SOCIOLOGY OF THE CLASSROOM: AN EXPLORATORY STUDY OF THE CLASSROOM AS A SOCIAL ENVIRONMENT

By

CHARLES RODNEY ALBERT

Bachelor of Arts
Southwestern State College
Weatherford, Oklahoma
1966

Master of Science
Oklahoma State University
Stillwater, Oklahoma
1968

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF PHILOSOPHY
May, 1973

SOCIOLOGY OF THE CLASSROOM: AN EXPLORATORY STUDY OF THE CLASSROOM AS A SOCIAL ENVIRONMENT

Thesis Approved:

Thesis Adviser

Dean of the Graduate College

ACKNOWLEDGEMENTS

Within the realm of persons who gave of their time and effort so that this research might be undertaken and conducted, one person is to receive the author's most sincere thanks. Dr. Ivan Chapman, thesis adviser, provided the author with unlimited suggestions, criticisms, ideas, and most importantly, understanding.

In addition to Dr. Chapman, other committee members the author wishes to express appreciation to include Dr. Richard Dodder, Dr. Gene Acuff, and Dr. Russell Dobson.

A special thanks is in order for the instructors, Kenneth Elder, Caroline Young, and Chuck Lewis, who were willing to allow their classes to be used as a sample for this study. Mr. Kenneth Elder gave his time and efforts in numerous ways for which the author is most appreciative.

Mrs. Bobbi Hiatt has been most gracious in her attempt to interpret the author's handwriting in such a manner that a typed manuscript was to emerge. A very special thanks to Mrs. Hiatt for her typing and willingness to work late hours. Appreciation is also given to Mrs. Thomas W. Lee who typed the final copy.

The author would also like to express appreciation to Oklahoma State Research Foundation No. 4350-214 which provided financial support for the project. Appreciation is also extended to Dennis Whisenhunt for his assistance with the computational analysis.

Finally, the author wishes to acknowledge his family whose continued support has made possible the author's academic achievements. Linda, the author's wife, was engaged in her own research, yet she found time to give the author encouragement and support. To my wife a very special "thank you."

TABLE OF CONTENTS

Chapter		Page
I.	INTRODUCTION	1
	Preliminary Statement	1
	Problem	1
	Literature Review	2
	Summary	17
II.	THEORETICAL STATEMENT	19
	Interrelationship of Existing Knowledge and Present Study	19
	Exploratory Hypotheses	21
	Definition of Terms	22
III.	METHODOLOGY AND DESIGN	24
	Introduction	24
	Phase I Methods and Design	24
	Evaluation of Phase I Methodology	27
	Phase II Methods and Design	28
	Instruments	30
	Procedures	32
	Statistical Tools	33
	Evaluation of Phase II Methodology	35
IV.	ANALYSIS OF FINDINGS	37
	Introduction	37
	Findings of Phase I	37
	Findings of Phase II	64
	Findings of the Interview	86
V.	SUMMARY AND CONCLUSIONS	92
	Introduction	92
	Phase I Summary	92
	Phase II Summary	95
	Common Findings of Phase I and Phase II	99
	Summary of the Interviews	101
	Limitations of the Study	103
	Conclusion	103

Chapter Page

BIBLIOGRAPHY 109

APPENDIX A - SOCIAL ENVIRONMENT QUESTIONNAIRE 113

APPENDIX B - MEASURE OF CLASS COHESIVENESS 118

APPENDIX C - CLASSROOM ENVIRONMENT QUESTIONNAIRE 120

APPENDIX D - STRUCTURED INTERVIEW FORMAT 122

APPENDIX E - POST-CLASS STUDENT OPINIONS 126

APPENDIX F - PROGRAM USED FOR ANALYSIS OF VARIANCE 128

LIST OF TABLES

Table		Page
I.	Descriptive Characteristics of Phase II Sample	29
II.	Analysis of Variance Results on Class Cohesiveness	38
III.	Analysis of Variance Results on Student Alienation to Class Benefit	39
IV.	Alienation to Class Benefit Means and Mean Differences	40
V.	Alienation to Class Benefit Group by Time Means	41
VI.	Analysis of Variance Results on Preferred Social Distance to the Instructor	43
VII.	Time Means and Mean Differences on Preferred Social Distance to the Instructor	44
VIII.	Group by Time Means on Preferred Social Distance to the Instructor	45
IX.	Analysis of Variance Results on Perceived Value of the Instructor	47
X.	Time Means and Mean Differences on Perceived Value of the Instructor	47
XI.	Group Means and Mean Differences on Perceived Value of the Instructor	48
XII.	Group by Time Means on Perceived Value of the Instructor	50
XIII.	Analysis of Variance Results on Perceived Power of the Instructor	51
XIV.	Time Means and Mean Differences on Perceived Power of the Instructor	51
XV.	Group Means and Mean Differences on Perceived Potency of the Instructor	53

Table		Page
XVI.	Group by Time Means on Perceived Potency of the Instructor	54
XVII.	Analysis of Variance Results on Perceived Activity of the Instructor	55
XVIII.	Group Means and Mean Differences on Perceived Activity of the Instructor	55
XIX.	Time Means and Mean Differences on Perceived Activity of the Instructor	56
XX.	Group by Time Means on Perceived Activity Level of the Instructor	57
XXI.	Means for Males on Alienation to Class Benefit by Group and Time	59
XXII.	Means for Females on Alienation to Class Benefit by Group and Time	59
XXIII.	Means on Social Distance to the Instructor by Sex and Time for all Groups	60
XXIV.	Means on Social Distance to the Instructor by Sex and Group at all Time Periods	61
XXV.	Analysis of Variance Results on Class Cohesiveness	65
XXVI.	Group Means and Mean Differences on Class Cohesiveness	66
XXVII.	Results of the Analysis of Variance on Student Alienation to Class Benefit	67
XXVIII.	Time Means and Mean Differences of Student Alienation to Class Benefit	68
XXIX.	Group by Time Means on Student Alienation to Class Benefit	69
XXX.	Group by Time Means on Social Distance to the Instructor	71
XXXI.	Perceived Value of the Instructor Analysis of Variance Results	72
XXXII.	Perceived Value of the Instructor Group Means and Mean Differences	74
XXXIII.	Group by Time Means on Perceived Value of the Instructor	75

Table Page

XXXIV. Perceived Potency of the Instructor Analysis of Variance Results 76

XXXV. Perceived Potency of the Instructor Group Means and Mean Differences 78

XXXVI. Time by Sex Means on Student Alienation to Class Benefit 79

XXXVII. Time by Sex Means on Perceived Power of the Instructor 81

XXXVIII. Time by Sex Means on Perceived Value of the Instructor 82

XXXIX. Classification Means and Mean Differences on Student Alienation to Class Benefit 83

XL. Classification Means and Mean Differences on the Perceived Power of the Instructor 84

XLI. Classification Means and Mean Differences on the Perceived Activity of the Instructor 85

CHAPTER I

INTRODUCTION

Preliminary Statement

When viewed as an "on-going social process" the classroom becomes a viable and salient concern for sociological research. The classroom as an interacting social environment has been experienced by virtually every American, yet there are few, if any, that understand "just what is going on in the classroom." The classroom is not a "Skinner Box" as Biddle and Adams (1967) so clearly point out. The classroom is, among other things, a social environment composed of persons engaging in the social interaction process.

Problem

Among the plethora of studies (see literature review) on the classroom, many have been conducted which reveal the importance of understanding the factors operating in the classroom which serve to facilitate the social processes of the classroom. In an attempt to contribute to the existing literature this study investigated four sociological factors in relation to varying methods of instruction and varying classroom arrangements. Specifically, the factors under study included student alienation to class benefit, class cohesiveness, social distance to the instructor, and student perception of the power, activity, and value of the instructor.

Literature Review

Within the realm of sociological and social psychological contributions to the study of classrooms as interacting social environments a few limited areas emerge. Sociometric studies (Dahlke and Monahan, 1949; Havighurst and Neugarten, 1957) have demonstrated that classrooms typically contain "stars" and "isolates", and these studies have pointed to factors that affect students in their classrooms. Often instructors lack sensitivity to the way students react to one another. Consequently, instructors frequently assert their own biases toward students, which serves to hinder a correct assessment of the "sociometric facts of life" (Gross, 1959). Havighurst and Neugarten (1967) suggest the use of sociometry as an aid in understanding the existing social network in a classroom in order to work effectively with the peer group. In addition, Havighurst and Neugarten (1967) point out that sociometric techniques are unable to give the underlying reasons behind the sociometric structure.

Sources of strain and tension are another area where sociological information is available. Gordon (1957) revealed the following tendencies: (1) tension is often created by collision of school administrators and instructors; and (2) tension often occurs when student-defined and teacher-defined roles and values are incompatible. A further basis of conflict for the teacher, according to Gordon (1955), arises in relation to the basic conflict in educational philosophy. That is, one view is the competitive achievement and evaluation of the student according to his achievement capacity, and the other view is the influence of educational theory in regard to personality development (Gordon, 1955).

Sociological analysis has also revealed the importance of reference group (set) behavior in the classroom. The instructor's observation and analysis of reference groups (sets) in the classroom provides him with a basis for evaluation and understanding of student behavior and values. Gross (1959) relates that instructor observation of reference groups has important consequences for the teacher who is attempting to locate the "anchoring points" of student behavior, norms, and values. Anderson (1959) points out that the understanding of reference group behavior is important in relation to the forming of student attitudes toward school work, aspirations, and values.

Allport (1955, pp. 273-280) stated that:

> Social relationships and values of reference groups are to be included as determiners of purpose and attitude and, through these, perceptions. . . . The organism infers the nature of the perceived by judging (unconsciously) what physical object, or set of objection--dimensions or properties, would need to be present in order to produce the present pattern of stimulation upon the receptors.

If this is true, then where the lecturer appears small because of distance and his voice has lost its personal qualities, the students may then attach more importance to other class members, with their own values and allegiances being a greater force than the instructor or his lecture. It is likely that students are not motivated by this situation to be receptive to the lecture. The students in a situation such as this may be motivated to dominate the situation, including the instructor, and to define the situation as boring, dull, presumptuous, wasted time, and so on (Chapman-Albert, 1972).

The Schmucks (1971) in a discussion of classroom life relate that the classroom is not a depersonalized setting. It is filled with emotion between instructor and students, and between a student and his

peer group. It is primarily the peer group that responds to a student's affective needs according to the Schmucks (1971). In order to understand the social processes operating in the classroom it is necessary to be aware of reference groups (sets) and their relationship to the on-going interactional process in the classroom. According to the Schmucks (1971) the core of group processes in the classroom is composed of the combination of the instructor's responses to a student's personal needs and the peer group's interaction with the student.

Many social components are involved in the classroom. The individual student has his own special and unique characteristics, as does the teacher. When the classroom is viewed as a group process, then the class may be viewed as having its own special and unique characteristics. Further observation reveals that among the student classroom members the various peer groups and reference groups (sets) have their own unique characteristics. External influences also have a bearing upon classrooms, such as the total organization of the school, the physical features of the school and classroom, and the various social environments of social class, race and ethnic composition, the community, and many other influences. Consequently, an analysis of the classroom as an interacting social environment requires an interpretive understanding of social and physical characteristics of the classroom.

A social characteristic of the classroom which, according to Bany and Johnson (1959), is poorly understood is that of cohesiveness among classroom groups. Bany and Johnson (1959) relate that there is no systematic knowledge available concerning cohesiveness in the classroom group. Cohesiveness of classroom members refers to the total of

inclusion feelings held by all classroom members in relation to the entire class (Schmuck, 1971).

Abel (1970) says that "group cohesion refers to the directly observable fact that certain persons form a unit of a sort that holds them together" (p. 22). The elements involved in holding groups together, according to Durkheim (see Abel, 1970), are "the interchange of ideas and feelings from all to each and each to all," in "the active interchange of views and impressions," in the revealings of "love for the group," and in "participation in a common cause," in "the constant surveillance of all over each." Thus group cohesion, according to Durkheim (see Abel, 1970), "is manifest in group-oriented activities, and it is measured in terms of them" (p. 23).

Cartwright and Zander (1968) relate that cohesiveness may be considered from several perspectives. One perspective is to consider the group in its entirety and observe the whole group rather than to consider how well individuals liked members in the group. This perspective, if taken to the classroom, gives support to the contention that students may like the classroom group and the classroom group may be considered cohesive, yet the individual member's closest friends are outside the class. In the examination of five variables of group cohesiveness Eisman (1959) was unable to detect significant rank correlations among them. Eisman (1959) also noted that the liking of members as measured by a sociometric index was not significantly related to mean group attractiveness. He suggested that friendship ties and sharing the same values were not necessarily the most important factors involved with cohesiveness of groups.

There are many factors that enter into group cohesiveness, some of which include member-liking structure, a sense of belonging, group attractiveness, acceptance of common values and goals, and success within the group. Group cohesion within the classroom may take on various forms, and the origin of the cohesiveness of the group comes about for various reasons. There are also various reasons for maintaining the class cohesion. Bany and Johnson (1959) relate that instructors are often unable to proceed with intended materials because student attention is directed toward group problems. Accordingly, if group problems are not resolved, there is decreased individual productivity and the instructor diminishes as the focus of attention. Perkins (1951) has also noted that stresses and strains created in the classroom created by group behavior serve to restrict the learning process. Cunningham (1951) has observed various reactions of classroom groups to the instructor's attempts to maintain social control. Cunningham (1951) noted that classes which are openly hostile toward the instructor are also highly cohesive in most cases. In addition, he noted that groups which are highly dependent upon the instructor are generally low in cohesiveness.

In a laboratory experiment which investigated cohesiveness, Back (1958) noted the following: (1) In highly cohesive groups the members exert more effort to arrive at an agreement than the groups low in cohesion. (2) Behavior in highly cohesive groups was influenced more by the situation than in groups with low cohesion. (3) In highly cohesive groups discussion was more effective in producing consensus among members than in less cohesive groups.

Pepitone and Reichling (1955) in a study of group cohesiveness and hostility state that "the greater the cohesiveness of a group, the greater its power and the less restrained its members will be in expressing hostility" (pp. 327-338). Lending support to this idea is Coch and French (1958) in their study involving resistance to change. Coch and French (1958) point out that a group may increase its power by developing a more cohesive and well-disciplined group. Along the same line of thought is the work of Hughes, Becker, and Geer (1958) who, in an analysis of student culture and academic effort, reveal an analogy of education to industry. That is, groups of skilled workmen set, by informal understanding, the proper level of production. In like manner, student groups, through informal tactics, also set the proper level of work to be done in the classroom. Max Weber (see Bell and Stub, 1968) related that:

> Any group of working men who possess any solidarity whatsoever, and with some common image of themselves and their situation, will not easily yield to any authority full control over the amount of work they do or over the strenuousness of the effort they put forth (p. 374).

Hughes, Becker and Geer (1958) suggest that:

> Student culture affects the level and direction of efforts students expend while in school, by giving them a rationale restricting the theoretically infinite amount of time and effort they might devote to their school work (p. 384).

Hughes and associates also contend that the student culture provides students with sufficient collective support to allow them to direct their efforts in quite different directions that those suggested by the faculty. Coch and French (1958) relate the importance of cohesive subgroups as they point out the strength of groups in their ability to exert influence over individual members to conform to group standards.

Seashore (1954) in an analysis of the relationship of cohesiveness and norms noted that the performance of highly cohesive industrial groups was either very high or very low. Seashore observed that work groups whose normative structure opposed high production performed poorly, especially when the groups were highly cohesive. The processes observed by Seashore could be generalized to the classroom. Cohesive groups of students who share negative attitudes about the educational process could direct the course of action within a classroom setting. On the other hand, if the norms in the group are positive to the educational process, their actions may well be in the opposite direction.

Classroom groups can be described as being cohesive for various reasons. In the previously mentioned study conducted by Back (1958) he investigated various "pulls" that groups have for individuals. Subjects in Back's (1958) experiment worked in pairs cooperatively on a task. The pairs were designed in such a way as to be cohesive or noncohesive, and the cohesive pairs were arranged in the following ways: (1) attraction to the group because of liking for the other member; (2) attraction to the group because of high interest, mutually held, in the task; and (3) attraction to the group due to its prestige for the members. Although the reasons for cohesion varied, Back (1958) noted that the cohesive groups in one way or another worked more effectively than the noncohesive groups.

Cohesiveness in the classroom is contingent upon a number of factors which include the common interest among the classroom members. The implications of classroom cohesiveness can be both positive and negative, as was previously pointed out. Communications and interaction within a classroom bear a relationship to the level of cohesion

exhibited by class members. Lott and Lott (1961) give evidence to support the contention that communication level varies positively with the degree of group cohesiveness. That is, if the group is highly cohesive, then there will be frequent communication among group members. Johnson and Bany (1970) reveal that the amount of interaction and the frequency of verbal communication have a direct relationship on the degree to which a group is cohesive. Bany and Johnson (1964) relate that highly cohesive groups show fewer individual differences in the amount of member participation than do groups low in cohesiveness.

Bovard (1956) compared two methods of instruction in relation to attractiveness of the group. One teaching method, termed "group centered", fostered communication between group members. The other teaching method, termed "leader centered", limited student-to-student conversation. Bovard found the "group centered" approach fostered a friendly and cohesive class; also in the "group centered" class, the atmosphere was conducive to remove any threat of isolation of student members.

Kelley (1951) noted that group attraction or cohesiveness was significantly affected by the kind of structure assigned or imposed upon the group. According to Johnson and Bany (1970) if a group is organized as a low-status structure, or if the instructor organizes the class internally into two separate groups based on students' ability, then the class members are likely to find the class group unattractive.

Stienzor (1950), in a study of spatial factors in small discussion groups, found that persons in groups were more likely to interact with others if they could see them as well as hear them. Leavitt's (1951) study of communication patterns and group performance noted that the

positions individuals occupied in a communication pattern affected their behavior in those positions. Also affected were the individual's chances for becoming a leader, his satisfaction with his contribution to the group, and the quantity of his activities. The most central position, or the position closest to all other positions, was noted as the major factor in communication patterns. Leavitt (1951) says that individuals who occupied this central position tended to be more satisfied, and just the opposite was observed for persons in peripheral positions. Leavitt noted the circle seating arrangement to be the most satisfactory for small classes. However, for large classes the circle seating arrangement tends to place restrictions on the communication process. Leavitt reports that when observing classes where students are given a free choice as to seating, the students move toward the leader of the group and form a tight, compact group.

The physical environment of the classroom, in particular the spatial arrangement of students' desks within the classroom, has much significance. Biddle and Adams (1967) suggest that a student cannot fully pay attention to the instructor when the proximity of other students is so close that it serves to distract the student. On the other hand, Biddle and Adams say that a student who is distracted by others may learn more from the students in close proximity through their reinterpretation of the instructor's lecture.

Bany and Johnson (1964) reveal the need for research in the area of classroom seating arrangements. They point out that various studies have shown that the seating arrangement within a classroom definitely has a bearing upon the behavior of students within the classroom. Biddle and Adams (1967) are in accord with Bany and Johnson as they

state, "In no studies reviewed by the authors have the physical and social environments of the classroom been studied by themselves" (p. 113). They further point out they have not discovered studies concerned with the effects of physical environment on instructor or student behavior. In order to assess the physical and social environment of the classroom a review of social psychological literature is necessitated.

The proximity of students within a classroom may have significant consequences upon student behavior and performance. A theory developed by Snygg and Combs (1949) contended that when a person feels anxious or fearful in the presence of another, he has difficulty in accurately perceiving the world. The greater the threat that a person feels from another, the more pronounced is the restricting and distorting effects on his thoughts and perceptions concerning his environment. Combs and Taylor (1952) performed an experiment which serves to illustrate the theory of Snygg and Combs. In the experiment mild degrees of personal threat were introduced to subjects who were performing intellectual tasks. The control subjects were not exposed to personal threats. The time required to complete the task for the threatened experimental group was greater than the time required for the nonthreatened control group.

Studies by Allport (1924) and Dashiell (1935) have investigated the effects of groups of people upon the individual by comparing the achievement of individuals who performed tasks alone with those individuals who performed tasks in the presence of others. Allport and Dashiell were able to demonstrate, in most of their research cases, that the presence of other persons has a detrimental effect on the

intellectual functioning and a facilitating effect on simple motor performances. Also noted in their research was the importance of the complexity of the task. The presence of others in a situation has a more negative effect upon the individual as the complexity of the task increases. The significance of this social psychological research for classrooms can be noted in the intellectual activity of students which can be influenced negatively by the presence of others who are performing similar tasks.

When students are involved with intellectual tasks the need for adequate work space becomes evident as one examines the concept of "personal space." Personal space is defined as "an area with invisible boundaries surrounding a person's body into which intruders may not come" (Sommer, 1964, p. 26). Personal space may be thought of as a "bubble" surrounding an individual's body that is an extension of his self. The most obvious such extension is a person's clothing or other body decorations which are often considered by both self and others as a facade or "presentation" of the self (Goffman, 1959). However, it is quite obvious that personal space extends considerably beyond one's clothing, as evidenced by the disorientations that occur when people of differing cultures, races, and backgrounds come into contact with one another. Felipe and Sommer (1966) have demonstrated that invasion of one's personal space (distance) has a disruptive effect and can produce reactions ranging from flight at one extreme, to agonistic display at the other.

Lyman and Scott (1967) point out that personal space is a situational variable and analogous to "territoriality." Sommer (1969) says that "territoriality" refers to behavior toward an area that is

distinctively identified with an individual and may be defended by the individual. Privacy and personal space share much in common, especially in regard to the consequences of violating these areas (Newson, 1971). Schwartz (1968) relates that although there is some relationship between privacy and personal space, privacy, unlike personal space, is entirely situational and does not always travel with the person's body, and the notion of boundaries is even more ambiguous.

Little (1965) noted that social distance is highly correlated with physical distance in "live" situations. Gottheil, Corey, and Paredes (1968) tested Little's proposition by investigating the degree of psychological distance of subjects from interviewer, as measured by a projective test, and physical distance from the interviewer, as maintained by the subjects, in actual interview. Gottheill, et al., (1968) concluded that:

> . . . the data lend support to Little's theoretical position, in that, psychological distance as measured by a projective technique was found to be related to overt behavior in a real interaction. When a subject feels close to an interviewer he maintains less physical distance from that interviewer during the interview (pp. 8-9).

Hall (1966) indicates the effect of space upon human perception. "At sixteen feet, the body begins to be imperceivable; only the white of the eye is visible. Head size is perceived as considerably under life-size" (p. 177). He stated further that:

> . . . most actors know that at thirty or more feet the subtle shades of meaning conveyed by the normal voice are lost as are the details of facial expression and movement. Not only the voice but everything else must be exaggerated or amplified. Much of the nonverbal part of the communication shifts to gestures and body stance. In addition, the tempo of the voice drops, words are enunciated more clearly, and there are stylistic changes as well. . . . The whole man may be seen as quite small and he is perceived in a setting. Foveal vision takes in more and more of the man until he is entirely within

> the small circle of sharpest vision. At which point--when people look like ants--contact with them as human beings fades rapidly (p. 120).

Schmuck (1971) relates the possible effect of having students working in close proximity, especially when a student is working in near proximity to those with whom the student feels insecure. Schmuck (1971) points out that the student's level of performance on complex activities is reduced and the extent to which the student can function in an intellectual manner is considerably reduced.

Adams and Biddle (1970) state that "the world of the classroom is not a very big one, but if our research is any indication some of it is rather remote from the teacher" (p. 89). In addition it is suggested that distance determines what kind of interaction is possible. It was inferred by Adams and Biddle (1970) that the relationships between the instructor and the students who inhabit distant corners of the room are likely to be the relationships that reflect social distance. On the other hand, the students sitting closer to the instructor are likely to be socially closer as well.

Further evidence of group pressures can be noted in Asch's (1952) writing of his observations of the modification of individual's judgment in experimental groups. Asch (1952) observed that distortions noted in action, judgment, and, to some extent, perception were a consequence of pressures from the social sphere, not necessarily of the internal tendencies whose source is found within the individual himself. He further noted that individuals who succumbed to the majority would have acted in an entirely sensible way had they been spared the warping influence of the group. Brown (1965) pointed out that there appears to be an almost certain tendency for members of a group to move

toward agreement. Agreement occurs when there is no instruction to reach a consensus. It occurs when there is no opportunity to argue. It also occurs, incipiently, when the members do not know one another's beliefs and opinions but can only estimate them. Furthermore, it occurs when the positive relations among the members are very weak. As a result of his experiments, Asch (1952) found that "to yield under the given conditions is to subordinate one's authentic mental processes to those of others" (p. 468). And where this occurs the "shared action that rests on the voluntary or involuntary suppression of individual experience is a malignant sociological process," (pp. 495-496) because

> there is an obvious personal difference between the reactions of independence and yielding. To be independent is to assert the authentic value of one's own experience; to yield is to deny the evidence that cannot be assimilated--to renounce a condition upon which one's capacity to function depends in an essential way (p. 497).

In a discussion of student types Crary (1969) examines what he terms the alienated student. The alienated student, according to Crary, is one who has been endowed with a negative view of life and social relationship. Crary (1969) further points out that much of the alienation held by students is a result of the social institutions, in particular the educational institutions. Crary suggests that alienated students are not few in number; therefore, it is necessary that an examination of the educational influences upon alienation be undertaken.

The concept of alienation is difficult to define. Becker (1967) relates that the word has been used to cover almost anything. Becker further points out that those who use the concept of alienation say everyone is alienated in one way or another. Lewis Feuer (1963) traced the concept of alienation from Calvin through Marx and the young

Hegelians up through Erich Fromm of the present day. Feuer (1963) says of alienation:

> It lies in every direction of human experience where basic emotional desire is frustrated, every direction in which the person may be compelled by social situations to do violence to his own nature. Alienation is used to convey the emotional tone which accompanies any behavior in which the person is compelled to act self-destructively; that is the most general definition of alienation, and its dimensions will be as varied as human desire and need (p. 43).

The value of the instructor is clearly pointed out by Havighurst and Neugarten (1967). They relate that the climate and social environment of the classroom are in many ways directly influenced by the teacher's own behavior. They further suggest the implications of student and instructor dissociation. When the instructor is held in high regard, he may serve to be influential in defining the classroom situation. On the other hand, if the instructor is held in low esteem by students, he loses much of his prerogative to contribute to the definition of the situation.

Gordon (1955) relates that a significant amount of conflict may result when there are two sets of requirements in the classroom. One set is represented by the instructor, and the other set arises from the informal student system. Another observation by Gordon is in instructor interaction with students as a possible source of conflict between the authority of the instructor and the expectations of the informal group. Consequently, Gordon suggests that conflict may be minimized as a result of the way in which the instructor articulates the requirements of both formal and informal systems within the classroom.

In regard to the power in the classroom, David Johnson (1970) suggests that the complementary roles of the students and teachers in

the classroom make them dependent upon one another. However, due to the hierarchical structure of the classroom, the students are more dependent upon the instructor than the instructor is upon the students, according to Johnson (1970). Johnson's review of theories relating to power reveals that the power of a person is contingent upon the person's ability to provide the satisfactions and rewards desired by others from this person. Thus, the power of an instructor resides in his ability to motivate students to the goals of the instructor. Johnson contends that if students do not value the goals of the instructor, or cannot recognize the instructor's goals, then the students will become relatively independent of the instructor.

Flanders (1964) has noted that there are a number of different factors which affect the pattern of influence used by the instructor. Some of these factors include the subject matter being taught, the age and maturity of the students, the instructor's teaching style, and the nature of the class. The authority structure in the classroom reveals that the teacher's basis of power resides in his role as teacher. However, the authority of the teacher's role is maintained only so long as the students recognize and support the instructor's authority.

Summary

An overview of the literature reviewed in the preceding pages reveals that sociological and social psychological contributions to the study of classrooms has primarily pointed out the need to study the classroom as a social environment. By focusing on group processes which serve to facilitate social interaction among students and teachers a better understanding may be gained of the social environment of

the classroom.

The reviewed areas of research revealed the need for additional studies on classroom group processes. While the literature reviewed gives evidence of the nature of the classroom, there are areas where a haitus exists; such areas include student alienation to the class, social and physical distance of students to instructor, effects of classroom group cohesiveness, and student perception of instructors in regard to power, activity, and value.

CHAPTER II

THEORETICAL STATEMENT

Interrelationship of Existing Knowledge and Present Study

The present study is social psychological in nature and pertains to the interactional schema of the instructor and students in the classroom social environment. The literature reviewed indicates some contradictory findings. In particular, group cohesiveness research tends to indicate both favorable and unfavorable conditions for the educational process. For the purposes of this study, group cohesiveness is used as an indicator of social control and focus of attention in the classroom as a group process. Studies on spatial factors in the classroom have mainly been concerned with seating arrangements, especially seating arrangements that enhance teacher-to-student and student-to-student communication. Research has provided only limited evidence as to the effects of physical distance between students in relation to social control and focus of attention in the classroom as a group process.

In this study communication in the classroom is regarded as being achieved when students have the opportunity to communicate with one another as well as with the instructor and vice versa. Since communication is dual in nature, it is important that the instructor and the

students "be heard" and "hear." Therefore, this study has as one of its objectives the investigation of a two-way communication system (microphones for all class members) and the effects of this system on social control and focus of attention. Research in this area is somewhat limited, although the existing literature tends to reflect that communication must be two-way for the educational process to be most successful.

Student alienation within the classroom is a phenomenon that has received, in the main, only a limited amount of attention. The existing literature on student alienation to the classroom is without empirical research verification. In this research alienation of students to the class is investigated. The evidence provided by this study on student alienation to the classroom should serve to help fill the haitus existing in the literature.

Instructor value, power, and activity, as perceived by students, have important consequences for the classroom, as has been revealed in the literature. The present study examines the views of students in regard to their perceptions of the instructor's value, power, and activity. By looking at students' views of instructors in varying types of classroom arrangements and varying methods of instruction, this research serves to facilitate a greater understanding of classroom social and physical environments.

Social distance of students to the instructor is a factor that has implications for the social environment of the classroom. As pointed out in the literature review, social distance within the classroom is a variable that aids in understanding the extent to which interaction may occur in the classroom. Presently under investigation, social distance

is examined in relationship to varying types of classroom arrangements and varying methods of instruction.

Exploratory Hypotheses

Major exploratory hypotheses investigated are as follows:

1. There is no significant difference in class cohesiveness with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05)

2. There is no significant difference in student alienation to class benefit with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05)

3. There is no significant difference in preferred social distance to the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05)

4. There is no significant difference in perceived value of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05)

5. There is no significant difference in perceived potency of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05)

6. There is no significant difference in perceived activity of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05)

7. There is no significant difference between males and females in regard to alienation to class benefit. (p=.05)

8. There is no significant difference between males and females in regard to class cohesiveness. (p=.05)

9. There is no significant difference between males and females in regard to social distance to the instructor. (p=.05)

10. There is no significant difference between males and females in regard to perceived power of the instructor. (p=.05)

11. There is no significant difference between males and females in regard to perceived activity of the instructor. (p=.05)

12. There is no significant difference between males and females in regard to the value of the instructor. (p=.05)

The above exploratory hypotheses serve to facilitate other investigations which will be developed in the context of the analysis of data chapter. Once significant differences were found, the task then became that of locating where the differences were. Consequently, the above given hypotheses serve to generate additional investigations which present a more accurate description of the social processes operating within the classroom.

Definition of Terms

The following terms are defined in relation to their use in this study.

Alienation to Class Benefit.--A social-psychological condition of persons which involves estrangement from the classroom. In this study alienation to the class is viewed in degrees along a continuum representing the amount of influence students have and the benefit derived from the class.

Class Cohesiveness.--Refers to the attraction of the group, resistance to leaving it, motivation of group members to participate in the group, and coordination of the efforts of members (Cartwright

and Zander, 1960). In the present study, class cohesiveness is measured in degrees along a continuum by assessing student feelings with regard to attraction to the class, willingness to defend the class, and the cooperation within the class.

Social Distance.--Refers to a social area that exists between individuals, as well as between groups, in regard to the social acceptance of groups and of individuals. By using a continuum with degrees of social distance, this study measures the social acceptance of students to their instructor.

Perceived Power of the Instructor.--Refers to the students' feelings about the instructor in regard to the instructor's ability to exert influence in maintaining and controlling the focus of attention in the classroom.

Perceived Activity of the Instructor.--Refers to the students' perception of the activity level of the instructor, which includes instructor's ability to interest, excite, and create activity among students.

Perceived Value of the Instructor.--Refers to the students' perception of the worth of the instructor, which includes perceived instructor's attitudes toward the class.

CHAPTER III

METHODOLOGY AND DESIGN

Introduction

This chapter is composed of two parts: one concerns Phase I of the study, and the other involves Phase II. Phase I was conducted in an attempt to gain a better understanding of the research instruments and research design. In Phase II efforts were made to incorporate the recommendations stemming from Phase I for improving the design and instruments. It was felt that Phase I was essential for a study such as this since electronic equipment and various classroom arrangements were required and cooperation was needed from instructors, administrators, and students.

Phase I Methods and Design

In order to obtain an evaluation of the instruments and research design, Phase I was conducted in three Oklahoma State University classes of introductory sociology. Two of these classes were designated as control classes, and the other class was used as an experimental class. There were two instructors teaching the classes; one instructor taught a regular section of introductory sociology (N=49) which was one of the control groups. The other instructor taught a control class (N=19) and the experimental class (N=22). The two classes with the smallest N

were honors introductory sections.

The experimental class involved various classroom arrangements and various methods of instruction. In the experimental class for the first four weeks the method of instruction and arrangement of the classroom was lecture and traditional row and column seating arrangement. During the next four week period the experimental class was arranged in such a manner that students were seated approximately four feet apart from one another in every direction; the method of instruction for this period was lecture. The next four week period for the experimental class involved retaining the distance of four feet apart among students; however, the method of instruction was changed. The method of instruction shifted from lecture to student panel presentations. This type of instruction required the students to participate two at a time in front of the class with the instructor. A table was present in the classroom, and the two students and the instructor then became the primary means of instruction.

Complications arose during the last four week period and changes were made in the research design. The last four week period was to have involved a two-way communication system. Due to technical problems, the communications system was dropped, and the experimental class continued to operate in the same manner as the third four week period.

The method of instruction for the control classes was lecture, and the classroom arrangement was traditional row and column seating. Control classes operated under this method for the entire semester.

At the end of each four week time period the experimental class and the control classes were administered a series of questions. These questions served to measure student alienation to class benefit, class

cohesiveness, social distance to the instructor and perceived value, activity, and power of the instructor. Students in all three classes received the same instruments, and the instruments administered at time 1 were essentially the same instruments administered at time 2 and time 3.

In Phase I class cohesiveness was measured by a modified version of Seashore's (1954) Group Cohesiveness Index (see Appendix A). This index was scored by placing the possible scores on a continuum with values ranging from 1 to 5 for each item. A "1" value indicated high cohesiveness and the "5" value indicated low cohesiveness. Student alienation to class benefit was assessed by using Clark's (1959) measure of alienation modified (see Appendix A). Scoring of this instrument was conducted by assigning the scores on a continuum ranging from "0", which indicated very little alienation, to "4", which indicated high degree of alienation to class benefit.

Social distance to the instructor was measured by asking the students their preference as to where they desired to sit in the classroom in reference to their instructor. Appendix A gives the instrument which shows that students could make a selection of row preferences ranging from row 1 through row 8. Scoring of the instrument involved assigning row 1 as very little social distance, to row 8 which indicated very much social distance.

The instrument used to assess student perception of the instructor's value, activity, and power was the Osgood (1957) Semantic Differential (see Appendix A). The scale employs pairs of bi-polar adjectives, which are assigned weights from "0" to "6", with "0" values indicating much power, high value, and high activity.

In addition to the above instruments, students were also administered questions in regard to their age, sex, major, hometown size, and marital status. This descriptive information was obtained in order to check the homogeneity of the samples.

Students in the experimental class were administered an open-ended questionnaire at the end of the semester. This questionnaire was designed in such a manner as to allow the students to express their views on being spaced four feet apart, being rotated to the front of the room for their presentation, being required to shift methods of instruction, and being required to complete the questionnaires every four weeks.

Evaluation of Phase I Methodology

It was learned from Phase I that the shifting of students in the experimental class every four weeks tended to have a negative effect. This observation was based on the instructor's views, as well as the open-ended questionnaire that the students in the experimental class responded to. Experimental class students were, in the main, negative on all points about the experiment; however, the shifting from one procedure to another appeared to receive the strongest criticism by the students.

In addition to changing class methods and arrangements, evidence was provided from Phase I that the cohesiveness index was limited. Since only one question was used to directly measure cohesiveness, it was felt that this measure was probably a poor reflection of the underlying cohesiveness or uncohesiveness in the classroom.

Another observation made in Phase I was the technical difficulty in implementing the two-way communications system. Attempts to install the equipment were thwarted by personnel within the university system.

Phase II Methods and Design

Data for Phase II were obtained from students enrolled in four sociology classes at Southwestern State College, Weatherford, Oklahoma, and the instructors of these classes. The classes used for this study included two sections of introductory sociology and two sections of social problems. One instructor taught the social problems classes, and one instructor taught the introductory sociology classes. Table I gives the descriptive characteristics of the sample by class and time period.

In the design of this research, four college classrooms were used. Classroom I Phase II was a conventional classroom setting with students seated in the traditional row and column arrangement. The method of instruction for classroom I P II was lecture. This classroom was designated as control. Classroom II P II was arranged in such a manner as to provide a distance of four feet between all students. The method of instruction for classroom II P II was lecture. Classroom III P II was arranged in such a manner that students were spaced four feet apart from one another. The method of instruction for classroom III P II was panel discussion type of class. Students were required after the first week of class to assist the instructor with the presentation of class materials. The procedure involved one or two students per class meeting being responsible for certain course material, such as textbook chapters. Classroom IV P II was arranged with four feet of distance

TABLE I

DESCRIPTIVE CHARACTERISTICS OF PHASE II SAMPLE

		Classroom I Control	Classroom II Space	Classroom III Space-Panel	Classroom IV Space-Panel-2-way Communication
Number of Respondents	Time 1	34	28	27	18
	Time 2	33	25	25	17
	Time 3	34	15	27	19
Number of Males	Time 1	17	15	20	11
	Time 2	16	13	18	9
	Time 3	17	7	20	11
Number of Females	Time 1	17	13	7	7
	Time 2	17	12	7	8
	Time 3	17	8	7	8
Number of Freshmen in Classes*		16	7	15	8
Number of Sophomores in Classes*		11	12	4	7
Number of Juniors in Classes*		7	9	6	3
Number of Seniors in Classes*		2	1	4	2
Mean ACT Score**		19.57	19.77	19.52	20.44
Mean College GPA**		3.01	2.87	2.67	2.92
Mean H. S. GPA**		3.10	3.03	2.78	2.92

*Maximum number of students in each class is used in this reporting, therefore, the total of the classifications for each class will vary from total classroom N, since not all students were present at each measurement period.

**Self-report mechanism used to obtain the data on High School GPA, College GPA, and ACT Score.

separating students' desks. The type of instruction for this classroom was the same as classroom III P II, that of panel discussion type. Classroom IV P II also had a two-way communication system which consisted of a microphone for all class members and the instructor. Students in classroom IV P II were instructed at the beginning of the class to speak over the microphone when talking in class. According to the instructor in classroom IV P II, the students quickly caught on to the routine of speaking over the microphone.

The above described procedures were carried out in the four classrooms during the 1972 spring semester. Since difficulties were encountered in Phase I in shifting students from one method and classroom arrangement to another, it was decided that the classes should be conducted all semester with the same procedure.

Another change was made in Phase II that arose out of Phase I. This change involved administering the research instruments at five-week intervals, rather than the four-week intervals employed in Phase I. It was felt that an adequate measure could be made every five weeks, thereby creating less interruption in the classroom. The instruments used to assess the students' feelings on the areas under study required approximately fifteen to twenty minutes to fill out. Accordingly, any reduction in time required to measure was felt desirable by both researcher and participating instructors.

Instruments

Instruments employed to assess student feelings on the various areas in Phase II were essentially the same as the ones used in Phase I. On social distance to the instructor, students were asked to select

their row of seating preference in regard to the instructor (see Appendix A). In regard to alienation to class benefit, Clark's (1959) measure of alienation modified was employed (see Appendix A). Student perception of the instructor's value, power, and activity was assessed by the Osgood (1957) semantic differential scale, which employs bi-polar adjective choices. Alienation to class benefit, social distance, and student perception of instructor power, activity, and value were measured with the same instruments employed in Phase I.

Cohesiveness of the class was evaluated by Seashore's (1954) group cohesiveness index modified (see Appendix A). In addition to Seashore's (1954) modified instrument, another measure of cohesiveness was employed. In Phase I the cohesiveness measure was limited in that only one item was used to evaluate how cohesive the classes were. Therefore, an addition was made with a cohesiveness index that has been suggested by Bany and Johnson (1964). The Bany and Johnson cohesiveness index serves to complement and build upon Seashore's instrument, especially when employed in the classroom. Appendix B contains the additional cohesiveness index, and it lends itself to scoring by assigning weighted values of "1" to "5", with the value "1" being highly cohesive, and the value "5" being less cohesive.

Administration of the instruments was made to the students in all classes during the fifth, tenth, and fifteenth week of classes. The same instrument was used at the various time periods; however, items were rearranged in an attempt to correct for students who have a tendency to respond in a set manner. On the first day of classes students also filled out a questionnaire designed to evaluate their seating preferences to various instructors (see Appendix C). This

instrument was administered in an attempt to establish the normative pattern of seating preference to various types of instructors, stereotyped instructors, best instructors, and worst instructors.

In addition to the preceding instruments, an interview was conducted with the two instructors during the fifth, tenth, and fifteenth week. A structured interview format (see Appendix D) was designed for use with the instructors. During this interview an attempt was made to find out how the instructors felt about student-to-student, student-to-teacher, and teacher-to-student communication. Efforts were also made to elicit responses from the instructors about the over-all atmosphere of the class--friendly, repressive, apprehensive, enthusiastic, hostile, etc. Special emphasis was placed upon trying to obtain the instructors' honest feelings about the various instructional methods and classroom arrangements, in particular, such matters as comfort and ease with the various classroom arrangements and methods of instruction. Additional areas of the instructor interview can be noted in the interview schedule (see Appendix D).

Procedures

Cooperation was obtained from the instructors of the classes, the administration of the college, and the students of the classes before the implementation of the electronic equipment and questionnaires. In addition to cooperation to conduct the study, the instructors were asked their willingness to employ various methods of instruction. On instructor, A, was reluctant to use microphones in the class. Instructor A was also hesitant about using students in the presentation of class materials. However, instructor A had no objections to spacing

students four feet apart. Therefore, classrooms I P II and II P II were assigned to instructor A. Instructor B was willing to use a two-way communication system and use students in classroom panel discussions.

Prior to the beginning of classes the instructors were briefed to pay particular attention to student reaction in regard to communication, and the general atmosphere of the class. On the first day of classes the students were asked their willingness to cooperate in an exploratory study which focused on the environment of the classroom. Students' acceptance of the study was, in the main, positive; however, those who were not in accord were allowed to change sections. Two students from classroom IV P II changed sections, and the reason given was the requirement of classroom presentation. No other students changed sections because of the study.

Instructors of the classes under study reported that students were, in the main, content to participate in the study. Cooperation obtained in Phase I was not as favorable as in Phase II. From Phase I it was learned that any time one invades the classroom for research purposes, students like to have some idea of what is going on. Therefore, in Phase II sincere efforts were made to inform the students of the significance and importance of their cooperation.

Statistical Tools

In the statistical analysis of the data two statistical tests were employed. First, the analysis of variance was employed to test for differences among the classroom groups and time periods. The analysis of variance was also used to assess differences among males and

females, instructors, and classification of students. Assumptions required in using the analysis of variance are normality of the distribution, independent random samples, homogeneity of variances, and the null hypothesis is that population means are equal (Blalock, 1972).

The analysis of variance procedure produces the F-ratio which is typically considered a method for determining the significance of observed differences among the means of particular groups of scores (Veldman, 1967). In the present study, sample sizes were unequal; therefore, it was necessary to adjust the various cell N's. The procedure used to compensate for unequal cell N's was the calculation of harmonic mean values in the cells (Blalock, 1972, and Veldman, 1967). Although the analysis of variance is essentially involved with calculating differences in mean size, it does not work directly with means; rather it works with the variances of the sample.

With multiple comparisons of means, the analysis of variance is limited in that it does not provide information as to the specific mean differences. If the hypothesis of equal means is rejected by use of analysis of variance, this does not specify that every mean sample differs significantly from every other sample mean (Roscoe, 1969). When the research design allows for unequal sample sizes, as does this research, the mean differences of samples becomes a function of sample sizes.

The procedure selected for analysis of multiple comparison of means for this research is Tukey's (1949) procedure. The technique designed by Tukey provides a way of testing each sample mean against all other means. The procedure for comparing various sample means after the analysis of variance has been calculated is post-hoc analysis,

since it comes after the initial analysis. With the Tukey procedure, one is required to make the homoscedasticity assumption. A check was made in Phase I for homogeneity of variance. The evidence that homogeneity of variance existed even in the most extreme samples was so strong in Phase I that homoscedasticity was felt to exist in Phase II.

In the data analysis, use of the analysis of variance has certain limitations. Since the classroom groups were repeatedly sampled over time, there is a question which emerges about the independence of samples at the various time periods. The assumption made in this study was that the time periods under observation were independent of one another. It is possible that a carry-over effect did exist from time 1 to time 2 to time 3, which may serve as a violation of the independence assumption. However, in light of statistical subjective decisions, it was decided in this study that an adequate sample size was present for the classes under study, and that the violation of the independence assumption would have minor effects on the whole study.

The computation of the analysis of variance was performed at the Oklahoma State University Computer Center. The program used for this analysis is in Appendix F. Veldman (1967) is the author of this program which allows one to have a double or triple classification in the analysis of variance. A unique feature of this program over other analysis of variance programs is the program's capacity to handle unequal cell N's. Veldman's program uses the harmonic mean values for the cell values upon which the analysis of variance is calculated.

Evaluation of Phase II Methodology

As with much exploratory research and experimentation, one

encounters both anticipated and unanticipated difficulties. The methodology employed in this study benefitted from the first phase of the study; however, certain problems did arise. One of the major problems encountered was the lack of information obtained from the instructors during the interviews. Another difficulty which could not be anticipated was mechanical failure with the two-way communication system. The two-way communication system did not function properly for two class meetings. The effects of this failure present problems in trying to assess its significance.

In evaluating Phase II methodology, it is important to point out that, in general, Phase II ran more smoothly than did Phase I. Students in the classes under study served as willing respondents; however, there is evidence which suggests they did not develop "response sets" or give "so-called" desirable responses. Additional comments on the methodology of Phase II will be presented in Chapter V.

CHAPTER IV

ANALYSIS OF FINDINGS

Introduction

Remaining within the theoretical orientation and methodological design presented in the preceding chapters, this research attempted to explore the relationship of selected factors in the classroom. This chapter reports the findings of Phase I, as well as the findings of Phase II. In both phases of the study an effort was made to examine the relationship of varying methods of instruction and various classroom arrangements to the following: (1) Student alienation to class benefit, (2) Social distance of students to instructor, (3) Class cohesiveness, and (4) Student perception of the value, activity, and power of the instructor.

Findings of Phase I

The exploratory hypotheses presented in Chapter II served as the basis for data analysis in Phase I. These exploratory hypotheses served to generate the testing of other possible relationships; therefore, the analysis involved testing each major hypothesis first, and, if significance was found, then other relationships were tested.

The first hypothesis stated there is no significant difference in class cohesiveness with regard to varying methods of instruction and

changed spatial relationships of members of the class. (p=.05) In order to test this hypothesis, the analysis of variance was computed. No significant differences were found at the .05 level, as can be noted in Table II.

TABLE II

ANALYSIS OF VARIANCE RESULTS ON CLASS COHESIVENESS

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	2.02	8		
Time	.70	2	.37	.70
Group	4.76	2	2.53	.08
Time X Group	1.32	4	.70	.60
Within	1.88	246		
Total	1.89	254		

Hypothesis two stated there is no significant difference in student alienation to class benefit with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05) In order to test this hypothesis the analysis of variance was calculated. A significant difference at the .03 level was found among the three classroom groups as can be observed in Table III.

TABLE III

ANALYSIS OF VARIANCE RESULTS ON STUDENT ALIENATION TO CLASS BENEFIT

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	9.10	8		
Time	9.16	2	1.20	.30
Group	26.51	2	3.47	.03
Time X Group	1.55	4	.20	.94
Within	7.64	246		
Total	7.71	254		

In order to locate where the major differences were among the classes, the Tukey technique was employed. In the computation of the Tukey technique the results reported in the analysis of variance table were used. Specifically, the mean square within and the group mean square, as well as the degrees of freedom associated with each, are used in the computation. When the Tukey technique is employed in the remainder of this chapter, the computation is based upon the analysis of variance results reported in the table preceding the table employing the Tukey of means and mean differences.

Table IV presents the class group means and mean differences. The significant mean differences were found by computation of the Tukey technique. For the sake of clarity on Table IV and the forthcoming

tables employing the Tukey technique computation, it should be observed that the analysis involved obtaining the mean square within and the mean square for groups and the degrees of freedom associated with each from Table III. Although specific mention of the computational procedure is not made with the rest of the tables reporting significant mean differences, the reader is now prepared to check the findings reported on mean differences. Another point of clarification on the reporting of the findings is the abbreviations of the classroom groups and phases. Classroom one Phase I is abbreviated as classroom I P I.

TABLE IV

ALIENATION TO CLASS BENEFIT MEANS AND MEAN DIFFERENCES

Classroom Groups			Classroom I P I Control	Classroom II P I Control	Classroom III P I Experimental
	Means	(N)	2.75	1.54	2.28
Classroom I P I Control	2.75	(52)		1.21*	0.47
Classroom II P I Control	1.54	(138)			0.74
Classroom III P I Experimental	2.28	(65)			

Mean difference required for significance at .05 level 1.08

*Significant $P \leq .05$

From Table IV it can be observed that control group two was significantly less alienated to class benefit than was control group one ($P \leq .05$). As can be noted from the observation of the means group II Phase I, which was the regular size introductory class, was the least alienated to class benefit. Groups I P I and III P I were taught by the same instructor; therefore, instructor influence and class size may provide the explanation for this finding.

Further analysis on alienation to class benefit reveals that students were somewhat less alienated to class benefit at time one than they were at times two and three. Caution must be exercised since the F-ratio on time was not significant at the .05 level; however, by observation of the group and time means it appears that students were less alienated to class benefit in the early part of the semester. Table V contains the means for the groups at the various time periods.

TABLE V

ALIENATION TO CLASS BENEFIT GROUP BY TIME MEANS

	Classroom I P I Control	(N)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	2.05	(19)	1.35	(49)	1.95	(22)
Time 2	3.13	(15)	1.85	(46)	2.43	(21)
Time 3	3.05	(18)	1.42	(43)	2.45	(22)

Observation of the means in Table V reveals that students were generally less alienated in the early part of the semester. The author's interpretation of this table is that the honors students in classrooms I P I and III P I were expecting to obtain more benefit from the class than they received. In order to be classified as an honors student one must have a high test score from the American College Testing Program, a high intelligence quotient, and demonstrate the desire and ability to do above average college work. Therefore, when teaching an honors class, as the author of this paper has done, the teacher must be willing to challenge the students with interesting and thought-stimulating ideas. Apparently the instructor under observation was not providing the challenge the students in the honors classes desired.

The third exploratory hypothesis stated there is no significant difference in preferred social distance to the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. ($p=.05$) Analysis of variance was made in order to test this hypothesis. As can be noted in Table VI below, the time element was significant at the .02 level. The differences among the groups did not reach the .05 criterion; however, the .07 significance level should be considered as approaching a significant difference.

TABLE VI

ANALYSIS OF VARIANCE RESULTS ON PREFERRED SOCIAL DISTANCE TO THE INSTRUCTOR

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	5.99	8		
Time	13.37	2	3.91	.02
Group	8.90	2	2.60	.07
Time X Group	0.84	4	.25	.91
Within	3.42	246		
Total	3.50	254		

Since the time element was significant beyond the .05 level, the Tukey technique was employed to ascertain what time periods were significantly different. Table VII reveals that the greatest mean difference in time periods was between time period one and time period three. Although there is no significant difference at the .05 level between time one and time two, the trend is that of increasing social distance to the instructor over time.

TABLE VII

TIME MEANS AND MEAN DIFFERENCES ON PREFERRED SOCIAL DISTANCE TO THE INSTRUCTOR

Time Periods			Time I	Time II	Time III
	Means	(N)	2.59	3.16	3.44
Time I	2.59	(90)		.57	.85*
Time II	3.16	(82)			.28
Time III	3.44	(83)			

Mean difference required for significance at .05 level = .67

*Significant $P \leq .05$

From Table VII it can be noted that the greatest increase in distance to the instructor occurred between the first four week period and the last four week period. Increasing social distance to the instructor over time may be considered in the same light as increasing alienation to class benefit. While students are becoming more alienated, they are also developing feelings of obtaining greater social and physical distance between themselves and the instructor.

Additional analysis in Phase I on preferred social distance to the instructor involved looking at the group and time means. Table VIII gives the group and time means on social distance. In all classes, except classroom III P I, at time three the students indicated increased distance to the instructor.

TABLE VIII

GROUP BY TIME MEANS ON PREFERRED SOCIAL DISTANCE TO THE INSTRUCTOR

	Classroom I P I Control	(N)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	2.58	(19)	3.02	(49)	2.18	(22)
Time 2	2.86	(15)	3.48	(46)	3.14	(21)
Time 3	3.33	(18)	3.91	(43)	3.09	(22)

Table VIII revealed that the group and time means on social distance to the instructor and differences between groups is slight. However, it can be noted that the trend was for distance to increase over time. The author feels that students were moving away from their respective teachers because students were not receiving the kind of information from the instructor that they desired. Also students were moving away because they were becoming alienated to class benefit. While social distance includes actual physical distance, it also includes feelings of social acceptance and tolerance. The instructors under study apparently were more accepted at the beginning of the semester than they were at the end. Therefore, the teachers apparently were not stimulating and interesting enough for the students to identify with. On the other hand, one may view this increasing distance over time as giving the instructors more authority and control in the classroom. If this be the case, then some may feel our

classrooms should be structured in such a manner as to increase the distance between students and instructor.

There is no prescribed physical distance for students and instructor in the classroom, and the author feels that whatever is comfortable for individual classes and instructors should be sought and implemented. The question of how much social distance between students and instructor there should be cannot be answered by one researcher for all of the many classes that exist in a college or university.

The fourth exploratory hypothesis considered stated that there is no significant difference in perceived value of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. ($p=.05$) The test of this hypothesis was made by an analysis of variance. The time periods were significantly different at the .0002 level. Groups were also significantly different at the .0002 level. Table IX reveals the analysis of variance results of perceived value of the instructor.

Both time and group are significantly different at .0002 level; therefore, further analysis was made on the two factors separately. First, on the time element, it was found that time one differed significantly ($P \leq .05$) from time two and time three. Table X contains the time period means and mean differences.

In reviewing Table X it becomes fairly obvious that student perception of teacher value decreased over time in all of the classes. Students progressively perceived the instructors as losing value during the semester. It appears that students are not only becoming alienated to the class over time and increasing social distance to the instructor, but are also viewing the teacher as being of less value over time.

TABLE IX

ANALYSIS OF VARIANCE RESULTS ON PERCEIVED VALUE OF THE INSTRUCTOR

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	9.85	8		
Time	16.78	2	9.78	.0002
Group	16.91	2	9.86	.0002
Time X Group	2.84	4	1.66	.1593
Within	1.72	246		
Total	1.97	254		

TABLE X

TIME MEANS AND MEAN DIFFERENCES ON PERCEIVED VALUE OF THE INSTRUCTOR

Time Periods			Time I	Time II	Time III
	Means	(N)	2.17	2.70	3.14
Time I	2.17	(90)		.53*	.97*
Time II	2.70	(82)			.44
Time III	3.14	(83)			

Mean difference required for significance at .05 level .47

*Significant $P \leq .05$

The author interprets this finding as being a consequence of students and instructors having differing definitions of the classroom situation.

Secondly, on the group means and mean differences it was found that group one differed significantly from groups two and three. Table XI presents the means and mean differences for groups.

TABLE XI

GROUP MEANS AND MEAN DIFFERENCES ON PERCEIVED VALUE OF THE INSTRUCTOR

Classroom Groups		Classroom I P I Control	Classroom II P I Control	Classroom III P I Experimental
	Means (N)	3.23	2.44	2.34
Classroom I P I Control	3.23 (52)		.79*	.89*
Classroom II P I Control	2.44 (138)			.10
Classroom III P I Experimental	2.34 (65)			

Mean difference required for significance at .05 level = .51

*Significant $P \leq .05$

An interpretation of Table XI by the author is that group I P I, which was taught by the same instructor as the experimental group, was a class that expected much more out of the instructor than the instructor provided. Group III P I was the experimental class taught by the same instructor as group I P I, and it appears that the experimental conditions of spacing and class presentations were beneficial in the sense that the instructor was perceived as having more value in this particular class. Therefore, it may be concluded that students see the instructor as having more value when they (the students) have more active part in the class.

Further analysis on perceived value of the instructor reveals, in the main, that students perceived the instructor as having less value as the semester progressed. Classroom group II P I is an exception to this, as can be observed in Table XII below. It is interesting that when the experimental class began, they perceived the instructor as having a considerable amount of value, and then consistently, over time, viewed him as having less power.

Table XII gives an over-all view of the class and time means on perceived value of the instructor. Although value of the teacher tended to decrease over time in all classes, it should be noted that at no time period did group I P I perceive the instructor to be of as much value as did group III P I, and both classes were taught by the same instructor. However, group I P I was not subject to the experimental conditions.

TABLE XII

GROUP BY TIME MEANS ON PERCEIVED VALUE OF THE INSTRUCTOR

	Classroom I P I Control	(N)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	2.53	(19)	2.31	(49)	1.68	(22)
Time 2	3.27	(15)	2.52	(46)	2.29	(21)
Time 3	3.89	(18)	2.49	(43)	3.05	(22)

Exploratory hypothesis number five stated there is no significant difference in perceived power of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05) The hypothesis was tested by analysis of variance, and a significant difference beyond the .01 level was found among the groups and time periods. Table XIII gives the results of the analysis of variance.

As was found with perceived value of the instructor, the perceived power of the instructor was likewise significant for both time periods and groups. Consequently, the Tukey technique was applied to these two elements. On the time periods the mean differences for group one were significantly different from groups two and three. Table XIV presents the means and mean differences on perceived power of the instructor.

The time means on perceived power of the instructor in Table XIV reveal that students progressively viewed their instructors as having

TABLE XIII

ANALYSIS OF VARIANCE RESULTS ON PERCEIVED POWER OF THE INSTRUCTOR

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	6.69	8		
Time	9.92	2	4.97	.008
Group	14.93	2	7.49	.001
Time X Group	.95	4	.48	.756
Within	1.99	246		
Total	2.14	254		

TABLE XIV

TIME MEANS AND MEAN DIFFERENCES ON PERCEIVED POWER OF THE INSTRUCTOR

Time Periods			Time I	Time II	Time III
	Means	(N)	2.81	3.38	3.52
Time I	2.81	(90)		.57*	0.71*
Time II	3.38	(82)			0.14
Time III	3.52	(83)			

Mean difference required for significance at .05 level = .51

*Significant $P \leq .05$

less power over time. With increasing alienation, increasing social distance, less perceived value, and now less power, it becomes fairly clear that students involved with Phase I were more satisfied with the class and the instructor in the early part of the semester. This evidence suggests a lack of ability to form a social environment in the classroom, an environment that allows all involved the prerogative of entering into meaningful social and educational relationships.

Comparing Table X on the value of the instructor with Table XIV on potency of the instructor reveals that the instructor was perceived as having more value and power at time one than he was at times two or three. Turning to the group differences on perceived value of the instructor, it was found that group one differed significantly ($P \leq .05$) from groups two and three. Evidence for this is presented in Table XV.

An explanation for the evidence presented in Table XV might be that the experimental conditions in group III P I, and the different instructor in group II P I, served to increase the students' perception of the teacher power in these classes. While group I P I was taught by the same instructor as group III P I, a difference does exist between the two classes' perceived power of the teacher; thus, it is reasonable to assume that the experimental conditions did serve to give the instructor more power.

When reviewing perceived value of instructor in comparison to perceived power of instructor by groups, it is possible to note that the instructor was perceived by group one as having less value and power than he was by groups two and three. Tables XV and XI serve as the basis for this comparison.

TABLE XV

GROUP MEANS AND MEAN DIFFERENCES ON PERCEIVED POTENCY OF THE INSTRUCTOR

Classroom Groups			Classroom I P I Control	Classroom II P I Control	Classroom III P I Experimental
	Means	(N)	3.74	2.85	3.12
Classroom I P I Control	3.74	(52)		.89*	.62*
Classroom II P I Control	2.85	(138)			0.27
Classroom III P I Experimental	3.12	(65)			

Mean difference required for significance at .05 level = .55

*Significant P ≤.05

In an attempt to gain more information about the perceived potency of the instructor, the group by time means was calculated. Presented in Table XVI is the group by time means on perceived potency of the instructor. As can be noted in Table XVI, the trend was for the instructor to decrease in power over time. Only one exception can be noted, that of control group P I at time three, and this exception is minor when looking at all groups at the three time periods. Again a consistent finding is noted when comparing the perceived value of the instructor with the perceived potency. That is, both power and value of the instructor tended to decrease in all classes over time.

TABLE XVI

GROUP BY TIME MEANS ON PERCEIVED POTENCY OF THE INSTRUCTOR

	Classroom I P I Control	(N)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	3.11	(19)	2.61	(49)	2.72	(22)
Time 2	4.07	(15)	2.93	(46)	3.14	(21)
Time 3	4.06	(18)	3.00	(43)	3.50	(22)

The sixth hypothesis considered stated there is no significant difference in perceived activity of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. ($p=.05$) As with the preceding hypothesis, this hypothesis was tested by means of analysis of variance. The results of the analysis of variance show that there existed a significant difference at the .0001 level among groups. The time element did not reach the .05 criterion; however, it was significant at the .067 level. Table XVII gives the findings of the analysis of variance on perceived activity of the instructor.

In assessing the differences among the three classroom groups, the Tukey technique was applied. Table XVIII presents the means and mean differences on perceived activity of the instructor.

From Table XVIII one can observe that group I P I mean was significantly different ($P \leq .05$) from the means of groups two and three.

TABLE XVII

ANALYSIS OF VARIANCE RESULTS ON PERCEIVED ACTIVITY OF THE INSTRUCTOR

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	6.61	8		
Time	5.02	2	2.70	.0675
Group	20.72	2	11.13	.0001
Time by Group	.34	4	.18	.9447
Within	1.86	246		
Total	2.01	254		

TABLE XVIII

GROUP MEANS AND MEAN DIFFERENCES ON PERCEIVED ACTIVITY OF THE INSTRUCTOR

Classroom Groups		Classroom I P I Control	Classroom II P I Control	Classroom III P I Experimental
	Means (N)	3.74	2.70	2.96
Classroom I P I Control	3.74 (52)		1.04	.78*
Classroom II P I Control	2.70 (138)			.26
Classroom III P I Experimental	2.96 (65)			

Mean difference required for significance at .05 level = .53
*Significant P ≤ .05

When comparing the groups on perceived activity, power, and value of the instructor, it becomes apparent that classroom group I P I perceived the instructor as having significantly less value, power, and activity than did classroom groups two and three.

Although time was not a significant factor at the .05 level on activity, it was decided to look at the mean differences of the time periods. This decision was reached since the probability level for time was .067 in the analysis of variance. In Table XIX the time means and mean differences are given for perceived activity of the instructor.

TABLE XIX

TIME MEANS AND MEAN DIFFERENCES ON PERCEIVED ACTIVITY OF THE INSTRUCTOR

Time Periods			Time I	Time II	Time III
	Means	(N)	2.83	3.26	3.31
Time I	2.83	(90)		.43	.48
Time II	3.26	(82)			.05
Time III	3.31	(83)			

Mean differences required for significance at .05 level = .49

Although significant mean differences were not found in Table XIX, the trend was for activity of the instructor to decrease over time; therefore, it may be concluded that activity of the instructor was decreasing over time in the same manner as was the power and value of the instructor. This finding provides further evidence which suggests students in Phase I part of the study were not satisfied with the class or the instructor.

Additional analysis on the activity of the instructor was made by looking at the group by time means. Table XX presents the group by time means on the perceived activity level of the instructor. In the main, as can be observed from the table below, the trend was for the instructor to be perceived as being less active over time. The one exception to this is classroom III P I at time three, in which the perceived activity level of the instructor increased somewhat over time two.

TABLE XX

GROUP BY TIME MEANS ON PERCEIVED ACTIVITY LEVEL OF THE INSTRUCTOR

	Classroom I P I Control	(N)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	3.47	(19)	2.47	(49)	2.55	(22)
Time 2	3.80	(15)	2.74	(46)	3.24	(21)
Time 3	3.94	(18)	2.91	(43)	3.09	(22)

From Table XX it can be observed that group II P I, the control class, perceived the activity of the instructor to be greater at all time periods than group I P I. Therefore, it may be concluded that students see the instructor as being more active in a class where they (the students) are actually more involved themselves. It should be remembered that group I P I and group III P I were taught by the same person.

The seventh exploratory hypothesis stated there is no significant difference between males and females in regard to alienation to class benefit. (p=.05) The test of this hypothesis was made by analysis of variance, and no significant differences were found at the .05 level. The probability level at which sex was a significant factor was .10. The over-all female mean on alienation to class benefit was 2.45; for the males the mean was 1.82. Therefore, when considering all groups at every time period, the females were slightly more alienated to class benefit than were the males. Given below in Tables XXI and XXII are the means for males and females by group and time on alienation to class benefit.

Inasmuch as significant differences at the .05 level were not established caution must be exercised when evaluating Tables XXI and XXII. In general, the following observations may be made: (1) Both males and females were least alienated to class benefit at time one. (2) Females were the most alienated to class benefit at time two. (3) Males in classrooms I and II P I became progressively more alienated to class benefit over time.

TABLE XXI

MEANS FOR MALES ON ALIENATION TO CLASS BENEFIT BY GROUP AND TIME

	Classroom I P I Control	(N)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	1.62	(8)	1.32	(25)	1.00	(8)
Time 2	2.60	(5)	1.45	(22)	1.33	(9)
Time 3	3.25	(8)	1.00	(21)	2.78	(9)

TABLE XXII

MEANS FOR FEMALES ON ALIENATION TO CLASS BENEFIT BY GROUP AND TIME

	Classroom I P I Control	(n)	Classroom II P I Control	(N)	Classroom III P I Experimental	(N)
Time 1	2.36	(11)	1.37	(24)	2.50	(14)
Time 2	3.40	(10)	2.21	(24)	3.25	(12)
Time 3	2.90	(10)	1.82	(22)	2.23	(13)

Hypothesis eight related there is no significant difference between males and females in regard to class cohesiveness. ($p=.05$) The mean for females on cohesiveness was 2.44, and for males the mean was 2.38. In the analysis of variance results the sex variable was not

significant at the .05 level. The level at which sex became significant was .76; therefore, the above hypothesis is strongly supported.

The ninth hypothesis to be considered stated there is no significant difference between males and females in regard to social distance to the instructor. The analysis of variance results showed that sex was significant at the .008 level. The mean for males on social distance to the instructor was 3.44, whereas the mean for females was 2.76. Males revealed a greater social distance to the instructor than did the females. When examining the males and females more closely, it was observed that both sexes were increasing their social distance to the instructor over time as is demonstrated in Table XXIII.

TABLE XXIII

MEANS ON SOCIAL DISTANCE TO THE INSTRUCTOR BY SEX AND TIME FOR ALL GROUPS

	Males	(N)	Females	(N)
Time 1	2.72	(41)	2.46	(49)
Time 2	3.62	(36)	2.80	(46)
Time 3	3.99	(38)	3.01	(45)

Further analysis on males and females in regard to social distance to the instructor revealed that in all three classes the males

maintained a greater social distance than did the females. Evidence of this is presented in Table XXIV.

TABLE XXIV

MEANS ON SOCIAL DISTANCE TO THE INSTRUCTOR BY SEX AND GROUP AT ALL TIME PERIODS

	Males	(N)	Females	(N)
Classroom I P I Control	3.12	(21)	2.78	(31)
Classroom II P I Control	3.90	(68)	3.05	(70)
Classroom III P I Experimental	3.30	(26)	2.44	(39)

The exploratory hypotheses on perceived power, value, and activity of the instructor by sex were not tested in Phase I. Since the hypotheses on these variables were all significant with both sexes combined, it was felt that isolation of sex as a variable would not contribute substantially to an understanding of perceived value, activity, and power of the instructor. Hypotheses four, five, and six were significant on either group or time and in the cases of value and power, both time and group were significant.

During Phase I an attempt was made through an open-ended questionnaire to ascertain students' feelings about the varying methods of

instruction and changed spatial arrangements. The open-ended instrument (see Appendix E) was administered only to classroom III. This questionnaire was completed by the students during the last week of classes.

The analysis of student responses to the questions was made by two judges who assigned values of "1" to "3" for the negative responses and values of "1" to "3" for the positive responses. A "1" value coded in red ink noted strong negative response, and a "3" value coded in red ink noted a weak negative response. A "1" value coded in black ink was considered a strong positive statement, and a "3" value coded in black ink was a weak value.

The results are given below to the five questions. Question one stated: "List briefly any positive or negative feelings you experienced in this class as a result of being spaced four feet apart." On this question 25 negative responses were obtained, with a mean of 2.52. On question one, 19 positive statements were made, with a mean of 2.00. Although there were more negative responses than positive ones, the strength of the negative responses was considered weak.

Question two asked, "List briefly any positive or negative feelings you experienced in this class as a result of being rotated to the discussion table." To this question 10 negative responses were made, with a mean of 2.00, and 13 positive responses were made, with a mean of 2.00. It is necessary to exercise caution when trying to interpret the results on question two. Since the means are equal, and the number of statements are fairly close, it is difficult to make an interpretation on this question.

Question three stated, "List briefly any positive or negative feelings you experienced in this class as a result of the questionnaires you responded to." A difference did emerge on this question; there were 19 negative responses with a mean of 1.95, and only 4 positive responses with a mean of 1.50. It was fairly obvious that the students had strong negative feelings toward the questionnaires.

The fourth question asked the students, "List briefly any positive or negative feelings you experienced in this class as a result of the entire class proceedings from the beginning to the end." Negative responses numbered 29, with a mean of 1.76; and the positive responses numbered 20, with a mean of 1.30. It is difficult to interpret the results to this question since the negative responses outnumbered the positive responses, yet the positive responses were stronger than were the negative responses.

Question five stated, "If you had to express yourself with regard to this class in one statement, what would you say?" Students gave 18 negative responses, with a mean of 2.11, and 10 positive responses, with a mean of 1.50. Again the negative responses were greater in number than the positive responses, but the positive responses were slightly stronger than the negative responses.

When looking at all five questions combined, 91 negative responses were made and 66 positive responses. Judges were hesitant about interpreting the instrument as a whole; however, it was finally concluded that the students were, in the main, slightly more negative than positive to the class. In particular, students were negative to the questionnaires. In regard to being responsible for presentation of class materials, the judges felt the students expressed more positive

feelings.

Findings of Phase II

Remaining within the framework used to report the findings of Phase I, the findings of Phase II are given in relation to the exploratory hypotheses presented in Chapter II. The exploratory hypotheses serve to facilitate additional analysis, as was demonstrated in the reporting of the findings of Phase I. Likewise, in the analysis of Phase II data the exploratory hypotheses generated further analysis. All twelve exploratory hypotheses were tested in Phase II. In addition to these hypotheses, student classification was also explored in the second phase of the study.

The first hypothesis stated there is no significant difference in class cohesiveness with regard to varying methods of instruction and changed spatial relationships of members of the class. ($p=.05$) The test of this hypothesis was made by analysis of variance, and a significant difference was found among the four groups at the .01 level Table XXV delineates the analysis of variance results on class cohesiveness.

TABLE XXV

ANALYSIS OF VARIANCE RESULTS
ON CLASS COHESIVENESS

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	3.89	11		
Time	.37	2	.16	.85
Group	8.55	3	3.74	.01
Time X Group	2.74	6	1.20	.30
Within	2.28	290		
Total	2.34	301		

Significant differences were found at the .01 level of groups; therefore, Tukey's technique was used to assess the significant mean differences among the groups. As can be noted in Table XXVI, the mean for classroom group II P II was significantly different ($P \leq .05$) from the mean of classroom group IV P II. Classroom II P II maintained less cohesiveness than did group IV P II. Group II P II was taught by a female instructor, and group IV P II was taught by a male instructor. The differences between the cohesiveness of these two classes may be explained by the differences in instructors and experimental conditions. The experimental conditions and small number of students (N=14) in group IV P II may have produced more feelings of class cohesiveness.

TABLE XXVI

GROUP MEANS AND MEAN DIFFERENCES ON CLASS COHESIVENESS

Classroom Groups	Means	(N)	Classroom I P II Control	Classroom II P II Space	Classroom III P II Space-Panel	Classroom IV P II Space-Panel 2-way
			3.13	3.20	2.99	2.43
Classroom I P II Control	3.13	(101)		.07	.14	.70
Classroom II P II Space	3.20	(68)			.21	.97*
Classroom III P II Space-Panel	2.99	(79)				.56
Classroom IV P II Space-Panel-2-way	2.43	(54)				

Mean difference required for significance at .05 level = .75

*Significant P ≤ .05

The second exploratory hypothesis stated there is no significant difference in student alienation to class benefit with regard to varying methods of instruction and changed spatial relationships of members of the class. In order to test this hypothesis the analysis of variance was conducted, and a significant difference was found on the time periods at the .008 level. Table XXVII presents the results of the analysis of variance on student alienation to class benefit.

TABLE XXVII

RESULTS OF THE ANALYSIS OF VARIANCE ON STUDENT ALIENATION TO CLASS BENEFIT

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	4.57	11		
Time	13.00	2	4.91	.008
Group	2.15	3	.81	.509
Time X Group	2.97	6	1.11	.350
Within	2.65	290		
Total	2.72	301		

Having located a significant difference at the .008 level on time periods, the next step was to locate significant mean differences on the time periods. Tukey's technique was employed, and significant mean

differences (p=.05) were found between time period one and periods two and three. Table XXVIII contains the results.

TABLE XXVIII

TIME MEANS AND MEAN DIFFERENCES OF STUDENT ALIENATION TO CLASS BENEFIT

Time Periods			Time I	Time II	Time III
	Means	(N)	.52	1.05	1.23
Time I	.52	(107)		.53*	.72*
Time II	1.05	(100)			.18
Time III	1.23	(95)			

Mean difference required for significance at .05 level = .53

*Significant P ≤ .05

Further analysis on student alienation to class benefit by group and time reveals that students in all classes were increasing in alienation to class benefit as the semester progressed. There was one exception to this in classroom group II P II at time three, as a slight decrease in alienation to class benefit was observed at time two. The class means at the time periods are given in Table XXIX.

TABLE XXIX

GROUP BY TIME MEANS ON STUDENT ALIENATION
TO CLASS BENEFIT

	Classroom I P II Control	(N)	Classroom II P II Space	(N)	Classroom III P II Space-Panel	(N)	Classroom IV P II Space-Panel-2-way	(N)
Time I	.47	(34)	.93	(28)	.44	(27)	.22	(18)
Time II	.79	(33)	1.04	(25)	1.20	(25)	1.18	(17)
Time III	.88	(34)	.80	(15)	1.78	(27)	1.47	(19)

As noted in Table XXVIII and Table XXIX alienation to class benefit increased over time in all classes. This finding was also present in Phase I; therefore, it may be concluded that the instructors in both phases were not providing the students with what they expected. The obvious finding in both phases of increasing alienation over time suggests that alienation may be an ever present condition of the classroom. When various arrangements and various instructional methods are employed, the alienation over time is still present. The author is unable to provide suggestions as to how to reduce this alienation. The author can only give tentative reasons as to why the alienation exists. These tentative reasons include; (1) Students expect too much from their classes and instructors. (2) Instructors do not provide the students with thought-stimulating ideas. (3) Our whole educational classroom structure is designed in such a manner as to create alienation among students.

The third exploratory hypothesis stated there is no significant difference in preferred social distance to the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. ($p=.05$) Analysis of variance was used to test this hypothesis. No significant differences were found on the groups or times at the .05 level. In the main, students maintained approximately the same mean values over time on social distance to the instructor. Among the groups the differences in mean values on social distance to the instructor were minimal. Evidence showing group and time means nonsignificant on social distance to the instructor is presented in Table XXX.

TABLE XXX

GROUP BY TIME MEANS ON SOCIAL DISTANCE
TO THE INSTRUCTOR

	Classroom I P II Control	(N)	Classroom II P II Space	(N)	Classroom III P II Space-Panel	(N)	Classroom IV P II Space-Panel-2-way	(N)
Time I	3.21	(34)	3.43	(28)	2.85	(27)	3.39	(18)
Time II	3.67	(33)	3.52	(25)	2.92	(25)	3.35	(17)
Time III	3.59	(34)	3.33	(15)	3.26	(27)	3.26	(19)

Table XXX gives evidence which is not in accord with the findings of Phase I. Phase I students tended to increase social distance over time to their instructors. Phase II social distance remained about the same throughout the semester. A common finding of both phases on social distance was that the mean social distance preferred by state university students is very close to the mean social distance preferred by state college students.

The fourth exploratory hypothesis stated there is no significant difference in perceived value of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. ($p=.05$) Analysis of variance results on this hypothesis revealed that significant differences did exist among the groups at the .004 level. Table XXXI presents the analysis of variance results on this hypothesis.

TABLE XXXI

PERCEIVED VALUE OF THE INSTRUCTOR ANALYSIS OF VARIANCE RESULTS

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	5.19	11		
Time	3.79	2	1.90	.1500
Group	13.44	3	6.72	.0004
Time X Group	1.53	6	.77	.5987
Within	2.00	290		
Total	2.12	301		

Tukey's technique was employed to test for mean difference among the four classroom groups. Table XXXII reveals that group I P II mean was significantly different from group III P II mean at the .05 level. Also group II P II mean was significantly different from group III P II mean at the .05 level.

As can be observed in Table XXXII, the classrooms instructed by a female (I P II and II P II) contained students who perceived their instructor to be of less value than classroom III P II, which had a male instructor. Classrooms I P II and II P II were structured in such a manner as to allow less student participation than was allowed in classrooms III P II and IV P II. A similar finding was noted in Phase I. That is, when the students have a more active part in the classroom, they tend to perceive the instructor as having more value.

Although the time element was not significant at the .05 level, some insight is gained when observing the time by group means on perceived value of the instructor. Table XXXIII gives the means by group and time periods, and in all cases, except classroom group II P II at time three, the trend was for the instructor to be perceived by the students as decreasing in value over time.

The trend of instructor value decreasing over time is a finding that is in accord with Phase I. A reasonable explanation for classroom II P II at time 3 perceiving the instructor as having more value is that the number of students who attended class on the day the questionnaire was administered was less than at previous test periods. Therefore, it seems to the author that students who did come to class would be more interested in the class, and consequently, would perceive their instructor as having more value.

TABLE XXXII

PERCEIVED VALUE OF THE INSTRUCTOR GROUP
MEANS AND MEAN DIFFERENCE

Classroom Groups			Classroom I P II Control	Classroom II P II Space	Classroom III P II Space-Panel	Classroom IV P II Space-Panel 2-way
	Means	(N)	2.98	3.16	2.16	2.63
Classroom I P II Control	2.98	(101)		.18	.82*	.35
Classroom II P II Space	3.16	(68)			1.00*	.53
Classroom III P II Space-Panel	2.16	(79)				.47
Classroom IV P II Space-Panel-2-way	2.63	(54)				

Mean differences required for significance at .05 level = .70

*Significant P ≤ .05

TABLE XXXIII

GROUP BY TIME MEANS ON PERCEIVED VALUE
OF THE INSTRUCTOR

	Classroom I P II Control	(N)	Classroom II P II Space	(N)	Classroom III P II Space-Panel	(N)	Classroom IV P II Space-Panel-2-way	(N)
Time I	2.79	(34)	3.21	(28)	1.74	(27)	2.28	(18)
Time II	2.94	(33)	3.32	(25)	2.16	(25)	2.76	(17)
Time III	3.21	(34)	2.93	(15)	2.59	(27)	2.84	(19)

The fifth exploratory hypothesis stated there is no significant difference in perceived potency of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05) This hypothesis was tested by the analysis of variance procedure, and a significant difference was obtained on the groups at the .0005 level. Table XXXIV contains the analysis of variance results for this hypothesis.

TABLE XXXIV

PERCEIVED POTENCY OF THE INSTRUCTOR ANALYSIS OF VARIANCE RESULTS

Source of Variation	Mean Square	Degrees of Freedom	F-Ratio	Probability Level
Between	4.57	11		
Time	1.51	2	.83	.5581
Group	11.85	3	6.49	.0005
Time X Group	1.95	6	1.07	.3807
Within	1.82	290		
Total	1.92	301		

Mean differences among the classroom groups was examined by Tukey's technique, and it was found at the .05 level of significance that group I P II mean differed from group III P II mean, and group II

P II mean differed from group III P II mean, and group III P II mean differed from group IV P II mean. Table XXXV contains information in support of these differences.

The author's interpretation of Table XXXV is that classrooms I P II and II P II, which were taught by a female instructor, were the classes which perceived the instructor as being less powerful than classroom III P II which was instructed by a male instructor. Not only is the power of the female instructor perceived as being less, but also the value is perceived as being less than that of the male instructor. A consistent finding is observed with Phase I and Phase II in that the value and power of the instructor increases when students are more involved in the class The finding on perceiving less power in regard to a female instructor is of little value since only one of the instructors participating in this research was a female.

The sixth exploratory hypothesis stated there is no significant difference in perceived activity of the instructor with regard to varying methods of instruction and changed spatial relationships of members of the class. (p=.05) No significant differences were found on classroom groups or time periods at the .05 level. However, groups were significant at the .055 level; therefore, Tukey's technique was employed to see if there were significant mean differences among the groups. No significant mean differences were obtained at the .05 level.

Exploratory hypothesis number seven stated there is no significant difference between males and females in regard to student alienation to class benefit. (p=.05) Results obtained from the analysis of variance revealed that sex was significant at the .001 level. The over-all male

TABLE XXXV

PERCEIVED POTENCY OF THE INSTRUCTOR GROUP
MEANS AND MEAN DIFFERENCES

Classroom Groups	Means	(N)	Classroom I P II Control	Classroom II P II Space	Classroom III P II Space-Panel	Classroom IV P II Space-Panel 2-way
			3.21	3.11	2.30	2.98
Classroom I P II Control	3.21	(101)		.10	.91*	.23
Classroom II P II Space	3.11	(68)			.81*	.13
Classroom III P II Space-Panel	2.30	(79)				.68*
Classroom IV P II Space-Panel-2-way	2.98	(54				

Mean difference required at .05 level = .67

*Significant P ≤ .05

mean on alienation to class benefit was 1.17, and the female over-all mean was .51. Males were, therefore, more alienated to class benefit than were the females. Further analysis on sex by time periods reveals that males were more alienated to class benefit at all time periods than were the females. Males and females both became increasingly alienated to class benefit over time as is demonstrated in Table XXXVI.

TABLE XXXVI

TIME BY SEX MEANS ON STUDENT ALIENATION TO CLASS BENEFIT

	Males	(N)	Females	(N)
Time I	.85	(63)	.08	(44)
Time II	1.29	(56)	.60	(44)
Time III	1.38	(55)	.84	(40)

The findings in Phase II that males were more alienated to class benefit than were females is not in accord with the findings from Phase I. A possible explanation for the differences between the two phases might be in the differences in numbers of males and females in Phase I and II. In Phase II there were more males in the sample, and in Phase I there were more females in the sample.

The eighth hypothesis stated there is no significant difference between males and females in regard to class cohesiveness. ($p=.05$)

No significant differences were found at the .05 level on classroom groups or time periods.

The ninth hypothesis stated there is no significant difference between males and females in regard to social distance to the instructor. (p=.05) Sex was significant at the .02 level as revealed in the analysis of variance results. The male over-all mean on social distance was 3.57, and the female mean was 3.02. This indicated that males preferred a greater social distance to the instructors than did females.

The tenth hypothesis stated there is no significant difference between males and females in regard to perceived power of the instructor. (p=.05) Sex was found to be significant at the .001 level as revealed in the analysis of variance results The over-all mean for males on perceived power of the instructor was 3.15, and the over-all female mean was 2.59. Further analysis revealed that males at all time periods perceived the instructor to have less power than did the females. Table XXXVII serves to illustrate the differences between males and females at the various time periods.

The eleventh hypothesis stated there is no significant difference between males and females in regard to perceived activity of the instructor. (p=.05) From the analysis of variance test sex was found not to be significant at the .05 level. Sex obtained significance at the .16 level. The over-all mean for males was 3.21, and for females the over-all mean was 2.97. Observation of the means suggests that males perceived the instructor as being slightly less active than did the females.

TABLE XXXVII

TIME BY SEX MEANS ON PERCEIVED POWER OF THE INSTRUCTOR

	Males	(N)	Females	(N)
Time I	3.08	(63)	2.35	(44)
Time II	3.31	(56)	2.66	(44)
Time III	3.06	(55)	2.75	(40)

The twelfth hypothesis stated there is no significant difference between males and females in regard to perceived value of the instructor. (p=.05) From the analysis of variance results sex was significant at the .004 level. The male over-all mean value on perceived value of the instructor was 2.95, and the female over-all mean was 2.46. Further analysis reveals that both males and females perceived the instructor as decreasing in value over time as is indicated in Table XXXVIII. Also observed in the table is that females perceived the instructor to have more value at all time periods than did the males.

In addition to testing the exploratory hypotheses, it was decided to explore the relationship of student classification to alienation to class benefit, social distance to the instructor, value, power, and activity of the instructor. Analysis of variance was used to assess the significance of classification to the factors under study. Tukey's

technique was also employed to examine mean differences among the freshman, sophomore, junior, and senior students.

TABLE XXXVIII

TIME BY SEX MEANS ON PERCEIVED VALUE OF THE INSTRUCTOR

	Males	(N)	Females	(N)
Time I	2.74	(63)	2.21	(44)
Time II	2.95	(56)	2.58	(44)
Time III	3.14	(55)	2.60	(40)

On student alienation to class benefit classification was found to be a significant variable at the .006 level from the analysis of variance test. Tukey's technique revealed a significant ($P \leq .05$) mean difference between freshmen and juniors, with the juniors being more alienated to class benefit than the freshmen. Another significant ($P \leq .05$) mean difference was found between juniors and seniors, with the juniors being more alienated than the seniors. Table XXXIX contains the means and mean differences of the various classifications on class benefit.

Classification was not a significant factor at the .05 level in regard to social distance to the instructor. The classification means

revealed the freshmen, sophomores, juniors, and seniors were homogeneous in regard to the preferred social distance to the instructors. On perceived value of the instructor, classification proved to be a non-significant factor using the .05 criterion level.

TABLE XXXIX

CLASSIFICATION MEANS AND MEAN DIFFERENCES ON STUDENT ALIENATION TO CLASS BENEFIT

Classification			Freshmen	Sophomores	Juniors	Seniors
	Means	(N)	.73	1.02	1.56	.25
Freshmen	.73	(128)		.29	.83*	.48
Sophomores	1.02	(89)			.54	.77
Juniors	1.56	(62)				1.31*
Seniors	.25	(23)				

Mean difference required for significance at .05 level = .83

*Significant $P \leq .05$

Classification was a significant factor on the perceived power of the instructor. From the analysis of variance results classification was significant at the .02 level. Further analysis using Tukey's technique revealed the senior group perceived the instructor as having more power than did the freshmen, sophomores, and juniors. Table XL

contains the classification means and mean differences on perceived power of the instructor.

TABLE XL

CLASSIFICATION MEANS AND MEAN DIFFERENCES ON THE PERCEIVED POWER OF THE INSTRUCTOR

Classification			Freshmen	Sophomores	Juniors	Seniors
	Means	(N)	2.90	2.96	2.95	2.14
Freshmen	2.90	(128)		.06	.05	.76*
Sophomores	2.96	(89)			.01	.82*
Juniors	2.95	(62)				.81*
Seniors	2.14	(23)				

Mean difference required for significance at .05 level = .70

*Significant $P \leq .05$

On perceived activity of the instructor classification was also found to be a significant factor at the .03 level. Having found significance from the analysis of variance, the means and mean differences were then viewed and tested by Tukey's technique to ascertain the significant mean differences. As can be noted in Table XLI, the only significant difference at the .05 level was between sophomores and seniors, with the seniors perceiving the instructor as being more active.

TABLE XLI

CLASSIFICATION MEANS AND MEAN DIFFERENCES ON THE PERCEIVED ACTIVITY OF THE INSTRUCTOR

Classification			Freshmen	Sophomores	Juniors	Seniors
	Means	(N)	3.13	3.41	3.17	2.46
Freshmen	3.13	(128)		.28	.04	.67
Sophomores	3.41	(89)			.24	.95*
Juniors	3.17	(62)				.71
Seniors	2.46	(23)				

Mean difference required for significance at .05 level = .74

*Significant $P \leq .05$

In regard to perceived value of the instructor, classification was not a significant factor. Freshmen, sophomores, juniors, and seniors all perceived the value of the instructor in a homogeneous manner.

In keeping with the exploratory nature of this study, it was decided to examine the relationship of the two instructors and their classes independent of one another. By combining the classes of Instructor A (female) into one group and combining the classes of Instructor B (male) into another group, it was then thought that the instructor influence could be investigated. Using the analysis of variance as the testing procedure, the instructors and their classes were then compared. When comparing the two groups, it was observed

that Instructor B, who taught classrooms III P II and IV P II, was perceived to have more value than Instructor A. Group differences on perceived value of the instructor were significant at the .001 level. Further considerations on instructors revealed no significant differences at the .05 significance level.

Findings of the Interview

A brief summary of each interview is presented without any attempts at quantifying the information. First, with Instructor A (female) on classroom I P II the interview information is summarized as follows. Instructor A felt classroom I P II, during the first five weeks, allowed for a broad and fairly inclusive communication network. According to Instructor A, students were seated too close together in classroom I P II. Students in classroom I P II participated in discussions willingly; however, the last fifteen minutes of the class seemed to go downhill as far as discussion was concerned. No differential in access to classroom information was noted by the instructor, and no subgroups were apparent to the instructor.

During the second five week period Instructor A of classroom I P II reported that communication was still open; however, students seated in the front of the room apparently had greater access to the information than did students seated in the back of the room. The general tone of classroom I P II was friendly; however, Instructor A was somewhat discouraged by the inability of students to summarize their thoughts on problems and issues discussed in the class. During the second five week period a subgroup did emerge, and this group developed alliances on certain issues. Instructor A felt this alliance

of supportive group effort was not in the best interest of the whole class.

During the final five week period Instructor A said the communication network was still open; however, fewer students were participating in the discussions. Tone of the class remained friendly, but participation in class discussions had dwindled over the preceding periods. Instructor A felt classroom I P II was more cohesive than non-cohesive over all time periods. In general Instructor A was satisfied with the control class.

The next interview summary is concerned with Instructor A on classroom II P II at the various time periods. Instructor A pointed out that discussion and participation were limited during the first five week period in classroom II P II. Students entered into discussions cautiously and much of the time the students were unwilling to contribute to discussion. Instructor A stated, "Best way to describe this class is a bunch of sponges. They just wait for me to put out information. They never get into it or offer any information; in fact, it's just like me talking to that bookcase over there." When asked if they would respond in any way, Instructor A replied, "Not unless I just pull information out of them." The manner used by Instructor A to "pull" information out of students was to ask specific questions to individual students.

During the second five week period, Instructor A was still having problems getting the students to participate. Instructor A felt students were indifferent to the class. Furthermore, the class was difficult to teach, according to Instructor A. Students in classroom II P II were not willing to recognize problem areas or discuss them.

Instructor A was of the belief that classroom II P II was just one of those unusual classes in which little could be done to obtain students' interest.

The final five week period evaluation by Instructor A was still on the negative side; however, the discussion and participation had increased some. Increase in discussion was primarily associated with students seated in the front of the room. Throughout the semester Instructor A was negative about classroom II P II. Instructor A did not feel that spacing the students was the problem; however, she did feel that it had some kind of effect. Instructor A was of the opinion that students disliked the seating arrangement. The access of information to students in classroom II P II was felt by the instructor to be somewhat inadequate, in that students in the back of the room appeared to be receiving less information. In regard to Instructor A and her negative evaluation of classroom II P II, she did say that she had had other classes like this, and for her there was little, if anything, that could be done to stimulate students.

The next interview summarized concerns Instructor B (male), classroom III P II, at time one. Instructor B felt the communication network was fairly inclusive, but not all students were involved in the communication process. In classroom III P II all students had equal access to information. During the first five weeks, approximately one-third of the students were participating openly in class discussions. The other students participated cautiously. Instructor B was on the positive side in his evaluation of classroom III P II. The major problems outlined by Instructor B concerned poor student presentations, which served to create disinterest among the class. When presentations

were poor, it was Instructor B who had to get the class interested. Instructor B felt challenged by the panel type of instruction, but did say it was rather difficult to stimulate and motivate students to participate and give good presentations.

During the second five week period, the instructor reported that it was becoming easier to stimulate class discussion and presentations were improving. The general tone of the class remained friendly; however, it was pointed out by Instructor B that it was necessary for students to accommodate one student. Apparently, one of the students had so-called "red neck" views which were not in accord with other students' views.

During the final five week period, the discussion and presentations were becoming increasingly weak, and Instructor B reported it was necessary for him to stimulate students. Instructor B related his efforts at motivating students were, in the main, unsuccessful. Instructor B in his over-all view of classroom III P II related that students passively accepted the seating arrangement and were reluctant at first to class presentations. Reluctance to presentations was slowly overcome as the semester progressed. General feeling of Instructor B on presentations was that some students were excited about presenting, and others were hesitant and reluctant.

The next interview summarization involves classroom IV P II at time one, with Instructor B. Instructor B was, in the main, satisfied with classroom IV P II. He reported students were active and participated willingly in class discussions. Also, he noted little reluctance to class presentations. Communication was described as good and inclusive. The use of microphones was felt by the instructor to have

numerous effects. He reported students accepted and caught on to using microphones within two or three class meetings. Instructor B observed that microphone usage served to decrease sly remarks and mumbling when speaking in class. Also noted was that microphone usage served to facilitate students collecting their thoughts in a more adequate manner before speaking to the class.

During the second five week period, Instructor B reported communication to be good and presentations to be getting a little better. Also pointed out by Instructor B was that student use of microphones was beneficial in the sense that students on the front rows, when talking with the panel, could be heard by everyone in the class. Students in classroom IV P II were able to bring up issues and discuss them adequately, according to Instructor B.

During the last five week period, instructor B felt the class was weaker on presentations than in preceding weeks. Also communication was less open with fewer numbers of students actively engaging in discussions. According to Instructor B, students in classroom IV P II were more anxious about the semester ending than they were about course materials. Instructor B contended that, over-all, the semester with classroom IV P II had been quite an experience. He felt the general tone of the class had been good. Students were friendly and willing to discuss and participate. Instructor B was delighted to have such a small class and felt he had gained some information about how to stimulate and motivate students. His evaluation of the method of instruction was neither negative nor positive. He felt panel-type classes required more preparation on his part than straight lecture. Instructor B comments on the two-way communication system were, in the main,

positive, especially in light of his observation of students' receptiveness to microphones. Instructor B felt it was more difficult for him to adjust to microphone usage than it was for the students. According to Instructor B, classroom IV P II was the best class he had that semester. However, when asked if he would consider conducting another class in the same manner, his reluctance was quite noticeable. Instructor B responded to running another class in the same manner by saing, "It's too much work, although some of what we did in this class is worthy of a little extra effort on the students' and my part."

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

This chapter presents the interpretation and integration of the findings in relation to the exploratory nature of the problem. The problem under study involves the examining of various classroom arrangements and methods of instruction in relation to student alienation to class benefit, social distance to the instructor, class cohesiveness, and perceived value, power, and activity of the instructor.

The present chapter is composed of six parts. Part one concerns the interpretation of the findings obtained from Phase I. Part two focuses on the interpretation of the findings from Phase II. Part three provides an integration of both phases and major findings. Part four contains a summary of the interviews. Part five discusses the limitations of the study, and the final part of this chapter is the conclusion to the study.

Phase I Summary

In order to assess the general findings of Phase I, the three classroom groups will be looked at separately, and then all groups will be viewed in comparison to one another. Classrooms I P I and III P I are compared since these classrooms had the same instructor. The

various time periods are also discussed in relation to the over-all problem.

First, the general findings are given of each classroom group. Classroom group I P I was a control group and an honors introductory section with a small number (N=19) of students enrolled. Traditional seating arrangements and lecture were employed in this class. This group revealed the greatest alienation to class benefit of all groups. In addition, it was observed that cohesiveness of this group was greater than the cohesiveness exhibited in the other groups. Classroom group I P I perceived the instructor to have less value, power, and activity than did the other classroom groups.

Classroom group II P I was a control group and an introductory class with an average size enrollment (N=49) for classes of this kind. Traditional seating arrangements and lecture as the method of instruction were employed in this class. Of all groups, this group appeared to be the least alienated to class benefit, significantly less alienated than classroom I P I. Classroom group II P I provided evidence which suggested they preferred greater social distance to the instructor than did the other two groups. Social distance to the instructor, being greater in group II P I, might be explained by the size of the class. No evidence is available to verify this point. Group II P I means on all other factors under study fell in the middle, between group I P I and group III P I.

The experimental classroom group III P I was an honors introductory section with a small number (N=22) of students enrolled. The experimental conditions were seating students four feet apart and panel type of instruction. As noted in Chapter III the arrangement of the

classroom and method of instruction changed at four week intervals. Students in this class were somewhat less cohesive than in the other two groups. Perceived power of the instructor was greater in classroom III P I than in classroom I P I. In addition, it was observed that classroom group III P I perceived the instructor to be of more value and be more active than did group I P I. The instructor for classroom III P I was the same instructor that taught classroom I P I.

The comparison of all groups reveals that differences did exist on alienation to class benefit and on the perceived value, activity, and power of the instructor. In the aforementioned discussion of each group, the specific differences were noted. It was of particular interest to compare group I P I to group III P I since the same instructor taught both groups, and both groups were honors students. On alienation to class benefit, group I P I was somewhat more alienated than group III P I, and this was consistent at all time periods. No real differences existed between group I P I and III P I on preferred social distance to the instructor. As previously mentioned, group I P I was somewhat more cohesive than group III P I. Also, as has already been noted, group I P I perceived the instructor to have less value, power, and activity than did group III P I.

These findings reveal that after controling factors of instructor and type of students (honors), the varying methods of instruction and changed spatial relationships of members of the class did have some effects. Further interpretation of the findings considers the time element and its effects upon the factors under study.

The importance of the time factor becomes obvious when reviewing the findings of Phase I. Time was found to be a significant factor in

assessing students' preferred social distance to the instructors. The general trend was for all classes to increase social distance to the instructor. Classroom III P I at time three was an exception to this. On perceived power and value of the instructor, time was noted to be a significant factor. Perceived power of the instructor decreased over time in all three classes. The value of the instructor may be viewed as following the same trend as social distance and power; however, classroom II P I, at time three, did attribute to the instructor slightly more value than at time two.

Phase II Summary

Remaining within the same framework used in reporting the findings of Phase I, this part summarizes the general findings of Phase II. First, the four classroom groups are discussed separately, then comparisons are made. Secondly, the time factor and its significance are related to the various areas under study.

Classroom I P II was the control section composed of social problems students. Traditional seating arrangements and lecture were employed in this class. This class had the lowest over-all mean to alienation to class benefit of all classes; however, it was not significantly lower at the .05 level. Students in classroom I P II perceived the instructor to have less power than did the other groups, significantly ($P \leq .05$) less power than classroom group III P II. The instructor for classroom I P II was a female and she was also the instructor for classroom II P II.

Classroom II P II was a social problems section with normal spacing among students. Group II P II appeared to be the least cohesive

class of all groups, significantly ($P \leq .05$) less cohesive than group IV P II. Students in group II P II perceived the instructor to have significantly less value than did group III P II, and, in general, group II P II perceived the instructor to have less value than the other groups. Perceived power of the instructor was seen by students in group II P II to be significantly ($P \leq .05$) less than was perceived by students in group III P II. Although significance was not established at the .05 level, the data suggest group II P II perceived the instructor to be less active than the other groups.

Classroom group III P II was composed of introductory sociology students who were seated four feet apart. The instructor for group III P II was a male and he also taught group IV P II. Also in group III P II students participated in presenting the class materials. The data reveal the mean value on student alienation to class benefit to be larger than any other group. However, the mean value is not significantly ($P \leq .05$) larger than the other groups. The mean on social distance to the instructor was less for group III P II than any other group; however, it was not significantly ($P \leq .05$) less. Since the mean values were not significantly different on alienation and social distance, no generalizations are merited. The evidence that group III P II was more alienated and preferred greater social distance to the instructor is not warranted by the mean values. Students in group III P II perceived the value of the instructor to be significantly greater (.05) than did groups I P II and II P II. Perceived power of the instructor was greatest in group III P II. Students in group III P II perceived instructor power significantly (.05) greater than did students in all other groups.

Classroom group IV P II was composed of introductory sociology students. Spacing of four feet, panel-type classes, and two-way communication were the experimental conditions for this class. Classroom group IV P II had the smallest number of students enrolled of all classes in Phase II. Classroom IV P II appeared to be the most cohesive class, significantly (.05) more cohesive than group II. Group IV, as well as group III, appeared to perceive the instructor as being somewhat more powerful and active than did groups I P II and II P II. On the perceived value of the instructor, the data suggest that group IV P II along with group III P II assigned more value to the instructor than did groups I P II and II P II.

Group I P II and II P II were taught by the same instructor and both were social problems sections. Groups III P II and IV P II were taught by the same instructor and both were introductory sections. Summarizing the findings of the two instructors' classes by combining their classes into Instructor A classes groups I P II and II P II and Instructor B classes groups III P II and IV P II, it was noted that students in Instructor B's classes perceived the value, activity, and power of the instructor to be significantly ($P \leq .01$) greater than students in groups I P II and II P II. No other significant differences at the .05 level were found.

Sex was isolated, and it was found that females in all classes were significantly ($P = .001$) less alienated than the males. Sex was also noted to be a significant factor on preferred social distance to the instructor. Females preferred less social distance to the instructor than did males, significant at .02 level. On perceived value of the instructor, it was the females who valued the instructor the most

in all cases. Males perceived the instructor to have significantly less (P = .001) power than did the females.

Summarizing the effects of student classification reveals that freshmen and seniors were the least alienated to class benefit, with the seniors being somewhat less alienated to class benefit than the freshmen. Although not significant at the .05 level, it appears that seniors preferred less social distance than did the freshmen, sophomores, and juniors. The data suggest that seniors perceived the value of the instructor to be greater than the other classes; however, significance was not obtained on this at the .05 level. Significance was found at the .05 level on seniors who perceived the power of the instructor to be greater than the freshmen, sophomores, and juniors. Seniors perceived the activity of the instructor to be greater than the other classifications, significantly (.05) greater than the sophomores.

The over-time effects in Phase II of this study revealed that student alienation to class benefit tended to increase over time in all classes with the exception of group II P II at time three. A possible explanation for group II P II at time three being less alienated to class benefit might be the small number of students who responded at time three. Only fifteen out of twenty-eight students responded at time three in classroom II P II. Preferred social distance to the instructor over time did not change substantially. Class cohesiveness over time did not fluctuate significantly. In all classes the general trend was for the perceived value of the instructor to decrease over time. Classroom group II P II at time three was an exception to this; however, as previously mentioned, only fifteen of twenty-eight students

responded at time three. On perceived power of the instructor, time was not found to be a significant ($p = .05$) factor. The perceived activity of the instructor over time was insignificant (.05) as revealed in the analysis of variance results. However, when combining the instructor's classes, it was observed that Instructor B apparently was perceived as losing activity over time, whereas Instructor A was perceived as slightly gaining in activity.

Additional over-time findings with instructors combined revealed that Instructor A (female) apparently was perceived as losing more power than Instructor B (male); however, significance was not established at the .05 level to substantiate this conclusion.

Both males and females increased over time on student alienation to class benefit. Perceived value of the instructor by males and females tended to decrease over time in all classes. Males and females tended to view the activity level of the instructor as decreasing over time in all classes. On time by classification, it was noted that freshmen and sophomores tended to become increasingly alienated over time, whereas no clear trend emerged on the juniors and seniors. Freshmen and sophomores tended to perceive the instructor as having less value over time. No such trend emerged with juniors and seniors on value of the instructor.

Common Findings of Phase I and Phase II

A comparison of Phase I findings with Phase II findings should be considered in light of the different research designs that were implemented. Some common grounds do emerge when viewing both phases. Both phases focused on the same factors, student alienation to class

benefit, class cohesiveness, preferred social distance to the instructor, and perceived value, activity, and power of the instructor. Both phases involved lower division sociology classes made up of primarily freshmen and sophomores. Differences in the two phases included the measurement time intervals, one Phase I measured at four weeks, the other Phase II measured at five weeks. Differences existed in the size of schools where the samples were obtained. One school was a state university with approximately 18,000 students enrolled; the other was a state college with approximately 5,000 students enrolled. Methods of instruction and classroom arrangements were also different in the two phases.

Within the realm of these methodological differences it was observed that in both phases students tended to become somewhat more alienated to class benefit over time, regardless of the experimental conditions. In Phase I preferred social distance to the instructor tended to increase over time, but in Phase II this trend was not found. Cohesiveness over time was not significant in either study. In Phase II only the classes of Instructor B (male) tended to view the instructor as being less active over time. The general finding of both studies revealed that, in the main, the perceived value of the instructor decreased over time. In Phase I the perceived power of the instructor tended to decrease over time, whereas in Phase II this trend was not so clear.

Comparison of Phase I and II reveals that students at the state university obtained higher mean values on alienation to class benefit than did students at the state college, thus suggesting that university students may be more alienated to class benefit than state college

students. The same instrument was used in measuring alienation to class benefit in both phases. In both phases on preferred social distance to the instructor, using the same instruments, the mean values tended to be fairly homogeneous. Comparison of class cohesiveness by the two phases is difficult since the Phase II instrument differed from the one used in Phase I. On perceived power, value, and activity of the instructor, the mean values obtained in both phases appear to be fairly homogeneous.

Summary of the Interviews

In Phase II an attempt was made to compare students' responses to their respective instructor's views. Instructor A on classroom I P II was, in the main, pleased with the class. However, Instructor A on classroom II P II was somewhat negative about the class. In reviewing the students' responses no apparent differences existed between classroom I P II and II P II on alienation to class benefit, social distance to the instructor, class cohesiveness, and perceived value of the instructor. Slight differences did exist between classroom I P II and II P II on power of the instructor. Classroom II P II was the only class in the entire study where power of the instructor tended to increase over time. Students in classroom II P II also tended to view the activity level of the instructor as increasing over time. In regard to Instructor A and her evaluation of the classes, it appears that the class that perceived her as having the most power and greatest activity level was the class she was most dissatisfied with.

The interview with Instructor B revealed he was, in the main, positive toward both classroom III P II and IV P II; however, he tended

to be somewhat more positive toward classroom IV P II. Student alienation to class benefit appeared to be about the same in both classes. Social distance to the instructor was only slightly greater in group IV P II than in group III P II. Classroom IV P II was somewhat less cohesive than group III P II. Neither social distance nor cohesiveness was significantly different. On perceived value and activity of the instructor it appears that group III P II and IV P II were homogeneous. A difference did exist between classroom III P II and IV P II on perceived power of the instructor, as classroom III P II perceived Instructor B to have more power than classroom IV P II. Therefore, the class that Instructor B seemed to be somewhat more positive on perceived his power to be less than classroom III P II.

A subjective interpretation of the interviews when compared with the more objective responses of the students revealed that the instructors were not completely in accord with their respective classes. However, certain limitations do exist when trying to compare the students' responses to just one instructor. Quantification of instructors' viewpoints was not made, yet students' views are all reported in the form of quantified data. The interview with the instructors was limited due to time and lack of specific questions which corresponded to the student questionnaire.

Limitations of Study

The present study includes some weaknesses that should be recognized, especially in light of the general findings. First, this study was limited to the classes in which the research was conducted. Any generalizations beyond these classes are to be made with caution.

Seven classes, four instructors, and 197 students were involved in both phases. The sample of 197 students was repeatedly sampled over time, thereby providing strength to the results reported in this study. Due to the varying classroom arrangements and methods of instruction, the sample became somewhat smaller for each of the classrooms studied. Therefore, the specific samples for each of the classrooms is limited in size.

Phase I was limited in that the two-way communication system was not used. The interviews with the instructors in Phase II produced less information than was originally desired. Measurement intervals in Phase II fluctuated as much as two days, which may have served to limit the study. In classroom IV P II the two-way communication system did not work for two class meetings. The sample size in classroom II P II at time three in the final study dropped substantially over time one and time two measurement periods. Further limitations include difficulties in comparing state university students to state college students on the factors under study, since differing measurement intervals were used and the research design was different.

In the analysis of the data the lack of a satisfactory procedure to handle the independence of samples when repeated measures are taken may serve to limit the study. Although this limitation may exist, the general trend of the findings is not totally dependent upon the analysis of variance results.

Conclusion

This exploratory study has investigated a number of factors operating within the classroom social environment. The findings of this

study are to be recognized in relationship to the limitations of the study. Evidence provided in this study suggests that sex, classification, time, size of school, methods of instruction, physical arrangement of the classroom, and instructor have various effects upon the social interaction process operating in the class. The time element appeared to be one of the most significant factors in this study. That is, it was observed in many of the classes under study, regardless of instructional procedures and classroom arrangements, that students became more alienated to class benefit over time, and students tended to perceive the instructor as having less value, power, and activity over time.

In light of the findings on increasing alienation to class benefit and decreasing instructor value, power, and activity over time, the author feels the evidence noted in this study is suggestive of an inability by the students and instructors to define the classroom situation in a satisfactory way. From the interview with the teachers the author got the impression that the teachers were more satisfied with their classes than were the students. When teacher-defined situations are different from student-defined situations, then some form of tension and strain is likely to develop. The results obtained in this study suggest that when students have a more active part in defining the classroom situation, then they perceive the instructor as having more value and power.

A social environment is one that allows all persons in that environment to have some say about the processes operating within the environment. Therefore, when the instructor becomes the only person defining the situation in the classroom, the students are likely to

become alienated to it and perceive their instructor as having little value and power. Students' perspective on instructor power may be seen in terms of the instructor's social power. Accordingly, when the instructor becomes overly dominant, the students may see the instructor as having little power to direct the social environment. In other words, the overly dominant instructor who places restraints upon discussion and communication within the classroom is most likely to be perceived by students as a teacher without power to control the social environment of the classroom. When communication in the classroom becomes a one-way process from teacher to students with no channels for student communication back to the instructor, the social environof the classroom is severely damaged. The traditional college classroom has been primarily a lecture situation, and there is relatively little evidence available as to what students' feelings are about this type of situation. Evidence obtained in this study suggests that students are not satisfied with traditional teaching methods. Also noted in this study is evidence which suggests that when students are more involved in class presentations and discussion, students are more tolerant of the teacher and the classroom environment.

The alienation to class benefit noted in this research should be considered in a significant finding. The implications of student alienation to class benefit are far-reaching. Apparently there are many instructors who are unable or unwilling to try to understand the importance of social interaction in the classroom. Therefore, a likely result when interaction is absent in the classroom is student alienation to class benefit. This alienation to class benefit is not totally the instructor's problem, for there are other sources that should be

considered. Possible sources contributing to the student alienation to class benefit noted in this study include: (1) The ideology that young people should obtain a college education in order that they may obtain success. (2) The very structure of many college classrooms does not encourage interaction and communication among students and teachers. (3) The difficulty that many students may experience in trying to find meaning and purpose in a classroom lecture situation where the instructor provides a very limited perspective to understanding of life as a process. (4) The impersonal nature of a rigidly structured classroom composed of persons behaving in a prescribed manner carrying out their specific roles and functions may serve to facilitate the increasing alienation to class benefit.

Alienation as revealed in this study is present in the classroom, and its presence may be a reflection on the whole educational process. The school and the classroom are part of the socializing process and when a situation arises where students are becoming increasingly alienated to a part of the socializing process, the school is not meeting its social function. Socialization is a continual on-going process which instills into persons the importance of social interaction. When the school and the classroom are not contributing to the socialization process, a situation arises that may create persons who are unable to relate to one another in a meaningful way.

The possible sources of alienation to class benefit cannot be fully examined due to the numerous sources contributing to it. However, it should be fairly obvious that if efforts are not made to curb the increasing alienation among students, our college classrooms are subject to being continually viewed as decreasing in value. While the

author is unable to predict exactly what will happen if alienation among students is not harnessed, it does appear that some type of change will occur. Increasing alienation among students may result in a total destruction of the social interaction process in the college classroom. The ideology of increasing the structure and prescribing what is to transpire in the classroom is certainly not the answer to curbing alienation. Increasing the structure and form with no concern for the content creates a situation which serves to hinder the full social development of persons who can interact with others.

The decreasing value, power, and activity of the instructor noted in this research serve to reinforce the findings on alienation to class benefit. As alienation to class benefit increases, the power, value, and activity of the instructor decrease. Therefore, this may be viewed as a situation in which the instructor's and students' definition of the situation is not in agreement. The classroom when viewed as a social environment requires that the instructor and the students be constrained by one another. Therefore, when either the students or the instructor totally constrain the other, a situation develops which may create alienation to the situation. Apparently, in the classes sampled in this study, the constraint factor in social interaction was not conducive to open communication and interaction. While constraint is necessary for social interaction, it cannot be a one-way type of constraint. When two-way constraint is absent in an environment such as the classroom, then the situation is likely to be defined as dull, boring, and void of meaning for those involved.

In concluding this paper it is necessary to mention that this study was approached with a sincere interest in trying to find out

"just what is going on in the classroom." Recommendations stemming from this research center on the idea that efforts should be made by individual teachers and their students to share in defining their own classrooms. The most sophisticated research or researcher cannot provide the individual instructor with information as to how to conduct his own classes. Some of the findings in this research might be considered as discouraging; however, the knowledge gained in this research should serve to alert others to the importance of studying the social factors in the classroom.

SELECTED BIBLIOGRAPHY

Abel, T. (1970). The Foundation of Sociological Theory. New York: Random House.

Allport, F. (1924). Social Psychology. Boston: Houghton Mifflin.

_____ (1955). Theories of Perception and the Concept of Structure. New York: John Wiley and Sons.

Anderson, C. A. (1959). "Sociology in the Service of Comparative Education." International Review of Education, 5, 310-319.

Argyle, M., and J. Dean (1965). "Eye Contact, Distance and Affiliation." Sociometry, 289-299.

Asch, S. E. (1952). Social Psychology. Englewood Cliffs, N. J.: Prentice-Hall.

Back, K. W. (1958). "Influence Through Communication." In E. Maccoby, et al. (Editors). Readings in Social Psychology. New York: Holt, Rinehart and Winston, 183-197.

Bany, M. A., and L. V. Johnson (1964). Classroom and Group Behavior. New York: Macmillian.

Becker, E. (1967). Beyond Alienation: A Philosophy of Education for the Crisis of Democracy. New York: Braziller.

Biddle, B. J., and R. S. Adams (1967). "Teacher Behavior in the Classroom Context." In L. Siegel. (Editor). Instruction Some Contemporary Viewpoints. San Francisco: Chandler.

Blalock, H. M. (1972). Social Statistics. New York: McGraw-Hill.

Bogardus, E. S. (1959). Social Distance. Yellow Springs, Ohio: Antioch Press.

Bovard, E. W. (1951). "Psychology of Classroom Interaction." Journal of Educational Research, 45, 215-224.

Brown, R. (1965). Social Psychology. New York: Free Press.

Cartwright, D., and A. Zander (1960). Group Dynamics: Research and Theory. Evanston, Ill.: Row, Peterson, and Company.

_____ (1968). (Editors). Group Dynamics. Third Edition. New York: Harper and Row.

Chapman, I., and R. Albert (1972). "Influences of Ecological Factors in the Classroom." Paper presented at the Southwestern Sociological Association Meeting. San Antonio.

Clark, J. P. (1959). "Measuring Alienation Within a Social System." American Sociological Review, 6, 849-852.

Coch, L., and J. R. P. French (1958). "Overcoming Resistance to Change." In E. Maccoby, et al. (Editors). Readings in Social Psychology. New York: Holt, Rinehart and Winston, 233-250.

Combs, A. W., and C. Taylor (1952). "The Effect of Mild Degrees of Threat on Performance." Journal of Abnormal and Social Psychology, 47, 420-424.

Cunningham, R. (1951). Understanding Group Behavior of Boys and Girls. New York: Bureau of Publications, Teachers College, Columbia University.

Dahlke, O. H., and T. O. Monahan (1949). "Problems in the Application of Sociometry to Schools." School Review, 57, 223-234.

Dashiell, F. F. (1935). "Experimental Studies of the Influence of Social Situations on the Behavior of Individual Human Adults." In C. Murchison. (Editor). Handbook of Social Psychology. Worcester, Mass.: Clark University Press.

Eisman, B. (1959). "Some Operational Measures of Group Cohesiveness and Their Interactions." Human Relations, 12, 183-189.

Felipe, N. J., and R. Sommer (1966). "Invasions of Personal Space." Social Problems, 14, 206-214.

Feuer, L. (1963). "What Is Alienation? The Career of a Concept." In M. Stein and A. Vildich. (Editors). Sociology on Trial. Englewood Cliffs, N. J.: Prentice Hall, 127-147.

Flanders, N. A. (1964). "Some Relationships Among Teacher Influence, Pupil Attitudes, and Achievement." In B. J. Biddle and W. J. Ellena. (Editors). Contemporary Research on Teacher Effectiveness. New York: Holt, Rinehart and Winston, 196-231.

Goffman, E. (1959). The Presentation of Self in Everyday Life. Garden City: Doubleday.

Gordon, C. W. (1955). "The Role of the Teacher in the Social Structure of the High School." Journal of Educational Sociology, 29, 21-29.

_____ (1957). The Social System of the High School: A Study in the Sociology of Adolescence. Glencoe, Ill.: Free Press.

Gottheil, E., et al. (1968). "Psychological and Physical Dimensions of Personal Space." Journal of Psychology, 69, 7-9.

Gross, N. (1959). "Some Contributions of Sociology to the Field of Education." Harvard Educational Review, 29, 275-287.

Hall, E. T. (1966). The Hidden Dimension. Garden City: Doubleday.

Havighurst, R. J., and B. L Neugarten (1967). Society and Education. Third Edition. Boston: Allyn and Bacon.

Hughes, E., et al. (1968). "Student Culture and Academic Effort." In R. E. Bell and H. R. Stub. (Editors). The Sociology of Education: A Sourcebook. Homewood, Ill.: Dorsey Press, 372-385.

Johnson, D. W. (1970). The Social Psychology of Education. New York: Holt, Rinehart and Winston.

Johnson, L. V., and M. A. Bany (1970). Classroom Management: Theory and Skill Management. New York: Macmillian.

Kelley, H. H. (1951). "Communication in Experimentally Created Hierarchies." Human Relations, 4, 39-56.

Leavitt, H. J., and R. A. Mueller (1951). "Some Effects of Feedback on Communication." Human Relations, 4, 401-410.

Leavitt, H. J. (1951). "Some Effects of Certain Communication Patterns on Group Performance." Journal of Abnormal and Social Psychology, 46, 38-50.

Little, K. (1965). "Personal Space." Journal of Experimental Social Psychology, 1, 237-247.

Lott, A. J., and B. E. Lott (1961). "Group Cohesiveness, Communication Level, and Conformity." Journal of Abnormal and Social Psychology, 62, 408-413.

Lyman, S., and M. B. Scott (1967). "Territoriality: A Neglected Sociological Dimension." Social Problems, 15, 236-249.

Newsom, R. K. (1971). "Ego-Social Stress, Personal Space and Population Density." Paper presented at the Southwestern Sociological Association Meeting. Dallas.

Osgood, C. E., et al. (1957). The Measurement of Meaning. Urbana: University of Illinois Press.

Pepitone, A. D., and G. Reichling (1955). "Group Cohesiveness and the Expression of Hostility." Human Relations, 8, 327-338.

Perkins, H. V. (1951). "Climate Influences Group Learning." Journal of Educational Research, 45, 115-119.

Roscoe, J. T. (1969). Fundamental Research Statistics for the Behavioral Sciences. New York: Holt, Rinehart and Winston.

Schmuck, R. A., and P. A. Schmuck (1971). Group Processes in the Classroom. Dubuque, Iowa: Wm. C. Brown.

Schwartz, B. (1968). "The Social Psychology of Privacy." American Journal of Sociology, 74, 741-752.

Seashore, S. E. (1954). Group Cohesiveness in the Industrial Work Group. Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan.

Snedecor, G. W., and W. G. Cochran (1967). Statistical Methods. Sixth Ediction. Amex, Iowa: Iowa State University Press.

Sommer, R. (1969). Personal Space: The Behavioral Basis of Design. Englewood Cliffs, N. J.: Prentice-Hall.

Stienzor, B. (1950). "The Spatial Factor in Face to Face Discussion Groups." Journal of Abnormal and Social Psychology, 45, 552-555.

Snygg, D., and A. Combs (1949). Individual Behavior: A New Frame of Reference for Psychology. New York: Harper and Row.

Thibaut, J. W., and J. Coules (1952). "The Role of Communication in the Reduction of Interpersonal Hostility." Journal of Abnormal and Social Psychology, 47, 770-777.

Tukey, J. W. (1949). "Comparing Individual Means in Analysis of Variance." Biometrics, 5, 99-116.

Veldman, D. J. (1967). Fortran Programming for the Behavioral Sciences. New York: Holt, Rinehart and Winston.

Weber, M. (1968). "Zur Psychophysik der Industriellen Arbiet (1908-09)." Selected passages appear in R. Bell and H. Stub (Editors). The Sociology of Education: A Sourcebook. Homewood, Ill.: Dorsey, 374.

APPENDIX A

SOCIAL ENVIRONMENT QUESTIONNAIRE

DO NOT SIGN YOUR NAME TO THIS FORM

The purpose of this survey is to gain a better understanding of the social environment. There are no right or wrong responses. Please respond according to the way YOU feel. Your responses are important in gaining a better understanding of the social environment.

Part I
INSTRUCTIONS

Please provide the following information:

Age_____Sex_____Major (current or planned)_____

Classification (Freshman, etc.)_____Marital status_____

Home State_____Approximate size of hometown_____

Part II
INSTRUCTIONS

Check your first feeling reactions to your present instructor by placing an X after the row of seating you would prefer at this time.

		Present Instructor
Front	1	_____
	2	_____
	3	_____
	4	_____
	5	_____
	6	_____
	7	_____
Back	8	_____

Part III
INSTRUCTIONS

Place an X in the appropriate blank in each case.

Who actually benefits from this class?
Class members_____
The instructor and others_____

How much influence do you feel you have in the class?
Very much_____
Quite a bit_____
Some_____
Very little_____
None at all_____

How much "say" do you feel members should have about how the class is run?
Less say_____
About the same_____
More say_____

To what extent do you feel that you benefit from the class?
Very much_____
Quite a bit_____
Some_____
Not very much_____
None at all_____

Part IV
INSTRUCTIONS

Here is how you are to use these scales:

If you feel that your concept of the person at the top of the scale, your instructor, is very closely related to one end of the scale, you should place your check-mark as follows:

Fair _X_:___:___:___:___:___:___ unfair

or

Fair ___:___:___:___:___:___:_X_ unfair

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

Fair ___:_X_:___:___:___:___:___ unfair

or

Fair ___:___:___:___:___:_X_:___ unfair

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

Fair ____:____:__X__:____:____:____:____ unfair

or

Fair ____:____:____:____:__X__:____:____ unfair

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the thing you're judging.

If you consider the concept to be a neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space:

Fair ____:____:____:____:____:____:____ unfair

Important: (1) Place your check-marks in the middle of the spaces, not on the boundaries:

This Not this
____:____:____:__X__:____X:____:____

(2) Be sure you check every scale for every concept--do not omit any.

(3) Never put more than one check-mark on a single scale.

In the test make each item a separate and independent judgement. Work at fairly high speed through this test. It is your first impressions, the immediate "feelings" about the item, that we want. On the other hand, please do not be careless, because we want your true impressions.

Your Instructor

good____:____:____:____:____:____:____bad

pessimistic____:____:____:____:____:____:____optimistic

positive____:____:____:____:____:____:____negative

weak____:____:____:____:____:____:____strong

severe____:____:____:____:____:____:____lenient

humorous____:____:____:____:____:____:____serious

active____:____:____:____:____:____:____passive

boring____:____:____:____:____:____:____interesting

exciting____:____:____:____:____:____:____calm

Part V

Do you feel that you are really a part of this class as a group process? (Check only one)

_____ Really a part

_____ Included in most ways

_____ Included in some ways but not others

_____ Don't feel I really belong

_____ Don't think of this class as a group process

_____ Not ascertained

APPENDIX B

MEASURE OF CLASS COHESIVENESS

1. Does your class enjoy working together?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

2. When students from other classes criticize your class, do you defend your class?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

3. Do you feel that class members think that everyone should go along with what the class decides:

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

4. Do you feel class members can express their ideas freely in classroom discussions?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

5. If class members seem to be having difficulty in this class (for example unable to verbally express themselves or have difficulty with class work) do you feel that the class as a group will help them?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

6. If threatened, do you feel that class members would join together and handle the situation?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

7. Do you feel that this class as a group is seeking the same things?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

APPENDIX C

CLASSROOM ENVIRONMENT QUESTIONNAIRE

DO NOT SIGN YOUR NAME TO THIS FORM

The purpose of this survey is to gain a better understanding of the classroom environment. There are no right or wrong responses. Please respond according to the way YOU feel. Your responses are important in gaining a better understanding of the classroom environment.

Part I
INSTRUCTIONS

Please provide the following information:

Age _____ Sex _____ Major (current or planned) _____

Classification (Freshman, etc.) _____ Marital status _____

Home State _____ Approximate size of hometown _____

Part II
INSTRUCTIONS

Check your first feeling reactions to instructors as a group, not the best or the worst you have known, but think of the stereotype that you have of all instructors.

First put an X after the row of seating you would prefer if listening to the lectures of the stereotyped instructor, then in like manner put an X in the row of seating you would prefer if listening to the lectures of the best instructor you know, and continue by putting an X in the row for the worst instructor you know, and finally put an X in the row of seating you would prefer for the present instructor.

	Stereotyped Instructor	Best Instructor	Worst Instructor	Present Instructor
Front	1	1	1	1
	2	2	2	2
	3	3	3	3
	4	4	4	4
	5	5	5	5
	6	6	6	6
	7	7	7	7
	8	8	8	8

APPENDIX D

STRUCTURED INTERVIEW FORMAT

A structured interview took place with the instructors as to the communication and interactional patterns in the classroom. During the interview the following questions were asked.

I. Is the communication network a broad and inclusive one, in which everyone in the group can and does communicate with everyone else?

Does the communication network show differential completeness of information--that is, is all information passed on to some members or some part of the part, while others receive, in decreasing amounts, incomplete, partial, or little information?

Does the communication network show differential accessibility of information--that is, do some have full accessibility to group information while others, in decreasing amounts, have incomplete, partial, or little accessibility to group information?

II. How much does the class participate in discussion? (much, some, none, etc.)

How does the class participate? (cautiously, willingly, etc.)

Are there noticeable subgroup or clique alignments in discussion?

Which subgroup, if any, monopolizes or is dominant?

What is the behavior of others?

III. Does task behavior occupy most of the time and attention of the class?

Does non-task or social-emotional behavior occupy most of the time and attention of the class?

What is the proportion of each on specific occasions?

IV. What kinds of contribution does the class make in a general discussion period? Recognize problems or issues? Initiate suggestions? Add facts or information? Foresee consequences? Clarify decisions? Identify weaknesses or omissions? Does the class summarize discussion? etc.

What kinds of contribution are typical of certain subgroups, if any?

V. What is the feeling or tone in the class during discussions and other interaction? (friendly give-and-take, constructive, critical, etc.)

Does the tone usually change during the period, or does it remain approximately the same?

If it changes, is there a typical sequence that occurs?

Do supportive alliances of mutual choices, subgroups, or cliques appear in discussions?

Do competitive alliances show up?

The above questions appear in Bany and Johnson (1964, pp. 382-383).

Instructors were asked to fill out the following rating scale on group cohesiveness. This scale is located in Bany and Johnson (1964).

INSTRUCTORS RATING SCALE: GROUP COHESIVENESS

1. Does the class appear to like working together?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

2. Do the students work well in a group?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

3. Do they show pride in class work, activities, and achievements?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

4. Do they stick up for the group?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

5. Are they ready to defend actions of the class?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

6. Do they stick together against outside influences and opinions?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

7. Do they consider the group's goals important?

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

8. Does the group take responsibility for seeing that class routines and other organizational matters are accomplished:

ALWAYS	USUALLY	SOMETIMES	SELDOM	NEVER

APPENDIX E

POST-CLASS STUDENT OPINIONS

1. List briefly any positive and - or negative feelings you experienced in this class as a result of being spaced one seat apart.

2. List briefly any positive and - or negative feelings you experienced in this class as a result of being rotated to the table discussion.

3. List briefly any positive and - or negative feelings you experienced in this class as a result of the questionnaires you responded to.

4. List briefly any positive and - or negative feelings you experienced in this class as a result of the entire class proceedings from the beginning to the end.

5. If you had to express yourself with regard to this class in one statement what would you say?

APPENDIX F

PROGRAM USED FOR ANALYSIS OF VARIANCE

```
C     PROGRAM AVAR23
C  DOUBLE OR TRIPLE-CLASSIFICATION ANALYSIS OF VARIANCE.
C
C  PARAMETER CONTROL-CARD FIELDS.
C     COL 1-5 = NUMBER OF DEPENDENT VARIABLES TO BE ANALYZED (MAX = 70).
C     COL 6-10 = NUMBER OF LEVELS FOR THE A FACTOR (MAX = 10).
C     COL 11-15 = NUMBER OF LEVELS FOR THE B FACTOR (MAX = 10).
C     COL 16-20 = NUMBER OF LEVELS FOR THE C FACTOR (MAX = 10).
C        SET = 1 FOR DOUBLE-CLASSIFICATION DESIGN.
C     COL 21-25 = NUMBER OF SUBJECTS PER ABC CELL, IF CELL N ARE ALL EQUAL.
C        FOR UNEQUAL CELL N SET = 9999 AND ADD A GROUP-CONTROL
C        CARD IN FRONT OF EACH CELL-SET OF DATA CARDS (COL 1-5 = CELL N).
C        IF ZERO SCORES ARE TO BE TREATED AS MISSING DATA FOR ANY VARIABLE,
C        ADD MINUS SIGN TO THIS FIELD AND ADD OPTION-SIGNAL CARD AFTER
C        FORMAT CONTROL CARD (1 = ZERO MEANS MISSING, 0 = ZERO VALID.
C        COL 1 = VARIABLE 1, ETC).
C  FORMAT MUST SPECIFY NV SCORE FIELDS (FOR ONE SUBJECT).
C  ORDER OF CELLS IN DATA DECK = A1B1C1, A1B1C2, A1B2C1, ETC.
C  TAPE UNIT 2 IS USED FOR TEMPORARY STORAGE (SCRATCH).
C  SUBPROGRAMS REQUIRED ARE PRBF, CCDS, PRTS.
C
0001        DIMENSION KF(20), KH(20), ZM(70), S(10), D(10), F(10), P(10),
           1 A(10), B(10), C(10), AB(10,10), AC(10,10), BC(10,10),
           2 ABC(10,10,10), W(70), R(70), T(70), X(70), SX(70), SQ(70), G(70),
           3 GN(10,10,10)
0002        NO = 10
0003      5 CALL CCDS (KF, NV, NA, NB, NC, NS)
0004        NT = NA * NB * NC
C  ZERO ACCUMULATORS AND READ MISSING-DATA OPTIONS.
0005        DO 10 I = 1,NV
0006        ZM(I) = 0.0
0007        T(I) = 0.0
0008        R(I) = 0.0
0009       10 W(I) = 0.0
0010        IF (NS .GT. 0) GO TO 20
0011        NS = IABS(NS)
0012        READ 15, (ZM(I), I = 1,NV)
0013       15 FORMAT (80F1.0)
0014       20 REWIND 2
C  INPUT DATA, CHECK, ACCUMULATE SUMS.
0015        DO 50 M = 1,NT
0016        N = NS
0017        IF (N .EQ. 9999) READ 25, N
0018       25 FORMAT (I5)
0019        DO 30 I = 1,NV
0020        SX(I) = 0.0
0021        SQ(I) = 0.0
0022       30 G(I) = N
0023        DO 35 I = 1,N
0024        READ KF, (X(J), J = 1,NV)
0025        DO 35 J = 1,NV
0026        IF (ZM(J) .EQ. 1.0 .AND. X(J) .EQ. 0.0) G(J) = G(J) - 1.0
0027        SX(J) = SX(J) + X(J)
0028       35 SQ(J) = SQ(J) + X(J)**2
0029        DO 45 I = 1,NV
0030        IF (G(I) .GT. 0.0) GO TO 40
0031        ZM(I) = 2.0
0032        GO TO 45
```

```
      C  ACCUMULATE (1/CELL N) AND CELL VARIANCE.
0033     40 W(I) = W(I) + (SQ(I) - SX(I)**2 / G(I))
0034        R(I) = R(I) + 1.0 / G(I)
      C  COMPUTE AND TAPE CELL MEAN AND N FOR ALL VARIABLES.
0035        SX(I) = SX(I) / G(I)
0036     45 T(I) = T(I) + G(I)
0037     50 WRITE (2) SX, G
      C  SET PARAMETERS AND DEGREES OF FREEDOM.
0038        TN = NT
0039        AN = NA
0040        BN = NB
0041        CN = NC
0042        D(2) = TN - 1.0
0043        D(3) = AN - 1.0
0044        D(4) = BN - 1.0
0045        D(5) = CN - 1.0
0046        D(6) = D(3) * D(4)
0047        D(7) = D(3) * D(5)
0048        D(8) = D(4) * D(5)
0049        D(9) = D(3) * D(8)
      C  BEGIN ANALYSES OF DEPENDENT VARIABLES.
0050        DO 170 N = 1,NV
0051        IF (ZM(N) .LT. 2.0) GO TO 60
0052        PRINT 55, N
0053     55 FORMAT ( 31H1INSUFFICIENT DATA FOR VARIABLE, I3)
0054        GO TO 170
0055     60 REWIND 2
0056        DO 65 I=1,10
0057        S(I) = 0.0
0058        A(I) = 0.0
0059        B(I) = 0.0
0060        C(I) = 0.0
0061        DO 65 J = 1,10
0062        AB(I,J) = 0.0
0063        AC(I,J) = 0.0
0064     65 BC(I,J) = 0.0
0065        D(1) = T(N) - 1.0
0066        D(10) = T(N) - TN
      C  COMPUTE 1-SCORE-PER-CELL ANALYSIS AND CELL MEANS.
0067        DO 70 I = 1,NA
0068        DO 70 J = 1,NB
0069        DO 70 K = 1,NC
0070        READ (2) SX, G
0071        GN(I,J,K) = G(N)
0072        S(2) = S(2) + SX(N)**2
0073        A(I) = A(I) + SX(N)
0074        B(J) = B(J) + SX(N)
0075        C(K) = C(K) + SX(N)
0076        AB(I,J) = AB(I,J) + SX(N)
0077        AC(I,K) = AC(I,K) + SX(N)
0078        BC(J,K) = BC(J,K) + SX(N)
0079     70 ABC(I,J,K) = SX(N)
0080        DO 80 I = 1,NA
0081        S(3) = S(3) + A(I)**2 / (BN * CN)
0082        A(I) = A(I) / (BN * CN)
0083        DO 75 J = 1,NB
0084        S(6) = S(6) + AB(I,J)**2 / CN
0085     75 AB(I,J) = AB(I,J) / CN
```

```
0086              DO 80 K = 1,NC
0087              S(7) = S(7) + AC(I,K)**2 / BN
0088           80 AC(I,K) = AC(I,K) / BN
0089              DO 85 J = 1,NB
0090              S(4) = S(4) + B(J)**2 / (AN * CN)
0091              B(J) = B(J) / (AN * CN)
0092              DO 85 K = 1,NC
0093              S(8) = S(8) + BC(J,K)**2 / AN
0094           85 BC(J,K) = BC(J,K) / AN
0095              CF = 0.0
0096              DO 90 K = 1,NC
0097              CF = CF + C(K)
0098              S(5) = S(5) + C(K)**2 / (AN * BN)
0099           90 C(K) = C(K) / (AN * BN)
0100              CF = CF * CF / TN
                C  ADJUST SUMS OF SQUARES AND COMPLETE COMPUTATION.
0101              DO 95 I = 2,9
0102           95 S(I) = (S(I) - CF) * TN / R(N)
0103              S(6) = S(6) - S(3) - S(4)
0104              S(7) = S(7) - S(3) - S(5)
0105              S(8) = S(8) - S(4) - S(5)
0106              S(9) = S(2) - S(3) - S(4) - S(5) - S(6) - S(7) - S(8)
0107              S(10) = W(N)
0108              S(1) = S(2) + S(10)
                C  CONVERT SUMS OF SQUARES TO MEAN SQUARES.
0109              DO 100 I = 1,10
0110              IF (D(I) .GT. 0.0) S(I) = S(I) / D(I)
0111           100 CONTINUE
                C  COMPUTE F-RATIOS AND PROBABILITIES.
0112              DO 105 I = 3,9
0113              F(I) = S(I) / S(10)
0114           105 P(I) = PRBF(D(I), D(10), F(I))
                C  PRINT SOURCE TABLE AND RELEVANT CELL MEANS.
0115              PRINT 110, N, (S(I), D(I), I = 1,3), F(3), P(3), S(4), D(4), F(4),
                  1 P(4)
0116           1100FORMAT (///21H ANALYSIS OF VARIABLE, I3 // 7H SOURCE, 16X, 4HM.S.,
                  1 7X, 4HD.F., 4X, 7HF-RATIO, 8X, 1HP // 6H TOTAL, F21.3, F10.0 //
                  2 8H BETWEEN, F19.3, F10.0 / 3X, 1HA, F23.3, F10.0, 2F12.4 /
                  3 3X, 1HB, F23.3, F10.0, 2F12.4)
0117              IF (NC .GT. 1) PRINT 115, S(5), D(5), F(5), P(5)
0118           115 FORMAT (3X, 1HC, F23.3, F10.0, 2F12.4)
0119              PRINT 120, S(6), D(6), F(6), P(6)
0120           120 FORMAT (3X, 2HAB, F22.3, F10.0, 2F12.4)
0121              IF (NC .GT. 1) PRINT 125, (S(I), D(I), F(I), P(I), I = 7,9)
0122           1250FORMAT (3X, 2HAC, F22.3, F10.0, 2F12.4 / 3X, 2HBC, F22.3,
                  1 F10.0, 2F12.4 / 3X, 3HABC, F21.3, F10.0, 2F12.4)
0123              PRINT 130, S(10), D(10)
0124           130 FORMAT (/ 7H WITHIN, F20.3, F10.0 /// 23H MEANS FOR ALL EFFECTS.)
0125              CALL PRTS (A, NA, 1, 4HA MN, ND)
0126              CALL PRTS (B, NB, 1, 4HB MN, ND)
0127              IF (NC .GT. 1) CALL PRTS (C, NC, 1, 4HC MN, ND)
0128              CALL PRTS (AB, NA, NB, 4HA*B , ND)
0129              IF (NC .EQ. 1) GO TO 150
0130              CALL PRTS (AC, NA, NC, 4HA*C , ND)
0131              CALL PRTS (BC, NB, NC, 4HB*C , ND)
0132              PRINT 135
0133           135 FORMAT (// 31H CELL MEANS. BLOCKS = C LEVELS.)
0134              DO 145 K = 1,NC
```

```
0135              DO 140 I = 1,NA
0136              DO 140 J = 1,NB
0137          140 AB(I,J) = ABC(I,J,K)
0138          145 CALL PRTS (AB, NA, NB, 4HAB  , ND)
0139          150 IF (ZM(I) .EQ. 0.0) GO TO 152
                C PRINT CELL N MATRIX.
0140          152 PRINT 155
0141          155 FORMAT (// 38H SUBJECTS PER CELL, BLOCKS = C LEVELS.)
0142              DO 165 K = 1,NC
0143              DO 160 I = 1,NA
0144              DO 160 J = 1,NB
0145          160 AB(I,J) = GN(I,J,K)
0146          165 CALL PRTS (AB, NA, NB, 4HAB  , ND)
0147          170 CONTINUE
0148              GO TO 5
0149              END
```

```
FORTRAN IV G LEVEL  19                  PRTS                DATE = 72193          15/33/49              PAGE 0001

0001                SUBROUTINE PRTS (X, N, M, KH, ND)
                    C
                    C  PRINT A MATRIX OR VECTOR IN 10-COLUMN PARTITIONS.
                    C  X = ARRAY TO BE OUTPUT.
                    C  N = NUMBER OF ROWS (OR ELEMENTS) OF X TO BE PRINTED.
                    C  M = NUMBER OF COLUMNS OF X TO BE PRINTED.
                    C     SET = 1 IF X IS A VECTOR.
                    C  KH = NAME OF ARRAY FOR FORMAT STATEMENT, A HOLLERITH
                    C     CONSTANT IN APPLICATION PROGRAM, MAX. = 6 CHARACTERS.
                    C  ND = NUMBER OF ROWS YOU REMEMBERED TO DIMENSION X IN THE
                    C     CALLING PROGRAM.
                    C
0002                      DIMENSION X(ND, M)
0003                      IF (M .GT. 10) GO TO 20
0004                      PRINT 15
0005                      DO 10 I = 1,N,10
0006                      J = MINO(I + 9, N)
0007                      PRINT 5, (KH, K, K = I,J)
0008                    5 FORMAT (/(4X, 10(I11)))
0009                      DO 10 L = 1, M
0010                   15 FORMAT (/10X, 'COLUMN',I5)
0011                      RETURN
0012                   20 DO 25 K = 1,M,10
0013                      PRINT 15
0014                      L = MINO(K + 9, M)
0015                      PRINT 5, (KH, K, K = K,L)
0016                      DO 25 I = 1,N
0017                      PRINT 30, I, (X(I,J), J = K,L)
0018                   30 FORMAT (I5, 10F11.4)
0019                      RETURN
0020                      END
```

```
0001                SUBROUTINE CCDS (KF, KI, KJ, KK, KL, KM)
                C
                C  READS AND PRINTS TITLE, PARAMETER, AND FORMAT CONTROL CARDS.
                C  KF = VECTOR HOLDING VARIABLE FORMAT ON RETURN.
                C  KI, KJ, KK, KL, KM = PARAMETER VALUES.
                C  KH = TEMPORARY STORAGE WITHIN THIS ROUTINE.
                C  BLANK TITLE CARD YIELDS STOP.
                C
0002                DIMENSION KF(20), KH(20)
0003                READ 5, KH
0004              5 FORMAT (20A4)
0005                IF (KH(1) .EQ. KH(2)) STOP
0006                READ 10, KI, KJ, KK, KL, KM, KF
0007             10 FORMAT (5I5 / 20A4)
0008                PRINT 15, KH, KI, KJ, KK, KL, KM, KF
0009             15FORMAT (1H1, 20A4 // 11H PARAMETERS / 13H COL  1- 5 = , I5 /
                   1 13H COL  6-10 = , I5 / 13H COL 11-15 = , I5 / 13H COL 16-20 = ,
                   2 I5 / 13H COL 21-25 = , I5 // 15H DATA FORMAT = , 20A4)
0010                RETURN
0011                END
```

```
0001              FUNCTION PRBF  (DA, DB, FR)
                  C
                  C  COMPUTES EXACT PROBABILITY OF RANDOM OCCURRENCE OF AN F-RATIO.
                  C  DA = NUMERATOR DEGREES OF FREEDOM.
                  C  DB = DENOMINATOR DEGREES OF FREEDOM.
                  C  FR = F-RATIO TO BE EVALUATED.
                  C  PRBF IS RETURNED AS A DECIMAL-FRACTION PROBABILITY.
                  C
0002                  PRBF = 1.0
0003                  IF (DA * DB * FR .EQ. 0.0) RETURN
0004                  IF (FR .LT. 1.0) GO TO 5
0005                  A = DA
0006                  B = DB
0007                  F = FR
0008                  GO TO 10
0009                5 A = DB
0010                  B = DA
0011                  F = 1.0 / FR
0012               10 AA = 2.0 / (9.0 * A)
0013                  BB = 2.0 / (9.0 * B)
0014                  Z = ABS(((1.0 - BB) * F**0.333333 - 1.0 + AA) / SQRT(BB * F
                     1 **0.666667 + AA))
0015                  IF (B .LT. 4.0) Z = Z * (1.0 + 0.08 * Z**4 / B**3)
0016                  PRBF = 0.5 / (1.0 + Z * (0.196854 + Z * (0.115194 + Z *
                     1 (0.000344 + Z * 0.019527))))**4
0017                  IF (FR .LT. 1.0) PRBF = 1.0 - PRBF
0018                  RETURN
0019                  END
```

VITA

Charles Rodney Albert

Candidate for the Degree of

Doctor of Philosophy

Thesis: SOCIOLOGY OF THE CLASSROOM: AN EXPLORATORY STUDY OF THE CLASSROOM AS A SOCIAL ENVIRONMENT

Major Field: Sociology

Biographical:

Personal Data: Born in Elk City, Oklahoma, October 7, 1945, the son of Charley and Eleanor Albert.

Education: Graduated from Elk City High School, Elk City, Oklahoma, in May, 1963; received the Bachelor of Arts degree from Southwestern State College, Weatherford, Oklahoma, with a major in Social Science Education, in May, 1966; received the Master of Science degree from Oklahoma State University, Stillwater, Oklahoma, with a major in Sociology, in May, 1968; completed the requirements for the Doctor of Philosophy degree at Oklahoma State University, Stillwater, Oklahoma, in May, 1973.

Professional Experience: Graduate Research Assistant, Department of Sociology, Oklahoma State University, 1966-1967; Graduate Teaching Assistant, Department of Sociology, Oklahoma State University, 1967-1968; Instructor of Sociology, Southwestern State College, Weatherford, Oklahoma, 1968-1970; Instructor of Sociology, Part-Time, Department of Sociology, Oklahoma State University, 1970-1972; National Science Foundation Fellowship, Oklahoma State University, 1970-1971; Grant: Special Summer Research Assistantship, Oklahoma State University, 1971; Assistant Professor of Sociology, Central Missouri State University, Warrensburg, Missouri, 1972.