less religious than the non-science faculty. Lehman, however, qualified this finding by stating that seven of the eight church-related schools were Roman Catholic and that this may be a pattern peculiar to Catholic campuses.

A different and improved approach was undertaken by Lehman (1972), in which he replaced the indirect measures of scholarliness (quality of school, self-image of intellectualism) employed by former investigators (Stark, 1963; Zelan, 1968) with a direct measure of "commitment to the scholarly perspective." Lehman developed a 5-item scholarly perspective scale and compared scores on his "scholarly perspective" scale with scores on the ideological, ritual, experiential and cognitive dimensions of religiosity. This 5-item measure asked specific questions which evaluated an academician's pursuit of scholarly curiosity, preference for working on research rather than with students, preference for national recognition within the discipline over respect of local peers, defense of research freedom and belief that students should be made to question their beliefs.

Lehman found that those high on the scholarly scale were lower than others on three of the religious dimensions (ideological, ritual, experiential), but did not differ from them on the cognitive dimension. From these findings, Lehman claimed that the more one "has internalized the scholarly ethos the less likely one is to ascribe to a conservative religious ideology" (p. 206). Lehman suggested, then, that the "extent to which an academician is committed to the scholarly perspective helps explain differences in his traditional religious involvements" (p. 212).

Although Lehman's approach was a significant improvement, his scholarly-perspective scale appears to be inadequate. Lehman provided an ideological framework for this scale--"tolerance for divergent models of the world . . . constant search for challenges to whatever an individual holds true . . . restlessness and curiosity about the unknown . . . break through habitual ways of thinking and feeling, and stimulates fresh and

independent thought . . ." (p. 201)--yet nothing within the scale necessarily suggests this open-stance world view, "scholarly perspective."

Common experience in academia suggests that many individuals do each of the things in Lehman's 5-item scholarliness index yet are not seeker's of "wisdom and truth." In addition, one of Lehman's items seriously confounds the content of the two dimensions. Subjects who agree with the statement "Students should be made to seriously question their religious beliefs, even if such practice leads some of them to reject those beliefs" (p. 203), on the scholarly perspective are naturally more likely to be irreligious. While Lehman's attempt to measure commitment to the scholarly perspective is laudable, his scale lacks face validity. An improved measure is needed.

In an attempt to extend Lehman and Shriver's (1968) earlier research, Hoge and Keeter (1976) surveyed 307 teachers in two North Carolina state universities concerning the relationship between respondents' religious, familial and academic background and their present religious postures. As in earlier studies, faculty who had attended "quality" graduate schools were less religious than other faculty.

However, Hoge and Keeter found weak negative relations between several indices of scholarship and religiosity. The percent of time devoted to basic research was negatively correlated with both creedal assent, $r = -.20$, $p < .01$, and church commitment, $r = -.14$, $p < .05$. Scholarly production, an index composed of the number of books and articles published, the number of research grants received, and one's self-rating as a researcher as compared to one's peers, was also negatively correlated with creedal assent, $r = -.16$, $p < .01$, and with church commitment, $r = -.12$, $p < .05$.

The faculty members' self-ratings as intellectuals were negatively related to creedal assent, $r = -.19$, $p < .01$, but not to church commitment, $r = -.10$, ns. However, quality of undergraduate school, self-rated breadth of knowledge, time spent in applied research, faith in the beneficience of science and commitment to professional organizations were all not significantly related to either index of religiosity.

Unfortunately, none of the above indices of scholarship necessarily reflects the open-ended world view and scholarly perspective which is theoretically incompatible with religiosity.

Chapter III

Problem

Previous research has produced findings which are suggestive of an incompatibility between the scholarly outlook and religious faith, and of a process of secularization within academic disciplines which diminishes religious faith. The suggestion of incompatibility is still in doubt because inappropriate measures of religious commitment and scholarliness have been the rule. The process of secularization within academia is both unverified and only speculatively explained.

Although the evidence that education promotes apostasy is ambiguous, (Allport, Gillespie, Young, 1948; Epsy, 1951; Stark, 1963; Havens, 1963; Anderson, Toch, Clark and Mullin, 1964; Greeley, 1965; Hoge and Hastings, 1976), there has been only one systematic attempt to explore what factors in academic life promote religious change. Katz and Allport (1931), as part of a larger study, examined students for specific causes which produce change. Of the 874 students polled from the Syracuse University student body, 633 identified teaching as producing a change in their religious convictions. Contact with fellow students was indicated by 404 of the students. A general process of maturing was named by 328, with other influences of college life contributing to change for 172 of the students. Finally, the personal influence of the professor outside of class was mentioned by 68 of the students.

From this 1931 study, Katz and Allport concluded that pedagogical training in college was a major influence in student religiosity. This

was exemplified by the de-orthodoxing effect among students which resulted in more liberal belief systems and less constancy in religious observances.

No study in the 45 intervening years has re-examined or explored the specific dynamics and effects of undergraduate or graduate study upon student religiosity. Because social and educational changes during this time span may have altered the impact which education has upon religiousness, re-examination of this area is necessary. Furthermore, students still within the educational process (as were subjects for Katz and Allport's study) may interpret the interplay between and effect of factors differently than would those removed from university influence, the latter perhaps identifying as relevant those factors within academia which were previously perceived as unimportant. Therefore, an extensive investigation is required to establish the range of factors which promote religious change within academia, the relative importance of these factors, and the necessary documentation for the types of changes which are produced.

The present study examines, with new and hopefully improved measures, the relationship between scholarly outlook and religious faith. A new and refined measure of commitment to the "scholarly-perspective" will be developed and its relationship to the ideological, experiential, and ritual dimensions of religious faith will be scrutinized. The cognitive dimension will be excluded because the history of cognitive measures suggests that knowledge of particular religious information is strongly confounded with a respondent's ideological position. The consequential dimension, also omitted in this study, has not been employed in any of the studies relevant to the present one, partly because of the difficulty in providing a set of questions which adequately tap this dimension. Glock and Stark (1965)

noted that this factor is highly interrelated to other dimensions, and information from it does not necessarily provide further clarity of an individual's religiosity.

The present study employed three instruments to canvass the academicians' (1) present religiosity (ideological, ritual, experiential), (2) commitment to scholarliness, and (3) academic, social, personal, and ecclesiastical experiences which were seminal in determining their present religious postures. These three instruments, together with examination of certain relevant demographic characteristics such as age, sex, educational discipline, and education were administered to a representative sample of faculty members of academic communities at two regional universities and one private university. It was hypothesized that each of the three religiosity measures is negatively related to commitment to the scholarly-perspective. No advance hypotheses were provided regarding factors within academia which contribute to an individual's religious posture since only one prior study (Katz and Allport, 1939) has investigated this area. The present study substantially breaks new ground.

Chapter IV

Method

Subjects

Two hundred and fifty-seven faculty members from three Southcentral universities made up the research population, consisting of faculty from two state universities with the primary pedagogical goal of undergraduate training and faculty from a fairly prestigious private university with a major emphasis upon graduate training. While the majority of students at the two former institutions are in-state residents seeking undergraduate training, those at the latter are from more heterogeneous origins and are interested in advanced professional training. Because of the broad educational scope of the private university, the author had access to a diverse sample of faculty members representing a wide range of disciplines. Although the academicians at the state universities who teach in the more traditional arts and science fields yielded a less comprehensive faculty sample, overall, the study investigated a wide cross-disciplinary population of faculty members.

Instruments

A cover letter introducing the respondent to the study preceded a sheet of questions requesting demographic information. The cover letter informed the respondent that the present study was attempting to survey the attitudes which academicians have toward religion and toward academics. The sheet of demographic questions polled age, sex, discipline, faculty positions, place of graduate training, and marital status. This sheet was followed by three separate instruments: a religiosity scale, a

Commitment to Scholarly Openness scale (CSO) and Variables Relevant in Religious Change (VRRC) to canvass various influences upon the respondent's religious commitment (peer group pressure, interpersonal relationships with faculty, sense of personal fallibility, etc.). The subject could indicate the degree, importance, and direction of influence which such factors had exerted in determining his present religious posture.

The three-dimensional religiosity scale (ideological, ritual, experiential) was the first of three instruments included in the questionnaire (Appendix A). The scale was modified from Lehman's (1972) study by adding three items pertaining to the ritual dimension: personal prayer, Bible or devotional reading and religious financial contributions. The ideological dimension establishes the subject's belief system and provides an index by which cross-subject comparisons of belief systems can be made. The four types of ideological positions (conservative, liberal, radical, humanistic) represent the major theological categories adopted toward religion today. Those selecting statements representative of conservative theology endorse a transcendant God, the virgin birth of Christ, man as having a fallen nature, and similar beliefs. Those embracing a liberal theology accept a transcendant aspect of man's experiences identified as God, an emphasis on man's uniqueness, and the need for guidance through the Transcendant. Those endorsing a radical theology approach God as undefinable yet immanent in daily life, while those endorsing a humanistic position regard God as a product of man's imagination and irrelevant to the situations in and the progress of the real world.

The ritual dimension explores "the specifically religious practices expected of religious adherents. It comprises such activities as worship, prayer, participation in special sacraments, fasting and the like" (Glock

and Stark, p. 20). This measure, by determining the degree of involvement which religious individuals have in ecclesiastical functions, approximates the importance of such functions for these people. Church membership and the frequency of church attendance, prayer, Bible or devotional reading, and financial contributions are therefore an empirical basis for distinguishing the religiously active from the religiously inactive.

The experiential dimension of the religiosity scale inspects the parameters of personal religious experience and feeling. Glock and Stark (1965) characterize this dimension as a concern or wish to believe, an awareness of the divine, a sense of trust and faith and a fear of the divine. The occurrence of religious experiences is reflected in affirmative responses to questions such as: "Have you ever experienced a feeling that you have been saved from sin?"

The Commitment to Scholarly Openness scale (CSO, Appendix B) is an 18-item Likert-type questionnaire allowing six response alternatives ranging from "strongly agree" to "strongly disagree" for each item. Item scores are added so that high scores represent high commitment to scholarly openness. This scale is an attempt to operationalize and measure the "scholarly-perspective" concept which Lehman defines as "an orientation to the world characterized most centrally by willed suspension of belief in received knowledge" (p. 201). This world view is seen by Lehman as a "central criterion of scholarship at its best" (p. 201). An individual who has adopted the "scholarly-perspective" is in a "constant search for challenges to whatever he holds true" (Wittenberg, 1964, p. 122), and is continually attempting to "break through habitual ways of thinking and feeling and stimulate fresh and independent thought" (Trow, 1961, p. 615). It is this perspective of the world which is open, curious, and actively searching

for new insight and new truth. As for Lehman, adoption of this perspective classifies one as a scholar and provides an identity and world view antithetical to that of the religious man.

In developing an instrument to measure commitment to the scholarly perspective, questions were created to explore the range of scholarly activities. Academicians answered questions regarding goals of education (vocational training versus a more comprehensive role), the value of inter-disciplinary activities (reading literature from other disciplines), the importance of dialogue with colleagues (across fields), and views of education (academic freedom, i.e., the right to have nude models in the art department). To establish the reliability and to explore the validity of this instrument, the author performed a pilot study in which 100 faculty members at one Kentucky state university were given a 3-page, 43-item questionnaire. An introductory paragraph briefly described the scope of the study and asked respondents to answer questions regarding their points of view as university faculty members. Questionnaires were either personally handed to the respondents or placed in their departmental mailboxes. The instrument combined a 24-question Abstract Orientation Scale (AOS) (O'Connor, 1970) with a 19-item scholarly commitment scale. Fourteen of the 24 items within the AOS were discriminators and 10 were filler items used to disguise the purpose of the instrument. Justification for the use of the latter scale was based on the assumption that a positive relationship exists between abstract thinking and commitment to scholarliness.

Cronbach's reliability test was performed on the pilot data and an alpha of .83 was established for the scholarly commitment scale. One of the 19 items was eliminated because it did not strengthen the reliability of the scale. The remaining 18 items were factor analyzed (principle

components without iteration) and yielded a general factor. The AOS exhibited a .76 alpha reliability, and a Pearson correlation test showed a .75 correlation between the scholarly-commitment scale and the AOS. Therefore, the scale was a reliable and apparently valid self-report measure of scholarly openness.

A third instrument employed in the study was the VRRC (Appendix C). Three preliminary questions asked the subjects whether they had ever experienced significant religious change, the direction of that change (e.g., became more religious, became less religious), and the period in their educational life during which the significant change, if any, occurred. A list of 31 statements followed which specified a diversity of factors which might have produced a religious change for the individuals (i.e., "My self-image as a scholar increasingly conflicted with my previous religious commitment."). On a scale of 1 (very descriptive) to 9 (not at all descriptive), the respondents were asked to designate the relative influence of personal, ecclesiastical, social, and educational factors in determining present religious posture. Additionally, each subject who had experienced change was asked to describe, in his/her own words, the significant factors which he/she believed produced the change.

Procedure

In March of 1977 the author distributed the multi-scaled questionnaire at three southcentral universities (one private and two public) to 550 faculty members from 38 disciplines. Each subject was either personally handed a questionnaire, usually in his/her office, or received one in his/her mailbox. The questionnaires included a cover letter briefly describing the rationale of the study, a sheet requesting demographic information, followed by the modified religiosity scale, the Commitment to Scholarly

Openness scale and the Variables Relevant in Religious Change list. As the questionnaires were dispensed, each faculty member was told that the questionnaire was an attempt to gather information regarding academicians' attitudes toward religion and toward academics and would be used as data for a master's thesis. Brief questions were frequently asked regarding the study and answered appropriately. Each faculty member was asked to return the questionnaire through an attached pre-addressed campus mail envelope at his/her earliest convenience.

Plan of Analysis

The religiosity subscales and the VRRC were analyzed by principle components analysis to determine the factor structure of these instruments. If the religiosity subscales had been factorially distinct, as Glock and Stark (1965) suggested, the correlates of each dimension with scholarly openness, demographic variables, and variables affecting religious change would have been examined separately. Since the religiosity measures comprised a single factor for the present sample, as is discussed later, a single index of religiosity which summed across all religiosity items was used for comparison with other variables.

A principle components analysis of the VRRC provided an empirical picture of the relatively independent factors which, phenomenologically, mediated religious change. Factor scores were calculated for each subject on each factor. Relationships between these factor scores and religiosity and scholarly openness were examined.

Since all data are co-relational in nature, relationships between various indices were examined by product-moment correlations when both indices are continuous variables (such as religiosity and commitment to

scholarly openness scores). When one variable consists of discrete categories (e.g., faculty discipline classifications) the relationships of that variable to the religiosity and scholarly openness scores were examined by one-way analyses of variance, with the categorical variable serving as the independent variable. When both variables in a particular co-relation are categorical in nature (e.g., faculty discipline and direction of religious change), chi-square analyses were used to examine relationships.

Since a large part of the present study is exploratory in nature, the same variables from the same subjects were often used in more than one analysis, creating a problem of statistical pyramiding. For that reason, the present analyses should be interpreted with caution.

In any survey involving many measures, numerous relationships are subject to analysis. Since the present thesis is concerned primarily with the relationship between scholarly openness and religiosity and their respective relationships to demographic and experiential variables, these two dimensions were used as the primary foci for analysis. Since the dynamics of religious change serve as the third focus of interest, correlates of religious change are also reported.

Chapter V

Results

Two hundred and fity-seven (47%) of the questionnaires were returned. The final sample consisted of 210 males and 47 females (82% and 18%, respectively) ranging in age from 23 to 69, with a median of 40. The sex and age of the respondents were not significantly related to religiosity, CSO, or to any of the factors producing religious change described later, so these variables will not be discussed further.

Changes in Religious Faith:

One hundred and forty-two respondents (55%) indicated that they had at some point, "undergone a significant change in religious belief and/or practice." The changers were relatively evenly divided into 44 (31% of the changers) who reported that they had become less religious, 47 (33%) who changed from one set of religious beliefs to another, and 50 (35%) whose changes had made them more religious. The probability of change was significantly related to academic discipline. Each discipline was assigned to a discipline grouping according to logically shared subject matter (i.e., physics and chemistry are disciplines both in the natural sciences and thus were assigned to the natural science group). When the 38 disciplines were classified into the seven categories of natural sciences, social science, humanities, education, medicine, applied disciplines (business, accounting, engineering) and other (speech, military science), 69% of the social scientists and 62% of the humanities faculty had experienced change, while at the other extreme only 31% of the natural scientists and 35% of the physicians had ever changed. However, a chi-square analysis revealed that academic

discipline was not related to the direction of religious change, $\underline{X}^2$ (18) = 9.63, ns. Faculty members in each discipline were equally likely to have changed in a more religious direction, less religious direction or from one religious set of beliefs to another.

The time of life when the changes had occurred were distributed as follows: none during grade school years, 9% during junior high years (grades 7-9), 10% during senior high years (grades 10-12), 24% during college years, 30% during graduate school years, and 27% after graduate school.

The time of life at which religious change occurred (junior high school, high school, etc.) was significantly related to the direction of religious change, $\underline{X}^2$ (8) = 19.379, $\underline{p} < .01$. During junior high school, respondents were equally likely to have changed in either a more religious or less religious direction. During high school, college, and graduate school, changers were slightly more likely to become less religious than more religious, i.e., 33 respondents became less religious during these years and 22 became more religious. For those who changed after graduate school, however, 21 changed in a more religious direction while only four became less religious.

Churches were classified according to McGloshen's (1974) scoring system. Ministers were asked to indicate the degree of closedness-openness of denominations on questions of doctrine using a scale of 1 (closed) to 3 (open). By taking a mean ranking of the eight denominations attended by the faculty members during youth, the following denominations were rated and classified according to doctrinal openness for this study. The Roman Catholic Church and the Church of Christ had a value of less than 2 and made up the least open group. Moderately open denominations had values

from 2 to 2.5 and included the Baptist, Jewish and Lutheran religions. Methodist, Episcopal and Presbyterian denominations comprised the most open group with values of 2.5 or greater. Faculty who did not attend church during their youth were classified as a fourth group. Although the groups did not differ regarding CSO or likelihood of religious change, the denomination attended during youth was significantly related to the period of religious re-examination, F (3, 105) 5.05, $p < .003$. Faculty who did not attend church during their youth were found to re-examine their religious beliefs at a significantly later time in their education (late graduate school) than those who were ecclesiastically active when young. The moderately open group experienced the earliest period of re-examination with the freshman college year as the most common time of religious change. Doctrinally closed and open groups were most likely to have re-examined their religious faith during late college.

An initial reading of the respondents self-descriptions of the sources of their religious changes suggested six potentially relevant and scoreable constructs, as listed in Table 1. All protocols from one school were independently scored by the author and thesis chairman for the presence or absence of each construct. As reported in Table 1, percentages of agreement in classification ranged from 85% to 100%. Due to these high reliabilities and time constraints, the remaining descriptions were scored by the author.

Principle components analysis of the 37 reasons for religious change (6 constructs from respondents' own descriptions and responses to the 31 reasons listed by the author) yielded six factors with eigenvalues greater than 1.0. Each factor's apparent meaning following varimax rotation is identified in Table 2, together with the two items which load most heavily

Table 1

Reasons for Religious Change from Subject's Self-Descriptions

	Percent of Inter-rater Agreement
(1) Distinct Personal Crisis	
Example: "I had rejected all conventional religious values and had come to a crisis in my personal life which led me to contemplate suicide. In a moment of deep anguish I felt as though my life had been made whole again."	97%
(2) Maturing Personal Search	
Example: "Sometime during my high school years I began to spend hours alone thinking about religion and what it had to mean for the individual. From that point I began to read heavily in the area of philosophy and theology and I have found myself at peace with God."	86%
(3) Increasing Awareness of Personal Finitude	
Example: "The change involved going from one of self made man and self reliance to dependence on Jesus Christ."	97%
(4) Adjustment to Family Situation	
Example: "A movement from unquestioned acceptance of established beliefs and expectations as a result of physical separation from domineering family members."	100%
(5) Emotional Rejection of Prior Experiences	
Example: "Rejected religion because of my realization that my denomination was not ultimate."	98%
(6) Multiple Changers	
Example: "After 'abandoning' religion as an undergraduate, I later came to understand that religion was excluded from serious consideration by the prevailing rationalist tenor of twentieth century thought."	100%

Table 2

Factors Influencing Religious Change

Factor I: Negative Reaction to Church's Hypocracy and Social Inactivity

Item: "The Church's failure to respond to social needs lowered my involvement in it." ($r = .84$)*

Item: "The presence of hypocracy in the church caused me to alter my beliefs." ($r = .84$)

Factor II: Recognition of Personal Sinfulness, Fallibility

Item: "A feeling of my own sinfulness led me to discover my religious faith." ($r = .73$)

Item: "An increasing sense of my own fallibility led me to discover my religious faith." ($r = .69$)

Factor III: Scholarly World View which Replaced Religion

Item: "For me, my 'scholarliness' became a way of making sense out of the world which forced the exclusion of religion." ($r = .66$)

Item: "The faith which I placed in my religious beliefs was replaced by a model of reality acquired in my academic training." ($r = .62$)

Factor IV: Adjustment to Social Arrangements

Item: "Marriage caused a change in my religious commitment." ($r = .58$)

Item: "I became involved in religion because it, like other social institutions, served a facilitative role by providing opportunities to meet people and engage in social activities." ($r = .51$)

Factor V: Personal Interaction with Significant Others

Item: "My personal interaction with fellow teachers was a major source of change in my religious beliefs." ($r = .73$)

Item: "My personal interaction with fellow students was a major source of change in my religious beliefs." ($r = .66$)

Factor VI: Attraction to Church's Compassion

Item: "The Church attracted me because its authentic love and compassion for man." ($r = .69$)

Item: "The Church's willingness to respond to social needs increased my involvement in it." ($r = .64$)

* Correlations are item-factor correlations from the rotated factor matrix.

on each factor. For comparison with other measures, factor scores were calculated for each subject.[2]

Correlates of Scholarly Openness and Religiosity:

The religiosity scale, comprised of the three subscales previously described, had an α = .90 for the total sample. The corresponding reliability for the CSO was α = .81. Religiosity and commitment to scholarly openness were correlated for the entire sample with an r = -.24 (-.28).[3] The religiosity subscales used in the present study formed only a single measure of religiosity since a factor analysis of the religiosity items revealed only one factor with strong loadings from all items, a pattern of results which is congruent with Clayton and Gladden's (1974) conclusion that religiosity is empirically a single factor. Therefore, a single religiosity index was used for comparison analyses with other variables.

Congruent with Stark's data, respondents who had attended prestigious graduate schools, according to Keniston's (1959) classification, were less religious (N = 81, M = 16.8) than those who had attended moderate (N = 138, M = 20) or less prestigious (N = 14, M = 21.6) schools, F (2, 232) = 6.46, $p < .002$. However, respondents did not differ in commitment to scholarly openness as a function of graduate school prestige, F (2, 246) = 1.97, $p < .15$. Similarly, faculty teaching at the prestigious university were less religious (n = 100, M = 16.7) than those at the regional state universities (N = 140, M = 20.7), F (1, 238) = 18.78, $p < .001$, but they were not more committed to scholarly openness, F (1, 253) = .24, $p < .50$.

No differences were found between disciplines in overall religiosity, F (6, 211) = 1.68, $p < .15$, although the education and applied disciplines had the highest religiosity means, 21.5 and 20.7, respectively, and the social sciences had the lowest religiosity mean, 16.8, a direction compatible

with previous findings (Hoge and Keeter, 1976). However, the disciplines differed significantly in commitment to scholarly openness, F (6, 233) = 9.40, $p < .001$. The natural sciences, M = 79.3, ironically, were second only to the applied disciplines, M = 78.9, in their lack of commitment to scholarly openness, while the humanities, M = 91.6, and the social sciences, M = 86.8, had the highest commitment.

Overall, those who had experienced religious change did not differ in religiosity from those who had not, F (1, 238) = .97, $p < .30$, but they were significantly more committed to scholarly openness, F (1, 253) = 15.45, $p < .001$. The direction of religious change also predicted commitment to scholarly openness: those who had changed in a less religious direction or from one religion to another were higher on the CSO than those who changed in a more religious direction, F (2, 138) = 3.27, $p < .05$. The means for these three groups were 88.8, 87.6, and 83.6, respectively.

While the correlation between religiosity and CSO was negative but weak, the correlation was somewhat stronger from those who had never experienced religious change, r = -.31 (-.36). For those who had either changed in a more religious or a less religious direction, religiosity and CSO were not correlated, r = .03, ns, and r = -.05 ns. Religiosity and CSO were correlated, r = -.25 (-.29), for those who changed from one religion to another.

Although the overall correlation between religiosity and CSO for those who had experienced religious changes was not significant, r = -.16, Table 3 indicates that three of the specific factors producing religious change were significantly related to scholarly openness. Factor II, Recognition of Personal Sinfulness and Fallibility, was negatively correlated

with commitment to scholarly openness for all changers, r = -.31, and was most predictive of scholarly openness for those who changed from one religion to another, r = -.44. Factor III, Scholarly World View which Replaced Religion, was positively correlated with scholarly openness for all changers, r = .28, and for those who had become less religious, r = .30. Factor V, Personal Interaction with Significant Others, was positively correlated with scholarly openness overall, r = .29, and for both those who changed in a less religious direction, r = .33, or a more religious direction, r = .29.

Not surprisingly, Factors I and III from the VRRC are negatively correlated with religiosity, r = -.36 and r = -.42, respectively; Factors II and VI are positively correlated, r = .67 and r = .26, and Factors IV and V are not significantly related to religiosity, r = .07 and r = .00.

Table 3

Correlations between Factors Influencing Religious Change and Commitment to Scholarly Openness as a Function of the Direction of Change

	Direction of Change			
	Less Religious	One Religion to Another	More Religious	All Changers
Factor I	-.07	.20	.09	.14
Factor II	-.05	-.44*	-.21	-.31*
Factor III	.30+	.19	.16	.28*
Factor IV	.05	.07	-.12	.07
Factor V	.33+	.23	.29+	.29*
Factor VI	.03	-.15	.04	.09

+ p .02

* p .01

Chapter VI

Discussion

The patterns of faculty religiosity and changes in faith found in the present study generally replicated previous findings. A smaller proportion of the faculty expressed faith in a personal God (43% in the present sample) than is the case for the population in general. Faculty who attended prestigious institutions or who work at the more prestigious institution were less likely than others to be religious. The social scientists and humanitarians were less religious than others and the applied discipline faculty were more so, though these differences were not quite significant for our sample. Faculty who changed religious beliefs during high school through graduate school usually became less religious. Each of these results has been found with some regularity.

The present study ameliorated past sampling methods by considering a greater number of disciplines (38); polling previously under-represented fields, particularly the applied disciplines (law, engineering, nursing), and thereby rectified the problem of unbalanced discipline representation (Thalheimer, 1973) and provided a more complete, diverse, and thorough sample.

The present Commitment to Scholarly Openness Scale appears to be the best method to date for assessing the underlying construct judged by so many as incompatible with religious faith. The construct of scholarly openness is an attitude, a belief system, a mind-set. None of the indirect assessments of this commitment necessarily reflect the tolerance, curiosity, independence of thought, searching and openness which believers supposedly

lack. The present scale focuses more directly on these elements than any of these indirect assessments and more directly than the one other attitudinal measure of scholarly commitment. The scale's reliability is sufficient for most research purposes, and it does not appear to have direct confounding of content with religiosity.

According to the present results, scholarly commitment and religiosity are negatively related for those who have never experienced significant religious change and for those who have changed from one religion to another, but religiosity is not related to scholarly commitment for either those who have changed in a more religious or a less religious direction. These non-correlations cannot be explained as measurement artifacts, for the variance in religiosity for these last two groups was only slightly less than that for the other subjects and there was no restriction in variance in CSO scores.

The significant correlations show that religiosity and commitment to scholarly openness frequently do not coexist, but the low magnitude of the significant correlations and the non-correlations suggest that the two commitments are not incompatible by overwhelming necessity.

Why is there no antithetical relationship between scholarly openness and religiosity for those who have become either more religious or less religious? The correlations between the factors producing the changes and scholarly openness may provide some insights. Those whose changes were produced by significant personal interactions (Factor V) were more committed to scholarly openness than those whose changes were not so produced, regardless of whether they changed in a more or less religious direction. The causal connection is not clear. Quite possibly, the open and personal

dialogue which serves to alter religious convictions also instills a commitment to openness, itself. Alternately, the correlations may merely mean that individuals who believe in openness are more likely to experience change through personal interaction rather than through the other means. In any event, this particular process for change is incompatible with closed scholarship and serves to nullify the negative relationship between scholarly openness and religiosity.

The positive correlation between Factor III (Scholarly World View which Replaced Religion) and the CSO for those who became less religious is probably an artifact of the content overlap between these two dimensions. Thus, Factor III does not provide additional help in understanding the absence of relationship between scholarly openness and religiosity for those who became less religious.

Although faculty trained at prestige schools are less religious, these faculty are not more committed to scholarly openness. This conflicts with Zelan's (1968) implied belief that the three-fold identity package offered by academia which apostates adopt to replace a religious identity offers a reliable benchmark to discriminate between faculty religiosity and scholarly openness. Such findings suggest that a more complicated relationship exists between the impact of experiences in education and the resulting changes in religiousness, scholarly openness and self-identity.

Incongruent with Stark's (1963) exposure-apostasy claim, the non-significant relationship between prestige of graduate training and scholarly-openness suggests that exposure to scholarliness (quality and kind of school) does not necessarily determine whether an individual will adopt the "scientific-scholarly" perspective. This implies that we must discard as insufficient and too simple Stark's stated one-to-one relationship between exposure to scholarliness and apostasy.

First of all, we must question whether the model of scholarship offered to faculty who attended the non-prestigious schools is significantly different than the model which attenders of prestigious schools received. Since the majority of faculty attended major, established institutions with a medium quality rating (Keniston, 1959), quite possibly the quality index upon which Stark relies may actually be a misnomer. Most major universities and colleges strive to provide competent, progressive graduate training, and although lacking some cursory characteristics of the "prestige" school (an established name, more selective admittance, etc.), they do make available the resources and experiences necessary for scholarly commitment.

This type of reasoning could explain why no scholarly commitment disparity exists between faculty who attended different "quality" schools. Since significantly different levels of religiousness do exist between faculty trained in high prestige institutions and others, this may reflect more a style and content of scholarship (more disparaging of religion) than a commitment to scholarly openness per se.

Traditionally, the academic and geographic Zeitgeist of prestige schools perpetuates a more liberal mind-set which may place religion in suspicion, and thus cause one to adopt a style which may be inappropriately identified as more rigorous and academically sound. If the faculty who attended prestige schools did receive a more sophisticated model of scholarly openness then their non-prestige counterparts, they failed to integrate it within their own intellectual mind-sets to a significantly greater degree.

Thus the present study fails to document Stark's thesis that exposure alone to a higher model of scholarly commitment is concomitant with greater

apostasy. Nevertheless, a positive relationship does exist between graduate school prestige and apostasy for our sample. And although faculty who attended schools different in prestige did not differ in their frequency of significant religious change, the direction of change was significantly variant. Attenders of prestigious institutions did become less religious while faculty who attended non-prestigious schools either switched from one religious belief system to another or became more religious. Accordingly, prestige of school does appear to influence the religious posture of academicians, but not by the mechanism of increasing scholarly openness.

The respondents identified only two academically related factors relevant to their religious change (Factor III, Scholarly World View which Replaced Religion and Factor V, Personal Interaction with Significant Others) and four non-academic factors (Factor I, Negative Reaction to Church's Hypocracy and Social Inactivity; Factor II, Recognition of Personal Sinfulness and Fallibility; Factor IV, Adjustment to Social Arrangements; and Factor VI, Attraction to Church's Compassion). The presence of these non-academic factors illustrates that faculty religious beliefs were significantly changed by elements unrelated to education and that the one-to-one correspondence historically proposed (Leuba, 1934, et al.) lacks consistent empirical support from our findings.

Undeniably, scholarly exposure does play a role in faculty religiosity. But the varied factors contributing to change suggest that exposure must be seen not as the only, or possibly major, agent of religious change, but rather as part of a myriad of academic, personal, social and ecclesiastical stimulants. Only as we examine the impact and inter-relationship of these factors upon an academician's belief system can we hope to understand the role which education plays upon faculty religiosity.

These findings move beyond Thalheimer's (1965) conclusion that academic training is not a source of great apostasy and imply a causal connection between personal interaction and time of educational change. Therefore, non-academic factors, previously given only a cursory look, must be examined to understand fully the dynamic of faculty religious change.

The de-orthodoxing effect of education seen in our results, which Allport, et al. (1948) also noticed, may be partly attributed to the formative years during which students attend high school, college and graduate school. The desire to be open to new ideas, to examine personal beliefs, attitudes and values, and the opportunity to be significantly influenced by peers and faculty is most probable at these times. Also, there is greater pressure to conform to contemporary trends (intellectual and social) which might encourage down-playing one's religious identity so as to appear in line with acceptable life-styles. Therefore, the causal relationship between levels of belief and educational period, although affected by models of scholarship and other academic variables, might also be influenced by the broader characteristics of youth and social styles.

Since a large number of the academicians changed their religious beliefs after graduate school, a relationship between education and religiosity is implied. The time of change significantly related to the direction of the change. The more religious pattern of post-graduate changers is a new and somewhat curious finding. Quite possibly, this group's change is less affected by academic variables and more influenced by social, personal, and ecclesiastical experiences, although the unique dynamics of change for this group were not identified. However, the predominantly more religious post-graduate change is a unique finding which should be further examined.

Many questions remain which demand future attention. Why is there a larger number of changers in disciplines more committed to scholarly openness than in less committed disciplines? Do these disciplines encourage greater apostasy because of their subject content or socialization processes, or does a more flexible world-view and academic environment predominate which allows and encourages greater openness to all types of change? As Zelan (1968) suggests, do some disciplines attract more flexible, open, less traditional individuals who seek out a diversity of experiences? Also, is model replacement primarily due to the tendency for those who became less religious to be more committed to scholarly openness? Clearly, many descriptive results require further study in order to establish their causative associations.

In the final analysis, the oppositional relationship between scholarly openness and religious faith is neither as strong nor as simple as its proponents have suggested. While it is mildly present among those whose religious changes have been minimal, intensive change appears to diminish the relationship through particular, identifiable processes. The process of intense, personal interactions appears most significant in the present study.

Finally, Lehman's (1972) claim that as academicians internalize the scholarly ethos they become less religious does not adequately represent current overall findings and must be discarded as insufficient. Many faculty (less and more religious changers) did not express a conflict between commitment to scholarliness and religiosity, a finding which suggests that these two world-views are not ardently antithetical and that academicians can simultaneously be committed to both.

Accordingly, religious belief and commitment to scholarliness are not necessarily rigid, ideological foundations from which academicians view the world. But rather, these two world-views may operate as more flexible paradigms which allow, and possibly encourage, a dual commitment.

Footnotes

[1]Glock and Stark factor analysed a variety of factors pertaining to religiosity, and identified five "core" dimensions in which "all of the many and diverse manifestitations of religiosity prescribed by the different religions of the world can be ordered" (p. 20).

The experiential dimension contains all of those feelings, emotions, sensations and perceptions which are experienced by the religious individual. This dimension provides insight into the types of subjective emotional experiences which reflect an individual's overall religious commitment.

The ideological dimension encompasses the beliefs or theology which members of a particular religion share. Although the scope of each belief system varies according to the religious tradition, every religion proposes a certain theological foundation the acceptance of which is mandatory for membership. This dimension taps each individual's theology and allows a comparison of beliefs within each religion.

Ritualistic, as the third dimension, includes all religious rituals and practices available to and encountered by religious individuals. Activities such as prayer, fasting, tithing, church attendance, worship and adherence to special events are a part of this dimension.

The intellectual dimension pertains to the adherent's knowledge of the tenets of his faith. Although religious individuals are expected to be cognizant of basic doctrines within their religion, qualitative differences do exist. The intellectual dimension discriminates the breadth of each individual's knowledge of his religion's dogmas.

Consequential, the final dimension, includes "the secular effects of religious belief, practice, experience, and knowledge on the individual. Included under the consequential dimension are all those religious prescriptions which specify what people ought to do and the attitudes they ought to hold as a consequence of their religion" (p. 21).

For Glock and Stark, these five dimensions provide "a frame of reference for studying and assessing religiosity" (p. 21).

[2]The procedure for calculating factor scores was unorthodox in that it varied from factor to factor. In all cases, factor scores were defined as the mean of those items with the highest loading on the factor, yet the magnitude of the loadings used to define the factor scores for each factor varied. A personal conversation with Richard Gorsuch, author of Factor Analysis, confirms this procedure as the most appropriate option.

[3]Unless otherwise noted, all reported correlations are significant at greater than .01. Correlations in parentheses are correlations corrected for attenuation.

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APPENDIX A

RELIGIOSITY SCALE

14. People generally adopt one of four ideological positions in relation to religion today. Each view makes certain claims about God and man. Read all four statements below and place a check (X) beside the type which most closely expresses your position.

____A. There is a personal God of transcendent existence and power, who created all we know including man, who judges His congregation of believers, and whose purposes will ultimately be worked out in history.

____B. There is a transcendent aspect of human experience which some persons call God. It is the Reality underlying all reality including man's uniqueness. Man's freedom and finiteness make both good and evil possible. Thus he is in need of renewal and guidance provided by the "Transcendent" and by the tradition which stems from it.

____C. God or the "Transcendent" is undefinable. If it is to be found anywhere, it is to be seen in the human struggles toward progress in the secular world. God is immanent in human life. Religious tradition mostly provides clues to the meaning of what God is doing throughout the World.

____D. The notions of God or the "Transcendent" are illusory products of man's imagination. Such notions are irrelevant to the real world. Man alone shapes history, and so-called sacred traditions are but manifestations of his groping to understand his experiences.

15. Are you currently a member of a church or synagogue? ___yes ___no

To what denomination do you belong (e.g., Church of Christ, United Methodist, etc.)?

_____

How often do you attend a church or synagogue?

____almost never
____about one fourth of the time
____about one half of the time
____about three fourth of the time or more

Do you hold a leadership position in the congregation? ___yes ___no

How often do you pray?

____almost never
____about once a month
____about once a week
____about once a day or more

How often do you read the Bible or other devotional material?

____almost never
____about once a month
____about once a week
____about once a day or more

How often do you contribute to your church financially?

____almost never
____once in a while
____frequently
____always

16. People often report having religious experiences. From the list below, check those experiences which you have had subsequent to childhood:

____A feeling of being in the presence of Divinity
____A feeling of having been punished by God for a wrong-doing
____A feeling that God had intervened and rescued you from some sort of danger
____A feeling that you had been Divinely healed of a disease
____A feeling that you had been saved from sin
____A feeling of having discovered the meaning of life through religious faith
____A feeling that God has answered a prayer
____A feeling of having been guided by God in making a decision

APPENDIX B

COMMITMENT TO SCHOLARLY OPENNESS SCALE

(1) Ideally, I would like to have more time learning about other disciplines.

(2) I find that discussing issues and ideas with students often increases my own understanding.

(3) I frequently explore new areas within my discipline in which I have little previous knowledge.

(4) Wrestling with the controversial issues within my discipline is one of the more stimulating and valuable parts of my academic life.

(5) As a teacher, my primary obligation is to impart information to students rather than to encourage critical examination of issues. (-)

(6) I am more concerned with training students to function competently within their jobs than I am with teaching them to respond critically to ideas. (-)

(7) I have a continuing curiosity about the points of view of others and the reasons behind their views.

(8) Students should be encouraged to question and explore whether their beliefs and values are valid or not.

(9) My desire to show others who disagree with me that they are wrong is sometimes greater than my desire to fully understand their views. (-)

(10) Education should be aimed primarily at pragmatic goals such as providing skills for jobs. (-)

(11) Some findings within my discipline are clear-cut and it is likely that no new information will change them. (-)

(12) An active and outspoken Communist should not be allowed to be a faculty member at this university. (-)

(13) If the art department wishes to use nude models it should be allowed to do so.

(14) Students should be encouraged to challenge the instructor's viewpoints with which they disagree.

(15) My academic life is an expression of a personal search for the meaning of life.

(16) I genuinely enjoy dialogue with my colleagues who have very different points of view concerning my discipline.

(17) Information from other academic disciplines contributes substantially to my personal and professional enrichment.

(18) I feel that nothing is "off limits" for academic exploration.

APPENDIX C

VARIABLES RELEVANT TO RELIGIOUS CHANGE

Have you ever undergone a significant change in your religious belief and/or practice? ____yes ____no

If you checked "yes" please answer the following questions. If you checked "no" it is unnecessary for you to complete the rest of the questionnaire.

According to the conventional meaning of religious change, what was the nature of your change? ___less religious ___more religious ___changed from one set of religious beliefs to another

During what year(s) in your education did you experience the most serious re-examination of your religious beliefs? (circle most important year(s))

Grade School	Junior High	High School	Under-Graduate	Graduate	Post-Doctorate
1 2 3 4 5 6	7 8 9	10 11 12	1 2 3 4	1 2 3 4	X

Listed below are a variety of reasons which may have contributed to your religious changes. To the left of each statement is a continum from 1 to 9 on which you are to rate the personal importance of each reason in terms of the religious changes you have experienced. Please read each statement carefully and circle the appropriate number according to the following key:

Not(NI) important			Somewhat(SI) important				Very (VI) important
1	2	3	4	5	6	7	8	9

(1) I discovered information which caused me to evaluate my religious commitments.

(2) I was so busy I did not take time to attend church or engage in religious activities.

(3) There was an absence of previously felt social pressure to engage in religious activities (church, etc.).

(4) My self-image as a scholar increasingly conflicted with my religious self-image.

(5) Increased exposure to ideas within my discipline caused me to re-examine previously held religious beliefs.

(6) Ideas presented to me within the classroom suggested problems between my religious beliefs and my discipline which resulted in a change of my religious beliefs.

(7) My personal interaction with fellow students was a major source of change in my religious beliefs.

(8) My personal interaction with teachers was a major source of change in my religious beliefs.

(9) Through my academic training, conflict developed between my religious beliefs and my scholarship, resulting in a decline of importance I gave to scholarship.

(10) The faith which I placed in my religious beliefs was replaced by a model of reality acquired in my academic training.

(11) For me, my "scholarliness" became a way for making sense out of the world which forced the exclusion of religion.

(12) I had rejected my religious beliefs prior to graduate school and found no reason for seriously re-examining this decision.

(13) Marriage caused a change in my religious commitment.

(14) While in school I developed a personal and/or academic curiosity about religion which I previously had not had.

(15) My training was directed toward teaching me the necessary skills for competency in my field and, therefore, I was unconcerned with religious issues.

(16) When with friends away from academia, no particular discussion of religion took place which encouraged me to maintain my religious beliefs.

(17) I became involved in religion because it, like other social institutions, served a facilitative role by providing opportunities to meet people and engage in social activities.

(18) The pressures and demands of school were such that religion provided a needed emotional and psychological release.

(19) There was pressure within my discipline to reject Christianity.

(20) I felt uncomfortable with the leadership of the Church.

(21) The presence of hypocrisy within the Church caused me to alter my beliefs.

(22) I was not willing to accept the requirements the Church placed upon me (e.g., not drinking, giving money, etc.)

(23) The Church's failure to respond to social needs lowered my involvement in it.

(24) The Church's willingness to respond to social needs increased my involvement in it.

(25) The Church's emphasis upon social issues turned me off.

(26) The Church's avoidance of social issues turned me off.

(27) The Church attracted me because of its authentic love and compassion for man.

(28) A feeling of my own sinfulness led me to discover my religious faith.

(29) An increasing sense of my own fallibility led me to discover my religious faith.

(30) Since I had no religious training during my youth the discovery of my religious faith was new and personally meaningful.

(31) I felt a personal need to know God.