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Guilford-Zimmerman Test Results in Evangelical College Students

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From the earliest years of psychology, the importance of relating religious belief and practice to behavior and personality characteristics was recognized. Probably Edwin Starbuck and William James who respectively published The Psychology of Religion (1899) and Varieties of Religious Experience (1902) were the earliest of the pioneers in psychology at that time, but they were shortly followed by Freud (1913) who presented his oedipal theory of the origin of religious belief and behavior. The number of psychologists who have worked in this area defies listing, and the importance of the area has been repeatedly underscored and perhaps most recently so by the admission of a new division (Division 36--Psychologists Interested in Religious Issues) to the American Psychological Association.

In the present paper, the emphasis will be on examination of various personality characteristics as they relate to students in specifically Christian versus secular institutions and as they relate to degree to expression of Christian belief. Investigators relating personality and Christian belief have tended to focus on single personality measures and perhaps the most notable of these are The Authoritarian Personality by Adorno et al. (1950) and The Open and Closed Mind by Rokeach (1960). Except for Dr. Mauger's research, I have not come across comprehensive assessments of personality in the literature when related to individuals lacking religious belief as opposed to those reporting such. The first study reported below attempts to cover this area a little more exactly than has been done previously by comparing individuals from specifically Christian as opposed to secular populations on a range of personality characteristics, and to do so with an instrument different from that which Dr. Mauger has employed and has already reported to us.

The second study that I will present also provides a broad assessment of personality characteristics among a group of people with clearly identified Christian beliefs when those individuals are segregated according to the extent to which they spontaneously express their belief. This study will not attempt to contribute to an understanding of the multi-dimensional nature of religious belief with all the complexities and controversies involved (nudelman, 1971; King & Hunt, 1972; Clayton & Gladden, 1974). Instead, it will attempt to associate personality characteristics with degree of expression of religious belief among individuals already known to have such and to do so under circumstances not specifically calling for such expression.

A few other comments giving general rational and perspective for these studies are in order. One might at first ask why one would expect to find differences between Christian and secular populations with respect to personality characteristics at all. Having been in evangelical groups all my life, I have no hesitancy in saying that the vast majority of people in such groups believe and act as if the personality structures and characteristics of Christians were indeed different from those of non-Christians. If asked about a scriptural basis for their belief, they easily turn to passages which point out that the individual with a personal faith in Jesus Christ is "a new creature" and that "all things are become new" (II Corinthians 5:17). They further point out that Christians are "the salt of the earth" (Matthew 5:13) and that the Bible repeatedly suggests that they are different from non-believers. Pressed further, they point to instances within their own knowledge or personal experience where individuals acquiring firm religious convictions have seemingly had their personalities transformed overnight and that truly if Christ is Lord, he must be Lord over all parts of a person including body, soul, and spirit. As has

been pointed out previously (Dodrill, 1974) objective evidence for this with respect to broad personality characteristics is lacking.

A final point worth noting at this time is that the studies reported here have been done from an evangelical perspective. When reference is made to a Christian, for example, one refers not to anyone who is a church member and not to anyone who merely believes that "there is a God," but rather to a person who has recognized his sinful state as a fallen creature and who has accepted Jesus Christ as his savior and redeemer in view of his sinful state. Such a person typically accepts orthodox doctrines of the faith including the sovereignty of God, the deity of Christ, the authority of the Scriptures, the fallen state of man, and (usually) the virgin birth. Such individuals are usually viewed as "conservative" theologically, and some are viewed as "fundamental."

Let us proceed now with an examination of data bearing on personality characteristics, first as related to Christian versus secular populations, and then with respect to expression of Christian beliefs among Christians alone.

Study One: Christian Versus Secular Populations

The studies that I am reporting to you today both involve the use of the Guilford-Zimmerman Temperament Survey (Guilford & Zimmerman, 1949). The Guilford-Zimmerman is a factor-analytically derived device which provides scores for 10 factors with the use of 30 items for each factor. Altogether, 300 items are involved (there is no duplicate use of items) and one expresses agreement, uncertainty, or disagreement with each item. The items are quite free of content dealing with blatant psychopathology, sex, and religion, and inventory is most useful in grossly normal populations in the assessment of a variety of personality characteristics. Such an instrument contrasts substantially with the MMPI, for example, and these studies are thus intended to complement those which will be presented by others at this conference.

All of the subjects identified as Christians in this paper were college students at Westmont College, Santa Barbara, California. This school is a non-denominational four year liberal arts institution which for years has taken theologically conservative stands on a number of issues. It has promoted Christian service activities among its students, it has had compulsory daily chapel, and a statement of Christian belief has been an integral part of admission qualifications. Unless one indicates adherence to basic Christian beliefs and acceptance of Christ as Savior, one is routinely not admitted. Conversations with the Director of Admissions have revealed that each year approximately six individuals are admitted for whom there is doubt as to their acceptance of these beliefs, but who are clearly sympathetic to Christianity. A search of the records of the Admissions Committee was made with efforts to eliminate all such individuals lacking clear Christian commitments from the data I am reporting here. Because of the incompleteness of committee records, however, it is estimated that among the Westmont students reported here, perhaps as many as 1½% did not give a clear Christian testimony at the time of admission.

From the fall of 1960 through the spring of 1972, all students admitted were routinely given the Guilford-Zimmerman and a counseling data questionnaire in group administration at the end of the first full week on campus. A total of 2,722 usable Guilford-Zimmerman answer sheets were obtained from the 3,243 students who were admitted during this period. Thus, data were available on approximately 84% of the students admitted. At least 6% of the remaining 16% of the data was lost on one occasion when a section of the records for three consecutive years (1969-1971) could not be located. Students who never appeared for the testing sessions likely account for most of the remaining 10%, but

other factors were also involved in one degree or another including improper completion of inventories and lack of survival of the college experience to the end of the first week. I might point out that it was Willard Harley, Sr., formerly Professor of Psychology at Westmont, who faithfully collected these data over the years, and without whom this paper would not have been possible.

Our first series of analyses compares the scores of Westmont students with the college norms collected by Guilford at community colleges and at the University of Southern California. Although all institutions involved were on the west coast, it will become apparent that factors such as socio-economic status and the number of Christians in the Guilford normative sample are not controlled. The effects of such factors on the results are not known. I have, however, adopted a more conservative stance in the analysis and have noted only those differences which were statistically significant at the .01 level or greater. Since I had no way of predicting the results, two-tailed tests were used in every instance.

The results showing Guilford's males in comparison with the Westmont males are presented in Table 1. Statistically significant differences were found in 7 of the 10 comparisons with interpretations as follows: Ascendancy--the Westmonters were less likely to take leadership roles in social situations; Social Interest--the Westmonters tended to report being less extroverted and less involved in social contacts with others; Emotional Stability--they reported less variability in emotions; Objectivity--they reported more sensitivity to the feelings and actions of others; Friendliness--they saw themselves as more friendly; Personal Relations--the Westmonters appeared more critical of others in their natural shortcomings; and Masculinity-Femininity--they tended to be a little less accepting of classical stereotypes for the male. While these differences appear to be reliable ones, one needs to observe first that the differences in mean scores were in no instance more than two and one half points (out of a possible 30) and that in the majority of cases, they were within a single score. Furthermore, interpretation of this must also be done cautiously because of the factors or potential factors which differed between the two groups other than generally accepting or not accepting Christian beliefs.

Table 2 shows the parallel results for females. Differences on Emotional Stability, Friendliness, and Personal Relations again appeared and in each instance the differences were in the same direction as for the males. In addition, however, a fairly marked difference on the Restraint scale was also found and this suggested that the Westmont girls were more inhibited than those in the normative group. Furthermore, they seemed to have less energy to devote to daily life activities and they seemed to be more reflective and introspective. The total pattern was suggestive of less energy, and greater inhibition, social withdrawal, introspection, and criticalness of others, all in the fact of reported greater friendliness and emotional stability. Again, however, one must be careful in interpretation by not overextending the practical significance of such findings.

In order to further check out the possibility that the above significant differences might be consistent across time and space, I was able to obtain a sample of 124 males and 388 females from Purdue University. I am indebted to Drs. James and Kathryn Linden of Purdue University for part of these data. These students were in undergraduate education and psychology classes and were tested in 1958, 1959, and 1969. I was able to match them quite closely for year of testing by selectively utilizing the Westmont data. Table 3 shows the results from the comparisons for males. With the smaller groups, only three statistically significant differences were found, two of which (Social Interest and Friendliness) were in the same direction as in the previous group of comparisons with the normative data.

Table 4 presents the parallel data for females. As with the previous set of comparisons for females, a substantially larger number of statistically significant differences were found than with males. Those found in the same direction included Social Interest and Friendliness.

As one can see, the results from comparing Westmont students with those in secular institutions do vary depending upon the secular institution. This fact combines with possible explanations other than differences in Christian belief to argue strongly for caution in interpreting the results. It does appear that in the comparison with the two secular groups, the Westmont males were consistently presenting themselves as being more friendly and easier to get along with, but also as being less socially oriented and perhaps more socially withdrawn. Exactly the same picture holds true for the females but they in addition seem to have less energy to devote to daily life activities and an introspective and a "follower" type of picture prevails. I will offer some interpretations for these data later in the paper.

In addition to the analyses employing mean or average scores, it seemed appropriate to perform analyses based upon the distribution or dispersion of scores. I determined the approximate raw score equivalents of the percentile points 1, 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, 95, and 99 for Guilford's college norms for each scale and then did exactly the same for 500 Westmont males and 500 Westmont females separately. By this procedure one could then see the actual difference in raw score values for any particular percentile point on any scale when these points were derived from the separate samples. Table 5 shows the results of three measures of differences that were found by this method. Modal, maximal and typical differences in raw scores between the distribution are given in the first three columns and the fourth column gives the standard error for each scale from the Guilford-Zimmerman manual. For males, the typical error in using one set of norms as opposed to another in a single raw score, the maximal error for all data points on all scales is a raw score of three, and in no instance did the average difference exceed the standard error of an obtained score. This suggests that while statistically reliable differences can be identified, they are well within the range of error and one is reluctant to put a great deal of stress on them.

Table 6 shows the parallel results for females. Here, the average difference in raw scores was slightly greater but again the average difference never exceeded the standard error. One is forced to conclude that the distribution of score for the samples are highly similar when viewed in any sort of practical manner.

Study Two: Personality and Expression of Belief

Let us move on to the differences in personality associated with differences in more or less spontaneous expression of Christian belief. In order to accomplish the goal of determining which Westmont students were most likely to give evidence of their Christian beliefs, a standardized situation had to be set up which permitted the possibility of belief expression without necessarily calling for it and in fact without the student even knowing that degree of expression of Christian belief would be determined. In order to accomplish this, an essay technique was employed which used data collected in the same sitting in which the Guilford-Zimmerman was administered. Each student completed a counseling data form which requested various types of information about the student including his family background, vocational goals, health, financial status, etc. This form also asked for a confidential self-evaluation at the end and it provided a page for response. The exact instructions for this self evaluation were as follows:

Please write a self evaluation which may be used to assist your counselor in becoming acquainted with you. Indicate any goals, questions, or problems you wish to evaluate while at Westmont. This information is strictly confidential and to be used solely for your guidance. Include any circumstances at home, health, school, or social life that have made your life difficult for you in the past, improvements you hope to make in college, your life purposes, and any problems regarding which you wish help while at college (spiritual, emotional, personal, financial, etc.).

The individuals used for the main part of the study were admitted in 1969, 1970, and 1971, years for which the Admissions Committee minutes were quite completely available so that it was fairly certain that every single student in the sample had made a profession of faith. In order to be included, the essays had to be at least 25 words; no maximum was established. The essays were then classified into four groups as follows:

1) No Mention. These essays contained no reference whatever to Christianity, God, church, spiritual life, or any related matter. If you were reading the essays in this group, you would never guess the students who wrote them were Christians. They emphasized personal concerns, family backgrounds, vocational plans, etc.

2) Questionable. This classification of essays was one in which there was some brief reference to Christianity, God, spiritual matters, or church, but without there being any clear indication of Christian belief. For example, one student wrote as follows:

I came to Westmont College with my primary goal to get an education that will help better my life in the future. My reason for attending such a college was that I hoped that it would be concerned enough about me to help me if I had troubles regarding college life. I hope that I can meet new faces and challenges at Westmont with enthusiasm and confidence. I hope to participate in such things as athletics, dorm life and Christian experiences.

This essay would have fallen into the No Mention group were it not for the last two words which made reference to Christian matters but which did not give any sort of clear indication that the person was a Christian or that he adhered to basic principles of Christian belief. Other essays falling in this group included comments such as "Religion means a lot to me" or "I need help vocationally from God," again without giving any specific evidence of acceptance of Christian beliefs.

3) Christian. Individuals in the third category were those who left no doubt about their being Christians but who did not write of their faith in God to the total exclusion of other matters. Individuals fell into this classification if 1) they said they were Christians, 2) they gave evidence of commitment to God or wanting to serve God, 3) they were searching for God's will for their lives, 4) they wanted to enrich their spiritual lives, 5) they believed in the Bible as the word of God, or 6) they made several statements which amounted to any of these. The attempt here was to classify people in this category in such a fashion that any evangelical would readily agree that there was little doubt this person was a Christian (insofar as we can tell such a thing from written material of this sort). One student falling into this classification wrote as follows:

I feel fortunate to have come from the home and family that I have. There are a number of problems that were at least partially eliminated when I was born to my parents. But, as every young person, I have my own set of anxieties and uncertainties as I look towards the future. My major goal at Westmont is to discover just what God wants me to do with my life and develop a closer relationship with Him.

4) "Strong" Christian. This final classification of essays was one in which not only was it clear that the person was a Christian, but virtually every sentence in the essay made reference to one aspect or another of Christianity and Christian belief. If personal and familial factors were mentioned at all, they were mentioned only in the context of spiritual matters. A sample essay follows:

I feel that in evaluating myself I must give first and foremost attention to the fact of what the Lord has created me to be and also that I desire to live a life of total dependence upon Him. My goal is to be His willing servant and to go wherever He may lead. I feel that the two years at a junior college were crucial to my Christian walk because during that time I had a spiritual awakening and began to evaluate myself and my abilities more realistically with a new emphasis on what the Lord was able to do through me. I know that the Lord has brought me here and that Westmont will be a great time of learning more about Him. I know too that it will be a time of deepening and of a closer walk. I look forward to vital personal relationships and increasing spiritual maturity.

While it first appeared that classification of essays into these categories would be difficult, it soon became apparent that it was fairly straightforward, although of course there were some questionable instances. I did all the ratings myself and the reliability of my ratings was blindly checked after an 18 month delay from the first to the second rating with 20 males and 20 females. After such a delay (which must be described as excessive for any reliability check!), I classified 17 out of 20 individuals correctly for each sex and all 6 misclassifications were but one step removed. This was interpreted as indicating reasonable reliability of the method for the purposes intended.

Table 7 shows the numbers of males and females that were placed in each category by the classification scheme. As you can see, about half the people were classified in the Christian category with much smaller proportions in all other categories. As a consequence of the highly divergent numbers of individuals in these classifications, the principal analysis with the Guilford-Zimmerman scale scores was set up as follows. Every person in the smallest group ("Strong" Christian) for each sex was employed and a number equal to that was randomly drawn from each of the other groups so that there were an equal number of individuals in each group. One way analysis of variance was then applied across each Guilford-Zimmerman scale. The results for males are shown in Table 8. Where identical numerical superscripts appear within a line, they point to significant differences between groups as determined by the Newman-Keuls procedure (Winer, 1971). On the Restraint scale, individuals with clear-cut Christian and "Strong" Christian testimonies showed greater inhibition and less impulsivity than did their counterparts without such testimonies. On the Friendliness

scale, on the other hand, an orderly increase in scores was apparent as greater and greater degrees of testimony were in evidence. Here, the "Strong" Christian group was significantly different from both the No Mention and Questionable groups and a fairly striking tendency was apparent for persons who wrote almost entirely of spiritual matters to present themselves as extremely friendly individuals. In fact, they scored at about the 80th percentile on standard norms.

Parallel findings for females are shown in Table 9. Two statistically significant differences appeared here also, but both were at a lesser level of significance. Again, one of these related to the Friendliness scale although there was not a clear-cut progression in scores as was the case for males. On the Thoughtfulness scale, however, the scores did go up in an orderly fashion with more and more signs of introspection accompanying the greater expressions of religious belief.

Certainly the one finding from these analyses which stands out as consistent with those involving Christian and secular students relates to the Friendliness scale. Not only is it true that individuals in specifically Christian populations tend to present themselves as being more good-natured, friendly, easy to get along with, and agreeable, but it is also generally true that the greater the degree of belief expression among Christians, the more this tendency is likely to be evident.

The decision was made to attempt to get beyond the analysis of standard Guilford-Zimmerman scores by developing an empirically based scale of Guilford-Zimmerman items which was related to differing degrees of Christian testimony. In order to do this, each of the 206 males and 329 females whose essays had been rated as No Mention, Questionable, Christian, or "Strong" Christian were given scores of 1, 2, 3 or 4, as appropriate. These scores were then correlated by use of the Pearson correlation coefficient with the responses to each item of the Guilford-Zimmerman ("Yes" = 1; "?" = 2; "No" = 3). In so doing it was recognized that there might well be some attenuation in the resulting correlation coefficients due to the small range of scores, and it was also recognized that the number of subjects employed was extremely marginal considering the fact that 300 items were involved.

A total of 31 items for males and 24 items for females demonstrated a statistically significant relationship with the classification scheme at the .05 level or greater. This alone was a discouraging finding since one would expect at least 15 items to show such relationships upon the basis of chance alone for each sex. The explorative use of other confidence levels did not result in more satisfactory findings, however. Both sexes were then scored on the scales devised and the results of this scoring are presented in Table 10. Although the scales obviously differentiated the groups at extreme levels of statistical significance, such a finding is meaningless unless it cross-validates to new groups. All students entering in 1967 were therefore selected as the cross-validation sample, and a total of 87 males and 149 females were involved. Their essays were scored according to criteria indicated above. Table 11 gives the results of this cross-validation effort. As is obvious, both the male and female scales completely failed to differentiate between the groups when a new sample was employed. Thus, it seems entirely likely that the scales were developed principally upon chance fluctuations in item response.

A number of comments could be made about the possible reasons for this outcome and a few will be offered here. One might first raise the question as to whether or not the essay technique employed in this study is an appropriate way to subdivide Christians. It might be, for example, that essay writing behavior is not an accurate reflection of anything other than essay writing and in particular that it has no relevance to either belief or practice. Observations by both myself and by Mr. Harley argue against this. That is, we both observed that students who seemed to always be talking about the Lord

tended to write essays in the same vein. A more likely reason is that the range of persons used in this study was obviously restricted with respect to Christian belief and practice. It seems improbable, for example, that extremely nominal Christians would even come to a school like Westmont with its behavioral code, compulsory chapel, etc. Thus, there may simply not be enough variation with the students to appreciate any real difference in related variables. Finally, one may also wish to raise methodological questions including the adequacy of the personality inventory, the criteria for essay evaluation, etc. The end result, however, is that of negative findings for the item analysis procedure regardless of the interpretation given.

Conclusions

The studies I have presented to you today should be viewed primarily as pilot efforts for future investigations. This is true not only because of their scope but also because of the limitations inherent in their design. I refer in particular to the failure to eliminate Christians from the secular groups in the first series of studies and to the limitations of the approach and population used in the second group of studies. Other factors, of course, might be mentioned as well.

The Christian college males did appear to be more socially withdrawn than their secular college counterparts but they also saw themselves as more friendly, good natured, and agreeable. These findings held true for females also but in addition they appeared to have less energy to devote to daily life activities along with greater tendencies towards submissiveness, introspectiveness, and reflectiveness. The question arises as to what these findings are to be attributed. One could, of course, interpret various passages of Scripture to be consistent with some of them including the fruits of the Spirit (Galatians 5:22-23) which include meekness, kindness, gentleness, love and self-control. Socially reserved individuals who, nevertheless, maintain aspects of friendliness and approachability could easily be consistent with this description. In addition, Paul's emphasis upon submissiveness, particularly with respect to the role of the female (Ephesians 5:22-24), is certainly consistent with the findings observed here, and such might include reflectiveness, introspectiveness, and restraint ("self-control") as well.

However, one might ask why these Christians are this way. Is it because they are Christians and have different personalities as a consequence? Is it because of the instruction they have received in middle class Sunday schools for many years which has encouraged them to be kind, friendly (or at least to think of themselves as friendly), and a bit withdrawn from the world? Or, are the personality differences between secular and Christian college students primarily due to the bias in sampling that a small, secure, Christian college promotes? Or, is it because a fair proportion of Christians tends to be socially inept, unenergetic, and unable to take on leadership roles, all in the face of seeing themselves as individuals who are friendly and easy to get along with? The research presented here gives no help in terms of answering these very important questions.

Actually, I have probably emphasized the differences found as much as I should. It is not clear that a difference of a point or two on a 30 point scale has any practical significance whatever. In the vast majority of respects, Christian and secular college students are far more alike than they are different, and one should not forget this fact even when examining the

minor but statistically reliable differences. In my opinion, this study provides no support whatever to the notion that Christians have personality structures which are basically different from non-Christians. It may be, of course, that Christians tend to respond slightly differently in certain situations and for whatever reasons. Furthermore, it may be that some of these tendencies could be assessed more specifically and exactly by tailor-made instruments. I am looking forward to Dr. Backus' address this evening which is an effort in this direction. However, with respect to basic personality structure, evidence is lacking for any real difference.

All of this can be related to one's view of the nature of man. Despite the fact that the Bible says "all things have become new" when a person accepts Christ as savior, it seems unlikely that it means "every part of you will be utterly transformed." No one expects a crooked nose to be straightened out at the time of salvation, for example. Yet, the psychological and spiritual aspects of man are much more difficult to untangle and the inclination to assume that one's psychological structure is renovated at the time of salvation is overwhelming for many. The research presented here and that presented by Dr. Mauger earlier today raises serious questions about the validity of this assumption. Unless empirical support is provided for this line of reasoning (not just argumentation), many of us will eventually be forced to make a much clearer differentiation between the psychological and spiritual aspects of the individual. Such a position does not deny interactions between all parts of the person but it does recognize an essential difference between them. Furthermore, maintaining that such a difference exists will have the profoundest implications for an integration of psychology with Christianity.

TABLE I

COMPARISONS OF GUILFORD'S NORMS FOR MALES WITH THE
SCORES OF WESTMONT MALES ON THE GZTS SCALES

GZTS SCALE	GUILFORD'S NORMS (N=523)		WESTMONT MALES (N=1,164)		$\pm$
	MEAN	SD	MEAN	SD	
GENERAL ACTIVITY	17.0	5.64	16.29	5.70	2.37
RESTRAINT	16.9	4.94	16.60	4.78	1.18
ASCENDANCE	15.9	5.84	15.16	5.28	2.58*
SOCIAL INTEREST	18.2	6.97	17.18	6.41	2.94*
EMOTIONAL STABILITY	16.9	6.15	17.72	5.62	-2.69*
OBJECTIVITY	17.9	4.98	17.08	5.33	2.98*
FRIENDLINESS	13.8	5.07	16.09	5.49	-8.11**
THOUGHTFULNESS	18.4	5.11	18.73	4.96	-1.25
PERSONAL RELATIONS	16.7	5.05	15.03	5.12	6.22**
MASCULINITY-FEMININITY	19.9	3.97	19.32	4.08	2.72*

* $p \leq .01$ ($\pm \geq 2.58$)

** $p \leq .0001$ ($\pm \geq 3.90$)

TABLE 2

COMPARISONS OF GUILFORD'S NORMS FOR FEMALES WITH
THE SCORES OF WESTMONT FEMALES ON THE GZTS SCALES

GZTS SCALE	GUILFORD'S NORMS (N=389)		WESTMONT FEMALES (N=1,558)		$\pm$
	MEAN	SD	MEAN	SD	
GENERAL ACTIVITY	17.0	5.20	16.13	5.66	2.76*
RESTRAINT	15.8	4.73	17.19	4.80	-5.12**
ASCENDANCE	13.7	5.52	12.73	5.29	3.21*
SOCIAL INTEREST	19.6	6.33	18.03	6.29	4.40**
EMOTIONAL STABILITY	15.5	5.76	17.02	5.65	-4.73**
OBJECTIVITY	16.8	5.37	16.28	4.91	1.83
FRIENDLINESS	15.7	4.79	18.29	5.03	-9.17**
THOUGHTFULNESS	18.1	4.70	18.85	4.59	-2.87*
PERSONAL RELATIONS	17.6	4.88	16.15	5.17	5.00**
FEMININITY-MASCULINITY	10.8	4.12	10.40	4.22	1.68

* $p \leq .01$ ($\pm \geq 2.58$)

*** $p \leq .0001$ ($\pm \geq 3.90$)

TABLE 3
COMPARISON OF WESTMONT AND PURDUE MALES ON THE
GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY

GZTS SCALE	PURDUE GROUP (N=124)		WESTMONT GROUP (N=159)		$\pm$
	MEAN	SD	MEAN	SD	
GENERAL ACTIVITY	17.19	5.15	17.41	5.58	-.33
RESTRAINT	16.86	5.18	16.95	4.70	-.15
ASCENDANCE	16.65	5.66	15.18	4.86	2.35
SOCIAL INTEREST	20.81	5.57	18.34	6.48	3.37*
EMOTIONAL STABILITY	18.13	5.72	18.74	5.35	-.93
OBJECTIVITY	17.81	6.02	18.13	4.78	-.50
FRIENDLINESS	14.12	5.69	16.46	4.79	-3.74*
THOUGHTFULNESS	18.59	5.07	18.87	4.98	-.46
PERSONAL RELATIONS	15.77	5.44	16.65	4.67	-1.46
MASCULINITY-FEMININITY	17.27	4.74	19.43	3.91	-4.19**

* $p \leq .001$ ($\pm \geq 3.33$)

** $p \leq .0001$ ($\pm \geq 3.95$)

TABLE 4

COMPARISON OF WESTMONT AND PURDUE FEMALES ON
THE GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY

GZTS	PURDUE GROUP (N=388)		WESTMONT GROUP (N=578)		$\pm$
	MEAN	SD	MEAN	SD	
GENERAL ACTIVITY	17.36	5.10	16.43	5.65	2.60*
RESTRAINT	17.43	4.94	17.23	4.82	.64
ASCENDANCE	17.43	5.42	12.77	5.40	5.45**
SOCIAL INTEREST	20.55	6.31	18.22	6.36	5.61**
EMOTIONAL STABILITY	16.61	5.84	17.39	5.63	-2.06
OBJECTIVITY	16.68	5.17	16.59	4.91	.25
FRIENDLINESS	16.89	5.18	18.45	5.21	-4.58**
THOUGHTFULNESS	19.85	4.39	18.64	4.80	3.98**
PERSONAL RELATIONS	17.14	6.16	16.69	5.21	1.23
FEMININITY-MASCULINITY	11.79	4.14	10.22	4.22	5.72**

* $p \leq .01$ ($\pm \geq 2.58$)

** $p \leq .0001$ ($\pm \geq 3.91$)

TABLE 5

COMPARISON OF PERCENTILE POINTS IN TERMS OF RAW SCORE DIFFERENCES
BETWEEN 500 WESTMONT MALES AND THE TEST NORMS FOR MALES

GZTS SCALE	MEASURES OF DIFFERENCE (RAW SCORES)			STANDARD ERROR
	MODAL DIFFERENCE	MAXIMUM DIFFERENCE	AVERAGE DIFFERENCE	
GENERAL ACTIVITY	0	2	.69	2.5
RESTRAINT	1	1	.62	2.2
ASCENDANCE	1	2	1.23	2.5
SOCIAL INTEREST	2	2	1.46	2.4
EMOTIONAL STABILITY	1	2	.69	2.4
OBJECTIVITY	1	2	.85	2.6
FRIENDLINESS	1	3	1.69	2.5
THOUGHTFULNESS	1	2	1.00	2.2
PERSONAL RELATIONS	1	3	1.92	2.2
MASCULINITY-FEMININITY	1	2	1.00	2.3

TABLE 6

COMPARISON OF PERCENTILE POINTS IN TERMS OF RAW SCORE DIFFERENCES
BETWEEN 500 WESTMONT FEMALES AND THE TEST NORMS FOR FEMALES

GZTS SCALE	MEASURES OF DIFFERENCE (RAW SCORES)			STANDARD ERROR
	MODAL DIFFERENCE	MAXIMUM DIFFERENCE	AVERAGE DIFFERENCE	
GENERAL ACTIVITY	2	3	1.69	2.5
RESTRAINT	1.5	2	1.15	2.2
ASCENDANCE	2	4	2.38	2.5
SOCIAL INTEREST	1	2	1.38	2.4
EMOTIONAL STABILITY	1	2	.77	2.4
OBJECTIVITY	1.5	2	1.38	2.6
FRIENDLINESS	3	4	2.15	2.5
THOUGHTFULNESS	1	4	2.15	2.2
PERSONAL RELATIONS	1	3	.92	2.2
MASCULINITY-FEMININITY	1	2	1.00	2.3

TABLE 7

SUMMARY OF CLASSIFICATION OF PRINCIPAL GROUP, ESSAY STUDY

CLASSIFICATION	MALES		FEMALES		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
NO MENTION	47	22.8%	62	18.8%	109	20.4%
QUESTIONABLE	35	17.0%	53	16.1%	88	16.5%
CHRISTIAN	97	47.1%	175	53.2%	272	50.8%
"STRONG" CHRISTIAN	27	13.1%	39	11.9%	66	12.3%
TOTALS	206	100.0%	329	100.0%	535	100.0%

TABLE 8

GZTS MEANS (AND STANDARD DEVIATIONS) OF COLLEGE MALES GROUPED
ACCORDING TO DEGREE OF EXPRESSION OF CHRISTIAN BELIEF

GZTS SCALE	GROUPS				F
	NO MENTION	QUESTIONABLE	CHRISTIAN	"STRONG" CHR.	
GENERAL ACTIVITY	15.67 (5.41)	14.74 (4.62)	16.67 (4.76)	13.59 (5.02)	1.89
RESTRAINT	15.59 ¹ (4.42)	14.63 ^{2,3} (5.21)	18.88 ^{1,3} (4.34)	17.81 ² (4.39)	4.90*
ASCENDANCE	15.30 (5.52)	14.48 (4.89)	15.56 (4.40)	14.07 (5.64)	.49
SOCIAL INTEREST	16.59 (6.46)	14.18 (6.23)	17.18 (5.83)	15.44 (6.65)	1.20
EMOTIONAL STABILITY	15.11 (6.55)	16.48 (5.92)	17.67 (5.53)	17.04 (5.37)	.93
OBJECTIVITY	15.41 (6.90)	15.56 (4.77)	17.92 (4.23)	16.56 (4.59)	1.33
FRIENDLINESS	14.89 ¹ (5.59)	14.96 ² (5.47)	17.96 (5.46)	19.19 ^{1,2} (4.49)	4.56*
THOUGHTFULNESS	17.59 (5.05)	18.89 (4.16)	20.04 (4.48)	19.33 (4.52)	1.37
PERSONAL RELATIONS	12.52 (5.39)	12.78 (3.90)	13.92 (5.17)	13.52 (5.85)	.37
MASCULINITY-FEMININITY	18.33 (4.97)	19.26 (4.70)	19.07 (4.30)	19.44 (3.65)	.32

NOTE: IDENTICAL SINGLE NUMERICAL SUPERSSCRIPTS WITHIN EACH TEST VARIABLE INDICATE SIGNIFICANT DIFFERENCES OF $p \leq .05$; IF UNDERLINED, OF $p \leq .01$.

* $p \leq .01$ ($F \geq 3.98$).

TABLE 9

GZTS MEANS (AND STANDARD DEVIATIONS) OF COLLEGE FEMALES GROUPED
ACCORDING TO DEGREE OF EXPRESSION OF CHRISTIAN BELIEF

GZTS SCALE	GROUPS				F
	NO MENTION	QUESTIONABLE	CHRISTIAN	'STRONG' CHR.	
GENERAL ACTIVITY	16.36 (6.32)	16.54 (5.48)	15.67 (5.48)	16.36 (4.07)	.20
RESTRAINT	16.74 (5.19)	16.54 (5.03)	17.72 (4.17)	18.15 (4.99)	.99
ASCENDANCE	13.46 (5.44)	11.82 (5.42)	12.92 (4.71)	12.62 (5.16)	.68
SOCIAL INTEREST	18.46 (6.47)	16.67 (7.03)	18.67 (6.02)	17.95 (5.88)	.78
EMOTIONAL STABILITY	17.23 (5.97)	16.41 (5.10)	16.36 (6.62)	17.44 (4.68)	.38
OBJECTIVITY	15.92 (4.94)	16.23 (4.56)	15.72 (5.28)	16.03 (4.60)	.08
FRIENDLINESS	16.87 ^{1,2} (5.01)	19.59 ¹ (3.61)	18.67 (4.93)	19.26 ² (3.81)	2.97*
THOUGHTFULNESS	17.38 ^{1,2} (4.92)	18.10 (4.08)	19.92 ¹ (4.00)	20.02 ² (3.63)	3.89*
PERSONAL RELATIONS	15.90 (5.07)	15.56 (4.66)	14.59 (5.17)	14.36 (5.41)	.84
FEMININITY-MASCULINITY	11.38 (4.90)	9.74 (4.09)	11.69 (4.21)	10.54 (4.74)	1.49

* $p \leq .05$ ($F \geq 2.67$)

NOTE: IDENTICAL SINGLE NUMERICAL SUPERSSCRIPTS WITHIN EACH TEST VARIABLE
INDICATE SIGNIFICANT DIFFERENCES OF $p \leq .05$.

TABLE 10

MEANS (AND STANDARD DEVIATIONS) FROM THE SPECIAL SCALE DERIVED FROM ITEM ANALYSIS
PROCEDURES USED IN THE ESSAY STUDY FOR THE PRINCIPAL GROUP

GROUP	NO MENTION	QUESTIONABLE	CHRISTIAN	"STRONG" CHRISTIAN	<u>E</u>
MALES (<u>N</u> =206)	14.94 ¹ (3.30)	16.60 ¹ (3.25)	19.90 ¹ (3.74)	22.11 ¹ (1.87)	37.04*
FEMALES (<u>N</u> =329)	13.05 ¹ (2.82)	13.64 ² (2.95)	15.36 ^{1,2} (2.62)	17.38 ^{1,2} (2.08)	27.15*

* $p \leq .001$.

NOTE: IDENTICAL SINGLE NUMERICAL SUPERSCRIPTS WITHIN A LINE INDICATE STATISTICALLY
SIGNIFICANT DIFFERENCES BETWEEN GROUPS.

TABLE II

MEANS (AND STANDARD DEVIATIONS) FROM THE SPECIAL SCALE DERIVED FROM ITEM
ANALYSIS PROCEDURES USED IN THE ESSAY STUDY FOR THE CROSSVALIDATION GROUP

GROUP	NO MENTION	QUESTIONABLE	CHRISTIAN	"STRONG" CHRISTIAN	<u>F</u>
MALES (N=87)	17.94 (3.51)	14.33 (3.33)	18.28 (3.74)	18.54 (3.59)	2.20
FEMALES (N=147)	13.62 (2.53)	13.88 (3.26)	13.83 (2.82)	14.46 (3.32)	.35

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