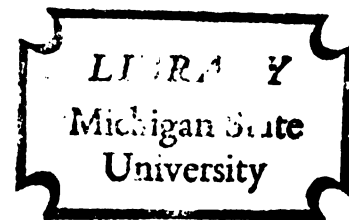


CRITICAL THINKING, ATTITUDES
AND VALUES ASSOCIATED WITH
FRATERNITY MEMBERSHIP

Thesis for the Degree of Ph. D.
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CHARLES G. EBERLY
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This is to certify that the

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Critical Thinking, Attitudes and Values
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ABSTRACT

CRITICAL THINKING, ATTITUDES AND VALUES ASSOCIATED WITH FRATERNITY MEMBERSHIP

By

Charles G. Eberly

This study examined differences in critical thinking, attitudes and values among four groups of Michigan State University male students defined by degree of association with social fraternities. The groups (N = 46 each) were (1) Greeks: men who joined and remained in fraternities, (2) Dropouts: men who joined and later dropped out of fraternities, (3) Pledgeouts: men who pledged but never formally joined fraternities, and (4) Stayouts: men who never formally associated with fraternities.

The entire population of 477 students with complete records were separated into four classifications. All groups except one, where all subjects in the classification were used, were randomly selected from the classifications. Subjects were students who entered as freshmen in fall, 1958, and were in attendance during each fall, winter, and spring term through spring, 1962.

Groups were compared at three points in time: (1) at the beginning of the freshman year, (2) at the end of the freshman year, and (3) at the end of the senior year. Instruments used in the study were The College Qualification Test, The MSU Reading Test, A Test of

Critical Thinking, Form G, The Inventory of Beliefs, Rokeach's Dogmatism Scale, The Differential Values Inventory, and The Senior-Year Experience Inventory. Cognitive instruments were administered only at the beginning of the freshman year. Affective instruments were administered at all three points in time. The Senior-Year Experience Inventory was administered at the end of the senior year.

A test score profile analysis technique using analysis of variance as the statistical tool was the principal means for determining significance of difference in test score profile and level among groups. Kendall's Coefficient of Concordance and chi-square tests were used where analysis of variance was not applicable. In all computations the .05 level of confidence was used to determine statistical significance.

At entrance to college there was no simple statistical difference in test score profile or level among the groups on scores from the six published instruments. However, considering only the three instruments used in the longitudinal study, the Inventory of Beliefs, A Test of Critical Thinking, and The Differential Values Inventory, Greeks were statistically different in test score level but not profile from Stayouts at all three times. The additional data considered in the first analysis may have resulted in a Type II statistical error. Greeks were lower on critical thinking scores and higher on measures of stereotypy and other-directedness than Stayouts. These results appear to demonstrate yet another instance where input determines output. The variability of the groups around test score means was similar for all three points in time. For all groups, senior scores on the Dogmatism Scale were more

homogeneous than freshman scores. Specific aspects of University experience reinforcing or modifying original attitudes and beliefs could generally be placed in two categories: (1) familiar or specialized activities could be called reinforcing, and (2) unfamiliar or general education activities were generally modifying. All groups except Stayouts, who chose the vocational type, were most likely to choose the non-conformist type of the Clark-Trow student typologies. However, of those students choosing the collegiate typology, two-thirds were Greeks. The attractiveness of the non-conformist typological description used in this research may have influenced the direction of student responses.

CRITICAL THINKING, ATTITUDES AND VALUES
ASSOCIATED WITH FRATERNITY MEMBERSHIP

By

Charles G. Eberly

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CHAPTER 1 INTRODUCTION

The first sentence of Baird's Manual of American College Fraternities states: "The American college fraternity is an American institution and the chapter in the form it ideally exists on the college campus is a miniature of the larger American democracy" (Robson, 1963). Since its founding in 1776, the American college fraternity system has continued to assert that it is a character-building institution supportive of the ideals of the American democracy and the educational objectives of higher education. Authors in fraternity publications never tire of pointing with pride to the large numbers of fraternity alumni serving the country in high governmental, business and educational offices. Such men, their accomplishments and their personal endorsements, are displayed as justification by fraternity leaders to demonstrate the personality-rounding developmental opportunities to be found in the college fraternity experience. The following statements by Mike Mansfield, Majority Leader of the United States Senate, and Mark O. Hatfield, Senator from Oregon, are examples (NIC, 1959):

When men live and work together in a fraternal association in college they enhance each other's growth and each other's capacity to contribute to the larger fraternities of community, state, nation and world.

Fraternity life inspires intellectual development, spiritual and ethical points of view. This kind of brotherhood molds and gentles its young members and challenges them through self-government, courtesy, group living and character.

Such statements implicitly accept the hypothesis, not proved, that men who join college fraternities develop in societally sanctioned ways as a result of their fraternity experience which remain undeveloped or are at best poorly developed in men who do not join fraternities. It is an accepted fact that students who join fraternities are already different from other students via processes of fraternity group selection and individual self-selection. Since those who join may be differentially characterized, the question arises whether the "personality-rounding" development claimed by fraternity advocates might be more a result of the prior development of the men themselves than a product of their experiences.

It would be interesting and valuable to analyze data which might shed light on aspects of personality development--habits of thought, attitudes, values and beliefs--of a group of fraternity men as they have progressed through college. This information could then be compared and contrasted with similar data from a group of non-fraternity classmates. Such a comparison might suggest areas in which the fraternity experience may indeed differentially affect student developmental growth.

Spheres of Influence

The significance of this problem to the greater society is clear. It would appear that fraternity members are disproportionately represented, according to their number in the general population, in organizations which may critically affect the lives of all citizens. An obvious example is the individuals who comprise the membership of the United States Congress. Over 30 per cent of Representatives and 65 per cent of Senators in the 89th, 90th, and 91st Congresses were fraternity members, but little more than one per cent of the American population are college fraternity or sorority members (Lurding, 1965; Howe, 1967; Howe, 1969).

Research data available on the long term stability of attitudes and values suggest that they are maintained much as they were upon leaving college (Feldman and Newcomb, 1969, pp. 313-317). It would seem important to know whether attitudes, values and beliefs may be differentially affected by the fraternity experience, since the men who carry those attitudes, values and beliefs apparently are likely to become participants in principal decision-making circles of our society.

A case in point is our federal government. In 1964, the 89th Congress passed the landmark Civil Rights Act. When a controversy regarding discrimination in his Stanford University chapter of Sigma Chi arose, Senator Lee Metcalf, Montana, requested the opinion of Commissioner of Education Francis Keppel about distribution of federal funds to institutions harboring fraternities practicing de facto discrimination (Blackwell, 1966, pp. 53-54). Keppel's opinion stated the institution was responsible for assuring that fraternities did not discriminate. His opinion implied that noncomplying institutions might lose federal support.

While a complex of events undoubtedly was involved, the 1965 Higher Education Act contained the following amendment originally introduced by Representative Joe Waggoner, Kappa Sigma, Louisiana (Blackwell, 1966, p. 54):

Nothing in the act or any other act shall be construed to authorize any department...or employee of the United States to exercise direction, supervision or control over...the membership practices or internal operations of any fraternal organization, fraternity, sorority, private club, or religious organization of any institution of higher education whose facilities are not owned by the institution of higher education and whose activities are financed by funds derived from private sources.

Such an amendment, now the "law of the land," has implications far beyond the limited sphere of college fraternities and sororities. It is interesting

to note that the amendment also covers such organizations as the Weathermen of Students for a Democratic Society.

Regardless of the potential later influence of fraternity members in American society, fraternities are a prominent campus peer group organization affecting the thrust of student life (Clark and Trow, 1966, pp. 20-38). The fraternity should be understood simply because it is a mediating force between a student and his formal education. Few studies have surveyed personality-associated attitudes, values and beliefs of fraternity members, let alone considered changes in such attitudes, values and beliefs which may be related to fraternity membership.

Statement of the Problem

The problem investigated in this research was the relationship between fraternity membership and changes in aspects of "personality"--habits of thought, attitudes, values and beliefs--during four years of undergraduate study at Michigan State University. It was the purpose of this study to determine if there were differential changes in the pattern of stereotypy, beliefs, attitudes and values between fraternity and non-fraternity students.

Data were available from the Office of Evaluation Services which enabled a study of developmental change associated with fraternity membership to be performed. Data collected by Lehmann and Dressel for their reports, Critical Thinking, Attitudes and Values In Higher Education (1962), and Changes In Critical Thinking, Attitudes and Values Associated With College Attendance (1963), have never been analyzed according to fraternity-non-fraternity membership. The Lehmann-Dressel data presented a unique opportunity to study the organizational relationship of fraternity

membership on factors related to personality development.

List of Characteristics Investigated

Characteristics investigated in this study included the following: critical thinking, stereotypy, dogmatism, value orientation, academic aptitude, educational orientation, and self-perceived changes in educational typology, interpersonal, social, political, economic and religious attitudes and values. In addition, selected social, economic, political and religious attitudes at the time of exit from college were surveyed.

With the exception of an inventory constructed for the study, data were collected by means of published instruments which will be described in detail in Chapter 3. Pre-test data were collected using:

1. The College Qualification Test, (The Psychological Corporation).
2. The MSU Reading Test, (Michigan State University).

Pre-test and post-test data were collected using:

3. The Test of Critical Thinking, Form G, (The American Council on Education).
4. The Inventory of Beliefs, Form I, (The American Council on Education).
5. Rokeach's Dogmatism Scale, Form E, (Milton Rokeach, Michigan State University).
6. The Differential Values Inventory, (Richard Prince, The University of Chicago).

Post-test data only were collected using:

7. The Senior-Year Experience Inventory (Michigan State University).

Hypotheses

As the review of literature in Chapter 2 indicates, there are relatively few longitudinal studies comparing fraternity and non-fraternity students on changes in personality variables. Even those studies available do not provide consistent evidence about change in one direction on dimensions of personality.

Since the hypotheses stated below were not based on any particular personality theory which would suggest directionality of results, and existing research is contradictory or ambiguous, the hypotheses were stated in the classical, nondirectional null form. Specifically, this study tested the following hypotheses:

1. Upon initial enrollment in college, there is no difference on selected cognitive and affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge and never formally join fraternities, and never formally associate with fraternities.
2. One year after initial enrollment in college, there is no difference on selected affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally join fraternities, and never formally associate with fraternities.
3. One year after initial enrollment in college, there is no difference in degree and direction of change over time on selected affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities.
4. Four years after initial enrollment in college, there is no difference in degree and direction of change over time on selected affective variables among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.
5. Four years after initial enrollment in college, there is no difference on selected affective variables among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.
6. There is no difference in the dispersion of test scores among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities (1) upon initial entrance in college, (2) one year after initial enrollment

in college, and (3) four years after initial enrollment in college.

7. There is no difference in the dispersion of test scores over time within groups (1) one year after initial enrollment in college, and (2) four years after initial enrollment in college.
8. Four years after initial enrollment in college, there is no difference in degree and direction of self-reported change, or in attitudes and values among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.
9. Four years after initial enrollment in college, there is no difference in the dispersion of self-reported change, or in dispersion of attitudes and values, among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.

Limitations of the Study

The present study had many of the limitations of longitudinal studies dealing with measured change over time. While it is important to consider these limitations in drawing inferences from the findings, the lack of research in the area and the availability of sound data from which such a longitudinal study could be formulated would appear to be enough to overcome the reservations discussed below.

The first limitation concerned the sample of responses available for analysis. The group size ($N = 46/\text{group}$) was dictated by the total number of students meeting the criteria for inclusion in one of the groups under study. Furthermore, subjects were available only from a sample of students who had completed four years of undergraduate education at Michigan State University and who had left a complete data record behind them. Data were not available for other graduates or for students who

dropped out of school sometime during the four years of the original study, 1958-1962. However, Lehmann and Dressel stated that original fall, 1958, test scores of those students completing their study were not significantly different from original test scores of students who, in effect, dropped out of their study. They draw the conclusion that their results are thus generalizable to the entire original sample of students entering Michigan State University in fall, 1958 (Lehmann and Dressel, 1963, pp. 37-38). Since subjects for the present study were randomly drawn from the males comprising Lehmann and Dressel's data (except for the limiting group), it may be reasonable to justify this study, too, as generalizable to the entire 1958 entering class at Michigan State University. However, it was recognized that while this assumption may be tenable for both studies, knowing that original test scores for respondents and non-respondents are not significantly different does not imply that if post-test scores were available for non-respondents they would not be differential from post-test scores of respondents. This would seem to suggest that at best the results of this study are generalizable to a single Michigan State University class group who attended the University during the early part of this decade. At worst the results are generalizable to a group of students who graduated from the University during a given time period, and who left a complete data record behind them.

A second limitation has been alluded to above. Conclusions drawn from data collected from 1958 to 1962 may have little or no relation to the present-day situation. However, there is strong reason to assert that in view of the rapid change of our campus and society, periodic studies of campus groups are warranted in order to ascertain where changes have

occured (Lozoff, 1968, Ch. 7).

A third limitation has to do with the size of the groups studied. Differences across the fraternity and non-fraternity groups, if any, may be discussed, but the more important differences may indeed be within the particular types of groups in which a student has his associations. It was recognized that mean differences across fraternities may mask unique differences within individual chapters.

The qualitative categories differentiating the various groups were a fourth limitation. It was not known how much relative exposure in actual time spent any of the groups had with fraternity experiences. It was only assumed that some had more than others based on students' self-reports and available data.

A fifth limitation to be considered was the measures of personality used in the study. These measures were used to describe such personality traits as stereotypy, dogmatism, values and beliefs. One needs to know if the instruments were sufficiently valid, reliable and stable for the sample at hand. Furthermore, was there indication that the instruments measured the same phenomena at one time as at another? Since such instruments asked each respondent to indicate his opinions or feelings, was the respondent honest when he answered the items? Finally, for extreme scorers, was the change registered from one time to another a "true" change, or was much of it a result of the now well known regression effect? Some of these questions are considered in Chapter III. For others there is no way of knowing the "true" answer, and one may only resort to the argument that they are limitations common to many studies of the type carried out here.

Importance of the Study

The importance of this study lies in its consideration of the relationship of fraternity membership to certain educationally desirable outcomes, i.e., openness to change, flexibility, and critical thinking ability. More needs to be known about the impacts of environments and associations to which students let themselves be exposed. If peer group influence is a significant factor in student development, it is important to know the relationship that a historically powerful and visibly prominent peer group--the college fraternity--has on student development. Knowledge of such relationships can potentially assist educators to make advantageous use of peer groups in directions congruent with educational objectives.

Finally, while the "future of fraternities" has apparently always been "in doubt" according to many critics and some proponents, today on large multiversity campuses like Michigan State University, the question of their immediate future may be far more pertinent than it has been in previous years. If social fraternities do have an observable impact related to desired educational outcomes, information about that impact and its direction should be available to those agencies of the University responsible for student development. This study, viewed in perspective with previous fraternity studies on this campus and with studies now in progress on present undergraduate students, can help provide such information for fraternities at Michigan State University.

SUMMARY

The purpose of this study was to describe differences, if any, among fraternity and non-fraternity groups on selected psychological variables and attributes of personality at the beginning, at the end of one year, and at the end of four years of undergraduate study at Michigan State University.

CHAPTER 2 RELATED RESEARCH

This study dealt with (1) the college social fraternity and (2) its relationship to change on selected personality variables after four years of undergraduate study.

As Feldman and Newcomb stated in their excellent review, The Impact of College On Students (1969, p. 222) there are relatively few longitudinal studies treating the interrelationship of students' group or residential arrangements and change in personality dimensions. For the purpose of this study an examination of available literature was required to determine the impact of the college social fraternity and the influence of residential or group association on individual personality development in college.

Research on the College Fraternity

Fraternity research has focused primarily on academic potential and achievement, and less often on personal and social attributes of fraternity versus non-fraternity students. Most research has been of a cross-sectional or survey nature done at one point in time. In his review of such literature, Eberly (1965, pp. 38-41), reported that sufficient work had been completed in order to describe "typical" fraternity members as pledges and members as coming from a wealthy, urban, Protestant, Republican background and with an anti-intellectual, social orientation toward higher education. Surveys reported since Eberly's review lend some

support to his description. At the University of Vermont in 1964 (p. 31) fraternity members were more likely to be urban and wealthy, but they also had slightly higher grade averages and more often planned to attend graduate school. Higher grade averages, however, may be related to academic requirements for pledging fraternities. At Florida State University in 1965 (Widmar, p. 315) males planning to join fraternities did not differ from other males in family characteristics, but more often planned to participate in extracurricular activities and to attend graduate school. At the University of Wisconsin there were no differences found among the 1964 Freshman men who rushed and pledged, rushed and did not pledge, or did not rush on scales of conservatism, political liberalism, or authoritarianism. However, freshmen who pledged did appear less religious than non-pledges (Bohrnstedt, 1969). In this study the two sociological variables that correlated most highly with whether a student pledged a fraternity were whether he was Jewish and wealthy (Bohrnstedt, 1966, pp. 144-145).

Apparently differences between fraternity and non-fraternity students are stable enough that a paper-and-pencil instrument can differentiate between them successfully. At least at the University of North Dakota, North Dakota State University and Kansas State University, differences in selected attitudes between those who joined fraternities and those who did not were such that a 36-item personality inventory type scale differentiated fraternity from non-fraternity males with "an 84 per cent correct classification rate..." using the discriminate analysis technique (Stone, Skurdal, and Skeen, 1968).

Investigations of Impact

Surveys may point to initial differences in students who join fraternities, but they can only allude indirectly or not at all to the impact of fraternities themselves. Longitudinal designs are far better suited to search for such effects, but there are few longitudinal studies which treat developmental change in the same group of students (Feldman and Newcomb, 1969, p. 222). Some effects on personality-related variables the fraternity may have had on the individual as he progressed through college have been investigated.

One means of inferring impact or change from a survey is to administer it cross-sectionally to groups at different stages of development. The underlying assumption is that all groups, regardless of when they started, began at the same point and are making the same relative changes on the attribute(s) under investigation. Such an assumption is often without support.

Some cross-sectional research reviewed by Newcomb and Feldman (1969, p. 211) indicated an increase in initial differences between fraternity and non-fraternity students with year in school toward greater political and economic conservatism among "greeks" than independents. However, not all studies showed initial difference or increasing change among fraternity and non-fraternity groups, and a few studies showed convergence. Variables measured by these were "authoritarianism" (Plant, 1966, no difference), "ethnocentrism" (Lozoff, 1967, no change), and "libertarianism" (Selvin and Hagstrom, 1960, convergence).

A recent study using the cross-sectional approach ended with the statement "...that a college student develops an enhanced self-concept and greater self-acceptance and reaches toward higher goals during his

affiliation with a fraternity group on the campus." Hountras and Pederson administered the Bills Index of Adjustment and Values to four groups of 24 randomly selected students: (1) fraternity freshmen pledges, (2) residence hall freshmen, (3) fraternity seniors, and (4) residence hall seniors. Using two-way analysis of variance and Dunn's $\bar{c}$ test where significant $\bar{F}$ ratios were found, they reported no difference between the freshmen groups, and no difference between residence hall freshmen and seniors on the instrument's three scales: Self-concept, Acceptance of Self, and Ideal Self-concept. Fraternity seniors did have a significantly higher Self-concept and Ideal Self-Concept than fraternity freshmen, and they were also significantly higher on all three scales than residence hall seniors. However, these results may have been "programmed" into the study by the very fact of selecting senior residence hall students. At Stanford, Lozoff (1968, pp. 302-310) reported that four-year residence hall seniors indicated least change in themselves, were least socially confident and needed help "...in gaining respect for themselves as persons," in comparison to fraternity, off-campus, and "eating club" students. She also reported that many students left the dormitories as soon as possible (1968, p. 258). If Lozoff's results may also be applied to students at the University of North Dakota, self-selection of students out of residence halls would leave, at the end of four years, only those comfortable with what can be called "...the most dependent and institutionalized form of undergraduate living..." (Lozoff, 1968, p. 298). Such a group surely does not represent all students not members of fraternities. This clearly limits the global statement with which Hountras and Pederson end their report. A more appropriate statement would be that after four years, in comparison to student development in residence halls at the University of North Dakota,

student development in fraternities appears to promote an enhanced self-concept and greater self-acceptance.

Two cross-sectional studies have employed "The Decalog of Fraternity Policy," an official statement of fraternity objectives underwritten by all member fraternities of the National Interfraternity Conference, as a criterion against which to assess the success (impact) of the college fraternity. At The Pennsylvania State University, Wise (1963, p. 11) compared the responses of 75 sophomore and senior fraternity members, and 75 sophomore and senior residence hall students never formally associated with fraternities, in six areas. He hypothesized that if fraternities achieved their stated goals, seniors should score higher than sophomores on measures of social usage, knowledge of cultural material, social behavior, loyalty to the University, scholarship, and civic responsibility. He concluded that fraternities had a positive influence on University loyalty, a negative influence on scholarship, and no differentiating influence on attitudes about conduct situations, knowledge of cultural material, and civic responsibility (Wise, 1963, pp. 119-125). Since Wise computed over 100 t-tests to determine significant differences between pairs of means, it was not possible to tell which differences were really significant and which were not. On the average, five of his "significant differences" were significant by chance alone.

At Michigan State University, Henderson (1958) asked 332 fraternity-affiliated graduates of three classes, 1940-41, 1950-51, and 1955-56, to report on a locally developed 86-item questionnaire what they perceived as the impacts of their college fraternity experience. Responses were analyzed by year of graduation and degree of involvement in chapter operation ("major office holders, minor office holders, and non-office

holders") using Chi Square test of independence (Henderson, 1958, pp. 38-41). General areas based on Decalog statements Henderson selected to assess were (1) personal health practices, (2) cultural interests, (3) religious activities, (4) citizenship participation, and (5) loyalty to the University. Henderson's data suggested fraternity alumni did maintain a regular recreational and personal health program and they were slightly more loyal to the University than to their fraternity as measured by such items as amount of financial support and attendance at alumni functions. There appeared to be no relationship between Decalog goals and alumni behavior in the areas of cultural interests, religious participation (other than Church attendance), and little manifestation of civic responsibilities other than voting in elections (Henderson, 1958, pp. 123-126). Answers of only five alumni indicated they knew the content of "The Decalog of Fraternity Policy."

Conclusions inferring impact of fraternities from this study would be hazardous at best since there was no comparison group of non-fraternity graduates, and well over 100 individual Chi Square statistics were computed. It was again not possible to tell which data were significant since on the average five of Henderson's comparisons were significant by chance alone.

Lehmann and Dressel's four-year study of student development at Michigan State University (1962, pp. 189-218) used a cross-sectional approach to some aspects of institutional impact. At the end of the senior year all students were asked to indicate the relative impact of a set of courses, events, activities, and personal experiences considered a part of college life. At the end of the freshman, sophomore and junior years, random samples of students from the study population were asked similar

questions. Freshman students (N = 253) ranked fraternities 11.5 out of 20 experiences; sophomores (N = 197) ranked fraternities third, juniors (N = 241) fifth, and seniors (N = 590) fourth out of a list of fifty possible experiences (Lehmann and Dressel, 1962, pp. 190, 205, 215, 221). Lehmann and Dressel did not say how many students in their population joined fraternities. Since the samples were random, the best estimate is that about 20 per cent were affiliated members (Lehmann and Dressel, 1962, pp. 200-201). If it is reasonable to think that fraternities would not have much of an impact on students not a part of them, two alternative explanations for the above might be that (1) fraternity members almost always reported their membership had a major impact on them, or (2) the list of 50 courses, events and experiences were such that relatively few had any consequence as students viewed their development. Fraternity impact, as inferred from the above data, was apparently a subtle phenomenon. Lehmann and Dressel (1962, p. 105) state that among both their sophomore and junior year interview samples:

...there was no perceptible evidence that fraternity or sorority membership had any impact upon student personality except that it might have resulted in those students conforming to a greater degree than unaffiliated students.....either the students interviewed were not influenced in their behavior by this type of association, or they were unaware of any change which could be attributed to these experiences, or they did not wish to admit that any changes which came about in them might have been the result of their membership in these organizations.

Regardless of defects in design and analysis of data, these studies may mask effects due not to the system, but to individual chapters within the system of campus fraternities. At the University of Kansas in 1955, Butler (1959) employed content analysis of 46 in-depth interviews with students from three high-achieving and three low-achieving fraternities

to look for differences in their level of academic achievement. He concluded there were differences in attitude and behavior which he hypothesized may have some salience in explaining differences in achievement. Essentially, his hypotheses centered in a positive relationship between high achievement and an atmosphere where active member behavior is congruent with expectations held for pledges.

Attempts by Elton and Rose (1968) at the University of Kentucky in 1965 and again in 1966 to differentiate between "...the pledges of one fraternity from the pledges of another fraternity, or the actives of one fraternity from the actives of another fraternity, or the pledges from the actives in any individual fraternity," were unsuccessful. Using multiple discriminate analysis on five scales of the Omnibus Personality Inventory, (1) Tolerance and Autonomy, (2) Suppression-Repression, (3) Masculine Role, (4) Scholarly Orientation, and (5) Social Introversion, they twice failed to distinguish between and within pledges and members of eight fraternities. Since only the eight largest of 16 campus fraternities were included, this study may suffer from attenuation in the range of fraternities studied. It is possible differences may have been found if the entire fraternity system had been sampled. On the other hand, the scales of the OPI may not be appropriate to distinguish between and within fraternity groups.

Longitudinal Studies

Some longitudinal studies have been completed which consider impacts or attributes of fraternities.

At Ohio University a four-year study of freshman scholastic honor Society initiates from 1957 to 1960 indicates those who joined social fraternities had a higher initial grade point average, but dropped significantly the semester they pledged fraternities and remained lower on overall

cumulative average in comparison to a group of non-social fraternity honor society initiates (Bradshaw and Kahoe, 1967). The authors conclude, in agreement with Butler's hypotheses, "...that a factor of academic negativism may be operating more predominately among the fraternity men." Similar differences between sorority and independent women were not found.

A study by Schmidt (1969) from 1964 to 1968 at the University of Iowa "indicated that many stereotypes about sororities are a function of selective factors [input] rather than group influence." Using analysis of variance and multiple discriminant analysis, there were no differences which could be attributed to group membership after four years on the Holland Vocational Preference Inventory, Rokeach's Dogmatism Scale, the Trow Typologies, or a measure of "interpersonal competency." However, at the end of the four years, sorority women were more likely to be pinned or engaged. Since there is really no established custom comparable to pinning among non-fraternity students, this result does not seem too surprising.

A year-long longitudinal study at the University of Colorado by Scott (1965) attempted to discover relationships between students' personal values and fraternity organizational processes. Participants in the study were six of 23 campus fraternities (N = 418), four of 17 sororities (N = 342), a random sample of independent students (77 males, 31 females), and a "solicited" sample of non-pledging residence hall freshmen taken after fall rush (103 males, 79 females). Pre-test data were gathered during October and November, 1957, and post-test data were gathered during November, 1958 (Scott, 1965, pp. 107-118, 138-139). A scale developed for the study was designed to measure "inner-directed" and "outer-directed" values. Inner-directed values were independence, intellectualism and creativity. Outer-directed values were loyalty, social skills, kindness, status, physical development, self-control and religiousness. Other uncategorized values

examined were academic achievement and honesty. Scott concluded (1965, pp. 214-244) that (1) both freshmen and fraternities tended to select each other on the basis of similar value orientations, (2) the normative pressures of older members were unrelated to the values of newer members, (3) membership attractiveness was higher for underclassmen than upper-classmen, (4) membership attractiveness was positively related to a person's valuation of group loyalty, (5) membership attractiveness and personal status within the organization were positively related, (6) satisfied members tended to have values congruent with perceived function of the group (high on loyalty and social skills, low on independence) while dissatisfied members tended to have the reverse, (7) the degree of attractiveness of the organization was unrelated to the values of the new member, (8) individual status correlated positively with perceived contribution to the organization, (9) group consensus was low about how well a given individual was liked, and (10) means of chapter presidents' values were not significantly different from other members' or other organizations' value means. Changes in pledges' values compared with changes in non-pledges' values over the year's time were such that they were unrelated to influences other than the general university environment (Scott, 1965, pp. 203-213). One year may not be enough time for a fraternity to influence an individual's personal values.

A four-year longitudinal study by Lozoff (1968, pp. 255-317) from 1961 to 1965 among residence groupings at Stanford University used "42 men who were interviewed twice a year during their four undergraduate years," and a sample of 236 men with "clearly defined residence histories," who responded to a "Senior Questionnaire." It was concluded that (1) fraternity men were more physically attractive and more active than other students

in high school leadership and athletic activities, (2) fraternity values appeared to reinforce family social values, (3) off-campus fraternity men were more autonomous than on-campus members, and more likely to have had heterosexual relationships which influenced their attitudes and behavior, (4) fraternity men were more likely to acquiesce anti-social behavior, but (5) they were more likely to expect to assume leadership positions after graduation and to become family men sooner than non-fraternity men; (6) fraternity men were more likely to drink to excess, and (7) to be intolerant toward minority groups than non-fraternity men; (8) fraternity men "rarely complained to feelings of alienation or diffusion," but (9) they also experimented much less "with new ideas or new experiences." Finally, Lozoff reported that (10) fraternity men were more likely to help and depend on others within their own group, and (11) that the fraternity experience "offers informal training in leadership," apparently not found among non-fraternity men. Change reported among the fraternity men during their four years indicated that in comparison to their freshman scores, they earned "higher scores on scales of psychological tests dealing with social maturity and developmental status, and lower scores on the Ethnocentrism and Authoritarianism scales..." (Lozoff, 1968, p. 275). Specific data were not listed comparing these scores to non-fraternity scores. It may be that such group change is only a correlate of maturation over the four years of college.

A year-long longitudinal study by Wallace (1966, pp. 163-176) at a selective Midwestern liberal arts college inferred that fraternity affiliation depressed student orientation toward earning high grades. In a comparison of questionnaire data collected in September and November, 1959, and April of the following year, freshmen pledging fraternities were much

more likely to lower their desire for high grades than were freshmen not pledging fraternities. High aptitude "specialist" fraternity members, however, were socially rewarded for high achievement. Student admiration of faculty members showed a higher relationship to grades orientation among independents than fraternity members, and friendship satisfaction was higher among fraternity men than independents.

Another longitudinal study by Goldsen, et al. (1960, pp. 119-123), found that fraternity men tended to become more politically and economically conservative with length of time in college in comparison to non-fraternity men. The authors concluded that fraternities "...insulate their conservative members against change and socialize their liberal members away from liberalism."

A dissertation by Matson (1961) used a longitudinal design comparing scholarship of 1,181 male students in the 1954 Indiana University entering class by five residence groupings. Matson's data indicated that place of residence on campus was not associated with achievement when "potential" was controlled by placing students in high, high-average, low-average, and low academic categories "on the basis of five aspects of the student's academic performance in high school and three tested ability scores." Matson reported that "high-prestige" fraternities ranked first in achievement over the freshman, sophomore, and junior years, while those in "medium-prestige" fraternities and dormitories ranked second, and "low-prestige" fraternities and off-campus students ranked last (Matson, 1961, pp. 124-128). Contrary to these findings, Hartnett (1963, p. 134) at Michigan State University concluded, in his research comparing scholastic performance changes of 1,041 students over their sophomore, junior, and senior years, that "negatively changing" students were more likely to live in fraternity and sorority houses, while "positively changing" students were more likely

to live in residence halls. Since Hartnett used a regression technique to determine "performance changers", the influence of the regression effect on the data must be considered in weighing the results. Differences among fraternity groups may also be masked in his analysis.

In summary, the literature cited on change in student development at least infers the college fraternity has an effect on the people who join it, but evidence is conflicting. First, there appears to be variation across campuses on which demographic and personality attributes fraternity members differ from other students. Second, influence attributed to the college fraternity by some studies appears refuted by others, regardless of the original input characteristics of students. Over the one year period of his study, Scott found little effect which could not be attributed to the larger campus environment. Schmidt found similar results for his study over four years. Lozoff's findings suggest the function of the fraternity may be more reinforcement of prior attitudes and experiences than development of new ones. Wallace's research primarily supports previous findings that fraternity membership appears to lower interest in high academic achievement and encourage a high level of interpersonal interaction. Differences among individual chapters of campus fraternity systems in attitude and behavior may occur, but the actuality of such differences has yet to be proved.

Residential Impact

Lack of congruence in the effects of particular residential settings appears not to be limited to fraternities (and sororities) alone. In their comprehensive review of literature, Feldman and Newcomb (1969, Ch. VII) suggest that most studies of residential impact compare fraternities and sororities with other types of campus living units. In fact, most of

their chapter, "The Impacts of Residence Groupings," is devoted to comparisons of fraternities and sororities with alternative living arrangements. In the few studies mentioned where students are assigned to living units by curriculum or ability level (Feldman and Newcomb, 1969, pp. 211-213) results suggest that in comparison to control groups, such students found their living units more desirable. Even in the few studies mentioned, there was no agreement as to whether such selectively assigned students made differential grade point averages, or made differential scores over time on various personality instruments, such as the Omnibus Personality Inventory.

Brown (1968) investigated the effects of alternating the ratio of science to humanities students on a four to one basis on two floors each of a freshman residence hall. At the end of the year, spring 1965, significantly more of the students in minority majors had changed their major to one of the majority, or were less certain of their choice. Minority group students also had fewer friends on their floor, and fewer friends with "the same or similar vocational goals." They were less satisfied than majority students with residence hall life and with their total college experience. However, analysis of covariance indicated there was no difference between the majority and minority groups in direction and amount of change on the Thinking Introversion and Theoretical Orientation scales of the Omnibus Personality Inventory.

A study by Morishima (1966) at the University of Washington in 1963 was contrary to the above findings. One experimental group defined by academic major (N = 24) was assigned to a wing of a newly-opened co-educational hall with an equal number of controls spread randomly throughout the hall, and the other experimental group was assigned to a men's

hall, with control students placed randomly throughout the men's halls. The experimental groups defined by major had "greater positive change over a two-year period" on both the Omnibus Personality Inventory Thinking Introversion and Theoretical Orientation scales than students in control groups. However, no differences were found on other behavioral and attitudinal measures, nor in grade point average.

Beal and Williams (1968) found that for freshman men, but not for freshmen women at the University of Oregon, mixed class housing (freshmen housed with upperclassmen) seemed to result in student feelings of greater satisfaction with their college experience. On the other hand there was some indication upperclass women were more satisfied with "segregated" living units (freshmen housed separately from upperclassmen). The type of living unit a student was assigned appeared not to affect his academic achievement.

A study dealing with effects of mixed class housing on freshman attitudes and values was conducted by Chesin (1969) at Michigan State University in 1964. He administered the Inventory of Beliefs and the Differential Values Inventory at the beginning and end of the year to three groups: (1) freshmen and upperclassmen in eleven residence units with "...a greater proportion of upperclassmen than the total university residence ratio of upperclassmen to freshmen," (2) six residence units with a greater number of freshmen than the university residence ratio, and (3) two units at the university residence ratio. Data were obtained from 467 of the 720 students originally tested. Those moving during the year were dropped from the study. It was hypothesized that freshman attitudes and values would show differential change during the year depending on the amount of contact with upperclassmen. Using analysis of variance, results indicated that

amount of freshmen-upperclass mix did not differentially affect the formation of freshman attitudes and values. All freshmen regardless of assignment became equally more emergent and less stereotypic during the year.

At the University of Florida (DeCoster, 1966; 1968), groups of high ability students have been assigned to residence halls in 25, 50, and 100 per cent concentrations from 1963-64 to 1965-66. Control groups were assigned to identical facilities or on a random basis to other halls. For all three years, high ability students had better academic success in the homogeneously assigned units than those assigned on a random basis. By contrast there was some evidence the second year that students of lesser ability living among high ability experimental groups did less well academically.

High ability students living together were more likely to request assignment to the same unit the next year. On a six-item inventory administered the second week of the second trimester in 1966, homogeneously assigned high ability students "reported that their living units were more conducive to study, that informal 'talk sessions' had more educational value, and that they were more often influenced by fellow residents to do better in their studies" (DeCoster, 1968).

During the 1967-68 academic year, DeCoster (1969) collected data from 127 freshmen students on two other variables -- (1) freshman logic faculty who both taught and had the same students as advisees (a teacher-counselor) and (2) coordinated classroom and housing assignments such that students who lived together attended class together. Four groups were formed: students with one of the experimental conditions, students with both, and students with none. There were no significant differences between the groups on academic achievement or attrition. However, students

in all three experimental groups were more likely to list their Logic instructor as someone to whom they would take "an academic or personal problem." DeCoster regarded this as indication that a closer relationship was formed with at least one faculty member. Furthermore, "men who were teacher-counselor instructed and women who had coordinated assignments established a greater number of peer friendships than did students in the respective comparison groups." Experimental group students were also more satisfied with their overall college experience.

Two other studies employed common courses and faculty-student contact to stimulate academic environment. At Ohio State University, Walsh and McKinnon (1969) observed the perceptions of 250 1966 freshman students tested at the beginning of the year (expectation) and again after five months (perception) on the College and University Environment Scales. Experimental students (N = 110) had coordinated room and class assignments, and a special residence hall program; control students "interacted in the environment generally encountered by new students." Results were opposite from those hypothesized. Analysis of variance indicated that after five months "the subjects in the experimental groups perceived and reported an environment that was less friendly, less conventional, less academically oriented, and less concerned with self-understanding...". Perceptions were less than expectations for all students. There was no mention of any difference in academic achievement between the experimental and control groups.

A similar experiment at Wisconsin State University-Oshkosh in summer, 1966, had more encouraging results (Eberly and Cech, 1968). All 39 on-campus male freshmen were randomly assigned to two wings of a residence hall constructed in such a way that two separate hall programs

could be administered. Students were primarily marginal admittees. The experimental program included faculty contact with and advising by classroom instructors, and special services and programs within the hall. Control wing students received only information about campus activities and social events.

The College Characteristics Index was used to measure student expectation of environment on the first day of classes and again three days prior to the end of the eight week session. Experimental group perceptions remained at the level of original control and experimental group expectations, but control group perceptions were significantly lower on the Academic Achievement, Self-Expression and Academic Organization scales. When post-session data only were compared, control students had significantly lower perceptions on Academic Achievement, Self-Expression and Aspiration Level scales (all differences at the .05 level or lower). Eberly and Cech suggested "that type of residence hall program can affect student perception of overall university environment."

SUMMARY

The literature on residential arrangements, which are in effect alternatives to fraternity and sorority organizations, is also incomplete and ambiguous. Student attitudes in DeCoster's most recently reported study were positive; in earlier ones they were not. In other studies mentioned above student attitudes again were not always in hoped-for directions. While most of the studies treated some aspect of student attitudes, none considered the kind of values which are among the variables in the present study--critical thinking and value orientations. Almost all of the studies used academic criteria to determine success of experimental

arrangements, but it would seem that alternative living arrangements would not so much immediately affect the quality of student performance as they would the quality of student life. Six of seven studies considering academic criteria had no significant differences or negative results, while three of eight considering various attitudinal criteria had similar findings. Since it appears these experimental living arrangements may have had some impact on students, it would have been interesting to know in all of them if there were associated changes in values and attributes such as stereotyping and critical thinking. It is true that Chesin's study would suggest there is no difference among groups on such variables, but it is also true that Michigan State University's living-learning residence halls are rather unique in comparison to residence halls at most other campuses.

Feldman and Newcomb believe, and the studies reported in this chapter appear to suggest, there is impact over and above initial selection into residence groupings. They also state, as the omissions in the above studies suggest, that it is an "inadequately studied" phenomenon. What appears true on one campus appears inapplicable on another campus. They suggest that across campuses (Feldman and Newcomb, 1969, p. 233):

the formal arrangements and environmental pressures of different residences vary considerably--less perhaps, for fraternities and sororities than for other settings. Types of living arrangements are not always directly comparable on different campuses; indeed, they may be so heterogeneous that they cannot be meaningfully compared with one another. Even within a campus, the characteristics of the many residential settings vary widely, so that lumping them into a few conventional categories may well obscure distinctive and distinguishable differences. The differences among members in the several types of living quarters that have been discovered are in large part consequences of the forces of self-selection and group recruitment.

The lack of research on groups or groupings and their relationship to change in political, economic, social and religious beliefs in college

is surprising in view of our American "youth culture" and its apparent impact on society. Wilson (1966, pp. 75-77) states that while colleges collect vast amounts of data on entering students, little is collected when they leave the institution, with the result that little is known about "...when change occurred, and who or what the responsible agents were. Both publically and professionally these are important questions."

CHAPTER 3 METHODOLOGY

This chapter describes the sample of students that were studied, the instrumentation used, the research design and statistical methods employed to analyze the data.

Definition of the Population

Data used for this study were originally collected by Irvin J. Lehmann and Paul L. Dressel for their reports, Critical Thinking, Attitudes and Values In Higher Education (1962), and Critical Thinking, Attitudes and Values Associated With College Attendance (1963). From an original population of 1,436 males who entered college for the first time in fall, 1958, 966 attended Michigan State University "...for at least nine of the next eleven terms (fall, winter, and spring) and were registered as students during spring term, 1962." Of these, 650 yielded a set of usable test score data (Lehmann and Dressel, 1963, p. 31-33). Only nativeborn Americans and students entering college for the first time in fall, 1958, were included in the Lehmann-Dressel studies.

In addition to test score data, it was decided by the experimenter that a complete data record for the present study should also include responses to the 263-item Senior-Year Experience Inventory developed by Lehmann and Dressel (Lehmann and Dressel, 1963, p. 30-31). In this way Inventory responses considered in the study were from exactly the same subjects as published test score data. Applying the criterion, 477 complete data records were available for analysis. The study population of 477

students was then separated into four groups based on an individual's fraternity affiliation status as of spring term, 1962: (1) Greeks (N = 133) were those students in the population listed on a fraternity membership roll compiled spring term, 1962, and supplied by Dr. Lehmann, (2) Dropouts (N = 52) were students who indicated they had become "active" fraternity members at some point in their college career on the Senior-Year Experience Inventory, but who were not listed on the spring, 1962, membership roll, (3) Pledgeouts (N = 46) were students who reported they had pledged but never became active in a fraternity, and (4) Stayouts (N = 246) were students with no apparent formal connection to a social fraternity. Fraternity membership status was also checked against data available in the Office of Student Affairs and the Michigan State University Alumni Office.

The sample of interest for this study was determined by the size of the smallest group above since the statistical analysis, discussed in a later section of this chapter, required a fully balanced design with equal numbers in the groups of interest. Random samples of 46 subjects were drawn from the Greek and Stayout groups using a Fortran program on the CDC 6500. The Dropout group was reduced to 46 subjects by discarding every eighth student record until the desired number was reached. Thus, a total of 184 students separated into four equal groups of 46 comprised the sample used for this study.

The majority of students in all three groups which were associated with fraternities pledged during their freshman year (Table 3.1). Pledgeouts would probably have ended their association about the same term they pledged. It is not known when Dropouts severed their affiliation. Dropouts are recognized as a problem by fraternity groups (Scott, 1967),

but a search of the literature did not reveal any concrete data on dropout rates nor were data available for this University.

TABLE 3.1
YEAR AND TERM OF FIRST ASSOCIATION WITH
FRATERNITIES FOR GREEKS, DROPOUTS, AND PLEDGEOUTS

Year and Term	Greeks		Dropouts		Pledgeouts
	Pledged	Activated	Pledged	Activated	Pledged
Freshman 1	12	0	15	0	14
Freshman 2	8	10	4	10	5
Freshman 3	7	8	6	6	9
Sophomore 1	4	6	4	7	4
Sophomore 2	6	6	2	2	4
Sophomore 3	5	6	8	3	7
Junior 1	2	4	4	8	1
Junior 2	1	4	0	5	2
Junior 3	1	1	0	2	0
Senior Year	0	1	3	3	0
Total	46	46	46	46	46

Generalizability

At worst the sample of interest drawn for the study is generalizable to a single Michigan State University class group, specifically to a sample of students from Michigan State University who left the university with a complete data record as defined by this study. Based on the argument that "...there were no significant differences in initial (1958) critical thinking ability, attitudes, and values between those who responded and those who did not respond," Lehmann and Dressel (1963, p. 37) asserted their findings were generalizable to the entire group of students who entered Michigan State University for the first time in fall, 1958. No statistical tests comparing the sample of 184 students used in this study to the 477 possible subjects or to the original study population were made. Based on the size of the sample in relation to the study population and its random selection from that population, it seems defensible to

conclude it is representative of those students who attended at least nine of eleven terms at the University by spring term, 1962, and who left a complete data record.

Since a University should apprise itself of the attitudes and values of students at regular intervals, generalization to what is essentially the Senior Class of 1962 should be adequate for the purposes of this study. It fills a gap in knowledge about two particular groups of students--those who join social fraternities, and those who do not. It would be unwise to generalize the results to another university or to another period of time at the same university. What is true about one university may not be true about another. It is clear that at Michigan State University there has been a change over time among entering classes on variables of interest to this study. Lehmann and Hill (1969) report that freshmen in 1967 were both brighter academically and more relativistic in their moral outlook than freshmen entering Michigan State University in 1958.

Instrumentation

The four groups described above were compared on the basis of their pattern of scores on seven instruments: The College Qualification Tests, The MSU Reading Test, A Test of Critical Thinking, The Inventory of Beliefs, Rokeach's Dogmatism Scale, Prince's Differential Values Inventory, and The Senior-Year Experience Inventory.

The College Qualification Test (CQT) consists of three sub-tests, Verbal (75 items), Informational (75 items) and Numerical (50 items), which together are designed to measure general academic aptitude. The composite score alone was used for this study. Lehmann and Dressel (1963, p. 30) reported a split-half reliability of .93 for the original 1958

population of students. The test manual reports validity coefficients of .35 to .68 when early college grades are used as the criterion (Bennett, 1957, p. 26).

The MSU Reading Test (MSUR) is a locally developed 45-item instrument designed to measure understanding of thoughts expressed in reading passages. Reliability of this instrument on the 1958 study population was .79 (Lehmann and Dressel, 1963, p. 30). Hartnett (1963, p. 62) reports validity coefficients of .35 to .65 for males using academic performance (grades) as the criterion.

A Test of Critical Thinking, Form G (CT) was developed by the Cooperative Study of Evaluation in General Education of the American Council on Education (Dressel and Mayhew, 1954, Ch. 7). Fifty-two objective items were designed and tested to measure five abilities considered aspects of critical thinking: (1) defining problems, (2) selecting relevant information, (3) recognizing assumptions, (4) formulating and selecting appropriate hypotheses, and (5) judging and drawing valid conclusions. The Kuder-Richardson formula 20 reliability of the test on the 1958 study population was .79; its correlation with the CQT was .60. Lehmann and Dressel (1963, p. 27) describe the Test of Critical Thinking as "...more a test of ability in the processes involved in critical thinking than a measure of critical or creative thinking, per se."

The Inventory of Beliefs, Form I (IB), was also developed for the Cooperative Study of Evaluation in General Education (Dressel and Mayhew, 1954, Ch. 8). It was designed to measure stereotypic beliefs in four areas: (1) ideocentrism, (2) ethnocentrism, (3) sociocentrism, and (4) egocentrism. Its 120 items are pseudorational cliches such as "A lot of teachers these days have radical ideas which need to be carefully watched," and "Each man is on his own in life and must determine his own

destiny." Students are asked to respond by means of a four-element key: Strongly Agree, Agree, Disagree, and Strongly Disagree. According to the goals of general education in a free society defined in the cooperative study, students should disagree with all items.

Scores can range from 0 to 120. High scores are taken to indicate a mature, flexible, adaptive, democratically-oriented individual. Low scores are taken to indicate a rigid, immature, authoritarian and compulsive individual who is stereotypic in his belief system. The test manual reports reliability coefficients ranging from .68 to .95, with a median reliability of .86 (Dressel, 1953, p. 5). Lehmann and Dressel (1963, p. 28) report a correlation between the IB and CQT of .30, and a correlation with freshman grade point average of .20.

Rokeach's Dognatism Scale, Form E (D-Scale), is a measure of general authoritarianism which Rokeach (1960) maintains is relatively free from contamination by political conservatism, ethnocentrism, or anti-Semitism. High scorers are considered dogmatic and not open to new ideas. Low scorers are considered adaptive and receptive to new ideas and experiences. The 40 dogmatic statements have a six element key ranging from "agree very much" to "disagree very much," with a possible score range from 0 to 280. The Kuder-Richardson formula 20 reliability for the 1958 freshman population was .76; correlation with the CQT was .17, and with freshman-year GPA, .15. Lehmann and Dressel (1963, p. 28) state the Dognatism Scale "is a relatively stable instrument which is not influenced by general academic aptitude to a great extent."

The Inventory of Beliefs and the Dognatism Scale were both designed to measure aspects of rigidity in personality orientation. It is difficult to establish the validity of such instruments. Hartnett

(1963, pp. 63-64) has reported a concurrent validity coefficient of $-.63$ between the IB and the Dogmatism Scale. He concluded that "...since these two scales were constructed independently to measure theoretically related phenomena and are correlated to such a degree, the coefficient tends to support claims for validity for both measures.

Prince's Differential Values Inventory (DVI) provides a measure of the "traditional" and "emergent" values postulated by Spindler (1953). The instrument yields four emergent values scores: sociability, relativism, present-time orientation, and conformity, and four traditional value scores: Puritan morality, future-time orientation, individualism, and work-success ethic. The scale consists of 64 pairs of forced-choice items; each item with a traditional-value and an emergent-value statement. The subject must choose one or the other statement from each pair, with one point scored each time a traditional statement is chosen. A high-scoring subject is considered to place greater value on the traditional values of personal respectability, thrift, self-denial, and feelings of guilt. A low-scoring subject is considered to place more weight on emergent values, that is, getting along with others, group morality, present-time orientation, and what might be called situation ethics. Scores on the traditional values scale can range from 0 to 64. Lehmann and Dressel (1963, p. 28) reported a Kuder-Richardson formula 20 coefficient of $.75$, and Hartnett (1963, p. 65) reported test-retest stability coefficients of $.60$ and $.61$. Lehmann and Dressel also indicated there was very little correlation between the DVI and the CQT.

The Senior-Year Experience Inventory (SRI), was developed by Lehmann and Dressel (1963, p. 30) for their 1962 report, and used again in their 1963 report. The 263 items were separated into twenty

sections, and asked respondents' reactions to college expectations and experiences, and attitudes about current events such as admission of Red China to the United Nations. On some sections respondents were asked to report via retrospection how much they thought their views, attitudes and values had changed during their college experience. Lehmann and Dressel (1963, p. 31) did not develop total scores, or sub-scores for sections of the instrument. They were content with "...an intensive item analysis of the data."

In order to reduce the number of statistical tests of significance performed on the data, items were scaled for this study using a scaling technique described in a later section of the chapter. Items which were not part of reliable scales were discarded. Some items not amenable to scaling, such as responses to the Clark-Trow Student Typology, were treated individually.

Research Design

The objective of this study was to determine if any influence on aspects of student development above that of the general college environment could be attributed to the college social fraternity. Four groups (treatments) were defined based upon the degree of exposure students in them did or did not have to the fraternity experience. Three groups were randomly selected from the study population. All students from the population comprising a fourth group were included for study. The assumption was made, however, that subjects in all four groups represented a random sample of students who might be included for study. Dependent variables were scores on the six published instruments and scaled items from the Experience Inventory.

Depending on the particular hypothesis being tested, a Two-Way

or Four-Way Analysis of Variance, Mixed Effects Model, Repeated Measures Design was employed to test for overall significance in the score patterns of the four groups (Illustration 3.1).

ILLUSTRATION 3.1
RESEARCH DESIGNS

A.: Four-Way Analysis of Variance

		T ₁ . . . T _n					
		V ₁	...	V _n	V ₁	...	V _n
G ₁	S ₁						
	⋮						
	S ₄₆						
G ₂	S ₄₇						
	⋮						
	S ₉₂						
G ₃	S ₉₃						
	⋮						
	S ₁₃₈						
G ₄	S ₁₃₉						
	⋮						
	S ₁₈₄						

B.: Three-Way Analysis of Variance

		V ₁	...	V _n
G ₁	S ₁			
	⋮			
	S ₄₆			
G ₂	S ₄₇			
	⋮			
	S ₉₂			
G ₃	S ₉₃			
	⋮			
	S ₁₃₈			
G ₄	S ₁₃₉			
	⋮			
	S ₁₈₄			

T = Time

V = Variables

G = Groups

S = Subjects

The design was chosen in order to reduce as much as possible the number of statistical tests of significance performed on the data. Consider the alpha level for a study set at .05. This means that for every hundred tests of significance, on the average, five indicate significance by chance alone where in truth there is not significance. In the 1963 Lehmann-Dressel report, which most closely resembles the present study, 212 individual Chi-Square tests of goodness of fit were computed on the

Experience Inventory data alone. In the present study, using scaling techniques and Greenhouse and Geisser's (1959) approach to the analysis of profile data, two tests of significance sufficed for the same sections of the Inventory.

The Greenhouse and Geisser approach enables one to analyze a group of observations, a battery of test scores or a set of items, on the same individuals by use of analysis of variance. Their technique employs a conservative F -test, and is robust to violation of statistical assumptions normally associated with analysis of profile data. Variables need not be independent of each other, or at least, have equal correlations with each other. Furthermore, variables need not be normally distributed or have equal variances. Questions answerable by profile analysis are (1) "...do the groups arise from populations having the same group means...", and (2) "...do the groups arise from populations having parallel group profiles" (Greenhouse and Geisser, 1959, p. 98). The saving in statistical tests is clear. Instead of performing individual analysis of variance on scores for each instrument, a single analysis of variance is computed. A significant result indicates that groups do not arise from the same population, or have parallel group profiles. Post-hoc comparisons can then be carried out to locate points of difference.

Statistical Hypotheses

Statistical Hypotheses posed for this study not only treat differences or similarities in overall group means, but also consider the problem of variation within group means. It surely means something different in terms of interpretation to know the relative agreement of subjects within a group on a given variable or set of variables.

Since the review of previous research reported in Chapter II indicated few or conflicting results associated with variables included in this study, all hypotheses are phrased in a non-directional, null form:

1. Upon initial enrollment in college, there is no difference on selected cognitive and affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge and never formally join fraternities, and never formally associate with fraternities.
2. One year after initial enrollment in college, there is no difference on selected affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally join fraternities, and never formally associate with fraternities.
3. One year after initial enrollment in college, there is no difference in degree and direction of change over time on selected affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities.
4. Four years after initial enrollment in college, there is no difference in degree and direction of change over time on selected affective variables among individuals who joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.
5. Four years after initial enrollment in college, there is no difference on selected affective variables among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.
6. There is no difference in the dispersion of test scores among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities (1) upon initial entrance in college, (2) one year after initial enrollment in college, and (3) four years after initial enrollment in college.

7. There is no difference in the dispersion of test scores over time within groups (1) one year after initial enrollment in college, and (2) four years after initial enrollment in college.
8. Four years after initial enrollment in college, there is no difference in degree and direction of self-reported change, or in attitudes and values among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.
9. Four years after initial enrollment in college, there is no difference in the dispersion of self-reported change, or in dispersion of attitudes and values, among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.

Data Collection

Data for this study were collected at three points in time (1) upon initial enrollment in college during Orientation Week, Fall, 1958, (2) at the end of one year after initial enrollment, and (3) four years after initial enrollment in college in May, 1962. Data collected at the beginning of the freshman year of interest to the present study were scores on The College Qualification Test, The MSU Reading Test, A Test of Critical Thinking, the Inventory of Beliefs, The Differential Values Inventory, and Rokeach's Dogmatism Scale. Data collected at the end of the freshman year, May, 1959, were scores on the Inventory of Beliefs, The Differential Values Inventory, and A Test of Critical Thinking. Data collected at the end of most students' senior year in May, 1962, included responses to the Senior-Year Experience Inventory, and scores on Rokeach's Dogmatism Scale, A Test of Critical Thinking, the Inventory of Beliefs, and The Differential Values Inventory.

Analysis of Data

Statistical techniques used in this study included three-way and four-way analysis of variance, with Scheffe' Post-Hoc Multiple Comparisons where significant F ratios were found, Levene's Test of Homogeneity of Variance, factor analysis, the method of reciprocal averages for maximizing the internal consistency of items on a scale, Kendall's Coefficient of Concordance for ranked data, Hay's Omega Squared for strength of statistical relationship, and Chi Square test of independence. The .05 level of confidence for accepting or rejecting hypotheses was used in all computations. Data were analyzed where appropriate on the Michigan State University CDC 3600 and CDC 6500 computers.

Analysis of Variance.--The analysis of variance computer program was originally developed at the University of Wisconsin (Jannrich, 1961), and adapted for use on the Michigan State University CDC 3600 by Andrew C. Porter. The routine was designed to perform calculations necessary for any balanced fully replicated or tested design, such as those employed in profile analysis.

Scheffe' Post-Hoc Comparisons.--Scheffe' post-hoc comparisons are one means of partitioning the sums of squares making up a significant F test to determine which linear combination of means contributed to the significance of the overall F test (Hays, 1963, pp. 483-485). The Scheffe' test is generally used when no prior assumptions are made as to which treatments or groups are most likely to contribute to an overall significant F ratio.

Levene's Test of Homogeneity of Variance.--The Levene Test is essentially an analysis of variance of variance (Glass, 1966). The technique

uses analysis of variance "...on the absolute values of the differences between each observation and the mean of its group." A strength of the Levene Test is that no particular assumptions about the shapes of distributions underlying the samples analyzed need be made. Previously, tests for homogeneity of variance were very sensitive to non-normality in the underlying distributions of samples (Glass, 1966, p. 187).

Factor Analysis.--Factor analysis using the principal components solution with a varimax rotation was employed in analysis of the Senior-Year Experience Inventory. The program used was provided by the Computer Institute for Social Science Research (Peterson, Fuster and Paul, 1969). The method of reciprocal averages described below assumes that items to be weighted are all part of a single underlying variable. In order to meet this assumption as closely as practicable, it was considered reasonable to factor analyze all available data (N = 477) on SRI sections where a content analysis appeared to suggest more than one underlying variable was present.

Reciprocal Averages.--Data obtained from the SRI were primarily of a qualitative nature. The method of reciprocal averages is a means of quantifying qualitative data so scales constructed from individual items have item responses weighted to maximize the internal consistency of the resulting scale (Wright and Porter, 1958, pp. 13-14). First an a priori set of item response weights are assigned. After computation, the final weights determined yield the maximum possible internal consistency as measured by the Hoyt analysis of variance. Final assigned weights are very informative. An item not relating to the scale will receive equal weights for all responses. Items with a high discriminating ability will receive weights with the largest range of response values.

Kendall's Coefficient of Concordance.--Kendall's Coefficient of Concordance is a means by which the degree of agreement across several groups of judges may be determined on items which are ranked according to their value or importance (Hays, 1968, pp. 656-658). The statistic is closely associated with the average pair-wise correlations among the several rank orderings. If there is low agreement, sums of ranks across items ordered are about the same. If high agreement exists, sums of ranks are very different. The SRI included a series of items which asked students to indicate what "courses, personnel, activities, and organizations" had either strengthened or modified beliefs held upon entrance to college. These data were grouped and ranked, and the Coefficient of Concordance applied to assess degree of agreement within the groups of interest.

Hay's Omega Squared.--Two possible explanations exist if Kendall's Concordance is low. There may be low agreement among groups, or, there may be low agreement among individuals within groups such that many ranks are tied. Hay's Omega Squared is a means of estimating the strength of a statistical relation between an independent and dependent variable, such as items (independent variable) and responses to items (dependent variable) (Hays, 1963, pp. 381-385). Where the Kendall Coefficient of Concordance was low, Omega Squareds were calculated for each of the four groups in order to learn if the reason for low concordance was the result of low agreement among groups, or within individuals in groups. A low Omega Squared value was indication that low concordance was more a function of low agreement of individuals within groups than low agreement between groups.

Chi-Square.--Some data obtained from the SRI were not amenable

to analysis either by reciprocal averages or by Kendall's Coefficient of Concordance. These were descriptive items of a dichotomous nature considering choice among the Clark-Trow student typologies. These items were individually treated by use of the chi-square goodness of fit statistic (Hays, 1963, pp. 589-592).

Scale Development

Lehmann and Dressel's Senior-Year Experience Inventory consisted of 263 items grouped into 20 parts or sections (Appendix A). They did not scale the instrument, but preferred instead to use Chi Square and analyze similarity of group responses to individual items (Lehmann and Dressel, 1963, p. 31). Their method was acceptable for an exploratory study as a means of locating differences among groups which might merit further study. While the present research was also exploratory, limitations of Lehmann and Dressel's method for it were (1) that assumptions for use of the Chi Square statistic would not be met in many cases due to the number of item keys in relation to individual group size, and (2) the sheer number of statistics to be computed did not seem the most efficient means of treating the data.

Instead, items within parts were grouped into scales where parts themselves appeared upon inspection to have more than one underlying variable among items. All items in six parts (I, II, IV, VII, XV, and XVII) appeared to form single scales and were treated as such. Items in five parts (III, V, VIII, IX, X) were grouped into scales on the basis of a content analysis. Factor analyses were then performed on each part as a check on the content analysis. Scales were adjusted accordingly. Items in the remaining parts of the SRI were of an informational or demographic nature which were not scalable.

Factor analyses of the several parts were considered advisable because a major assumption of the reciprocal averages scaling technique applied to the data was that all items in a given scale were assumed to have a single variable underlying them (White and Porter, 1968). While the content analysis was an attempt to objectively group items into logical categories, it still seemed that factor analysis would add additional rigor and objectivity to the selection of items for scales.

Names and definitions were assigned each scale, with an interpretation given for a high and low score. A priori weights were then attached to each item key based on the directionality of the item in relation to other items in its scale. The reciprocal averages program (RAVE) was then applied to the a priori weighted scales using the CDC 3600 computer. In order to avoid the problem of sampling fluctuation in computation of scale weights used for the final profile analysis, the entire population of 477 data records on the SRI were used. The Hoyt analysis of variance approach to reliability, analogous to Kuder-Richardson's Reliability 20 formula for internal consistency, was computed by RAVE for each scale (Hoyt, 1967, p. 111). Scales attaining a reliability coefficient which rounded to .5 or higher were included a priori in the final profile analysis on the groups of interest to this study. This implied that at the minimum approximately 50 per cent of common variance was explained by responses to the scale items, and up to 50 per cent of common variance was due to measurement error.

Definitions

Definitions of 16 scales meeting the criteria are listed below. Definitions of 13 scales not meeting the criteria are listed in Appendix B. RAVE operations were performed on a total of 36 scales.

Academic Satisfaction.--All six items of Part II appeared to measure a single underlying variable. A student responded to statements about his academic experiences in college on a four-response item key from strongly agree to strongly disagree. High scores reflected high academic interest and enthusiasm. Low scores reflected general dissatisfaction with college academic experiences. Hoyt reliability of this scale was .52. Scores could range from 8 to 24.

Anti-Communism.--Part III appeared to contain items with several underlying variables. Items 12, 13, 14, 21, and 22 were designed to obtain opinions on a five-response item key from strongly agree to strongly disagree about the threat of communist influence. Should known communists be in the country or on the campus; how free were faculty to subscribe to or teach a specific ideology? High scores indicated an anti-communist viewpoint; low scores indicated a politically liberal viewpoint. The theoretical score range was from 5 to 24. Hoyt reliability on this scale for seniors answering as seniors was .69. Students were also to react to this scale as they thought they would have as entering freshmen. Since it was considered that present reactions would likely be more reliable than perceptions of past reactions, final scale weights assigned to senior responses were used to compute freshman scale scores for use in the profile analysis of scale score data. Perception of freshman opinions were found about as reliable as senior responses when computations were performed ($r_{tt} = .65$), but weights assigned to items

were differential.

Other scales formed from items in Part III were below the criterion level of reliability and were listed in Appendix B.

Anticipated Community Activity.--Part IV contained nine items. Students were asked how active a role they anticipated playing in nine categories of civic activities after graduation using a five-response item key from "very active" to "none". A high score meant the individual planned high involvement in community affairs, while a low score indicated little or no involvement was anticipated at this time. Scores could range from 12 to 43. Hoyt reliability was .65.

Student-Centered Teachers.--Part V contained fifteen items about student perception of good college teachers. Seven items (41, 42, 43, 44, 46, 51, and 52) asked students to rate the degree to which a good college teacher was student-centered in his teaching on a four position scale from strongly agree to strongly disagree. A high score indicated a good teacher will "give and take" with students in considering course objectives, student problems and achievement. A low score indicated that a good teacher will give students little choice in course direction and will be neutral if not aloof toward student contact out of class. The theoretical score range was from 8 to 26. Hoyt reliability was .50.

Teacher-Community Involvement.--Three items (30, 40 and 45) asked students to rate the good college teacher as an active participant in areas outside his discipline (academic role). A high score on this scale indicated the good college teacher should be active in civic, campus and religious affairs. A low score reflected the opinion that he should not be so involved. Scores could range from 3 to 12. Hoyt reliability was .64.

The remaining items in Part V did not form reliable scales.

Part VI requested written responses and was not scalable.

Religious Concepts.--Part VIII (Items 55 to 60) consisted of six religious concepts: The Bible, Prayer, Man, God, Sin, and Eternity. Students were instructed to attach one of seven definitions to the concepts, which ranged from strongly fundamentalist to very liberal in interpretation. The higher the score the more fundamentalist were the definitions assigned the concepts. Scores could range from 9 to 41. Hoyt reliability for this scale was .87.

Items in Part VIII were originally constructed by Kidd, et al. (1954), to assess the relative value placed on general as opposed to vocational education. Originally two scores were obtained from the instrument. However, three scales emerged when the instrument was factor analyzed using the data from this study. Two scales, Personal Development and Weltanschauung, were associated with general education objectives, and one scale, Scholarly Achievement, with vocational objectives. On these scales students were asked to report the importance to them of achieving the goals (very, average or little) and then to say how well they had been achieved (very well, moderately or not). Weights determined for the importance of achieving goals were used to compute scale values for the degree of achievement.

Personal Development.--Eight of the 26 items (65, 66, 68, 71, 80, 81, 84 and 86) asked students to indicate the importance of achieving certain intra-personal goals of higher education which purport to lead to a richer, more satisfying personal life. Items related to the quality of relationships with other people, one's family, and one's personal well-being. A high score indicated these were important goals, while a low score meant these were not so important to achieve or realize. Scores could range from 10 to 14. The Hoyt reliability was .70.

Weltanschauung.--The German word, Weltanschauung, was most descriptive of the meaning of eight other items which asked students to consider the importance of achieving (realizing) certain educational goals related to a broad, liberal world outlook. Whereas the Personal Development scale appeared to treat intrapersonal goals of general education, this scale appeared to consider what might be termed outer-directed goals of general education--an understanding of the world one lives in as opposed to one's immediate interpersonal environment. A high score was evidence that achieving a broad worldview was important. A low score was evidence of little interest in achieving such an outlook. Scores could range from 8 to 24. The Hoyt reliability coefficient was .73.

Scholarly Achievement.--Ten items related to purely professional or vocational goals of education. These included such goals as acquiring expertness in a field and mastering techniques applicable to one's special interest. Students were asked to assess the importance of making such scholarly-professional achievements. In effect they were to quantify the importance placed on objectives of specialized education. A high score on this scale signified such objectives were of great value, while a low score was a sign they were not highly valued. The theoretical score range was from 12 to 30. The Hoyt reliability was .77.

Personal Confidence/Future Orientation.--Part IX included 39 items describing behavior traits which may or may not have changed during the college experience. Students were asked to report whether at the end of their college experience they possessed more, less, or the same amount of these traits. Seven items considered personal confidence and optimism for the future (101, 118, 119, 120, 121, 122, and 125). A high score indicated students were confident in themselves, aware of their

goals, and optimistic about their future. A low score suggested low self confidence and little optimism for the future. Scores could range from 7 to 21. Hoyt reliability was .72.

Religiosity.--Four items (106, 107, 123 and 124) asked students to report if they had more, less, or the same amount of religious attachment to a faith or set of beliefs as seniors than as freshmen. Scores could range from 4 to 12. A low score denoted greater religiosity as a senior and a high score less religiosity. This four item scale had a Hoyt reliability of .87. Its correlation with the religious concepts scale was .63. This would suggest both scales are measures of related traits, but that some measured by one are not measured by the other.

Respect for Authority.--Students were asked to respond to a three item scale (108, 109, and 110) which attempted to assess their respect for formal authority. Did they have more, the same or less respect for law, rules and regulations and persons in positions of authority as seniors than as students entering college? A low score was evidence of more respect while a high score suggested less respect. The theoretical score range was from 3 to 9. The Hoyt reliability coefficient was .78.

Tolerance.--Scores could range from 4 to 14 on a five item scale (87 to 91) which purported to measure aspects of tolerance in behavior. Students were asked to say if they had more, less, or the same amount of tolerance toward other people, opinions or behavior as seniors than they did when they entered college. A high score signified greater tolerance; a low score was indicative of less tolerance. Hoyt reliability for this scale ($r_{tt} = .48$) was just within the a priori criterion level.

Range of Interests.--One desired individual outcome of higher education might be an increased range of interests across intellectual,

social, scientific, political and cultural affairs. Six items (93 to 97 and 100) attempted to measure students' self-reported level of change in such interests. A high score (up to 18) expressed a greater range of interests as seniors than as entering freshmen. A low score (down to 6) demonstrated a constricted range of interests as seniors. Hoyt reliability was .58 for this scale.

Vocationalism.--One motivation students may have for higher education is the increased earning power of a specific vocation or profession. Five items (111 to 115) asked students to report if they had more, the same or less interest in money and vocational preparation as educational rewards. A high score was indicative of such interest. A low score expressed the idea that other job satisfactions, along with an education emphasizing the liberal arts, were of greater personal importance. Scores on this scale could range from 5 to 15. Its Hoyt reliability, .46, was just within the lower bound of the a priori criterion level.

Resourcefulness.--Another desired personal outcome of higher education might be the ability to "get up after a knock down,"--to adjust to adverse situations and accept disappointments. A two item scale (98 and 99) with a Hoyt reliability of .60 was designed to assess such resourcefulness. Scores could range from 2 to 6. A high score evinced greater adaptiveness while a low score evidenced lesser flexibility.

Other items in Part IX formed scales below the criterion level of reliability and are described in Appendix 2. Two other parts contained potentially scalable data using the RAVE program. Part XV considered the effect of various others on career plans, and Part XVII considered the effect of losing various activities or resources associated with a University community. Neither part formed a usable scale, however, and they are

also described in Appendix B.

Additional Item Groups

The fifty items in Part X were not scalable by means of the RAVE program. These were descriptors of courses, personnel, activities and organizations which may have strengthened or modified beliefs students had when they were freshmen. These items were separated by content analysis into seven groups and analyzed using Kendall's Coefficient of Concordance and Hays' Omega Squared. Item responses were first transformed into a new scale containing five response keys from "most reinforcing" to "most modifying." Item groups analyzed were (1) Courses, (2) Instructors, (3) Peers, (4) Student Organizations, (5) Student Activities, (6) University Facilities, and (7) Other influences not classified in the first six categories.

Student Typologies

Five items of Part XII asked students to choose among four types of student subcultures: (W) Vocational, (X) Intellectual, (Y) Non-Conformist, and (Z) Collegiate (Appendix 1). These subcultures were defined by Clark and Trow (1966) not as specific descriptors of groups of people, but rather as related attitudes, norms and modes of behavior. Chi Square was used to test for differences in response to the items among the four groups.

SUMMARY

Students selected for this study were drawn from the population of students who had attended Michigan State University for at least nine of the eleven terms since their initial entrance to college in fall, 1958.

Four groups were included in the sample: (1) students who joined and remained in social fraternities, (2) students who joined and later dropped out of social fraternities, (3) students who pledged but were never formally initiated into social fraternities, and (4) students with no record of any formal association with a social fraternity.

Instruments used in the study were described and techniques of analysis outlined. Data were collected at (1) entrance to college, fall, 1958, (2) after one year, May, 1959, and (3) after four years, May, 1962. Results were generalizable to a single Michigan State University class group.

CHAPTER 4 ANALYSIS OF DATA

Data gathered for this study were analyzed in a number of ways depending on the nature of the data. The purpose of this chapter is to present a detailed account of the data analysis. The account will be presented in two parts: (1) data associated with published instruments, and (2) data associated with the Senior-Year Experience Inventory.

Published Instruments

The first seven hypotheses stated in Chapter III were associated with data collected on published instruments. Hypotheses are treated in the order they were stated, using Greenhouse and Geisser's method of profile analysis. Two F ratios will be of particular interest: (1) the group-test mean square which is a test of whether the group profiles are parallel, i.e., have the same shape, and (2) the group mean square which is a test of whether the groups arise from the same population. In almost all cases, the F ratio for variables should be significant, since the instruments used have widely varying score ranges and standard deviations. This violates statistical assumptions usually associated with profile analysis. The Greenhouse and Geisser method (1959, p. 96) however, is robust to such a violation.

Hypothesis 1

Cognitive and affective variables measured by the Inventory of Beliefs, A Test of Critical Thinking, The Differential Values Inventory, Rokeach's Dogmatism Scale, The College Qualification Test, and the MSU Reading Test were included in the two-way analysis of variance (Table 4.1) performed to test the first hypothesis:

1. Upon initial enrollment in college, there is no difference on selected cognitive and affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities.

TABLE 4.1
VARIANCE ANALYSIS FOR HYPOTHESIS 1

Source	SS	df	MS	F
Groups	2309.974	3	769.991	3.037*
Subjects within Groups	45631.931	180	253.511	
Variables	3313889.342	5	662777.868	229.540*
Variables by Groups	4811.923	15	320.795	1.111
Variables by Subjects within Groups	259856.569	900	288.729	

*Significant at the .05 level of confidence or beyond

Two F ratios were significant when the variance analysis for Hypothesis 1 was completed. It was expected that variance for variables would be significant. The second significant F ratio was for Groups. The non-significance of the variables by groups interaction indicated there was parallelism of scores among the four groups.

The significant F ratio for groups would indicate that the groups arose from populations having differential group means. On this basis Hypothesis 1 was tentatively rejected.

However, a significant F ratio only indicates that somewhere in the data analyzed there is a significant difference; it does not indicate where it is (Hays, 1963, pp. 459-460). To locate points of difference, it was necessary to make individual contrasts between pairs of means. Since no hypotheses were stated beforehand indicating where differences might be found, Scheffe's Post-Hoc Contrasts were computed for this purpose (Table 4.2).

TABLE 4.2
POST-HOC CONTRASTS: HYPOTHESIS 1 VARIANCE ANALYSIS

Groups Compared*	Mean	Difference	Conf. Int.	Sig.
1 versus 2	75.326 78.746	3.420	<u>+3.766</u>	NS
1 versus 3	75.326 76.065	0.739	<u>+3.766</u>	NS
1 versus 4	75.326 78.301	2.975	<u>+3.766</u>	NS
2 versus 3	78.746 76.065	2.681	<u>+3.766</u>	NS
2 versus 4	78.746 78.301	0.445	<u>+3.766</u>	NS
3 versus 4	76.065 78.301	2.236	<u>+3.766</u>	NS
1 versus 2,3, and 4	75.326 77.704	2.378	<u>+3.069</u>	NS
1 and 2 vs. 3 and 4	77.036 77.183	0.147	<u>+2.651</u>	NS
1 and 3 vs. 2 and 4	75.696 78.524	2.828	<u>+2.651</u>	.05

1= Greeks, 2= Dropouts, 3= Pledgeouts, 4= Stayouts

The only post-hoc contrast which appeared to contribute to the overall significance of the F ratio for groups in Hypothesis 1 was a complex contrast involving the mean of Groups 1 and 3 (Greeks and Pledgeouts) versus the mean of Groups 2 and 4 (Dropouts and Stayouts). This contrast is very difficult to interpret. Other, simple contrasts of greater interest to the study were not significant. Since the simple contrasts among the groups were not significant despite overall significance in the F ratio for groups, it seemed reasonable to state that for the purposes of this study the four groups were not significantly different from each other on initial test scores. Thus, Hypothesis 1 was qualifiedly accepted; there was no simple difference among the groups on selected cognitive and affective variables upon initial entrance to college.

Hypothesis 2

Affective variables measured by the Inventory of Beliefs, A Test of Critical Thinking, and The Differential Values Inventory were included in the two-way analysis of variance (Table 4.3) computed to test the second hypothesis:

2. One year after initial enrollment in college, there is no difference on selected affective variables among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities.

The variables by groups interaction in the F table for Hypothesis 2 was not significant. At the end of one year in college, the test profiles of the four groups remained parallel. The F ratio for Groups, however, was significant at the .05 level. While test profiles may be parallel, the groups themselves would appear to arise from different

TABLE 4.3
VARIANCE ANALYSIS FOR HYPOTHESIS 2

Source	SS	df	MS	F
Groups	1144.558	3	381.519	3.180*
Subjects by Groups	21592.275	180	119.957	
Variables	120767.576	2	60383.788	563.671*
Variables by Groups	343.496	6	57.249	0.534
Variables by Subjects within Groups	38565.594	360	107.127	

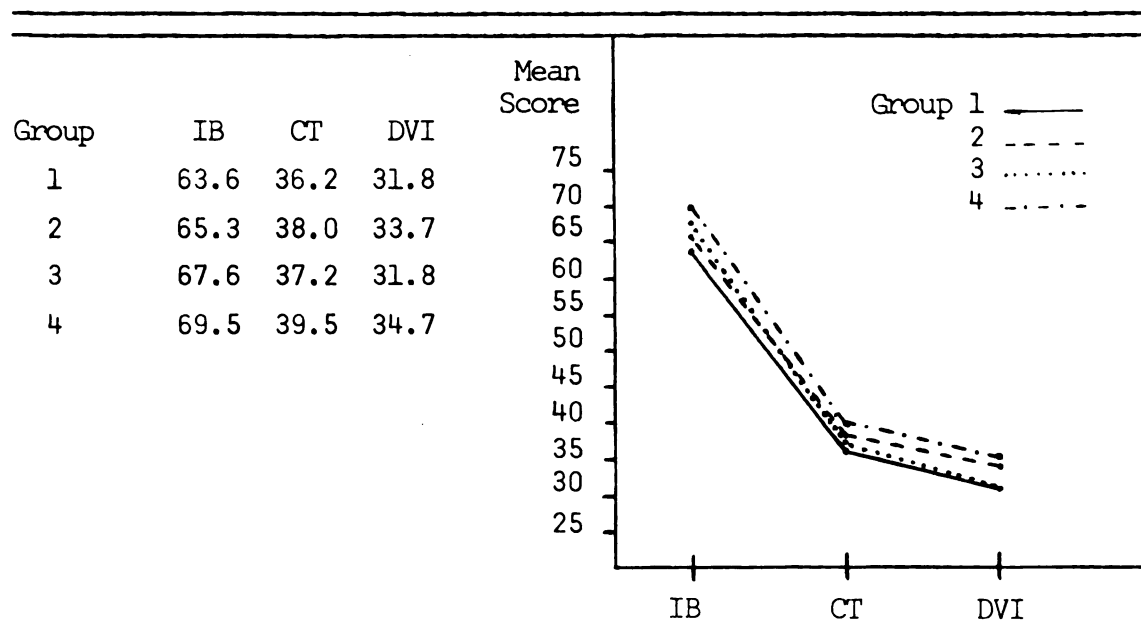
*Significant at the .05 level of confidence or beyond

populations. The post-hoc contrast which contributed to the overall significance of the F ratio was Group I (Greeks) versus Group 4 (Stayouts) (Table 4.4). On the basis of the F ratio and this contrast, Hypothesis 2 was rejected. One year after initial enrollment in college, there was sufficient difference among IB, CT and DVI test scores of Greeks and Stayouts to say with confidence that they arose from different parent populations. In all cases, Greek test scores were lower than Stayout, Dropout, and Pledgeout test scores (Illustration 4.1) although they were significantly different only from Stayout test scores. Restated in terms of the variables measured by the instruments, Greek-affiliated students demonstrated less critical thinking ability, were more immature, and more likely to think in terms of stereotypes in comparison with students who never affiliated with fraternities.

TABLE 4.4
POST-HOC CONTRASTS: HYPOTHESIS 2 VARIANCE ANALYSIS

Groups Compared	Mean	Difference	Con. Int.	Sig.
1 versus 2	43.862 45.696	1.834	<u>+3.677</u>	NS
1 versus 3	43.862 45.529	1.667	<u>+3.677</u>	NS
1 versus 4	43.862 47.913	4.051	<u>+3.677</u>	.05
2 versus 3	45.696 45.529	0.167	<u>+3.677</u>	NS
2 versus 4	45.696 47.913	2.217	<u>+3.677</u>	NS
3 versus 4	45.529 47.913	2.384	<u>+3.677</u>	NS
1 versus 2, 3 and 4	43.862 46.379	2.517	<u>+3.002</u>	NS
1 and 2 versus 3 and 4	44.779 46.721	1.942	<u>+2.592</u>	NS

ILLUSTRATION 4.1
GROUP MEAN SCORE PROFILE, SPRING, 1959



Hypotheses 3 and 4

Hypotheses 3 and 4 regarding the degree and direction of change among the four groups one year and four years after initial enrollment in college were tested together. A four-way analysis of variance with Time as the additional factor provided the necessary information for both hypotheses. Scores on the Inventory of Beliefs, A Test of Critical Thinking and The Differential Values Inventory were included in this computation. (Table 4.5).

TABLE 4.5
VARIANCE ANALYSIS FOR HYPOTHESES 3 AND 4

Source	SS	df	MS	F
Groups	3123.393	3	1041.131	3.451*
Subjects within Groups	54301.321	180	301.674	
Times	4942.351	2	2471.176	73.088*
Variables	390339.859	2	195169.929	646.956*
Times with Variables	5816.159	4	1454.040	39.788*
Groups with Times	97.967	6	16.327	0.483
Groups with Variables	2411.866	6	401.978	1.647
Groups with Times with Variables	505.116	12	42.093	
Times by Subjects within Groups	12171.903	360	33.811	
Variables by Subjects within Groups	87883.831	360	244.122	
Times by Variables by Subjects within Groups	26311.836	720	36.544	

*Significant at the .05 level of confidence or beyond

There were three significant F ratios of interest to the study when the variance analysis for Hypotheses 3 and 4 was carried out. The F ratio for Groups was significant. Post-Hoc contrasts indicated the contrast contributing to the overall significance of this F ratio was between Greeks and Stayouts (Table 4.6). The second significant F ratio of major interest to Hypotheses 3 and 4 was the main effect of Times. As the contrasts signified, the change in test scores over time was great enough so that all possible simple contrasts contributed to the overall significance of the Times F ratio. This was interpreted to mean that change in test score levels for all groups across time was sufficient to say that different parent populations of responses underlaid the groups at the three points in time. The third significant F ratio was associated with the Times and Variables interaction. This suggested that groups may have changed differentially on variables across time (Table 4.6), or that instruments may have been measuring different constructs at different times. The non-significance of the Groups by Variables interaction was taken as evidence that test score profiles remained parallel within time. The non-significance of the Groups by Variables by Times interaction was taken as evidence that not only the direction of change, but also the degree of change among the four groups was not significantly different across time.

On the basis of these results Hypotheses 3 and 4 were not rejected. The parallelism of the score profiles would argue that there was no difference among groups in the direction of change, and the lack of a significant Groups by Variables by Times interaction would suggest there was no difference in the degree of change.

TABLE 4.6
POST-HOC CONTRASTS: HYPOTHESES 3 AND 4 VARIANCE ANALYSIS

Groups Compared	Mean	Difference	Conf. Int.	Sig.
<u>Groups F ratio:</u>				
1 versus*	43.978			
2	45.749	1.771	<u>+3.376</u>	NS
1 versus	43.978			
3	45.901	1.923	<u>+3.376</u>	NS
1 versus	43.978			
4	47.857	3.879	<u>+3.376</u>	.05
2 versus	45.749			
3	45.901	0.152	<u>+3.376</u>	NS
2 versus	45.749			
4	47.857	2.108	<u>+3.376</u>	NS
3 versus	45.901			
4	47.857	1.956	<u>+3.376</u>	NS
1 versus	43.978			
2,3 and 4	46.502	2.524	<u>+2.709</u>	NS
1 and 2 versus	44.864			
3 abd 4	46.879	2.015	<u>+2.371</u>	NS
<u>Times F Ratio:</u>				
T ₁ versus**	43.819			
T ₂	45.750	1.931	<u>+0.855</u>	.05
T ₁ versus	43.819			
T ₃	48.045	4.226	<u>+0.855</u>	.05
T ₂ versus	45.750			
T ₃	48.045	2.295	<u>+0.855</u>	.05
<u>Times by Variables Interaction:</u>				
versus IB ₂ **	63.951			
	66.489	2.538	<u>+3.629</u>	NS
us IB ₃	63.951			
	72.060	8.109	<u>+3.629</u>	.05

TABLE 4.6—Continued

Groups Compared	Mean	Difference	Conf. Int.	Sig.
IB ₂ versus IB ₃	66.489 72.060	5.571	+3.629	.05
CT ₁ versus CT ₂	32.984 37.745	4.761	+3.629	.05
CT ₁ versus CT ₃	32.984 39.391	6.407	+3.629	.05
CT ₂ versus CT ₃	37.745 39.391	1.646	+3.629	NS
DVI ₁ versus DVI ₂	34.522 33.016	1.506	+3.629	NS
DVI ₁ versus DVI ₃	34.522 32.685	1.837	+3.629	NS
DVI ₂ versus DVI ₃	33.016 32.685	0.331	+3.629	NS

* 1 = Greeks, 2 = Dropouts, 3 = Pledgeouts, 4 = Stayouts

** 1 = beginning of freshman year, 2 = end of freshman year, and
3 = end of senior year

Students in all four groups apparently changed in the same direction and to approximately the same degree on the instruments considered in this analysis.

Since the F ratio for Groups was significant, an interpretation of these data might be that groups (input) were differential, but that change for the groups on the intervening variables was approximately the same. After four years (output) group means on the variables were substantially in the same relative position as at entrance to college (input).

This result conflicts with the conclusion drawn for Hypothesis 1 of no simple difference among the groups in level of test scores.

The Hypothesis 1 analysis was performed on data from six instruments, but the Hypothesis 3 analysis was performed on data from only three instruments. The Hypothesis 1 analysis may contain a Type II statistical error, accepting a hypothesis when indeed it should be rejected. The additional data included in the first analysis from the three instruments not included in the later analyses may have masked differences at Time 1 which might have occurred if only data for the three instruments treated in Hypotheses 3 and 4 had been analyzed in the Hypothesis 1 analysis.

Restated in terms of variables measured, at all three times data were analyzed, Greeks displayed less critical thinking ability, were consistently the most stereotypic in their perceptions of all four groups, and as Lehmann and Dressel (1962, p. 200) suggested but never tested in their research, Greeks were the most other directed, i.e., most likely to have an emergent value orientation. It was true, however, that the contrasts listed above for the DVI showed no change for all students as a single group for the entire college experience. Clearly, this does not preclude the possibility of change within sub-groups.

It is most important to note that the significant difference found in test score level between Greeks (1) and Stayouts (4) was not because of differential group development associated with collegiate experiences, but rather was one of initial position on measures of the variables in question.

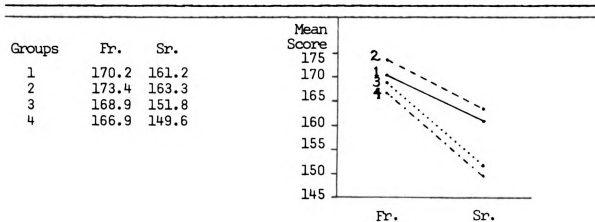
Additional data were collected which were related to Hypothesis 4 but not Hypothesis 3. Scores on Rokeach's Dogmatism Scale were obtained at initial entrance into college and at the end of four years. While scores across times were significant (Table 4.7), the main effect for Groups and the Times by Groups interaction were not significant. Change in the scores from freshman to senior years was significant and toward decreasing dogmatism in all groups (Illustration 4.2).

TABLE 4.7
DOGMATISM VARIANCE ANALYSIS

Source	SS	df	MS	F
Groups	5951.465	3	1983.822	1.974
Subjects within Groups	180938.576	180	1005.214	
Times	16457.938	1	16457.938	55.841 *
Times by Groups	1348.769	3	449.590	1.525
Times by Subjects within Groups	53050.793	180	294.727	

*Significant at the .05 level of confidence or beyond

ILLUSTRATION 4.2
DOGMATISM MEAN SCORE PROFILES



Viewing Dogmatism scores alone, Hypothesis 4 was not rejected. The degree and direction of change on this instrument was not differential among the groups studied after four years.

Hypothesis 5

Having determined that group levels but not profiles were different upon entrance to college and at the end of one year of college experience, it was logical to ask if group levels and profiles were similar at the end of four years of college. The data indicated that group levels were similar, but that group profiles were indeed different after four years (Table 4.8). Variables included in this analysis were scores on the Inventory of Beliefs, A Test of Critical Thinking, The Differential Values Inventory, and Rokeach's Dogmatism Scale.

TABLE 4.8
HYPOTHESIS 5 VARIANCE ANALYSIS

Source	SS	df	MS	F
Groups	619.870	3	206.623	1.859
Subjects within Groups	20007.087	180	111.150	
Variables	1785707.207	3	595235.736	6821.3000*
Variables by Groups	8421.315	9	935.702	3.574*
Variables by Subjects within Groups	141363.478	540	261.784	

* Significant at the .05 level of confidence or beyond

Results showed there was no difference among the four groups in level, but there was a significant difference in score profiles. The interaction of variables by groups, which is an indicator of parallelism in score profiles, was significant. When the method for the interpretation of significant interaction effects recommended by Levin and Marascuilo (1970) was carried out, results indicated that no simple combination of variables and groups was solely responsible for the significant $\underline{F}$ ratio (Table 4.9). Furthermore, neither were any pairs of interaction parameters responsible for the significant interaction $\underline{F}$ ratio. Scheffe's Theorem states that if an $\underline{F}$ ratio is significant, there is at least one set of contrasts which is also significant. Apparently, a complex interaction involving two or more groups and two or more variables was responsible for the significant $\underline{F}$ ratio. The large number of possible complex interactions which might be tested seemed unreasonable to carry out because of the difficulties anticipated in computation and in interpretation. Knowledge that no simple interaction contributed to the $\underline{F}$ ratio seemed sufficient for this study.

TABLE 4.9
ESTIMATES OF THE INTERACTION PARAMETERS: HYPOTHESIS 5 ANALYSIS

	IB	CT	DVI	D-S	Rows
G ₁	-4.126	-0.805	-0.207	5.135	-0.456
G ₂	-3.875	-1.576	0.217	5.234	1.576
G ₃	3.114	0.652	0.141	-3.908	-0.717
G ₄	4.885	1.728	0.402	-6.462	-0.402
Columns	-3.092	-35.761	-42.467	81.321	
$\gamma_{ij} = \hat{\gamma}_{ij} + 7.358^*$ $\Psi_{AB} = \hat{\Psi}_{AB} + 12.042^*$					

*where γ_{ij} is a simple interaction between a variable and a group, and Ψ_{AB} is an interaction between any pair of variables or groups.

It was possible to say that while the groups may have arisen from populations having similar test responses, they did arise from populations having differing score profiles, i.e., overall interpretation of the profiles for each group was differential in some way.

Hypothesis 6

Whether group means change over time or not, another kind of change may still occur among individuals within a group. Surely different interpretations are attached to a group of scores on an instrument which are widely dispersed along the entire scale, and a group of scores which cluster relatively close to the mean. In the first case the interpretation would likely be that there was little agreement within the group of scores on the variable measured (heterogeneity). In the second case the interpretation would probably indicate there was considerable agreement within the group of scores (homogeneity). Change over time from little agreement to considerable agreement, or vice-versa, would seem to imply an impact at least as meaningful as a change in mean score. Furthermore, differential dispersion of scores across groups at a given time would also suggest alternate explanations. Hypotheses 6 and 7 considered the possibility of change in group variability between and within the groups of this study.

For each variance analysis computed to test the first five hypotheses, a parallel analysis of variance of the test score profiles was computed. Levene's Test for Homogeneity of Variance is a straightforward test which is robust to the assumption that the samples tested come from normal populations. Data needed for the test were "...the absolute values of the differences between each observation and the mean of its group" (Glass, 1966). These were obtained after each of the

original analyses of variance were computed by using the resultant group means in a Fortran sub-routine on the CDC 6500 computer, and punching a new deck of cards with the required values.

Hypothesis 6 considered change in dispersion of group scores across groups independent of time. It was parallel to Hypotheses 1, 2, and 5:

6. There is no difference in the dispersion of test scores among individuals who eventually join and remain in fraternities, join and later drop out of fraternities, pledge but never formally associate with fraternities, and never formally associate with fraternities (1) upon initial enrollment in college, (2) one year after initial enrollment in college, and (3) four years after initial enrollment in college.

The F ratios of interest parallel to Hypothesis 1 for Fall, 1958, entering freshman score profiles were not significant (Table 4.10). On this basis part 1 of Hypothesis 6 was not rejected; dispersion of test scores for the groups of interest were not different upon initial enrollment in college.

TABLE 4.10
LEVENE VARIANCE ANALYSIS, FALL, 1958

Source	SS	df	MS	F
Groups	183.603	3	61.201	0.382
Subjects within Groups	28782.845	180	159.905	
Variables	52811.036	5	1052.207	123.165*
Variables by Groups	555.821	15	37.055	0.432
Variables by Subjects with- in Groups	77180.312	900	85.765	

*Recall that, due to the nature of the test scores, the F ratio for Variables was expected to be significant. As a result it was not of great interest to the study.

Non-significant F ratios simply mean that statistically the dispersion of profile scores for the groups were uniformly heterogeneous or homogeneous. Alone they yield no indication of which is the case in a set of data. Graphing individual group score dispersions appeared the most practical solution to finding what kind of score dispersion was present. In order to provide a means of comparison, score dispersions of instruments common to all three times were graphed together (Illustration 4.3). Since F ratios in the analysis of end of freshman year scores (Table 4.11) and the analysis of senior year scores (Table 4.12) were all non-significant, it seemed redundant to graph test scores not in common across all three times. The F tests in these analyses indicated the dispersion of test scores between the groups at all three times was the same or similar. Hypotheses 6 and 7 were not rejected; there was no statistically significant difference in dispersion.

ILLUSTRATION 4.3
TEST DISPERSIONS COMMON TO ALL TIMES

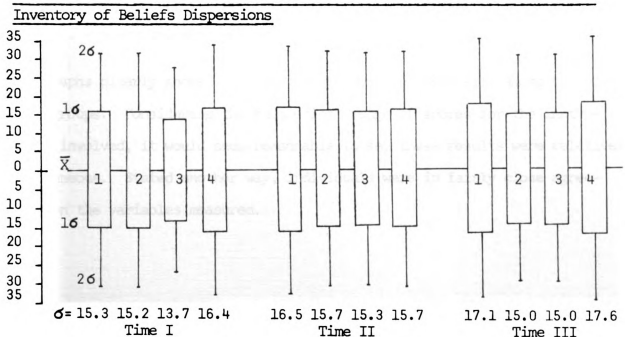
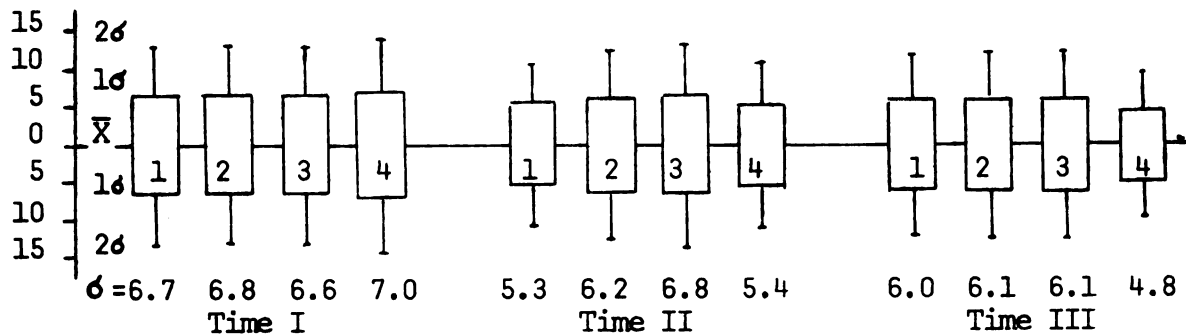
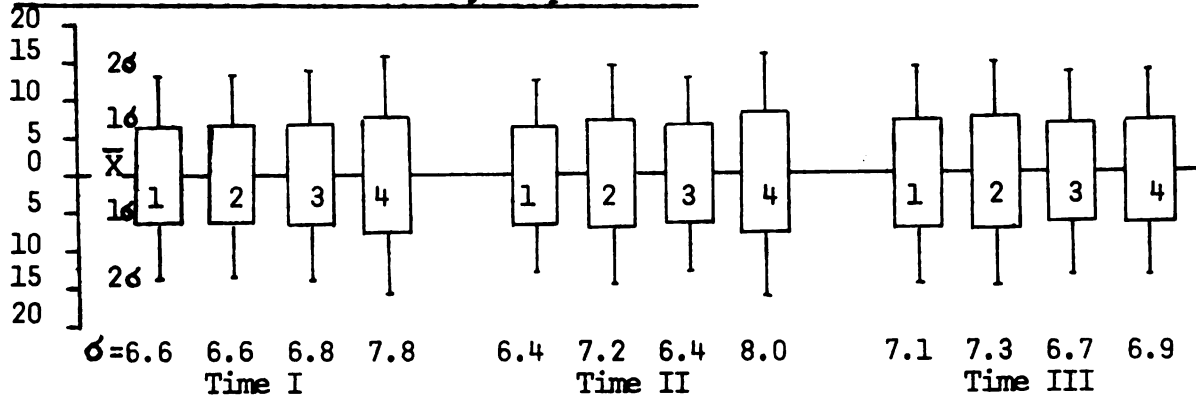


ILLUSTRATION 4.3--ContinuedCritical Thinking DispersionsDifferential Values Inventory Dispersions

* 1 = Greeks, 2 = Dropouts, 3 = Pledgeouts, 4 = Stayouts

The graphs clearly showed lack of disagreement in dispersion among the four groups. Considering the theoretical range of scores for the instruments involved, it would seem reasonable to say these results were relatively homogeneous. Stated another way, individuals were in fairly close agreement on the variables measured.

TABLE 4.11
LEVENE VARIANCE ANALYSIS, SPRING, 1959

Source	SS	df	MS	F
Groups	6.615	3	2.205	0.053
Subjects with- in Groups	7557.047	180	41.984	
Variables	6898.479	2	3449.240	912.208*
Variables by Groups	180.577	6	30.096	0.796
Variables by Subjects within Groups	13612.202	360	37.812	

*Significant at the .05 level of confidence or beyond

TABLE 4.12
LEVENE VARIANCE ANALYSIS, SPRING, 1962

Source	SS	df	MS	F
Groups	61.642	3	20.547	0.163
Subjects with- in Groups	22588.213	180	125.490	
Variables	22918.253	3	7639.418	113.802*
Variables by Groups	682.845	9	75.872	1.130
Variables by Subjects within Groups	36249.464	540	67.129	

*Significant at the .05 level of confidence or beyond

Hypothesis 7

Hypothesis 7 considered change in dispersion of group scores within groups across time. It was stated to be parallel to Hypotheses 3 and 4.

7. There is no difference in the dispersion of test score profiles over time within groups (1) one year after initial enrollment in college, and (2) four years after initial enrollment in college.

The F ratios of interest parallel to those in Hypotheses 3 and 4 in the four-way analysis of variance for Hypothesis 7 were not significant (Table 4.13). On these results Hypothesis 7 was not rejected. Dispersion of test score profiles within groups across time were not differential. In terms of variables measured, dispersion was not significantly different in a statistical sense among the groups on the Inventory of Beliefs, A Test of Critical Thinking, and The Differential Values Inventory.

When dogmatism scores collected at the beginning and end of college were considered, Hypothesis 7, part 2 could not be accepted. While there was no difference in group level or profile, in this case the significant F ratio for times was evidence that for all groups there was a difference in dispersion over times (Table 4.14). When actual total group deviations were checked, the students had become more homogeneous from their freshman to their senior year on Rokeach's Dogmatism Scale (Freshman = 27.2; Senior = 24.0). Using t-tests on freshman-senior variances in their population, Lehmann and Dressel (1962, pp. 52-54) found greater heterogeneity among males on the DVI and greater homogeneity on the Dogmatism Scale. The use of multiple t-tests on the same population may account for the additional significant difference in the Lehmann-Dressel data.

TABLE 4.13
LEVENE VARIANCE ANALYSIS: HYPOTHESIS 7

Source	SS	df	MS	F
Groups	67.299	3	22.433	0.254
Subjects with- in Groups	15922.826	180	88.460	
Times	4.667	2	2.333	0.110
Variables	19288.222	2	9644.111	109.022 [*]
Times with Variables	166.135	4	41.534	1.911
Groups with Times	76.054	6	12.676	0.599
Groups with Variables	180.459	6	30.076	0.437
Groups and Times with Variables	232.137	12	19.345	
Times by Subject within Groups	7616.840	360	21.158	
Variables by Subjects within Groups	24777.822	360	68.827	
Times and Var- iables by Subjects within Groups	15657.401	720	21.733	

^{*}Significant at the .05 level of confidence or beyond

TABLE 4.14
LEVENE DOGMATISM DISPERSION ANALYSIS

Source	SS	df	MS	F
Groups	343.686	3	114.562	0.344
Subjects with- in Groups	59832.891	180	332.405	
Times	961.591	1	961.591	6.400*
Times by Groups	438.450	3	146.150	0.972
Variables by Subjects within Groups	27043.742	180	150.243	

*Significant at the .05 level of confidence

Senior Year Experience Inventory

The remaining two hypotheses (8 and 9) formed for the study treated data collected on Lehmann and Dressel's Senior Year Experience Inventory (SRI). Additional data considering self-reports of factors which reinforced or modified beliefs, and student response to the Clark-Trow student typologies were also analyzed.

Hypothesis 8

Hypothesis 8 was formed to consider mean score data from scales developed out of items from the SRI. Sixteen scales were developed from SRI items which had an internal consistency reliability coefficient considered a priori to be sufficient for further analysis. Definitions of these scales were listed in Chapter III. The hypothesis formed to consider them was:

8. Four years after initial enrollment in college, there is no difference in degree or direction of self-reported change, or in attitudes and values among individuals who eventually joined and remained in fraternities, joined and later dropped out of fraternities, pledged but never formally associated with fraternities, and never formally associated with fraternities.

The test of the hypothesis was a three-way analysis of variance using the Greenhouse and Geisser profile analysis method (Table 4.15). There was a significant F ratio for the Groups, but no significant F ratio for the Groups and Variables interaction. Groups had parallel profiles, but profiles were not all at the same level. Apparently there was difference in self-perceived degree of change, but not in direction of change. Otherwise both F ratios would have been non-significant. Hypothesis 8 was thus not rejected in terms of direction of change, but was not accepted in terms of degree of change.

TABLE 4.15
RAVE SCALES VARIANCE ANALYSIS

Source	SS	df	MS	F
Groups	196.218	3	65.406	3.126*
Subjects with- in Groups	3766.002	180	20.922	
Variables	186797.121	19	9831.427	835.721*
Variables by Groups	817.695	57	14.345	1.219
Variables by Subjects within Groups	40234.085	3420	11.764	

*Significant at the .05 level of confidence or beyond

A set of Scheffe' contrasts were computed to determine where differences in level might be found (Table 4.16). While it would seem most interesting to ask about differences among groups on individual scales, the non-significance of the groups by variables interaction would suggest that what is true for one scale is true for another. The contrasts listed thus looked across the entire profile of scale scores for groups, and asked if there were simple differences in level between pairs of groups which might provide evidence to show differential degree of change.

TABLE 4.16
POST-HOC CONTRASTS: SRI RAVE ANALYSIS

Groups Compared	Mean	Difference	Conf. Int.	Sig.
1 versus*	15.004			
2	15.442	0.438	<u>+0.592</u>	NS
1 versus	15.004			
3	15.103	0.099	<u>+0.592</u>	NS
1 versus	15.004			
4	14.804	0.200	<u>+0.592</u>	NS
2 versus	15.442			
3	15.103	0.339	<u>+0.592</u>	NS
2 versus	15.442			
4	14.804	0.638	<u>+0.592</u>	.05
3 versus	15.103			
4	14.804	0.299	<u>+0.592</u>	NS

*1 = Greeks; 2 = Dropouts; 3 = Pledgeouts; 4 = Stayouts

The contrast involving Dropouts (2) and Stayouts (4) proved to be the only simple contrast contributing to the overall significance of the Groups F ratio among those tested. The data indicated that in comparison to Dropouts, Stayouts had a significantly lower overall scale score profile. An effort was made when the scales were constructed to have higher scores represent more of various described qualities. Compared only with the

Dropouts, Stayouts had less of these described qualities in their group profile. There was no significant difference in profiles when Stayouts were compared with other groups.

Hypothesis 9

A question of equal interest to that of differences in mean scores on the SRI scales was whether scale score dispersion was differential among the groups. Hypothesis 9 treated that aspect of the data analysis. It was tested using Levene's Test of Homogeneity (Table 4.17). Results indicated that neither levels nor profiles of dispersion were different. The significant F ratio due to variance of variables was not of interest to the study. Based on these data, Hypothesis 9 was not rejected. There were no statistical differences in the scales of self-reported change or in scales of attitudes and values for the four groups on the Senior Year Experience Inventory.

TABLE 4.17
LEVENE VARIANCE ANALYSIS: SRI SCALES

Source	SS	df	MS	F
Groups	11.490	3	3.830	0.684
Subjects with- in Groups	1007.342	180	5.597	
Variables	7810.330	19	411.070	126.561*
Variables by Groups	242.121	57	4.248	1.185
Variables by Subjects within Groups	12264.421	3420	3.586	

*Significant at the .05 level of confidence or beyond

Additional Data

Fifty items in Part X of the SRI were not scalable by means of the reciprocal averages program. These items provided students with the opportunity to mark those among the fifty which in their opinion had modified or reinforced their beliefs since they entered college. Seven groups of items were formed by content analysis: (1) Courses, (2) Instructors, (3) Peers, (4) Student Organizations, (5) Student Activities, (6) University Facilities, and (7) Other influences not classified in the previous six categories. As explained in Chapter III, data were analyzed using Kendall's Coefficient of Concordance and Hays' Omega Squared. Group scores were determined by summing across individual responses. Data for this analyses were transformed from the original instrument such that a single scale was formed with a response of 5 meaning "most modifying" and a response of 1 meaning "most reinforcing."

Courses.—Twelve items listed specific courses in University College of Michigan State University, other courses and courses in one's major (Table 4.18). The intent of these items was to ascertain if students perceived an impact on their beliefs as a result of the general education courses in their academic program: Natural Science, Social Science, Humanities and Communication Skills. Kendall's Coefficient of Concordance (KCC) among the four groups on these data was 0.51, or 51 percent of the maximum possible variance which could theoretically be achieved. This was interpreted to be a moderately high degree of concordance among the groups. The two courses listed as most modifying were Social Science 231 and Social Science 232. Courses listed as most reinforcing beliefs were "a course in your major" and (tied) "any other course" and Humanities 241.

TABLE 4.18
SELF-PERCEIVED IMPACT OF VARIOUS COURSES ON ATTITUDES AND VALUES

Course	Greeks Score (Rank)	Dropouts Score (Rank)	Pledgeouts Score (Rank)	Stayouts Score (Rank)	Total (Rank)
Communication Skills 111	132 (5.5)*	129 (8)	131 (8.5)	140 (1)	3.5
Communication Skills 112	133 (3.5)	126 (10)	130 (10.5)	136 (2)	6
Communication Skills 113	113 (3.5)	125 (12)	132 (7)	134 (6)	7
Natural Science 181	132 (5.5)	136 (5)	131 (8.5)	135 (4)	3.5
Natural Science 182	129 (8.5)	141 (2)	128 (12)	137 (7)	8
Natural Science 183	126 (11.5)	133 (7)	130 (10.5)	128 (9)	11
Social Science 231	141 (1)	143 (1)	136 (2)	135 (4)	1
Social Science 232	131 (7)	139 (3)	137 (1)	135 (4)	2
Social Science 233	129 (8.5)	138 (4)	134 (5)	129 (8)	5
Humanities 241	119 (13)	126 (10)	133 (6)	125 (11)	12.5
Humanities 242	126 (11.5)	135 (6)	135 (3.5)	126 (10)	9
Humanities 243	128 (10)	126 (10)	135 (3.5)	117 (14)	10
A course in my major	116 (14)	117 (14)	121 (14)	122 (13)	14
Any other course	137 (2)	124 (13)	124 (13)	122 (13)	12.5

*KCC for these data was 0.51

Instructors.--Parallel to the items about courses, 10 items asked students to say which of various university instructors and other personnel had most influenced their beliefs (Table 4.19).

TABLE 4.19
SELF-PERCEIVED IMPACT OF VARIOUS INSTRUCTORS ON ATTITUDES AND VALUES

Instructors	Greeks Score (Rank)	Dropouts Score (Rank)	Pledgeouts Score (Rank)	Stayouts Score (Rank)	Total (Rank)
Social Science	138 (1) *	137 (5)	143 (2)	136 (3)	1
Humanities	129 (5.5)	129 (7.5)	127 (9)	131 (7)	9
Natural Science	130 (3)	136 (6)	134 (4)	129 (9)	7
Communication Skills	131 (2)	130 (9.5)	147 (1)	133 (4.5)	2
Instructor in major	113 (10)	130 (9.5)	124 (10)	138 (1)	10
Any other instructor	129 (5.5)	138 (4)	129 (8)	122 (10)	8
Housemother	128 (8.5)	129 (7.5)	135 (3)	137 (2)	5.5
R.A. or Head R.A.	129 (5.5)	140 (2.5)	130 (6.5)	132 (6)	3.5
Conduct patterns of Faculty	129 (5.5)	140 (2.5)	133 (6)	130 (8)	5.5
Academic Adviser	128 (8.5)	143 (1)	130 (6.5)	133 (4.5)	3.5

*KCC for these data was 0.24

The KCC value for these data was 0.24--a low degree of concordance among the groups. When a low degree of concordance is computed, the question arises whether there is low agreement between the groups or low agreement among subjects within the groups. The latter tends to cause ties in rank order which weakens the robustness of the KCC. One way to determine whether there is low agreement between or within groups when a low KCC is found is to calculate Hays' measure of statistical association, Omega Squared, for each individual group (Hays, 1963, pp. 381-385). None of the Omega Squared for the four groups accounted for more than one per cent of the variance in the dependent variable, responses to items about instructors. Apparently the reason for the low KCC value was very little

agreement among subjects within the several groups. The value of Omega Squared for Greeks was 0.009; Dropouts, 0.000; Pledgeouts, 0.001; and Stayouts, 0.000. Regardless of low overall agreement, it seemed defensible that agreement among the subjects within a group would be greatest on items with the most extreme scores. Considering only those items with the highest and lowest group scores, Greeks reported Social Science instructors most modifying and major instructors most reinforcing. An academic advisor was most modifying for Dropouts, and a Communication Skills or major instructor most reinforcing. Pledgeouts said a Communication Skills instructor was most modifying and a major instructor most reinforcing. Stayouts reported a major instructor most modifying and any other instructor most reinforcing.

Peers.--There is much in the literature on student development about the impact of peers on attitudes and values. Six items treated the impact of various peer group situations. KCC for these data was 0.58, a moderate degree of concordance which indicated general agreement among the groups as to the rank order of peer influences. The generalized statement, "conforming to campus mores," was considered the most modifying peer group influence, and close friends were the most reinforcing influence among the students in the groups (Table 4.20).

Student Organizations.--Another source of influence on student development closely related to peers were student organizations. A set of six items listed various student organizations, and asked students to report which of them had had an impact on their beliefs. The KCC was 0.19 (Table 4.21). There was no agreement among the groups as to which of the six types of student organizations were most influential on individual attitudes and values. Hays' Omega Squared tests showed that lack of

TABLE 4.20
SELF-PERCEIVED IMPACT OF PEERS ON ATTITUDES AND VALUES

Peers	Greeks Score (Rank)	Dropouts Score (Rank)	Pledgeouts Score (Rank)	Stayouts Score (Rank)	Total (Rank)
Close Friend(s)	128 (6)*	131 (5)	130 (5)	113 (6)	6
Roommate	130 (5)	135 (4)	129 (6)	134 (4)	5
Discussions of "bull-sessions"	131 (3.5)	144 (1)	131 (3.5)	128 (5)	3
A person I dated	131 (3.5)	127 (6)	131 (3.5)	140 (1)	4
Conduct patterns of students	136 (2)	142 (3)	144 (1)	137 (2.5)	2
Conforming to Campus Mores	137 (1)	143 (2)	140 (2)	137 (2.5)	1

*KCC for these data was 0.58

agreement was associated with disagreement among individuals within groups, as none of the statistics accounted for more than 4.5 per cent of total variance. The values were Greeks, 0.002; Dropouts, 0.000; Pledgeouts, 0.045; and Stayouts, 0.007. Greeks marked the Honors College most modifying and their fraternity or sorority most reinforcing. Both Dropouts and Pledgeouts viewed ROTC as most modifying and their living quarters as most reinforcing, although tied in rank with Extra-Curricular Clubs for Dropouts and Honorary Societies for Pledgeouts. Stayouts considered their living quarters most modifying, and Extra-curricular Clubs most reinforcing.

Student Activities.--A third source of student impact on student development associated with peer interaction and student organizations was student activities. Five items mentioned various all-campus activities which students might choose to do (Table 4.22). The KCC was 0.47.

TABLE 4.21
SELF-PERCEIVED IMPACT OF STUDENT ORGANIZATIONS ON ATTITUDES AND VALUES

Student Organizations	Greeks		Dropout		Pledgeouts		Stayouts		Total
	Score	(Rank)	Score	(Rank)	Score	(Rank)	Score	(Rank)	(Rank)
Extra-curricular clubs	124	(5)*	132	(5.5)	134	(4)	130	(6)	6
Fraternity or Sorority	113	(6)	136	(3.5)	144	(2)	137	(2)	3
Living Quarters	134	(3.5)	132	(5.5)	129	(5.5)	138	(1)	4
ROTC	134	(3.5)	137	(1)	148	(1)	135	(3)	1
Honors College	140	(1)	136	(3.5)	137	(3)	133	(4.5)	2
Honorary Societies	135	(2)	136	(3)	129	(5.5)	133	(4.5)	5

*KCC for these data was 0.19

TABLE 4.22
SELF-PERCEIVED IMPACT OF STUDENT ACTIVITIES ON ATTITUDES AND VALUES

Student Activities	Greek		Dropout		Pledgeouts		Stayouts		Total
	Score	(Rank)	Score	(Rank)	Score	(Rank)	Score	(Rank)	(Rank)
Social Events	117	(3)*	130	(3)	127	(3)	122	(5)	3.5
Athletic Events	116	(4.5)	131	(1.5)	125	(4)	123	(4)	3.5
Lecture-Concert Series	135	(1)	129	(4)	132	(2)	126	(3)	2
Participation in Athletics	116	(4.5)	127	(5)	124	(5)	131	(2)	5
Physical Education	127	(2)	131	(1.5)	133	(1)	134	(1)	1

*KCC for these data was 0.47

This was considered within the range of moderate agreement among the four groups. The activity regarded as most modifying was physical education. The most reinforcing activity was participation in athletics. At first glance, this seemed somewhat uninterpretable. However, physical education was a required activity in which students were asked to take part in activities they might not otherwise choose to do. Participation in athletics, on the other hand, would seem to relate strongly to those activities students knew and enjoyed doing. If this interpretation is correct, the difference between what was most modifying and most reinforcing may be exposure to new experiences.

University Facilities.--A sixth source of potential impact on student attitudes and values was University facilities which the student might use to his advantage. There was a moderately high degree of agreement among the groups on the impacts of the various University facilities listed on the inventory (Table 4.23). The KCC was 0.73. Tied for first rank as the most modifying influences were the Mental Hygiene Clinic and the Improvement Services. The Church, if the campus ministries may be considered a University facility, was the most reinforcing influence on student beliefs in this set of items.

Other Influences.--Four items which did not appear to logically fit into the previous six categories of potential student impacts were listed together. Interestingly, the highest degree of concordance was registered for this group, 0.76 (Table 4.24). Campus regulations were considered the most modifying of these potential influences, and Family the most reinforcing of previously held attitudes and values. Again it would appear that adapting to new experiences (regulations) was modifying, while continuing familiar experiences (Family) was reinforcing.

TABLE 4.23
SELF-PERCEIVED IMPACT OF UNIVERSITY FACILITIES ON ATTITUDES AND VALUES

University Facilities	Greeks		Dropouts		Pledgeouts		Stayouts		Total
	Score	(Rank)	Score	(Rank)	Score	(Rank)	Score	(Rank)	(Rank)
Counseling Center	139	(1) *	130	(4)	135	(3)	130	(3)	3
Library	126	(5)	131	(3)	127	(4)	128	(4)	4
Mental Hygiene Clinic	135	(2)	134	(2)	139	(1)	136	(2)	1.5
	134	(3)	138	(1)	138	(2)	139	(1)	1.5
Improvement Services									
Church	128	(4)	124	(5)	124	(5)	122	(5)	5

*KCC for these data was 0.73

TABLE 4.24
SELF-PERCEIVED IMPACT OF OTHER INFLUENCES ON ATTITUDES AND VALUES

Other Influences	Greeks		Dropouts		Pledgeouts		Stayouts		Total
	Score	(Rank)	Score	(Rank)	Score	(Rank)	Score	(Rank)	(Rank)
Employment	130	(3) *	144	(3)	143	(1.5)	128	(3)	3
Family	114	(4)	125	(4)	125	(4)	127	(4)	4
Campus regulations	151	(1)	145	(2)	143	(1.5)	145	(1)	1
Being away from home	136	(2)	149	(1)	133	(3)	141	(2)	2

*KCC for these data was 0.76

Student Typologies

The final section of data from the Senior-Year Experience Inventory analyzed for this research was student responses to the four Clark-Trow student typologies: (W) Vocational, (X) Academic, (Y) Non-Conformist, and (Z) Collegiate. Students were asked to select the typology which most closely described them as Seniors and when they entered college as

Freshmen. They also indicated that typology least like themselves as Seniors, the type they would like to be if they could, and the type they considered the typical MSU student (Table 4.25).

The four groups were statistically different in their description of their present typology. In decreasing order, the fraternity-associated groups (1,2 and 3) were most likely to choose the non-conformist category, while Stayouts were most likely to choose the vocational typology. Two-thirds of the students who chose the collegiate typology were Greeks.

Groups were also statistically different in their selection of the typology least descriptive of themselves. Greeks were most likely to say the academic type was least descriptive and least likely to report the collegiate orientation as least descriptive. In contrast, a majority in the remaining three groups (2, 3, and 4) considered the collegiate orientation least descriptive of them.

There was considerable change in the typology selected by subjects in the groups from 1958 to 1962. In 1962, students in all groups were less concerned with vocational preparation and more involved in a desire for balanced academic and social activity. Two other points seemed noteworthy. Stayouts remained the most vocationally oriented after four years, and all other groups except Greeks declined in the percentage selecting the collegiate orientation.

The third item on which the groups were statistically different had to do with the kind of person they would like to be if they had a choice. All groups had a majority of subjects opting for the non-conformist description, but more Greeks than other group members still indicated they wanted to be collegiate. Greeks were least likely, and Dropouts most likely to say their ideal type was Academic. A comparison

TABLE 4.25
SELF-PERCEIVED TYPOLOGY CHANGES FROM FRESHMAN TO SENIOR YEAR

Statement	Type Frequency and (Percentage) in Each Group Responding																x ²	
	Vocational				Academic				Non-Conformist				Collegiate					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Which of the above (W,X,Y,Z) comes closest to describing the kind of person you consider yourself to be now?	9 (20)	14 (30)	14 (30)	18 (39)	2 (4)	9 (20)	10 (22)	16 (35)	25 (54)	21 (46)	19 (41)	12 (26)	2 (4)	10 (22)	2 (4)	3 (7)	0 (0)	33.383*
Which of the above is <u>least</u> descriptive of the kind of person you consider yourself to be now?	10 (22)	9 (20)	11 (23)	4 (9)	22 (48)	11 (24)	8 (17)	9 (20)	0 (0)	2 (4)	2 (4)	4 (9)	14 (30)	24 (52)	25 (54)	29 (63)	22.716*	
Which of the above comes closest to describing the kind of person you were when you first came to MSU?	23 (50)	19 (41)	24 (52)	23 (50)	2 (4)	8 (17)	4 (9)	9 (20)	12 (26)	11 (24)	9 (20)	10 (22)	9 (20)	8 (17)	9 (20)	4 (9)	9.101 ^{NS}	
Which of the above comes closest to describing the kind of person you <u>would</u> like to be if you <u>had</u> a choice?	5 (11)	4 (9)	5 (11)	5 (11)	7 (15)	18 (39)	12 (26)	13 (28)	26 (57)	24 (52)	27 (59)	27 (59)	8 (17)	0 (0)	2 (4)	1 (2)	19.360*	

TABLE 4.25--Continued

Statement	Type Frequency and (Percentage) in Each Group Responding												χ^2				
	Vocational				Academic				Non-Conformist					Collegiate			
	1	2	3	4	1	2	3	4	1	2	3	4		1	2	3	4
Which of the above types comes <u>closest</u> to describing the typical MSU student?	7 (16)	13 (30)	8 (18)	10 (23)	2 (4)	2 (4)	2 (4)	3 (7)	7 (16)	10 (23)	14 (31)	8 (19)	27 (63)	19 (43)	21 (47)	22 (51)	6.975 ^{NS}
*Significant at the .05 level of confidence or beyond																	

of items 1 and 4 suggests the difference between self-perceived and ideal traits for these students.

There was no statistical difference among the groups in their description of the person they were when they entered college. Students in all groups were most likely to consider themselves vocationally oriented.

Despite the data on self-perceptions to the contrary above, a stereotype apparently existed among these students which perpetuated the "typical MSU college joe" as a collegiate--one who would try to get by with the least amount of effort. Apparently, Greeks were the most likely to view themselves as typical MSU students, whereas the other groups were much more likely to see themselves as being different from the "average" student at the University.

SUMMARY

This chapter has presented the results of the statistical analyses performed on the data collected for the study. Results indicated that there were differences on both published instruments and the Senior Year Experience Inventory among the four groups. Differences on variables measured by published instruments were more interpretable than differences among groups on the SRI scales. Most statistically significant differences were between Greeks and Stayouts or Dropouts and Stayouts. Experiences reinforcing attitudes and beliefs appeared associated with vocational preparation, while experiences modifying attitudes and beliefs seemed associated with more general educational development. At entrance to college students were most likely to be vocationally oriented, but after four years they were much more interested in a balance of academic and social affairs.

CHAPTER 5 SUMMARY, DISCUSSION AND CONCLUSIONS

This chapter presents an overview of the research reported. Conclusions are made and interpretations of the results given in terms of the groups and instruments involved in the study. Limitations of this study are described and suggestions for further research are made.

Purpose and Procedure

The purpose of this study was to determine if apparent degree of association with a college social fraternity appeared to have an influence on the development of critical thinking, attitudes and values as measured by published instruments, and whether persons with varying lengths of membership differed in self-perceived attitudes and values after four years of college.

The sample of students selected for study were from the population of male students who entered Michigan State University in fall, 1958, for the first time, and who attended the University for at least nine of the next eleven terms. Subjects were grouped according to length of fraternity membership as determined by research records and individual responses on the Senior-Year Experience Inventory. The groups were (1) those who joined and remained in fraternities, (2) those who joined but later dropped out of fraternities, (3) those who pledged but never formally joined fraternities, and (4) those who reported no formal association with fraternities.

Groups were compared at three points in time: (1) at the beginning

of the freshman year, (2) at the end of the freshman year, and (3) at the end of the senior year. Instruments used in the study were The College Qualification Test, The MSU Reading Test, A Test of Critical Thinking, The Inventory of Beliefs, Rokeach's Dogmatism Scale, The Differential Values Inventory, and 16 scales developed from items in The Senior Year Experience Inventory. Cognitive instruments were administered only at the beginning of the freshman year. Affective instruments were administered at all three points in time. The Senior Year Experience Inventory was administered at the end of the senior year.

The major statistical tool used to analyze the data was analysis of variance employing the method of profile analysis suggested by Greenhouse and Geisser (1959). In all analyses the .05 level of confidence was used to determine statistical significance.

Findings

Nine hypotheses were tested with the data collected for the study. Not only were mean differences in group data considered, but also dispersion of the data about the mean.

Hypothesis 1.--The first hypothesis considered the equality of group test score profiles at entrance to college, fall, 1958. Results indicated that there was no simple, pairwise difference among the group score profiles in level or parallelism. This was interpreted to mean that at entrance to college, all four groups of interest to this study arose from the same general population of students.

Hypothesis 2.--The second hypothesis treated equality of group score profiles at the end of the freshman year. In this case test profiles remained parallel, but there was a significant difference in level between Greeks and Stayouts. In all cases, Greek test scores

were lower than Stayout, Pledgeout or Dropout scores, although they were significantly different only from Stayout test scores. Restated in terms of the variables measured by the instruments, at the end of one year in college, Greek-affiliated students demonstrated less critical thinking ability, were more immature, and more likely to think and perceive in terms of stereotypes in comparison with students who never affiliated with fraternities.

Hypothesis 3.--The third hypothesis approached the problem of degree and direction of change over time in score profiles among the groups after one year in college. In this analysis data from both the beginning of the freshman year and the end of the freshman year were considered together. The two groups differing significantly from each other in profile level were Greeks and Stayouts. There was no significant difference in degree or direction of change since the Groups by Times by Variables interaction was not significant. All groups became relatively better thinkers, more mature, and less stereotypic after one year.

Hypothesis 4.--The fourth hypothesis was treated with the third in a four-way analysis of variance. It considered the degree and direction of change over time after four years of college experience. Results were as above for Hypothesis 3. There was a significant difference between Greeks and Stayouts in profile level, but no significant difference in the general direction or degree of change on the variables measured.

Taking the groups as an entity, there was significant change from the beginning to the end of the freshman year, and from the end of the freshman year to the end of the senior year on the affective variables measured. Stated in terms of variable concepts, students in general became more mature, less apt to perceive in absolute categories, and more likely to think through problems and situations in a critical manner.

From the beginning of the freshman year through the senior year, students were also more likely to be less dogmatic in their thinking behavior. When profiles of the groups were considered, Greeks at the beginning and end of one year and at the end of four years of college experience were consistently the most stereotypic and other-directed in interpersonal relationships, as well as the poorest critical thinkers of the four groups studied. They were statistically different, however, only when compared to Stayouts. Congruent with holding fewer stereotypes, Stayouts were least dogmatic and most open to new ideas and experiences.

The result in Hypothesis 3 that Greeks were statistically different in test score level from Stayouts at the beginning of the freshman year may seem conflicting with the results of Hypothesis 1, where no simple difference among profile level was found for the groups at the beginning of their college experience. The Hypothesis 1 analysis contained data from all six published instruments used in the study. The Hypothesis 3 analysis contained data from the three instruments which formed what was the actual longitudinal study: The Inventory of Beliefs, A Test of Critical Thinking, and The Differential Values Inventory. If all six instruments had been administered at all three points in time, it might indeed be that no significant simple difference between pairs of groups would occur. On the other hand, given only three test scores over time, it may well be that the additional instruments treated in the Hypothesis 1 analysis clouded the results and masked what otherwise would have been a significant difference in level between Greeks and Stayouts at entrance to college. Based on the results of Hypothesis 3 and the somewhat difficult to interpret results of Hypothesis 1, the possibility of a Type II statistical error in the Hypothesis 1 analysis would appear likely.

Hypothesis 5.--The fifth hypothesis appraised data for the senior year alone. Group levels on the instruments were the same, but group profiles were different. Apparently there was a complex interaction of several groups and several instruments. There was no significant interaction between simple combinations of individual groups and variables, or pairs of groups and variables. Given the significant difference in level between Greeks and Stayouts at the end of the freshman year, one might have expected a similar difference at the end of the senior year if change on the variables for both groups remained relatively constant. Apparently it did not, and may have been a factor in the significant complex interaction mentioned above but never located. Stated in terms of the variables measured, at the end of the senior year all groups were similar in their critical thinking ability, stereotypy, dogmatism, and differential values, but the interpretation placed on each groups' profile was in some way differential. It was difficult to interpret this result in light of the results described for Hypothesis 4. It may mean that by the senior year, Greeks were just managing to "catch up" to the other groups on the variables measured, but they still did not quite match overall group score profiles across four years. On the other hand this result may have been a Type II statistical error, accepting a hypothesis when in truth it should have been rejected.

Hypotheses 6 and 7.--Both Hypotheses 6 and 7 considered the possibility of differential dispersion in group scores. Results indicated that there was none except for greater homogeneity from the freshman to senior years for all students on Rokeach's Dogmatism Scale. Whether analyzed from within points of time or across points of time, all groups displayed about the same degree of variation about test score means.

Hypothesis 8.--The eighth hypothesis dealt with mean scores on the sixteen scales developed from the Senior-Year Experience Inventory. Results showed that across the scale score profiles there was a significant difference in level between Dropouts and Stayouts, but that there was no difference among the groups in general scale score profile. Stayouts scored lower on the scales than did dropouts.

Hypothesis 9.--The final hypothesis formed for the study related to differential dispersion on the SRI scale scores for the four groups. Results demonstrated no difference in dispersion; groups were in general agreement in the variability of their responses to the scales.

Additional Data.--Fifty items on the SRI were analyzed which provided students with the opportunity to indicate which of the fifty had been most modifying or most reinforcing to their beliefs during their college years. The groups were in general agreement about the impact of courses, peers, student activities, university facilities, and other selected impacts. All groups agreed that two University College Social Science courses, "conforming to campus mores," physical education, the Mental Hygiene Clinic and the Improvement Services, and campus regulations were most modifying to attitudes and beliefs held at college entrance. Those items thought most reinforcing to original attitudes and beliefs were "a course in your major," close friends, participation in athletics, the Church, and family. There was no agreement among the groups about the relative impact of instructors or student organizations.

Student Typologies.--Students' perceptions of themselves on the Clark-Trow typologies were statistically different for the groups on items requesting present time perception, least descriptive perception, and ideal student type. They were similar when student type at college

entrance and the "typical" MSU student were considered. The majority of Greeks and the plurality of Dropouts and Pledgeouts viewed themselves as non-conformists. The plurality of Stayouts perceived themselves as vocationally oriented. When the collegiate typology alone was considered, Greeks were most likely to indicate preference for it. They also had least interest in the academic typology in comparison with other groups. From 1958 to 1962, students in all groups tended to shift from a vocationally motivated perception of higher education to one which had a more balanced approach to both social and academic life (non-conformist). A majority of students in all groups viewed the non-conformist as the ideal student type and a plurality regarded the collegiate type as the "typical" MSU student. The attractiveness of the non-conformist typological description (Appendix A) may have disproportionately influenced student response. Greeks appeared to be the most consistent in their perception of themselves across all five items.

Discussion And Conclusions

These data are interpretable in several alternative ways depending in part on the interpreter's biases about fraternities and student development. Two plausible interpretations are suggested here.

The purpose of this study was to ascertain if differences in the affective development and critical thinking ability of students might be associated with the degree of fraternity membership they had experienced. These data demonstrate that the fraternity experience had no discernable effect on student development over and above that

of the general college experience on the variables under investigation. This conclusion, drawn over four years' time, agrees with that of Scott's (1965) drawn over one year on related variables. These data again show empirically what is often argued and often found in fact, that students who join fraternities are different in the first place.

In this study students joining fraternities were initially statistically lower on tests of critical thinking, stereotypy, and other-directedness than students never bothering with fraternities. They remained so after one year and four years on the tests of stereotypy and critical thinking. For all students across the four years of the study, developmental growth as measured by the instruments was approximately the same. Fraternity members appeared to have the same rate of growth as other students, but they never made up their original deficit, if indeed their lower mean scores can be interpreted as a deficit. Since all groups appeared to develop at approximately the same rate across time on the instruments, one interpretation of the data is that fraternities do not hinder the development of critical thinking and flexibility. It would also appear that neither do fraternities promote the development of critical thinking or flexibility if indeed they should be reasonably expected to do so. It would seem from these data that the fraternity experience, contrary to what is claimed for it by proponents (NIC, 1959), added little to the personal growth of the Greeks in this study on the variables considered if the instruments used were actually reasonable measures of stereotypy and critical thinking processes. Movement on the third variable, other-directedness, by other groups was toward the

Greeks' original other-directed orientation.

In one sense these results may seem critical toward fraternities because they appeared not to contribute anything to student development over and above the general college experience. Viewed from a more fraternity-oriented point of view, the results might seem more encouraging. Greeks selected fraternity, family, and Church as three of their most reinforcing influences on original attitudes and beliefs during college. These three factors, among others, might be taken to represent "traditional American values," to be honored and preserved from a fraternity point of view. It then might follow that fraternity group selection and self-selection into fraternities should be such that those selected are the most likely, throughout their college experience, to honor those values.

It is appropriate to ask what these data suggest not about fraternity group experience but group experience in general. Since nothing was said about the possible group experiences Stayouts and others might have had (and probably did have) as alternatives to fraternity group experiences, it may well be that what has been compared in this research were alternative group experiences. If students with a minimum of group experience could be found and compared with students having fraternity and other group experiences, it might easily be that any kind of group experience would be superior in affective and critical thinking development to little or no group experience. It appears logical to assume that students have differential need for group support as a facilitator for their personal development. A variety of student groups may be necessary to fulfill the various levels of group support students may desire. Fraternities are one of those

student groups. It is possible that for students such as the Greeks in this study, fraternity membership may be the best means to encourage change toward clearer thinking and flexibility.

Limitations

There were several serious limitations to this study. First, the qualitative categories differentiating the various groups were somewhat unclear. It was not known how much relative exposure in actual time any of the subjects had with fraternity experiences. It was assumed that some had more than others. Second, the instruments used in the study had widely differing means and variances. The method of profile analysis was considered robust to differential variance in a set of variables, but it has been recently learned that it is apparently not as robust as previously considered (Draper, 1970). An analysis controlling for differential variance might have been more appropriate to the data. Third, the analysis of variance method employed meant data were "lost" since the study was fit to the statistical model, when it is preferable that the statistical model be fit to the study. A multivariate analysis of variance would have helped to counteract this limitation, if statistically it is a limitation. It is true that the sampling procedures used were employed to ensure the representativeness of the subjects selected for analysis to the several samples of subjects and the entire population of senior males at Michigan State University. Fourth, it was assumed subjects were representative on the basis of pre-test, 1958, test data. This was not to say that on the basis of post-test, 1962, data, subjects who did and who did not respond to the instruments were from the same population. Fifth, at best, the instruments used may only be a

caricature of the psychological constructs they purport to measure. While their validity and reliability was described, the lack of good criterion measures for psychological constructs makes it difficult to say that what one actually measured is what one purported to measure. Sixth, if there are differences in critical thinking and other variables among groups of students, it would be most meaningful to know what effects alternative situations to fraternities have on students by their amount of exposure to them. Alternatives to fraternities on a campus usually imply different housing arrangements; such housing arrangements may have more effect on students than fraternity membership. This study treated only one aspect of a very complex system. Seventh, it should be noted that there was no absolute standard against which to measure change. All subjects in all groups were changing at all points in time. An analysis of Greek members' development can only be done in reference to the development of other groups of students whose lifestyles are in and of themselves kinds of educational "treatments."

Suggestions For Further Research

This study was completed from data collected for two larger studies by Lehmann and Dressel published in 1962 and 1963. Times and universities have changed and the data are clearly anchored to the time in which they were collected. It is still important to know how change across time has occurred, but practical "action" applications of these data are no longer relevant to the present University which is Michigan State. It seems reasonable and necessary, if one is to know more about how and when change occurs in students at Michigan State University, that

the entire set of studies envisioned by Lehmann and Dressel be improved in design and replicated. This thesis would specifically suggest a careful study of the effects of different living styles on student development. Different living styles include not only different housing arrangements on a campus, but also different fraternity organizational alternatives across campuses and fraternities.

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APPENDICES

APPENDIX A

THE SENIOR-YEAR EXPERIENCE INVENTORY

SENIOR-YEAR EXPERIENCE INVENTORY

It is highly desirable that institutions of higher learning attempt to ascertain the opinions and observations of members of its student body in regard to those aspects of the university experiences which are felt to be of importance.

This inventory consists of various sections--some consist of your reactions to the objectives of college; some require an appraisal of the effectiveness of your college experiences; and some require your views on a variety of different topics. It is hoped that you will feel free to give frank and sincere responses. Your cooperation in this endeavor will insure that your institution will have a more accurate perspective regarding its programs and their effectiveness. All information will be treated as confidential and will be used for research purposes only.

Before beginning work please record your (1) Name, (2) Date, (3) Name of school, (4) Student Number, and (5) Academic class i.e., (Freshman, Sophomore, etc.) in the appropriate spaces below.

* * * * *

Name _____ Date _____
Last First Middle

Student Number _____ Academic Class _____ School _____

* * * * *

General Directions: Each of the questions on this inventory can be responded to by means of a coded key. For each question, write the code number of the answer appropriate to you in the code column blank at the right. Please read each question carefully and make sure that you are using the appropriate code. Answer all items.

* * * * *

Part I: Questions 1 - 5

Compare how you thought your four years of college would go with how you actually found it according to the following code:

	Code
More than I thought	1
Same as I thought	2
Less than I thought	3

	Code	IBM No.
1. Time spent on studies.	_____	(7)
2. Contact with faculty	_____	(8)
3. Participation in school activities _____	_____	(9)
4. Dating	_____	(10)
5. Prejudice because of social or religious background _____	_____	(11)

* * * * *

* Removed from Lehmann and Dressel (1962).

Part II: Questions 6 - 11

Below are a number of statements. Please rate each of them in terms of your own experiences using the following code:

	Code
Strongly agree	1
Agree	2
Disagree	3
Strongly disagree	4

	Code	IBM No.
6. Generally, I found my classes pretty interesting. _____	_____	(12)
7. Most of my instructors were enthusiastic about their teaching. _____	_____	(13)
8. College is not as tough as I thought it would be. _____	_____	(14)
9. Generally, I spent less time on my studies than I thought I would. _____	_____	(15)
10. Getting good grades does not seem as important now as it once did. _____	_____	(16)
11. This is the kind of school a person should go to if he really wants a good education. _____	_____	(17)

* * * * *

Part III: Questions 12 - 29

The following questions refer to some general reactions that you might have about a variety of issues. Please react to each question using the following code and mark your answer in Code Column A.

	Code
Strongly agree.....	1
Agree	2
Disagree.....	3
Strongly disagree.....	4
No opinion.....	5

	Code A	IBM No.	Code B	IBM No.
12. Red China should be admitted to the U.N....	_____	(18)	_____	(36)
13. College professors should be allowed to subscribe to any ideological or political belief they wish	_____	(19)	_____	(37)
14. College professors should be required to take a loyalty oath.	_____	(20)	_____	(38)
15. My friends have had more impact on my views and beliefs than have courses or instructors.	_____	(21)	_____	(39)
16. A student should report another student cheating on an examination. .	_____	(22)	_____	(40)
17. College teachers, on the average, tend to be conservative	_____	(23)	_____	(41)
18. College tends to liberalize one's views	_____	(24)	_____	(42)
19. I am satisfied with my grades	_____	(25)	_____	(43)
20. I know exactly what I will be doing in the immediate future	_____	(26)	_____	(44)
21. The United States should prevent known communists from entering or visiting this country	_____	(27)	_____	(45)
22. Communists should not be permitted to speak on our campus	_____	(28)	_____	(46)
23. Medical care for the aged should be provided by the Federal government	_____	(29)	_____	(47)
24. The United States should continue nuclear testing in the atmosphere .	_____	(30)	_____	(48)
25. Petting and deep-kissing are appropriate sex outlets for unmarried college students.	_____	(31)	_____	(49)
26. All college students should be required to take a series of general education courses	_____	(32)	_____	(50)
27. I wouldn't hesitate to take a towel as a souvenir from a hotel in which I stayed	_____	(33)	_____	(51)
28. A college education should place equal emphasis on academic and social development	_____	(34)	_____	(52)
29. A person in a skilled trade is worth as much to society as one in a profession	_____	(35)	_____	(53)

We would also like to know how you would have reacted to each of the above statements (12-29) if we were to have asked these questions when you were a freshman. Please reread the questions and try to answer them this time, reacting as a freshman. Use the same code, but place your responses in Code Column B.

Part IV: Questions 30 - 38

People engage in activities in varying degrees. We would like to know how active a role you think you will want to play in each of the following, once your formal education is completed. Please rate each of the activities using the following code:

	Code
Very active.....	1
Active.....	2
Not very active.....	3
None.....	4
No idea.....	5

	Code	IBM No.		Code	IBM No.
30. Local politics	_____	(54)	34. Chamber of Commerce	_____	(58)
31. Church activities	_____	(55)	35. Men's or Women's clubs	_____	(59)
32. PTA	_____	(56)	36. Charitable civic groups	_____	(60)
33. Scouting	_____	(57)	37. Country club	_____	(61)
			38. Cultural groups (Art, Music, etc.)	_____	(62)

Part V : Questions 39 - 54

These sixteen questions refer to your conception of a good college teacher.

The characteristics of a good teacher are many and varied. Listed below are a number of statements which might be used to describe different faculty members. We are interested in learning your feelings regarding the characteristics of a good college teacher. Rate each of the characteristics listed below according to the following code: (Please rate each statement.)

Code: 1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree

	Code	IBM No.		Code	IBM No.
<u>A good college teacher</u>					
39. is active in civic affairs. (1)	_____	(63)	48. is willing to help students decide on how they should stand on things like politics and religion. (10)	_____	(72)
40. is active in campus activities. (2)	_____	(64)	49. is someone who judges a student on his work and not on how he dresses or looks. (11)	_____	(73)
41. is willing to discuss a student's career plans. (3)	_____	(65)	50. is someone who really makes students produce. (12)	_____	(74)
42. is willing to discuss a student's personal problems. (4)	_____	(66)	51. is someone who is willing to give the student a break when the student doesn't do his work. (13)	_____	(75)
43. is a person who can teach in an entertaining manner. (5)	_____	(67)	52. permits students to take part in deciding the course objectives. (14)	_____	(76)
44. is someone who sticks to teaching and does not act as a "buddy" to students. (6)	_____	(68)	53. does not attempt to indoctrinate his students in a particular political, religious, or ideological belief. (15)	_____	(77)
45. is active in religious affairs. (7)	_____	(69)	54. Of the 15 characteristics listed above, which one do you feel is the <u>most important</u> characteristic for a good college teacher.	_____	(78)
46. is someone who really knows his field. (8)	_____	(70)			(79)
47. does not give out a lot of reading assignments. (9)	_____	(71)			

* * * * *

Part VI : Questions 54a - 54c

This is the only section that requires some writing. However, this is necessitated by the fact that the information needed can only be obtained in this way. Since there are no right or wrong answers, do not spend too much time trying to conjure one up.

54(a) The most important (or significant) thing that I have learned at college is

54(b) The experience or activity which has been most profitable to me. (what and why)

54(c) What impact has this university had on you?

Part VII : Questions 55 - 60

Listed below are six religious concepts. In this section, we would like to know your definition for each of the major concepts. Read the 7 statements under each concept and select the statement that most nearly agrees with your attitude regarding that concept. Record the number of the statement in the code blank at the right of the major concept.

	Code	IBM No.		Code	IBM No.
55. <u>The Bible</u>	_____	(7)	58. <u>God</u>	_____	(10)
1. The Bible is inconsistent, contradictory and exaggerated in value.			1. God is our creator and judge who observes everything that we do.		
2. The Bible is a collection of myths.			2. God exists as a divine being.		
3. The Bible is a great literary work expressing religious philosophy.			3. God exists as a supernatural power beyond man's comprehension.		
4. The Bible is valuable because of its inspirational effect.			4. God probably exists but no one knows what he is like.		
5. The Bible is an account of man's experiences with God.			5. The concept of God is a means of explaining the unknown.		
6. The Bible is God's revelation written by inspired men.			6. God is a projection of man's unconscious mind.		
7. The Bible was dictated by God through the hand of man and is infallible.			7. There is no supernatural being.		
56. <u>Prayer</u>	_____	(8)	59. <u>Sin</u>	_____	(11)
1. Prayer is a direct approach to God which will always bring results if there is enough faith.			1. Sin is a religious concept used to create guilt feelings in man.		
2. Prayer is communication with God.			2. Sin consists of behavior which is not culturally approved.		
3. Prayer is a means of bringing man into a proper relationship with God.			3. Sin consists of a violation of the rights of others.		
4. Prayer may be communion with God but how it is effected is not understood.			4. Sin is a violation of one's conscience.		
5. Prayer is a means of relieving anxiety.			5. Sin is a denial of our best nature.		
6. Prayer can be equated with strong wishes or desires.			6. Sin consists of any thought, word or deed that interferes with a proper relationship to God.		
7. Prayer is only a superstitious practice.			7. Sin consists of a wilful participation in worldly acts that transgress Divine Law.		
57. <u>Man</u>	_____	(9)	60. <u>Eternity</u>	_____	(12)
1. Man represents no more than the highest order of evolution.			1. After physical death there will be a judgment in which each man is sent to heaven or hell.		
2. Man is a biological organism with distinctive powers of memory and rational thought.			2. All men will some day be responsible for their relationship to God.		
3. Man is a psychological organism with spiritual needs.			3. Heaven and hell are symbols of our relationship to God after physical death.		
4. The nature and significance of man are not determinable.			4. Probably man does not have a separate identity after death, yet he participates in a kind of immortality.		
5. Man has both a body and a soul with the soul being the more essential.			5. Man's immortality consists in the influence that he leaves behind him at death.		
6. Man is the created object of God's love.			6. The concept of eternity is a manifestation of man's fear of death.		
7. Man is a descendant of Adam who was created from the dust of the earth.			7. Our present life constitutes the whole of our existence.		

* * * * *

Part VIII: Questions 61 - 86

Below is a list of objectives which may apply to various courses and experiences in college. You are to rate them as to their importance of being achieved. Use the following code and mark your answer in Code Column A.

- Code A. 1. Very important (Essential that this be achieved)
 2. Average importance (Desirable that this be achieved)
 3. Little importance (Not important that this be achieved)

	Code A	IBM No.	Code B	IBM No.
61. To master a classification of knowledge in a field	_____	(13)	_____	(39)
62. To master certain techniques applicable to one's vocation or field of special interest	_____	(14)	_____	(40)
63. To acquire specific information and techniques in preparation for further study in a particular field.	_____	(15)	_____	(41)
64. To acquire and use the skills and habits involved in critical and con- structive thinking	_____	(16)	_____	(42)
65. To develop a code of behavior based on democratic and ethical principles	_____	(17)	_____	(43)
66. To express one's thoughts effectively.	_____	(18)	_____	(44)
67. To recognize the fact of world interdependence	_____	(19)	_____	(45)
68. To learn to get along with people.	_____	(20)	_____	(46)
69. To acquire a degree of expertness in a special field	_____	(21)	_____	(47)
70. To experience a realistic sampling of one's chosen vocation.	_____	(22)	_____	(48)
71. To attain a satisfactory emotional and social adjustment	_____	(23)	_____	(49)
72. To understand other cultures and people.	_____	(24)	_____	(50)
73. To know the major developments in a vocational field or field of special interest	_____	(25)	_____	(51)
74. To understand the ideas of others	_____	(26)	_____	(52)
75. To habitually apply scientific thought to the discovery of facts . . .	_____	(27)	_____	(53)
76. To bring up to date one's knowledge in a special field of interest or a vocational field	_____	(28)	_____	(54)
77. To become proficient in one's chosen field of work	_____	(29)	_____	(55)
78. To understand and enjoy literature, art and music	_____	(30)	_____	(56)
79. To understand one's physical and social environment.	_____	(31)	_____	(57)
80. To develop certain manual skills	_____	(32)	_____	(58)
81. To move smoothly from high school to adult independence.	_____	(33)	_____	(59)
82. To develop a broad general outlook and familiarity with a variety of subjects	_____	(34)	_____	(60)
83. To develop knowledge and understanding making possible a more effective choice of one's life work.	_____	(35)	_____	(61)
84. To acquire knowledge and attitudes basic to a satisfying family life .	_____	(36)	_____	(62)
85. To develop the ability to do significant independent research	_____	(37)	_____	(63)
86. To maintain and improve one's own health	_____	(38)	_____	(64)

We are also interest in learning the degree to which each of the objectives listed above was realized. Please rate each of the objectives in Code Column B, using the following code:

- Code B: 1. Very well achieved
 2. Moderately achieved
 3. Not achieved

Part IX: Questions 87-125

College affects or influences people in different ways; e.g., some people change in one way, others change in another way, and still others may not change at all. An experience which might have some effect on one person is ineffectual on another.

In this section, a variety of behavior traits is presented. Although all of them may not apply to you, we are interested in learning those which you feel describe changes that have come about in you while you have been at college. In other words, in what ways are you different now from what you were like when you entered as a freshman?

Read each of the statements below and give your frank opinion. Since there are no right or wrong answers, do not spend too much time on any one of the statements. Do not skip any items. React to each statement according to the following code:

- Code: 1. More (i.e., I tend to possess more of this quality.)
 2. Less (i.e., I tend to possess less of this quality.)
 3. Same (i.e., I am not conscious of any change.)

	Code	IBM No.		Code	IBM No.
87. Tolerance of people differing in race, creed, color, or religion...	___	(65)	107. Attachment to a religious sect or denomination that I can believe in and defend.....	___	(11)
88. Respect for the views and opinion of other people.....	___	(66)	108. Respect for law.....	___	(12)
89. Respect for views and opinions opposite to mine.....	___	(67)	109. Respect for rules and regulations..	___	(13)
90. Tolerance of unconventional dress, behavior, and manners.....	___	(68)	110. Respect for persons in positions of authority.....	___	(14)
91. Insight into the behavior of other people.....	___	(69)	111. Feeling that money is of primary importance.....	___	(15)
92. Ability to get along with other people.....	___	(70)	112. Desire to accept a job for the satisfaction it has to offer rather than the salary it pays.....	___	(16)
93. Interest in political matters.....	___	(71)	113. Drive to get ahead as quickly as possible.....	___	(17)
94. Interest in social issues.....	___	(72)	114. Feeling that a major aim of college is to prepare one for a vocation or profession.....	___	(18)
95. Interest in intellectual and cultural matters.....	___	(73)	115. Feeling that a college should also stress a liberal-arts type of education.....	___	(19)
96. Interest in scientific developments	___	(74)	116. Feeling that a college education is necessary to succeed in the world.....	___	(20)
97. Interest in world affairs.....	___	(75)	117. Importance of grades as measures of achievement.....	___	(21)
98. Ability to adjust to conditions not to my liking.....	___	(76)	118. Confusion as to what I want out of life.....	___	(22)
99. Ability to accept disappointment..	___	(77)	119. Optimistic outlook for my future...	___	(23)
100. Ability to change my views in the presence of facts.....	___	(78)	120. Pessimistic outlook for my future..	___	(24)
101. Confidence in my ability to deal with new problems.....	___	(79)	121. Optimistic outlook for future of civilization.....	___	(25)
102. Responsibility for my own behavior	___	(80)	122. Pessimistic outlook for the future of civilization.....	___	(26)
103. Dependence on class attendance for learning.....	___	(7)	123. Feeling of the necessity for religious faith for living in modern times.....	___	(27)
104. Feeling that the quality of one's education depends on the institution rather than the individual...	___	(8)	124. Commitment to a set of religious beliefs.....	___	(28)
105. Dependence on my age group for behavior patterns.....	___	(9)	125. Awareness of my goals in life.....	___	(29)
106. Acceptance of the Bible as a guide to modern living.....	___	(10)			

Part X : Questions 126 - 175

Listed below are courses, personnel, activities, and organizations which probably have strengthened or reinforced, modified or altered the beliefs that you had when you came as a freshman. We are interested in knowing which of these have influenced you the most.

Place a ☒ before those which you feel have served to strengthen or reinforce your attitudes, values, opinions, beliefs, and interests. Place a ☒ before the THREE you feel had the most reinforcing influence.

Place an ☐ before those which you feel have modified or altered some of your attitudes, values, opinions, beliefs, and interests. Place an ☐ before the THREE you feel had the most influence.

- | | | |
|--|---|--|
| ☐ 126. Communication Skills 111 | ☐ 143. A Communication Skills instructor | ☐ 160. Church |
| ☐ 127. Communication Skills 112 | ☐ 144. An instructor in your major | ☐ 161. Housemother |
| ☐ 128. Communication Skills 113 | ☐ 145. Any other instructor | ☐ 162. R.A. or Head R.A. |
| ☐ 129. Natural Science 181 | ☐ 146. Social events | ☐ 163. Employment |
| ☐ 130. Natural Science 182 | ☐ 147. Athletic events | ☐ 164. A person I dated |
| ☐ 131. Natural Science 183 | ☐ 148. Lecture-Concert Series | ☐ 165. Family |
| ☐ 132. Social Science 231 | ☐ 149. Extra-curricular clubs | ☐ 166. Conduct patterns of faculty |
| ☐ 133. Social Science 232 | ☐ 150. Participation in athletics | ☐ 167. Conduct patterns of students |
| ☐ 134. Social Science 233 | ☐ 151. Fraternity or sorority | ☐ 168. Academic adviser |
| ☐ 135. Humanities 241 | ☐ 152. Close friend(s) | ☐ 169. Campus regulations |
| ☐ 136. Humanities 242 | ☐ 153. Roommate | ☐ 170. Being away from home |
| ☐ 137. Humanities 243 | ☐ 154. Discussions or "bull-sessions" | ☐ 171. ROTC |
| ☐ 138. A course in your major | ☐ 155. Counseling Center | ☐ 172. Physical Education |
| ☐ 139. Any other course | ☐ 156. Library | ☐ 173. Honors College Membership |
| ☐ 140. A Social Science instructor | ☐ 157. Mental Hygiene Clinic | ☐ 174. Conforming to campus mores |
| ☐ 141. A Humanities instructor | ☐ 158. Improvement Services | ☐ 175. Honorary Societies |
| ☐ 142. A Natural Science instructor | ☐ 159. Living quarters | |

* * * * *

Part XI : Questions 176 - 182

In every college that we know of, some students seem to have a very high standing, and some seem to have a low standing. But the reasons seem different in the different colleges and universities.

Listed below are nine factors which might lead to high prestige. We would like to know those factors which you feel to be important to students, to faculty, and to both students and faculty. The factors are as follows:

1. Being original and creative
2. Having a pleasing personality
3. Demonstrating scholarly capacity
4. Being active in campus activities
5. Dedicating yourself to your studies
6. Not being too critical
7. Coming from the right social background
8. Being active in varsity athletics
9. Being a member of a fraternity or sorority

- | | Code | IBM No. |
|--|-------|---------|
| 176. As a freshman, which of these factors did you feel gave a student prestige with the faculty? | _____ | (30) |
| 177. Now that you have nearly completed college, which of these factors do you feel gives a student prestige with the faculty? | _____ | (31) |
| 178. Which single factor do you feel is the most important with the faculty? | _____ | (32) |
| 179. Which single factor do you think should be most important to faculty? | _____ | (33) |
| 180. Which factors do you feel give a student prestige with his fellow students? | _____ | (34) |
| 181. Which single factor do you think is most important to students? | _____ | (35) |
| 182. Which single factor do you think should be most important to students? | _____ | (36) |

Part XII: Questions 176 - 180

In every college that we know of, there are different kinds of students who enjoy doing different kinds of things. Listed below are some comments or descriptions about the kinds of students you might find in any American college. Read each of these over and then answer the questions which follow as best as you can. We know that it is difficult to "peg" yourself in some slot but please make a choice for each of the five questions. Place the **LETTER** of the **TYPE** which most accurately describes you in the blank column at the right.

TYPE W: This kind of person is interested in education, but primarily to the point of preparation for his occupational future. He is not particularly interested in the social or purely intellectual phases of campus life, although he might participate in these activities on some limited basis. This person does his homework so that grades can be maintained, but otherwise restricts his reading to the light, general entertainment variety. For the most part, this person's primary reason for being in college is to obtain vocational or occupational training.

TYPE X: This person is interested in learning about life in general, but in a manner of his own choosing. He is very interested in the world of ideas and books, and eagerly seeks out these things. Outside of the classroom, this person would attend such activities as the lecture-concert series, Provost lectures, foreign films, etc. This person wants to go beyond the mere course requirements and will frequently do extra readings in order to obtain a more complete understanding of the world in which he lives. From a social point-of-view, this person tends to reject fraternities, sororities, and the social events that are a part of campus life. When this person does join, it will usually be one of the political or more academic campus organizations. For the most part, this person would consider himself to be someone who is primarily motivated by intellectual curiosity.

TYPE Y: This person is in many respects like Type X noted above. He is concerned with books and the pursuit of knowledge, but is also the kind of person who does not cut himself off from the more social phases of campus life. He is interested in getting good grades and usually tries to maintain a fairly high grade-point-average. He is the kind of person who will work with student government, the campus U.N. and activities of this type. He is the kind of person who feels that the social side of college life is not the most important but is certainly significant for his general development.

TYPE Z: This is the kind of person who is very much concerned with the social phases of college life. He identifies closely with the college and tries to attend as many of the campus social and athletic events as possible. This person may be interested in intellectual kinds of things but will, for the most part, find greater satisfaction in parties, dances, football games, etc. He is concerned about his education, but feels that the development of his social skills is certainly important. His college years are centered about fraternity and sorority activities even though he might not be a member. This person attempts to "make grades" but will rarely go out of his way to do extra or non-assigned readings.

Now that you have read each of the four descriptions, answer the following questions:

- | | Code | IBM
No. |
|--|-------|------------|
| 176. Which of the above (W,X,Y,Z) comes <u>closest</u> to describing the kind of person you consider yourself to be? | _____ | (37) |
| 177. Which of the above is <u>least</u> descriptive of the kind of person you consider yourself to be? | _____ | (38) |
| 178. Which of the above comes <u>closest</u> to describing the kind of person you were when you first came to college? | _____ | (39) |
| 179. Which of the above types comes <u>closest</u> to describing the kind of person you <u>would</u> like to be if you had a choice? | _____ | (40) |
| 180. Which of the above types comes closest to describing the typical MSU student? | _____ | (41) |
| * * * * * | | |
| 181. What type of job, position, vocation, or profession, do you plan to engage in after graduation?
e.g. medical doctor, elementary school teacher, civil engineer, etc. _____ | | |
| <hr/> | | |
| 182. If this is any different from the plans you had when you entered as a freshman, answer questions 183 and 184. If NO, skip to question 185. | | |
| 183. What job or profession or type of work did you plan to engage in when you were a freshman?
_____ | | |
| 184. Why did you change your plans? _____ | | |

Part XIII: Questions 185 - 187

The following questions are designed to learn how you feel about your future.

- | | Code | IBM
No. |
|---|-------|------------|
| 185. Regarding your immediate career plans upon graduation, which of the following is most likely to occur? | _____ | (42) |
| 1. Working full-time at a type of job which I expect to be my long-run career field
2. Non-career military service
3. Working full-time at a civilian job which will not be my career field
4. Being a full-time housewife
5. Begin graduate study in a professional field (law, medicine, engineering, social work, etc.)
6. No idea
7. Other (specify) _____ | | |
| 186. Which of the following will most likely be your employer when you begin work in your anticipated career field? | _____ | (43) |
| 1. Private company with 100 or more employees
2. Private company with fewer than 100 employees
3. Family business
4. Self-employed
5. Research organization
6. College, University, or Junior College
7. School system (elementary or secondary)
8. Other educational institutions (Technical or Vocational school)
9. Federal Government
10. State or Local Government
11. Hospital, Church, Clinic, Welfare Organization, etc.
12. Other (specify) _____ | | |
| 187. Listed below are three different jobs. If you had your choice, which would you pick? | _____ | (44) |
| 1. A job which pays a moderate income but which you are sure of keeping
2. A job which pays a <u>good</u> income but which you had a 50-50 chance of losing
3. A job which pays extremely well if you make the grade, but which you lose almost everything if you don't make the grade | | |

* * * * *

Part XIV: Questions 188 - 191

A variety of factors enter into a person's decision for choosing one job or career over another. The factors are as follows:

- | | | |
|---|-------|-------|
| 1. Making a lot of money
2. Opportunities to be original and creative
3. Opportunities to be helpful to others or useful to society
4. Avoiding a high pressure job which takes too much out of you
5. Living and working in a world of ideas
6. Freedom from supervision in my work
7. Opportunities for moderate but steady progress rather than the chance of extreme success or failure
8. Opportunities to exercise leadership
9. Remaining in the city or area in which I grew up
10. Opportunities to work with people rather than with things
11. None of the above (specify) _____ | | |
| 188. Which of these factors do you <u>now</u> feel is important in choosing a career or job? (You may choose more than one) | _____ | (45) |
| 189. Which of these factors <u>did</u> you feel to be important when you were a freshman? (You may choose more than one) | _____ | (46) |
| 190. Of the 11 factors listed above, which ONE do you consider is the <u>most important</u> factor to be considered in picking a job or career? | _____ | (47) |
| 191. Which single factor do you think is most important to the average college student? (Choose only ONE). | _____ | (48) |

* * * * *

Part XV: Questions 192 - 199

Please rate each of the following factors in terms of their effect or impact on your career plans or decisions during college according to the following code:

	Code
Very important.....	1
Fairly important.....	2
Unimportant.....	3
Never received any.....	4

- | | Code | IBM
No. |
|--|-------|------------|
| 192. Vocational or similar psychological tests. | _____ | (49) |
| 193. Discussions with academic adviser. | _____ | (50) |
| 194. Discussions with other faculty members. | _____ | (51) |
| 195. Vocational/Guidance counsellor | _____ | (52) |
| 196. Advice from parents. | _____ | (53) |
| 197. Advice from family <u>other than</u> parents. | _____ | (54) |
| 198. Peers. | _____ | (55) |
| 199. Of the six factors listed above, which one do you consider played the most important part in your career decisions during college?_____ | _____ | (56) |

* * * * *

Part XVI: Questions 200 - 202

200. If you had to register in the next election, how do you think you would register? (57)
1. Republican
 2. Democrat
 3. Socialist
 4. Independent
201. The following activities cut across a number of specific jobs. Which ONE do you anticipate will be the most important part of your long-run career work? (58)
1. Teaching
 2. Research
 3. Administration
 4. Service to patients and clients
 5. None of these
202. Did you do all your college work at this school? (59)
1. YES, full-time
 2. YES, part-time
 3. NO, started here, attended another college, then returned
 4. NO, started here, was out of college, then returned
 5. NO, started here, transferred to another college or university

* * * * *

Part XVII: Questions 203 - 212

For some people, the choice of a community depends upon such factors as cultural activities, type of schools, proximity to church and shopping, etc. If you did not have an opportunity to have ready access to the activities or resources listed below, how dissatisfied would you be with the community? Rate the degree of your dissatisfaction according to the following code:

	Code
Extremely dissatisfied.....	1
Quite dissatisfied.....	2
Somewhat dissatisfied.....	3
Wouldn't bother me.....	4

- | | Code | IBM
No. |
|--|-------|------------|
| 203. Opportunities to hear live performances of serious music | _____ | (60) |
| 204. Opportunities to see serious drama | _____ | (61) |
| 205. Opportunities to see professional or college athletic events. | _____ | (62) |
| 206. A good local art museum | _____ | (63) |
| 207. An excellent local bookstore. | _____ | (64) |
| 208. Opportunities to engage in serious discussion of the basic problems and issues which confront our country | _____ | (65) |
| 209. A theatre which shows foreign and art films | _____ | (66) |
| 210. Opportunities for an active social life | _____ | (67) |
| 211. A good local library. | _____ | (68) |
| 212. Excellent public schools. | _____ | (69) |

* * * * *

Part XVIII: Questions 213 - 216

213. Since you entered college, how have your political views changed? (70)
1. From liberal to more conservative
 2. From conservative to more liberal
 3. From liberal to more liberal
 4. From conservative to more conservative
 5. Not at all
214. If your political views have changed since you entered college, what factor/s have influenced you? (71)
1. Lecture and/or assigned course readings
 2. Influence of friends
 3. Personal contact with faculty members
 4. Increased independent reading
 5. Independence from parental ideas
 6. Increased thinking about political questions
215. If your religious views have changed since you entered college what factor/s listed above have influenced you? (72)
216. If your moral or ethical views have changed since you entered college, what factor/s listed above have influenced you? (73)

Part XIX: Questions 1 - 30

Listed below is a series of questions or statements dealing with various aspects of your out-of-class activities while attending Michigan State University. We are primarily interested in the term (or terms) they applied to you, and the term (or terms) when changes, if any occurred. Please record your answers according to the following code:

	Code		Code
Before attending MSU.....	0	Junior, first term.....	7
Freshman, first term.....	1	Junior, second term.....	8
Freshman, second term.....	2	Junior, third term.....	9
Freshman, third term.....	3	Senior year.....	X
Sophomore, first term.....	4	Does not apply to me.....	Y
Sophomore, second term.....	5		
Sophomore, third term.....	6		

	Code	IBM No.		Code	IBM No.
1. Made first choice of major field..	_____	(7)	10. Informally engaged or "pinned"...	_____	(16)
2. Changed major field.....	_____	(8)	11. Broke informal engagement.....	_____	(17)
3. Pledged a fraternity or sorority..	_____	(9)	12. Began "going steady".....	_____	(18)
4. Became an "active" in a fraternity or sorority.....	_____	(10)	13. Stopped "going steady".....	_____	(19)
5. Became engaged.....	_____	(11)	14. Lived in the residence halls.....	_____	(20)
6. Broke my engagement.....	_____	(12)	15. Lived in a fraternity or sorority house.....	_____	(21)
7. Got married.....	_____	(13)	16. Lived in a co-op.....	_____	(22)
8. Was divorced.....	_____	(14)	17. Lived in married housing.....	_____	(23)
9. Was separated from spouse.....	_____	(15)	18. Lived in off-campus housing.....	_____	(24)

In this group of items, we are interested in the kinds of participation, the term of participation, and the position you may have held in the various extra-curricular activities while a student at M.S.U. Using the code above, indicate the term of your participation in the activities listed, by marking the code on space at right. In the space at the left, write in the specific position, responsibility, or function performed.

		Code	IBM No.
19. _____	All University Student Government.....	_____	(25)
20. _____	Other governing groups (I.F.C., Pan Hel, M.H.A., W.I.C., I.C.C., P.I.C., C.R.L.U., S.O.C.).....	_____	(26)
21. _____	Residence Halls (excluding M.H.A.).....	_____	(27)
22. _____	Other living units (fraternities, sororities, co-ops, religious living units).....	_____	(28)
23. _____	Honorary Organizations.....	_____	(29)
24. _____	Publications.....	_____	(30)
25. _____	College or department clubs and organizations (i.e., Marketing Club, Botany Club, etc.).....	_____	(31)
26. _____	Class Councils (i.e., officer, J-Hop Committee, etc.).....	_____	(32)
27. _____	Varsity athletics.....	_____	(33)
28. _____	Intramural athletics.....	_____	(34)
29. _____	Religious clubs and organizations.....	_____	(35)
30. _____	Other clubs and organizations.....	_____	(36)

Part XX: Questions 31 - 40

Many college students hold either part-time or full-time jobs to help support or finance their college education. We are interested in learning the extent of your employment while at M.S.U. Please exclude summer employment in answering this question. Use the following check list and place a check (✓) wherever appropriate.

Term	Amount of Time					None
	Full-time	30-40 hours per week	20-30 hours per week	10-20 hours per week	Less than 10 hours per week	
31. Freshman, first term						
32. Freshman, second term						
33. Freshman, third term						
34. Sophomore, first term						
35. Sophomore, second term						
36. Sophomore, third term						
37. Junior, first term						
38. Junior, second term						
39. Junior, third term						
40. Senior year						

- Code IBM
No.
41. To what extent have you financed your own college education? (47)
1. Completely 2. Most of it (over 75%) 3. About one-half
4. Part of it (less than 25%) 5. None of it
42. How would you describe your parents' feelings about the importance of a college education? (48)
1. Very important 2. Important 3. Don't care
4. Opposed to it 5. Very opposed to it
43. (For men only) Extent of military service (49)
1. None 2. Six months or less 3. Twelve months or more
- If you were married or became engaged since you entered as a freshman, please answer Question 45.
45. What do you think has happened to your views, opinions, and beliefs as a result of being married or engaged? (50)
1. My views and beliefs have stabilized.
2. My views and beliefs have been reinforced.
3. My views and beliefs have been altered or modified.
4. No change in my views and beliefs as a result of being married or engaged.
46. Compared to your first year of college which of the following would you say comes closest to your current religious attitude? (51)
1. I was never really a religious person and I feel the same way now.
2. I was a fairly religious person when I came to college and I feel the same way now.
3. I was much more religious when I came to college than I am now.
4. I am much more religious now than I was when I first came to college.
47. Compared to your first year of college which of the following would you say comes closest to your current political attitude? (52)
1. I was pretty much a political conservative and I still am.
2. I was pretty much a political liberal and I still am.
3. I am much more a political liberal than I was when I first came to college.
4. I am much more political conservative than I was when I first came to college.

APPENDIX B

SENIOR-YEAR EXPERIENCE INVENTORY SCALES WITH LOW RELIABILITY

APPENDIX B

SENIOR-YEAR EXPERIENCE INVENTORY SCALES WITH LOW RELIABILITY

College Satisfaction.--The five items of Part I asked students to "...compare how you thought your four years of college would go with how you actually found it...". Students were to report whether they experienced more, the same or less than they thought of contact with faculty, dating, study, student activities, and prejudice. The theoretical score range was 5 to 15, with a high score indicating greater satisfaction. The scale was completely unreliable ($r_{tt} = .00$).

Six of the seven scales formed from items in Part III were found below minimum reliability. The five response choices on the items of these scales ranged from strongly agree to strongly disagree.

Reference/Norm Group.--Three items (16, 25 and 27) related to moral choices a student may likely confront in college, i.e., academic and material dishonesty and sexual behavior. Students holding a more "traditional" viewpoint received higher scores than those holding a less traditional position. Scores on this scale could range from 3 to 15. Reliability was .21.

Personal Confidence.--Items 19 and 20 elicited a student's satisfaction with his academic achievement and general confidence in the future. Scores could range from 3 to 10 with higher scores

indicating greater confidence. Reliability was .20.

Liberal-General Viewpoint.--Items 18 and 26 asked a student's opinion about the liberalizing influence of higher education and the need for a general education for all students. Scores could range from 2 to 10. A high score demonstrated belief that education was liberalizing and that general education was necessary. Hoyt reliability was .20.

Peers vs. Professors.--Items 15 and 17 attempted to assess the relative personal impact of peers and professors on the student. A high score indicated peers had greater impact, and that professors were viewed as conservative. The theoretical score range was 2 to 10. Scale reliability was .16.

Current Issues.--Two items (23 and 24) with a reliability of .08 and a possible score range from 2 to 10 requested student opinion on issues current at the time the questionnaire was administered, Spring, 1962. A high score indicated the student was for a Federal Medicare program and atmospheric nuclear testing. A low score demonstrated his opposition to these issues.

Egalitarianism.--A high score on items 28 and 29 emphasized what might be called egalitarianism, or the equality of people. What was the importance of academic and social development in education, and the value of a skilled tradesman in relation to a professional? The theoretical scale range was 2 to 10. Reliability was .33.

Teacher-Scholar.--Three of the fifteen items in Part V (48, 49 and 53) asked student perception of the good college teacher as an objective scholar in his approach to teaching. Items were scaled from strongly agree to strongly disagree with no neutral position.

Scores could range from 2 to 11. A high score signified a professor should be objectively neutral; a low score that he entertain subjective/ personal factors in his teaching as well. Reliability was .35.

Teacher Expectation.---The remaining items in Part V (47 and 50) yielded a measure of the amount of classwork the good teacher should expect of his students. Scale scores could range from 2 to 8. A high score meant the good teacher asked students to read a number of assignments and really made them produce. A low score meant students should not have to do or produce a great deal of work. Hoyt reliability was .15.

Reliabilities of two scales in Part IX fell below the minimum criterion level. In this section, students were asked to say if they had more, less, or the same amount of the attribute in question as Seniors than they had as Freshmen.

Education Need-Achievement.---Two items (116 and 117) asked students the relative importance of grades as measures of achievement and the importance of a college education to achieve "success." A high score was evidence that grades and formal education had become more important after four years. A low score indicated they had ceased to be as important a criterion of personal success. The theoretical score range was 2 to 6. The reliability was .26.

Personal Accountability.---Five items (92, and 102 to 105) yielded a measure of whether students were more personally accountable for their behavior as Seniors than as Freshmen. A high score was interpreted to mean greater willingness to be responsible for one's own behavior. A low score meant personal accountability was not considered an important individual value. Scores could range from 5 to 15. The

reliability was .21.

Attempts were made to scale two other parts of the Senior-Year Experience Inventory. Part XV contained seven items which considered the relative impact of various others such as peers, counselors and parents on career plans. A missing response line on the questionnaire invalidated item 195 for scaling. Weighting was attempted without the item, but an error-free reciprocal averages program was not obtained even after cards were sorted for illegal punches, all known aspects of the program, and other sources of error were checked.

The same result was true for Part XVIII, which would have yielded a measure of the personal loss associated with not having easy access to various activities or resources of a University community. All possible known sources of error were checked, but an error-free print-out was never obtained.

For both parts it was not considered justifiable to continue computer runs after eight runs each had been attempted. This was true especially in view of the number of runs necessary to obtain error-free print-outs for the other 34 scales.

APPENDIX C

SRI FACTOR ANALYSES

APPENDIX C.1
INTERCORRELATION MATRIX, PART III, SRI, ITEMS 12-29, SENIOR YEAR

Item	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
13	.22																
14	-.22	-.31															
15	-.03	.01	.07														
16	-.03	-.03	.02	-.08													
17	-.01	.03	-.03	.09	-.02												
18	.02	.04	.05	-.07	-.01	-.03											
19	-.03	-.04	-.06	-.00	.01	-.02	-.01										
20	-.08	.01	.08	-.01	-.06	.01	-.05	.12									
21	-.24	-.25	.32	.07	.09	.03	-.09	-.03	.06								
22	-.26	-.36	.37	.09	.07	.03	-.04	-.04	.03	.56							
23	.09	.03	-.11	-.05	-.10	.07	.07	.00	.11	-.01	-.05						
24	-.13	-.11	.14	.04	.08	-.05	-.06	0.04	.00	.15	.11	-.04					
25	.09	.04	-.03	-.04	-.04	-.10	.00	.03	.10	-.10	-.12	.01	.08				
26	-.03	-.03	.03	-.04	.00	.03	.11	.00	.05	-.03	-.05	.01	-.04	-.09			
27	.09	.04	-.05	.07	-.08	-.07	-.10	.00	-.04	.03	-.01	.09	.07	.13	-.01		
28	-.11	-.05	.13	.14	-.05	.02	.05	-.09	-.01	.12	.08	.05	-.03	.02	.13	.03	
29	-.03	.04	-.03	.07	-.04	-.06	.00	-.02	.11	-.04	.01	.05	.04	-.02	-.02	.07	.20

APPENDIX C.2
 ROTATED FACTOR LOADINGS, PART III, SRI,
 ITEMS 12-29, SENIOR YEAR

Items	Factors						Communality
	1	2	3	4	5	6	
12	.498*	-.145	.066	-.145	.075	-.231	.353
13	.638*	.153	-.062	-.052	.092	.056	.448
14	-.650*	.109	.088	-.006	-.107	.107	.465
15	-.059	.481*	-.295	-.016	.378	-.031	.466
16	-.083	-.229	.111	-.275	.017	.474*	.372
17	-.006	-.008	-.658*	.037	.116	-.130	.465
18	.022	-.016	.089	-.103	-.681*	-.058	.486
19	-.008	-.255	-.022	.653*	.020	-.115	.506
20	-.068	.204	.086	.728*	.013	.191	.620
21	-.736*	.006	-.064	-.052	.186	-.050	.585
22	-.781*	.000	-.085	-.051	.120	-.017	.635
23	.021	-.091	-.068	-.129	-.161	-.735*	.596
24	-.268	.057	.412*	-.176	.260	.130	.361
25	.121	.012	.609*	.216	.077	-.198	.477
26	-.031	.146	-.126	.074	-.570*	.012	.368
27	.024	.160	.328	-.063	.321	-.495*	.486
28	-.186	.653*	-.032	-.116	-.252	-.143	.559
29	.070	.647*	.151	.057	-.015	.013	.450
Hi Load	-.781	.653	-.658	.728	-.681	-.735	
Prop.							
Var.	.132	.075	.070	.066	.071	.068	
Cum.							
P.V.	.132	.207	.277	.345	.415	.483	

* denotes highest loading by item

APPENDIX C.3
INTERCORRELATION MATRIX, PART V, ITEMS 39-53

Items	39	40	41	42	43	44	45	46	47	48	49	50	51	52
39														
40	.46													
41	.20	.24												
42	.08	.11	.36											
43	.04	.16	.19	.20										
44	.11	.06	-.03	-.12	-.01									
45	.32	.24	.10	.19	.12	.05								
46	-.01	.02	.15	.06	.11	.02	.01							
47	.10	.13	.06	.09	.15	.04	.18	-.03						
48	.00	.02	.04	.21	.07	-.15	.17	-.02	-.00					
49	.00	.06	.15	-.07	.05	.08	-.08	.11	-.08	-.09				
50	.00	.01	.12	.01	.12	.01	.10	.20	-.08	.04	.21			
51	.08	-.02	.08	.13	.07	-.13	.06	-.08	.12	.10	-.08	-.08		
52	.04	.00	.09	.09	.04	-.20	.02	-.04	.07	.02	.12	-.04	.13	
53	.13	.13	.03	.00	.08	.07	.04	.07	.07	-.14	.18	.02	.03	.09

APPENDIX C.4
ROTATED FACTOR LOADINGS, PART V , ITEMS 39-53

Items	Factors					Communality
	1	2	3	4	5	
39	.828*	.084	-.069	-.009	.028	.697
40	.764*	.089	.063	.024	-.052	.599
41	.345	-.055	.471*	-.277	-.196	.458
42	.185	-.377	.254	-.313	-.396*	.496
43	.033	.004	.375	-.026	-.606*	.509
44	.164	.283	.012	.630*	-.085	.511
45	.576*	-.257	.027	.071	-.230	.456
46	-.086	.042	.612*	.145	-.121	.419
47	.114	.133	-.207	.052	-.711*	.582
48	.115	-.653*	.088	-.194	-.009	.485
49	.044	.487*	.486	-.187	.237	.566
50	.028	-.059	.661*	.088	.125	.464
51	.016	-.075	-.219	-.439*	-.360	.376
52	.038	.220	-.040	-.727*	-.002	.580
53	.169	.625	.077	-.132	-.168	.471
Hi. Load.	.828	-.653	.661	-.727	-.711	
Prop.Var.	.123	.096	.106	.095	.092	
Cum. P.V.	.123	.219	.325	.420	.511	

*denotes highest loading by item

APPENDIX C.5
INTERCORRELATION MATRIX, PART VIII, SRI, ITEMS 61-86*

Items	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
62	54																								
63	41	45																							
64	22	19	28																						
65	19	10	19	24																					
66	21	18	17	27	30																				
67	12	08	16	18	30	29																			
68	13	13	12	13	32	32	33																		
69	49	48	39	19	17	20	10	16																	
70	28	33	27	13	16	18	13	19	35																
71	23	17	18	18	35	33	20	53	25	27															
72	23	14	18	27	23	20	30	23	20	15	30														
73	45	39	41	21	18	25	12	19	41	37	20	29													
74	25	22	26	29	26	29	28	31	21	19	34	41	29												
75	32	25	27	28	22	17	21	08	28	13	11	18	24	28											
76	41	44	35	15	18	23	11	19	41	34	25	20	59	23	31										
77	49	57	42	19	17	26	06	15	56	38	22	19	49	25	29	51									
78	17	10	18	24	24	22	27	11	22	12	14	34	19	27	19	21	21								
79	27	19	22	27	37	31	30	27	23	20	35	39	23	37	27	22	25	31							
80	29	26	24	16	23	19	17	20	32	30	20	15	32	17	26	33	29	17	25						
81	20	17	24	16	25	23	22	30	20	21	35	12	20	25	17	20	18	15	28	27					
82	08	09	12	22	19	20	20	19	04	11	26	33	08	33	11	13	07	29	31	16	19				
83	26	30	31	25	26	27	25	24	27	33	32	23	33	34	17	30	33	21	33	20	26	32			
84	25	21	21	17	34	29	26	32	17	18	38	25	18	31	16	22	25	20	33	25	26	29	43		
85	29	25	31	18	17	23	16	10	31	30	21	30	34	22	35	30	36	22	29	21	21	18	27	25	
86	20	22	21	16	30	25	11	30	22	25	35	17	28	18	18	25	29	19	34	35	31	19	28	34	24

*Decimals omitted on this table

132
APPENDIX C.6

ROTATED FACTOR LOADINGS, PART VIII, SRI, ITEMS 61-86

Items	Factors				Communality
	1	2	3	4	
61	.677*	-.098	.111	.197	.519
62	.746*	-.074	.053	.017	.565
63	.588*	-.080	.176	.187	.418
64	.166	-.071	.419*	.375	.349
65	.027	-.541*	.205	.363	.467
66	.162	-.434*	.279	.155	.316
67	-.056	-.329	.408*	.310	.374
68	.053	-.702*	.187	-.112	.543
69	.690*	-.128	.049	.163	.521
70	.536*	-.295	.063	-.124	.393
71	.175	-.684*	.263	-.158	.592
72	.161	-.079	.704*	.081	.534
73	.691*	-.133	.165	.060	.526
74	.216	-.227	.616*	.055	.482
75	.034	-.048	.149	.681*	.581
76	.682*	-.173	.100	.069	.510
77	.778*	-.124	.083	.074	.633
78	.118	-.046	.537*	.313	.402
79	.154	-.381	.464*	.284	.465
80	.348	-.411*	-.074	.363	.426
81	.149	-.572*	.041	.192	.388
82	.010	-.200	.648*	-.092	.469
83	.384	-.340	.429*	-.160	.473
84	.180	-.523*	.331	-.025	.416
85	.419*	-.106	.271	.279	.338
86	.243	-.599*	.012	.151	.441
Hi. Load.	.778	-.702	.704	.681	
Prop.Var.	.174	.125	.110	.058	
Cum. P.V.	.174	.299	.409	.467	

APPENDIX C.7
INTERCORRELATION MATRIX, PART IX, ITEMS 87-125, SRI

Items	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107
88	21																				
89	12	36																			
90	13	13	10																		
91	09	13	08	06																	
92	10	18	06	-08	07																
93	06	03	15	01	09	13															
94	09	07	13	05	10	14	52														
95	06	01	08	01	09	04	26	26													
96	09	07	07	-04	07	13	11	-04	27												
97	07	08	13	00	02	14	38	27	13	21											
98	07	09	08	-04	11	09	01	-02	-03	14	10										
99	06	03	04	00	08	09	05	04	-05	07	17	43									
100	14	18	22	01	17	16	-08	-01	15	12	13	15	12								
101	02	10	08	04	12	22	-01	07	05	12	22	11	18	17							
102	05	19	14	-01	12	21	02	11	02	05	10	10	11	12	16						
103	11	13	-01	-13	00	09	-02	-04	-04	09	07	00	06	07	07	18					
104	03	-10	-05	-02	-09	-03	-04	-05	02	04	00	-05	-04	00	02	-01	17				
105	-05	-07	-09	-03	-06	-01	-02	04	-09	-01	-04	02	03	-04	-05	-01	10	21			
106	05	01	-01	-09	06	11	00	-02	-02	09	-01	00	03	-02	08	07	11	05	04		
107	-01	00	04	-10	01	09	03	01	-01	07	04	01	02	03	00	05	09	06	01	62	08
108	07	06	05	-07	-04	09	06	11	-01	01	12	07	09	10	05	12	08	-02	-06	04	
109	00	13	01	-08	-03	07	01	03	-12	01	02	05	09	02	00	14	22	05	08	11	11
110	03	10	05	-06	-04	12	06	11	-01	03	13	00	07	09	04	11	22	-03	03	11	10
111	-04	-07	-08	-06	-14	-02	-06	-04	-13	-02	-12	04	07	-09	00	-10	04	08	22	-06	-09
112	10	07	-05	00	04	13	11	10	21	10	11	03	01	15	09	14	05	-09	-16	03	-04
113	01	07	07	-07	00	10	-03	00	-05	12	06	08	08	06	16	11	05	04	04	-04	02
114	-05	01	-02	-10	-04	04	-01	-02	-08	10	-04	07	04	05	07	08	09	06	18	06	10
115	10	00	05	02	04	01	14	13	24	-02	20	01	08	03	03	-01	01	00	-07	-02	-02
116	16	11	10	-11	-01	08	-01	-01	-02	11	03	10	11	09	11	07	19	11	10	08	08

APPENDIX C.7--Continued
INTERCORRELATION MATRIX, PART IX, ITEMS 87-125, SRI

Items	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107
117	-01	-02	-03	-07	-09	-01	-01	-04	-03	01	-04	-07	-01	-08	01	01	15	06	07	03	03
118	00	-05	-05	-01	-03	-14	-06	-06	-06	-07	-07	00	-11	-14	-17	-03	02	06	10	-11	-10
119	09	10	08	-05	09	26	05	14	09	05	13	02	06	11	25	11	06	-09	-05	08	07
120	-08	-13	-08	-01	-11	-20	-06	-09	-08	-01	-10	-01	-01	-11	-27	-08	00	12	09	-05	-04
121	14	14	11	10	04	11	04	08	-03	16	07	03	02	13	10	11	14	03	-04	06	06
122	-13	-10	-08	-10	-01	-11	-05	-06	02	-10	-02	02	-03	-09	-08	-06	-06	01	10	-05	-05
123	02	07	05	-07	09	13	-03	-09	-01	12	-00	07	09	05	06	08	09	03	01	61	59
124	00	-01	02	-07	04	05	02	-04	-01	06	-01	-03	05	02	00	02	13	02	-04	62	67
125	-04	14	08	-10	05	17	01	08	06	11	14	03	02	11	25	12	09	00	-07	15	12

Items	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125
117	09	16	09	18	-05	02	22	-05	15									
118	-14	-13	-08	11	-05	-02	-03	02	-08	07								
119	16	09	09	-09	14	13	08	04	06	-00	-25							
120	-13	-09	-07	15	-10	-11	-05	-04	-03	02	35	-77						
121	18	20	20	00	05	05	06	-02	17	05	-09	23	-23					
122	-15	-18	-19	03	-03	-05	-02	02	-10	00	13	-20	31	-84				
123	09	14	11	-03	06	03	11	-03	10	00	-12	06	-04	10	-08			
124	10	15	12	-13	07	-06	12	-02	05	03	-13	07	-05	06	-06	66		
125	09	11	12	-11	17	08	08	01	05	06	-41	33	-36	05	-03	08	14	

Decimals omitted on this table

APPENDIX C.8
ROTATED FACTOR LOADINGS, PART IX, ITEMS 87-125, SRI

Items	Factors													Com.
	1	2	3	4	5	6	7	8	9	10	11	12	13	
87	-.030	-.003	.016	-.028	.017	-.093	-.191	.067	-.314	.280	-.090	-.314	.394*	.491
88	.063	-.001	.272	.015	-.083	.020	-.033	-.108	-.693*	-.009	.015	-.083	.153	.609
89	.057	-.037	-.003	-.159	-.007	-.011	-.019	-.085	-.770*	-.043	-.053	.018	-.049	.638
90	-.053	.099	-.154	-.040	.059	.040	-.212	.165	-.311	.117	.105	.382*	.237	.439
91	.047	-.072	.164	-.059	.080	-.146	.029	-.051	-.110	-.009	-.120	.183	.565*	.448
92	.239	-.083	.490*	-.167	.006	-.113	-.072	-.048	-.034	-.101	-.034	-.058	.059	.372
93	-.029	-.030	.020	-.829*	-.029	-.002	-.031	-.073	-.029	.031	-.100	.005	-.023	.708
94	.080	.053	.081	-.787*	-.104	.051	-.010	.030	-.068	.017	.034	.060	.156	.684
95	.088	.025	-.131	-.357	.065	.133	.079	-.004	.006	.147	-.635*	-.052	.190	.645
96	-.014	-.096	.061	-.061	.070	-.133	-.173	.013	-.028	-.206	-.702*	-.076	-.127	.627
97	.138	.019	.205	-.521*	-.037	-.250	-.024	.066	-.117	.152	-.205	.036	-.341	.597
98	-.043	-.005	.071	.043	-.036	-.766*	.022	-.909	0.035	-.074	-.094	.017	.096	.631
99	.083	-.038	.034	-.055	-.093	-.802*	-.002	.021	.025	.038	.052	-.017	.032	.671
100	.172	.021	.078	.183	-.115	-.195	-.005	.133	-.328	.014	-.454*	.114	.229	.518
101	.439*	.017	.313	-.022	.105	-.264	-.060	.134	-.083	-.073	-.107	.038	-.116	.432
102	.013	-.023	.698*	-.044	-.109	-.050	-.012	.016	.156	-.077	.020	.063	.069	.544
103	-.032	-.099	.459*	.099	-.169	.028	-.060	.298	-.021	.109	-.020	-.419	-.056	.544
104	-.032	-.040	.027	.059	.013	.099	-.029	.762*	.054	.047	-.102	-.051	-.150	.639
105	-.077	-.002	-.013	-.090	-.042	-.041	.102	.634*	.145	-.269	.162	-.061	.213	.597
106	.068	-.828*	.083	.001	-.010	.005	-.010	.052	.040	.022	.030	-.050	.030	.707
107	.048	-.845*	.003	-.060	-.032	.010	-.006	.023	-.020	-.040	.008	-.022	-.056	.727
108	.113	-.027	-.017	-.064	-.804*	-.083*	-.068	-.071	-.030	.017	-.019	-.024	-.016	.683
109	.047	-.094	.091	.033	-.832*	-.024	-.087	.051	-.001	-.080	.072	-.082	-.008	.742
110	.034	-.071	.101	-.084	-.758*	-.011	-.095	.022	-.042	-.032	-.037	-.102	-.049	.625
111	-.131	.111	-.230	-.036	.025	-.174	-.024	.213	.038	-.447*	.222	-.323	-.055	.519
112	.096	.010	.366	-.012	-.170	.083	.023	-.228	.195	.293	-.419*	.044	.178	.564

APPENDIX C.8--Continued

Items	Factors													Com.
	1	2	3	4	5	6	7	8	9	10	11	12	13	
113	.143	.067	.126	-.009	.030	-.140	-.049	.000	0.137	-.521*	-.075	-.137	-.133	.396
114	.069	-.096	.018	-.004	-.112	-.07	.030	.094	.075	-.665*	-.100	-.190	.140	.550
115	.067	.035	-.092	0.272	.043	-.147	.056	.050	.002	.549*	-.083	-.232	.030	.480
116	.066	-.081	-.011	.079	-.064	-.192	-.114	.173	-.242	.000	-.074	-.553*	-.076	.477
117	-.036	.000	-.025	-.002	-.138	.152	.020	-.033	.057	-.217	.037	-.586*	-.003	.440
118	-.638*	.130	.164	-.022	.167	.046	-.001	-.020	.110	-.017	.100	-.173	.138	.554
119	.753*	-.014	.129	-.117	-.014	.001	-.194	-.118	-.066	-.031	.058	-.153	.252	.744
120	-.807*	-.006	-.039	.073	.008	.008	.244	.138	-.190	0.002	-.080	.062	-.227	.800
121	.083	-.048	.089	-.017	-.148	-.001	-.906*	.031	-.076	-.034	-.068	-.048	.008	.874
122	-.123	.041	-.019	.020	.129	-.020	.919*	.041	.035	.009	.024	-.022	.003	.883
123	.016	-.026*	.045	.063	-.055	-.098	-.055	-.010	-.31	-.060	-.062	-.004	.060	.717
124	.055	-.867*	-.001	.021	-.098	.034	-.003	-.030	.027	.030	-.024	-.011	.017	.769
125	.663*	-.115	.158	.020	-.106	.074	.143	.012	-.089	-.026	-.133	-.016	-.173	.572
Hi.														
Load.	.807	-.867	.698	-.829	-.832	-.802	.119	.762	-.770	-.665	-.702	-.586	.565	
Prop.														
Var.	.065	.076	.040	.050	.056	.043	.051	.035	.042	.043	.040	.037	.030	
Cum.														
P.V.	.065	.141	.181	.231	.287	.330	.381	.415	.457	.500	.540	.577	.607	

APPENDIX D

ITEM WEIGHTS FOR SENIOR-YEAR EXPERIENCE INVENTORY SCALES

APPENDIX D

ITEM WEIGHTS FOR SENIOR-YEAR EXPERIENCE INVENTORY SCALES

Name	r_{tt}	SRI Item Number	Weights Assigned To Response Positions						
			1	2	3	4	5	6	7
College Satisfaction	.00	1	3	2	1				
		2	3	2	1				
		3	3	2	1				
		4	3	2	1				
		5	3	2	1				
Academic Satisfaction	.52	6	4	3	1	1			
		7	4	3	2	1			
		8	2	2	3	4			
		9	2	2	3	4			
		10	1	2	3	4			
		11	4	3	1	1			
Anti-Communism (Sr.)	.69	12	1	2	3	3	4*		
		13	1	2	3	4	5		
		14	5	4	3	2	1		
		21	5	4	4	2	1		
		22	5	5	3	2	1		
Reference/Norm Group (Sr.)	.21	16	5	4	3	2	1*		
		25	1	3	4	4	5		
		27	1	2	2	3	5		
Personal Confidence (Sr.)	.20	19	5	4	1	3	1*		
		20	5	4	3	2	2		
Liberal-General Viewpoint (Sr.)	.20	18	5	4	3	2	1*		
		26	5	4	3	2	1		
Peers vs. Professors (Sr.)	.16	15	5	4	3	2	1*		
		17	5	4	3	2	1		
Current Issues (Sr.)	.08	23	5	4	3	2	1*		
		24	5	4	3	2	1		

APPENDIX D--(Continued)

Name	r_{tt}	SRI Item Number	Weights Assigned To Response Positions						
			1	2	3	4	5	6	7
Egalitarianism (Sr.)	.33	28	5	4	3	2	1*		
		29	5	4	3	2	1		
Anti-Communism (Fr.)	.65	12	1	2	3	4	5*		
		13	1	2	3	4	5		
		14	5	4	3	2	1		
		21	5	4	3	2	1		
		22	5	4	3	2	1		
Reference/Norm Group (Fr.)	.35	16	5	4	3	2	1*		
		25	1	2	3	4	5		
		27	1	2	3	4	5		
Personal Confidence (Fr.)	.21	19	5	4	3	2	1*		
		20	5	4	3	2	1		
Liberal-General Viewpoint (Fr.)	.25	18	5	4	3	2	1*		
		26	5	4	3	2	1		
Peers vs. Professors (Frs.)	.12	15	5	4	3	2	1*		
		17	5	4	3	2	1		
Current Issues (Fr.)	.05	23	5	4	3	2	1*		
		24	5	4	3	2	1		
Egalitarianism (Fr.)	.28	28	5	4	3	2	1*		
		29	5	4	3	2	1		
Anticipated Community Activity	.65	30	5	4	3	1	2		
		31	3	4	3	2	2		
		32	4	4	3	1	1		
		33	5	4	3	2	1		
		34	5	5	3	1	2		
		35	5	4	3	1	1		
		36	5	5	3	1	1		
		37	5	4	3	2	2		
		38	5	4	4	2	2		

APPENDIX D --(Continued)

Name	r_{tt}	SRI Item Number	Weights Assigned To Response Positions						
			1	2	3	4	5	6	7
Tolerance	.48	87	3	2	1*				
		88	3	3	1				
		89	3	2	1				
		90	2	2	1				
		91	3	2	1				
Range of Interests	.58	93	3	2	1*				
		94	3	2	1				
		95	3	2	1				
		96	3	2	1				
		97	3	2	1				
		100	3	2	1				
Vocationalism	.46	111	3	2	1*				
		112	1	2	3				
		113	3	2	1				
		114	3	2	1				
		115	1	2	3				
Education Need-Achievement	.26	116	3	2	1*				
		117	3	2	1				
Personal Accountability	.21	92	3	2	1*				
		102	3	2	1				
		103	1	2	3				
		104	1	2	3				
		105	1	2	3				
Resourcefulness	.60	98	3	2	1*				
		99	3	2	1				
Scholarly Achievement	.77	61	3	2	1				
		62	3	1	1				
		63	3	2	1				
		69	3	2	1				
		70	3	2	1				
		73	3	2	1				
		75	3	2	2				
		76	3	2	1				
		77	3	1	1				
		85	3	2	2				

APPENDIX D--(Continued)

Name	r_{tt}	SRI Item Number	Weights Assigned To Response Positions						
			1	2	3	4	5	6	7
Student-Centered Teachers	.50	41	3	1	1	0			
		42	4	2	1	4			
		43	4	2	1	1			
		44	2	2	3	4			
		46	3	2	1	1			
		51	4	3	3	1			
		52	4	3	2	1			
Teacher-Community Involvement	.64	39	4	3	2	1			
		40	4	3	2	1			
		45	4	3	2	1			
Teacher-Scholar	.35	48	1	1	3	4			
		49	3	2	2	0			
		53	4	1	1	1			
Teacher Expectation	.15	47	1	2	3	4			
		50	4	3	2	1			
Religious Concepts	.87	55	2	1	3	4	5	6	7
		56	7	6	5	4	2	1	1
		57	3	3	4	3	6	7	7
		58	7	5	5	3	1	2	1
		59	2	2	4	4	5	6	6
		60	7	6	5	4	3	2	1
Personal Confidence/ Future Orientation	.72	101	3	2	1*				
		118	1	2	3				
		119	3	2	1				
		120	1	2	3				
		121	3	2	1				
		122	1	2	3				
		125	3	2	1				
Religiosity	.87	106	1	2	3*				
		107	1	2	3				
		123	1	2	3				
		124	1	2	3				
Respect for Authority	.78	108	1	2	3*				
		109	1	2	3				
		110	1	2	3				

APPENDIX D--(Continued)

Name	r_{tt}	SRI Item Number	Weights Assigned To Response Positions						
			1	2	3	4	5	6	7
Personal Development	.70	65	3	2	1				
		66	3	1	1				
		68	3	1	1				
		71	3	2	1				
		80	3	2	2				
		81	3	2	2				
		84	3	2	1				
		86	3	2	1				
Weltanschauung	.73	64	3	2	1				
		67	3	2	1				
		72	3	2	1				
		74	3	2	1				
		78	3	2	1				
		79	3	2	1				
		82	3	2	1				
		83	3	2	1				
Significant Others	Unknown	192	"error free" weights not obtained for this scale						
		193							
		194							
		195							
		196							
		197							
		198							
Loss of University Resources	Unknown	203	"error free" weights not obtained for this scale						
		204							
		205							
		206							
		207							
		208							
		209							
		210							
		211							
		212							

*Original SRI response order altered to form scalable items