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AN ANALYSIS OF PARTICIPATION AND LEADERSHIP

IN A COLLEGE SEMINAR

by

Hugh J. Phillips

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

UTAH STATE UNIVERSITY

Logan, Utah

1975

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I wish to dedicate this thesis to my father and mother.

Lea, I love and admire you.

Hugh J. Phillips

Table of Contents

	Page
Acknowledgements	ii
List of Tables	v
List of Figures	vi
Abstract	vii
Introduction	1
Review of Literature	4
Group Member Participation	4
Lecture Versus Seminar Discussion	5
Contributions of Social-Psychology	7
Social-Psychological Dimensions of Interaction	8
R. F. Bales Interaction Process Analysis	10
Statement of Problem	14
Method	15
Subjects	15
Apparatus	15
Procedure	16
Results	20
Rate of Response	20
Student-to-Student Paired Interaction	20
Percentage Distribution of Responses	26
Individual Performance	29
Distribution of Responses According to Categories	29
Discussion	33
Rates and Patterns of Verbal Interaction	33
Structural Activities	34
Teacher-Leader Versus Student-Leader	36
Interaction Profile Comparisons	37

Table of Contents (Continued)

	Page
Conclusions and Implications	40
Directions for Future Investigations	41
Bibliography	43
Appendix	46

List of Tables

Table	Page
1. Session Lengths and Responses Per Session Under Conditions of Teacher Leadership and Student Leadership	21
2. Student-to-Student Paired Interactions Under Conditions of Teacher Leadership and Student Leadership	24
3. Percent Distribution of Responses by Teacher Leader and Student Leader in Each Session	26
4. Individual Rankings: Ranked for Teacher-Led and Student-Led Portions of all Sessions According to Averaged Percentages Spoken	30

List of Figures

Figure	Page
1. Rank ordered series of total acts initiated for groups of sizes three to eight (Bales, 1952, pp. 146-159)	14
2. Categories for the interaction process analysis form (Bales, 1970, pp. 91-135)	11
3. Form for interaction scoring sheet (Bales, 1970, p. 93)	18
4. Rates of verbal responding across seven seminar sessions for class members and teacher under two conditions: teacher-led and student-led	22
5. Number of paired student-to-student interactions	23
6. Rate of student-to-student interaction	25
7a. Percent distribution of responses per session per individual	27
7b. Percent distribution of responses per session per individual	28
8. Interaction profile for college discussion seminar	31
9. Interaction profile comparisons	38

Abstract

An Analysis of Participation and Leadership

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by

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Utah State University, 1975

Major Professor: Dr. Richard B. Powers

Department: Psychology

The task of this research was to describe the rates and patterns of verbal behavior emitted in a college seminar, under two leadership conditions, teacher leadership and student leadership. The subjects were 12 college students and the course's associate professor. The data were gathered by using R. F. Bale's interaction process analysis. Results indicate that rates of verbal behavior and numbers and rates of paired student-to-student interaction were higher under student leadership than under teacher leadership. In addition, there was a more equitable distribution of responses under student leadership than under teacher leadership.

(55 pages)

Introduction

The focus of this research was upon the amount and kind of verbal interaction that occurs among the members of university seminar discussion classes. Of particular interest was the effect of the status of the session leader upon the verbal interaction. This research was interested in answering the following questions: (1) what rates and patterns of verbal interaction occur in university seminar discussion classes? and, (2) how are these rates and patterns of verbal interaction affected when the student assumes the role of leader as opposed to when leadership is assumed by the professor?

Adams and Biddle (1970) found that classroom interaction is dominated by the talking of the teacher. A concept which is central to dealing with classroom discussion is that of structure. When a group acquires some stability in the arrangement of verbal interaction among its members, it is said to be structured. A structural finding from their research indicated that for more than 75% of the total time, the classrooms were organized so that only a central communication group existed with teachers as the most frequent emitter and target in that central group. In attempting to understand the interaction in the seminar, we must attempt to understand the structural dimensions of classrooms and the locus of the leader in that structure.

Cohen (1973) has noted that classroom interaction studies must be aimed at determining if the structural activities are taking place as planned and if they are producing the outcomes which they were intended to produce.

For example, a particular seminar may have as an objective for participants, "asking pertinent questions." The target of observational research on interaction should be how the classroom is structured so as to give the seminar participants the maximum chance for active practice at asking questions.

It has long been known, for example (Bradford, 1958), that learning is maximized if the student learner interacts with the teacher. Skinner (1968) notes that participatory learning is more conducive to retention of knowledge than is passive learning. Although student participation should be an integral part of classroom activity, very little has been done to improve student participation in the classroom (Diamond, 1972).

Of interest to this research, was whether there were aspects of the professor-student status system that either facilitate or suppress verbal interaction in the seminar discussion classes under investigation.

Researchers have observed that classrooms contain a number of status systems and that the teacher is intimately involved in the construction and maintenance of some of these status systems. Furthermore, under certain conditions, these status systems have important effects on learning (Backman & Secord, 1968). Ranking in a classroom status system may determine the amount of active involvement in the class, or alternatively, the amount of passive withdrawal from the class. Rank in a status order carries with it specific expectations of reciprocal behavior of other people in the situation (Horton & Hunt, 1972). Of particular interest in this study were the possible

effects of the status of a university professor and the status of university students upon seminar discussion interaction.

In summary, the author is interested in answering the following questions: (1) what rates and patterns of verbal interaction occur in university seminar discussion classes, and, (2) how are these rates and structural patterns of verbal interaction affected when the student assumes the role of leader as opposed to when leadership is assumed by the professor.

Review of Literature

Group Member Participation

Maier (1971) has suggested that an educated person is one who is able to communicate, able to adapt himself to new situations, able to process information, and able to produce ideas rather than merely recall them. These skills are not learned from books, lectures, or from demonstrations, but rather they are shaped through interpersonal interaction. Teaching or training methods which stress participation by group members may facilitate the shaping of these skills.

In recent years, many group methods that stress member participation have been developed. Some specific group methods developed to increase member participation have been things such as: T-groups (Bradford, Gibb, & Benne, 1963); encounter groups (Blank, Gottsegen, & Gottsegen, 1971); organizational-development groups (Maier, 1963); role playing groups (Miller & Burgoon, 1973) and, games (Greene & Sisson, 1961).

Most of the participative techniques developed have been developed for business executive training or for therapeutic reasons. Very little has been done to improve student participation in the classroom setting (Diamond, 1972). Maier (1971) has speculated that increased group interaction would aid college students in graduate seminars in learning, listening, and communication skills and in learning more successful ways of processing and perceiving information.

The lack of verbal interaction in some college seminar classes is quite evident to teachers and students alike. Behaviors required of students for success in lecture classes are quite different from behaviors required of students for success in upper-level undergraduate and graduate level seminars. In lecture classes, written test results are the usual means by which students are assessed. In seminar classes, verbal presentations and verbal interaction in discussions play a more important part in the way in which students are assessed.

Lecture Versus Seminar Discussion

In lectures, the teacher organizes the material in such a way that it will be comprehended or assimilated in roughly the way in which he intends it to be. Communication is usually one-way; the teacher presents the material to relatively passive students.

In seminar discussion groups, the students are presented with some information (for example: readings that are obtained previously by the student and prepared for the session so that they are familiar with the material they have preread), and during the process of discussion, the individually extracted information is verbally related to the group. Verbal interaction (teacher-student; student-teacher; student-student) is the essence of the seminar discussion. The seminar discussion method is used not only to disseminate knowledge, but also to help those who participate to garner and to create knowledge.

In seminar discussions, we learn by doing; the doing is the discussing. Discussing can be conceived as a kind of intellectual co-exploring. In the typical seminar discussion, the individual is expected to critically analyze the assigned readings, express these ideas, and to actively compare one's own conceptions and ideas with those held by others (Abercrombie, 1960). The seminar discussion method of teaching is becoming more and more prevalent and accepted at the college and university level (Canter & Gallatin, 1974).

One of the apparent reasons for the increased use of discussion seminars is that both students (Schmerler, 1974; Canter & Gallatin, 1974) and teachers (Owen, 1974; Canter & Gallatin, 1974) have expressed their preference for seminar discussion methods of distributing and obtaining knowledge as opposed to lecture classes for that purpose. In looking at lecture sessions in which participation is allowed in contrast to no participation in a well-ordered lecture session, students were found to prefer lectures and classes that allowed for student participation (Leonard, 1973).

Objective reasons for the increased use of seminar discussions is that learning is maximized or facilitated if the learner participates by interacting with the teacher (Bradford, 1958) and that active or participatory learning is more conducive to retention of knowledge than is passive learning (Skinner, 1968). Along this same line, Diener (1973) has suggested that interaction, in a sense, allows the student to be placed in a position to teach as well as to be taught. Research findings have demonstrated that an effective way to learn is to be placed in a position to teach (Webb & Grib, 1967). It would appear that

discussion classes will be utilized more and more in the future to disseminate, dissect, and examine information and knowledge.

In summary, the lecture is characterized by a high degree of passivity and a low degree of inter-student and teacher-student communication relative to seminar discussions. The lecture seems to be the most effective method for pure transmission of information; the seminar discussion is more conducive to critical examination of ideas, changes in attitudes, and retention of information and ideas (McKeachie, 1962; Bloom, 1953).

Contributions of Social-Psychology

The applications of the techniques and research findings of social-psychology to the specific problems of interpersonal communication and learning in small groups, in seminar situations, is still very much in its infancy, yet, the study of small group dynamics is of interest to teachers who wish to understand, predict, and control the verbal interaction that occurs in discussion seminars.

As the seminar discussion group can be considered basically like any small group in which the understanding, prediction, and control of interaction is of paramount importance, one is immediately drawn to the small group literature in social-psychology.

The literature in social-psychology makes at least two relevant contributions to our attempts to understand seminar discussion interaction: (1) the social-psychological dimensions of interaction, and, (2) a process of small group methodology for assessing interaction.

Social-Psychological Dimensions of Interaction

The most distinctive feature of human action is its social character. People learn through social interaction with other people. Krech, Crutchfield, and Ballachey (1962) have suggested the "interpersonal behavioral event" as the fundamental unit for social behavior. Given such a definition, both the individual and the group become the locus of attention. Since 1950, there has been a great deal of research on small groups as evidenced by Raven (1969) in his bibliography on small research which contains 5,156 citations.

Of particular interest to the present study is the small group research findings that deal with the concepts of role and status. Status is usually defined as the rank or position of an individual in a group. Role is the behavior expected of one who holds a certain status (Horton & Hunt, 1972). In a sense, status and role can be looked upon as two aspects of the same social phenomenon. Status denotes a set of privileges and duties; a role is the acting out of this set of duties and privileges. A central point to be made about role is that it implies a set of expectations both of one's own behavior and of the reciprocal behavior of other people in the situation. For example, the role of teacher/lecturer implies that the teacher selects and orders the material to be learned and presents it to the students in a formal, oral presentation. The lecturer is considered the only source of the data to be learned. By virtue of this role, the student's role, in turn, is implied to be one of a passive learner, he listens and asks no questions. Insofar as members of a group share common definitions of these roles, their definitions constitute a particular class of norms. These shared definitions of roles organize the behavior and expectations of the

members of the entire group and enable it to function as a whole. The behaviors and anticipations of the members of the entire group are organized by the mutual understanding of the role to be played by each member. It is in this sense that roles are configurations of norms. Thus, the social norms and expectations of others define the appropriate behavior for individuals in various social situations. Each person learns the definitions of appropriate behavior through interaction with others who are significant or important to him or her. Atherton (1972) offers us some insight into expected roles of teachers and students as a function of the teaching method applied. In a lecture, the teacher selects and orders the material to be learned and presents it to the students in a rather formal, oral presentation. The teacher acts as the authority on the subject matter presented and as the only source present for the data to be learned. Student opinion, evaluation, and discussion is not considered an important variable, nor is it solicited, generally speaking. The student is a listener; a passive receiver of the information.

In seminar discussion classes, according to Atherton, the students and the teacher draw upon a common body of predelivered and preread material and share insights, opinions, and evaluations. The student is expected to actively participate in the class discussion and he is free to deal with the material in his own way. The student will share his own views with the teacher and with other students. Traditional methods of teaching have centered around the lecture method and the accompanying teacher-student roles. Most undergraduate and some early graduate classes tend to rely on the lecture method of

presentation. The beginning graduate student has a long history of being shaped into a passive recipient of lectured information and time honored structured classes and situations.

R. F. Bales Interaction Process Analysis

Certainly, there is no more obvious an approach to research seminar discussion interaction than direct observation of the behaviors of the professor and students as they interact. In reviewing the small group research literature in search of a non-participant scheme for assessing interaction, one is immediately aware of the contribution of R. F. Bales. Although his original intention was to provide a method for analyzing the behavior of small work groups, the categories he uses seem appropriate to describe the behavior of a teacher and students in a seminar discussion setting. The recording is done on-the-spot; that is, by a non-participating observer in the actual situation.

Bales has provided a method called "interaction process analysis" for observing communication in a systematic manner (Bales, 1970). The heart of the method is a system of categories which is presented in Figure 2. The system is used to classify the interaction that takes place in a group.

In attempting to understand the relationship between status, communication structure, and interaction in small groups, some of the research by Bales and others will be reviewed. The communication structure is related in certain ways to status. When communicating, it is the tendency of a person to direct his communications upward in the status hierarchies (Kelly, 1951).

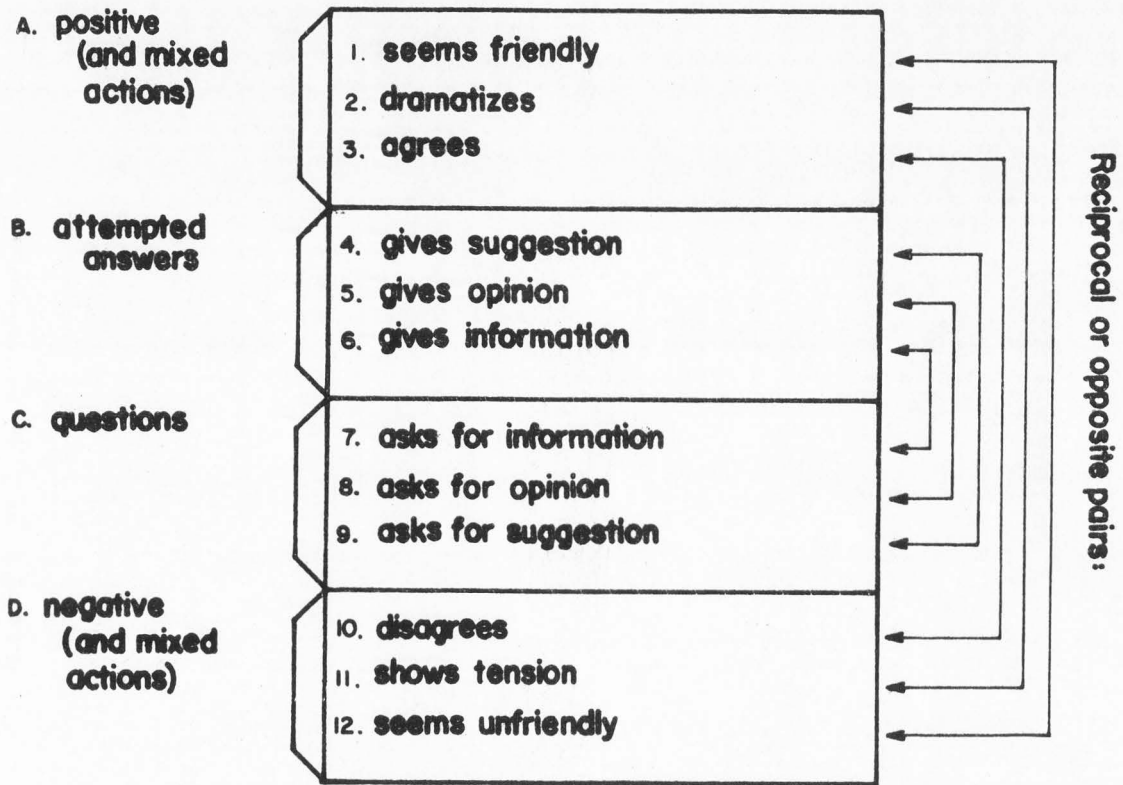


Figure 2 . Categories for the interaction process analysis form (Bales, 1970, pp. 91-135).

A second tendency is to communicate with persons who are of equal status (Cohen, 1958).

A commonplace observation is that some people talk more than others. Moreover, they address themselves more to some people than they do to others. Bales (1952) combined observations made on a number of groups in a variety of face-to-face situations and put them into one matrix, where participants were ranked according to the total number of communications received, the number of communications they directed toward other individuals, and the number of communications they addressed to the group as a whole. Not only did high initiators differ from others in the volume and direction of communications, but the content of their communications also differed. Those who most frequently initiated acts gave out more information and opinions to other persons than they received, while the remarks of the low communicators more frequently fell in the categories of agreement and requests for information.

Although we have a description of verbal communication in various groups, an examination of some of the factors that affect the verbal communication must be made.

Group size is related to the communication structure (Thomas & Fink, 1963). Bales and Borgatta (1965) have found that as the size of the group increases, the probability of a clear cut differentiation between leaders and followers increases. In other words, as the size of the group increases, the most active communicator becomes increasingly active relative to the other group members. A kind of law of diminishing returns occurs by simply

increasing the size of the group. This manifests in an increasingly close-cut distinction between leader(s) and followers, with the former taking over a proportionally larger share of the interaction and the latter directing a greater share of their actions to the leaders. Another important finding is that as the size of the group increases, the number of persons who participate at absolutely low rates will also be increased.

As to distribution of responses, Bales (1952) found a more unequal distribution of verbal responses in larger groups. Using Bales' categories (see Figure 2), these researchers observed interaction in small groups ranging in size from three to eight members. As group size increased, there was an increase in the relative discrepancy between the percentage of participation for the person ranked first and that for the person ranked second. As size increases, there is also an accompanying reduction in the difference between the percentage of participation for the person ranked second and for all those individuals with less participation.

n=persons in group S= Sessions N= Hundreds of acts

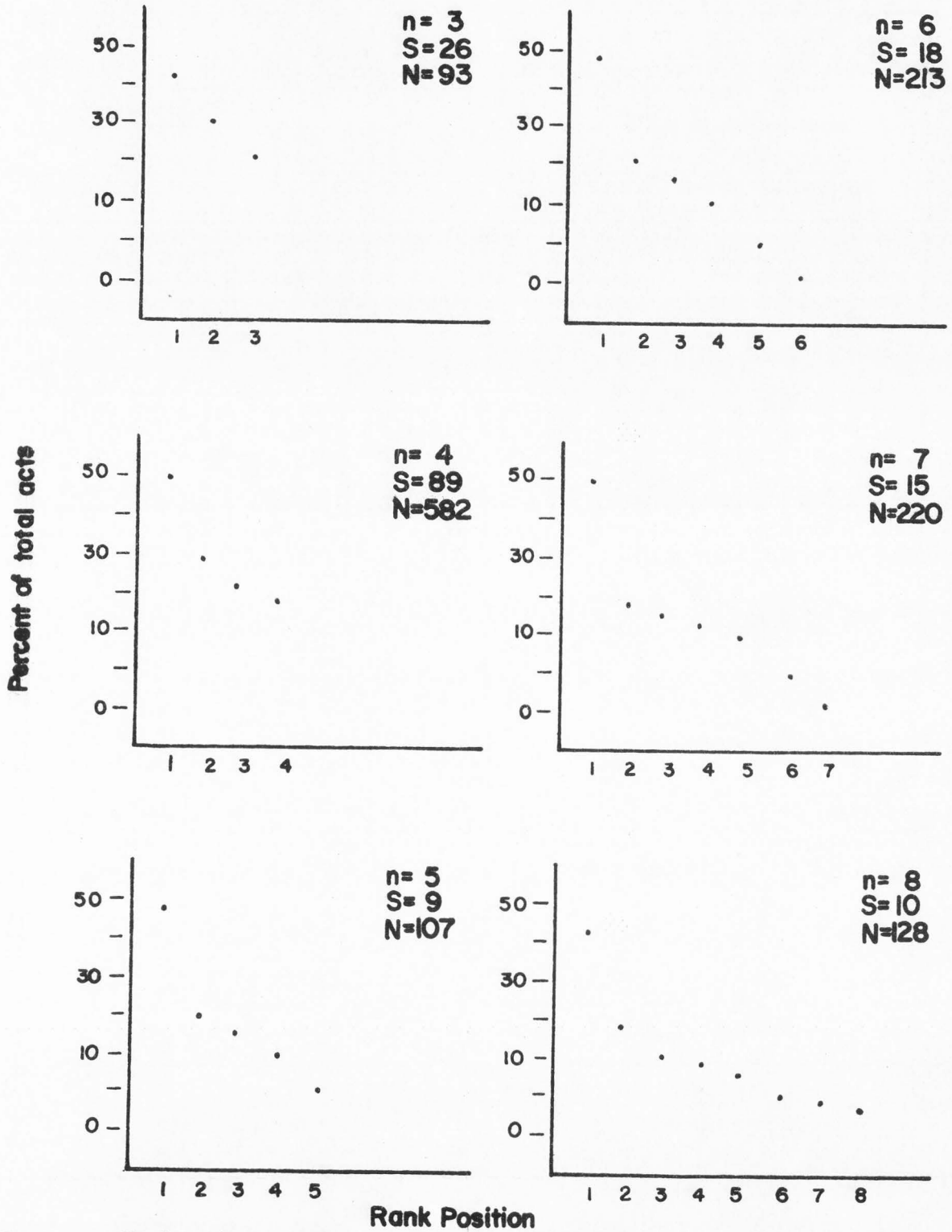


Figure 1. Rank ordered series of total acts initiated for groups of sizes three to eight. Taken from R.F.Bales, 1952, pp. 146-159

Statement of Problem

The apparent lack of verbal interaction among some participants in college seminars is evident to teachers and to students alike. In order to empirically establish the rates and patterns of verbal interaction that actually do occur in college seminars, a Balesian analysis of a college seminar was performed. A manipulation of leadership was also attempted so that each discussion session consisted of a teacher-led discussion portion and a student-led discussion portion. By manipulating leadership, while continuously recording the verbal interaction, an analysis of the effects of these leadership changes upon interaction was made possible.

Method

Subjects

The subjects (Ss) were 12 Utah State upper-level undergraduate and graduate students, and the seminar course instructor, of associate professor rank. Each of the subjects participated in class discussions on assigned readings in behavior modification. Of the 12 participating subjects, six were females, of whom two were seniors, two were master's candidates, and two were doctoral candidates, and seven were males, of whom two were master's candidates, and five were doctoral candidates.

Apparatus

R. F. Bale's (1970) Interaction Process Analysis scoring sheet (Figure 2) was used to record all verbal behavior emitted by the seminar participants. Interaction Process Analysis is designed for on-the-spot concurrent recording of behavior, with subsequent ratings taken directly from the scoring sheet. In addition to the on-the-spot recording of verbal behavior, cassette tape recordings (using a Soundesign, Model 2619, cassette tape recorder) were made of each session and two independent raters analyzed verbal interaction from the tape recordings. This two-step method (on-the-spot recording and re-scoring from a tape recording) has usually led to higher reliability than either method by itself (Jahoda, Deutch, & Cook, 1951; Lindsey, 1954).

Procedure

There were seven seminar sessions running in length from 1 hour and 25 minutes to 2 hours and 40 minutes. The relationships of the participants in seminar social interaction were examined from two points of view: (1) process and (2) structure.

When the focus was on process, the act-by-act sequence of verbal events was analyzed as it unfolded over time. Consequently, this part of the research was longitudinal in approach.

When the focus was on structure, the analysis was on the relationships among the participants of the group. Consequently, a cross-sectional approach was also taken. For example, this structural analysis would give us an indication of the paired student-to-student interactions occurring at any point in the session.

The work required of the experimenter was to observe, score, and rate group and individual participation using the Interaction Process Analysis form (consisting of 12 categories) as presented by R. F. Bales (1970) (see Figure 2).

The experimenter (a non-participant observer) was thoroughly familiar with the categories, definitions, and procedures of scoring Bales's system (Bales, 1950; 1970). Experimenter spent 3 months rating a similar seminar series the quarter prior to the present study, in which he used the 12 categories of the Interaction Process Analysis form (see Figure 2).

For the present research, all participants' names were memorized and assigned their appropriate initials for purposes of scoring. When each

seminar interaction began, the tape recording was started, and the experimenter scored the ongoing verbal behavior into separate acts, each of which was recorded by entering the appropriate identification initials of the subject speaking. This was followed by the initials of the subject spoken to, and placed under the category which best described the act. The scoring sheet used, a prepared form on which continuous recording of sequenced acts are recorded (see Figure 3), was that prepared by Bales (Bales, 1970).

1. Seems friendly																				
2. Dramatizes																				
3. Agrees																				
4. Gives suggestions																				
5. Gives opinion																				
6. Gives information																				
7. Asks for information																				
8. Asks for opinion																				
9. Asks for suggestions																				
10. Disagrees																				
11. Shows tension																				
12. Seems unfriendly																				

Figure 3. Form for interaction scoring sheet (Bales, 1970, p. 93).

An act was defined as a single utterance equivalent to a single simple sentence or any reply to the same. Each act was scored in three ways: (1) the originator of the act, (2) the nature of the act (as defined by the category definitions), and, (3) the individual the act was directed toward.

The scoring sheet allows for a sequence of acts so that in the end the E has a record of who said what, to whom, when, and what the reaction was. As stated in the method section previously, all of the verbal interaction in each session was recorded on-the-spot through non-participant observation. In addition, cassette tape recordings of each session were made. From these tape recordings, two independent ratings of each session were obtained. Raters independently scored the occasion of each distinct act (a separate emitted response) and the appropriate category into which the response fell. A reliability of both number of acts and the categories into which they fell was obtained. For the seven sessions, inter-rater reliability ranged from 84% to 96% with a mean score of 90.85%.

The manipulation of leadership was accomplished through the assignment of student leaders by the professor. Prospective student leaders were not preassigned but rather spontaneously assigned during the course of the session. The different leadership portions of each session were of variable length as the assigned readings, around which the sessions were structured, were of variable length. The professor assigned leadership to a particular student by saying something similar to, "Mr./Ms. _____, would you please lead the class discussion over the _____ article. The class is now yours."

Results

Rate of Response

Calculations from Table 1, of the rate of response (Rs/time) indicate that the overall rate for teacher-led sessions was 2.85 responses per minute while the overall rate for student-led sessions was 6.50 responses per minute. Figure 4 shows the differences between rates of response under teacher leadership and those under student leadership. There is a noticeable general increase in rate of response, across sessions, under student leadership as contrasted with a relatively constant low rate of response, across sessions, under teacher leadership. The session with the highest rate of response was 7.98 responses per minute, which occurred in the student-led portion of session VI. The session with the lowest rate of responding was 1.77 responses per minute, which occurred in the teacher-led portion of session IV. In the teacher-led portions, the rates ranged from a high of 3.39 to a low of 1.77. In the student-led portions, the rates ranged from a high of 7.98 to a low of 3.65.

Student-to-Student Paired Interaction

Table 2 and Figure 5 show the number of paired student-to-student interactions for each portion of each session. Student-to-student paired interactions were those verbal interactions which occurred between any one student and any other student in which an initiation and a response occurred, in other words, a two-way communication between two students. Only the initial pairings were recorded here. In all of the sessions (except session III, where

Table 1
 Session Lengths and Responses Per Session Under Conditions of
 Teacher Leadership and Student Leadership

Session	Total Time of Session	Total Responses	Teacher-Led Time	Teacher-Led Responses	Student-Led Time	Student-Led Responses
I	2 hrs. 25 min.	369	2 hrs. 5 min.	296	20 min.	73
II	2 hrs. 20 min.	493	1 hr. 50 min.	373	30 min.	120
III	2 hrs. 40 min.	527	2 hrs. 40 min.	527	None	None
IV	2 hrs. 20 min.	507	1 hr. 15 min.	133	1 hr. 5 min.	374
V	2 hrs. 5 min.	422	1 hr. 45 min.	264	20 min.	158
VI	1 hr. 55 min.	817	30 min.	139	1 hr. 25 min.	678
VII	1 hr. 25 min.	482	25 min.	64	1 hr.	418
Totals	15 hrs. 10 min.	3,617	10 hrs. 30 min.	1,796	4 hrs. 40 min.	1,821

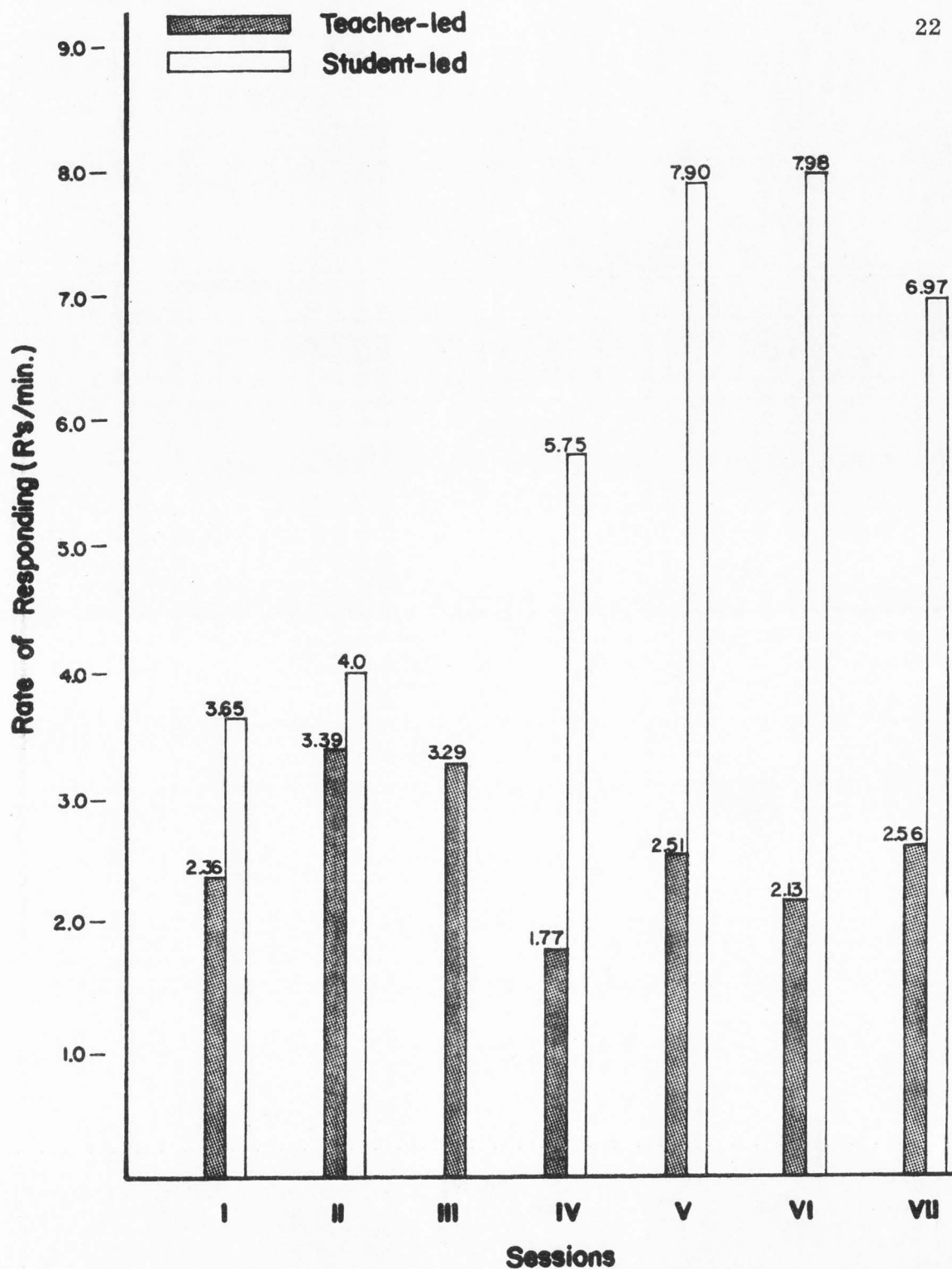


Figure 4. Rates of verbal responding across seven seminar sessions for class members and teacher under two conditions: teacher-led and student-led. The number above each bar is the rate of response for that portion of each session.

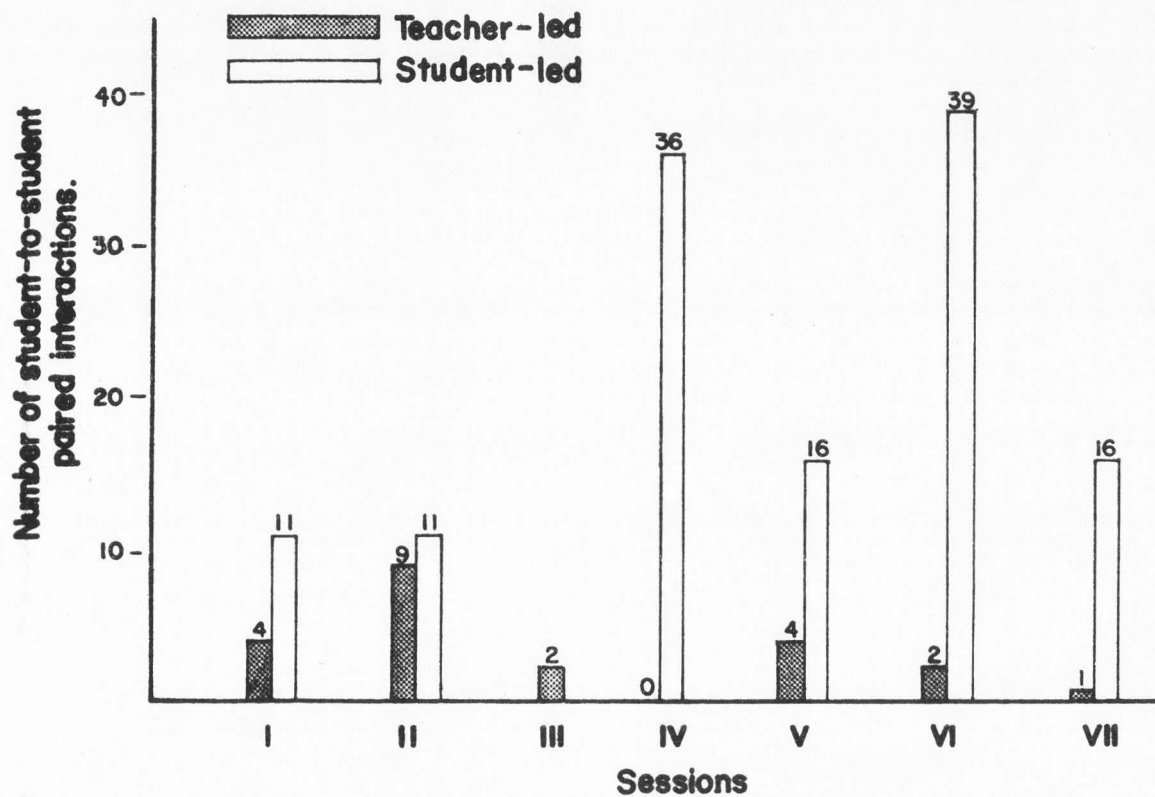


Figure 5. Number of paired student-to-student interactions. The numbers over each bar indicate the number of paired student-to-student interactions in both the teacher-led and in the student-led portions of each session.

Table 2
 Student-to-Student Paired Interactions Under
 Conditions of Teacher Leadership and
 Student Leadership

Session	No. of S/S Teacher-Led	Rate of S/S Teacher-Led	No. of S/S Student-Led	Rate of S/S Student-Led
I	4	.03	11	.55
II	9	.08	11	.37
III	2	.01	(No Student Leadership)	
IV	0	.00	36	.55
V	4	.04	16	.80
VI	2	.07	39	.46
VII	1	.04	16	.27
Total	22	.04	129	.46

there was no student leadership portion) there are higher numbers of student-to-student paired interactions under student leadership than under teacher leadership.

When controlling for time (Figure 6), the rates of student-to-student paired interactions are higher under student leadership than under teacher leadership. When looking at total number of student-to-student paired interactions and total time for all sessions, we see that under teacher leadership

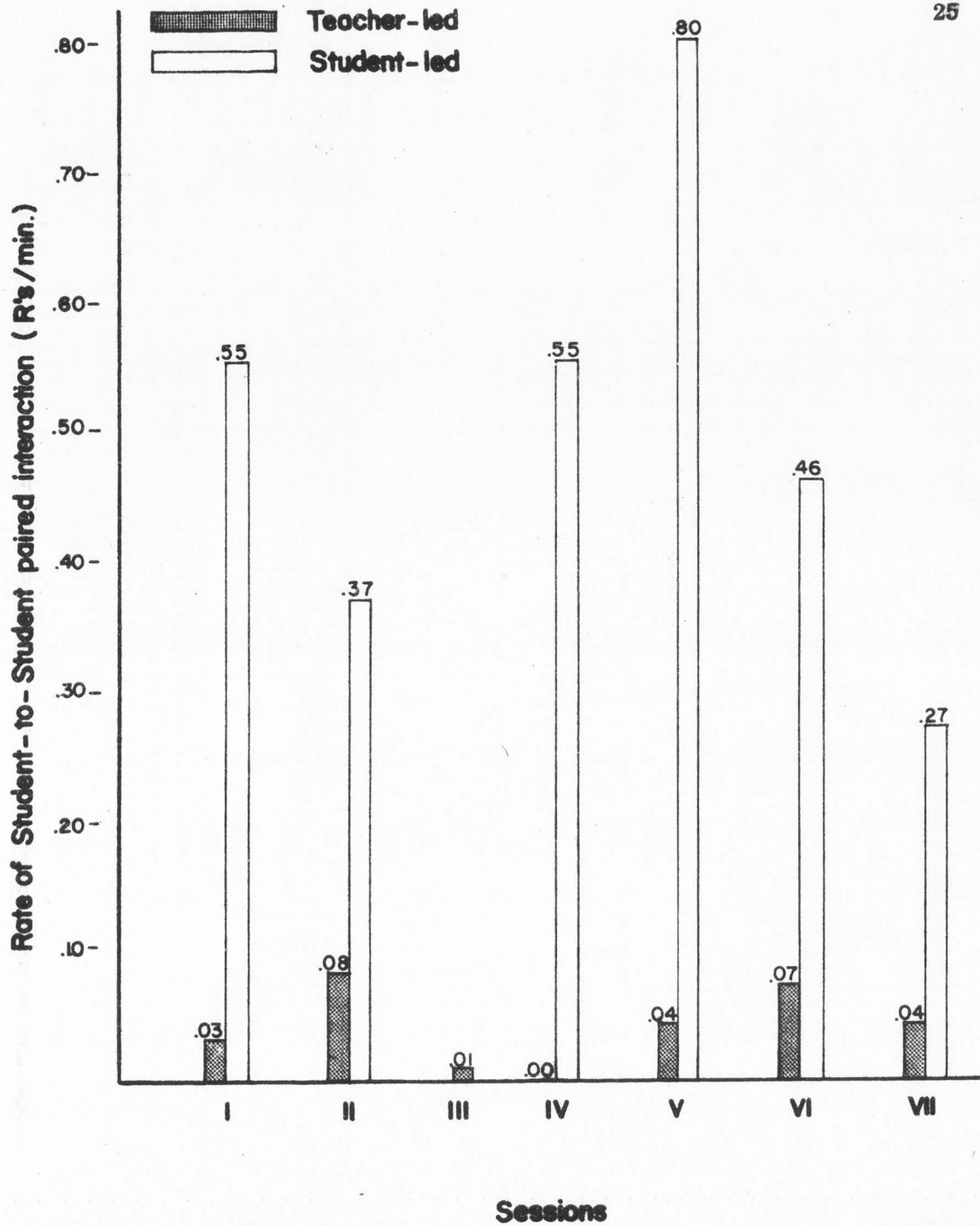


Figure 6. Rate of student-to-student interaction. The numbers over each bar indicate the rate of paired student-to-student interaction in both the teacher-led and the student-led portions of each session.

there were 22 paired student-to-student interactions in 10 hours and 30 minutes for a rate of .04. The total number of student-to-student paired interactions under student leadership was 129 interactions in a total of 4 hours and 40 minutes for a rate of .41.

Percentage Distribution of Responses

Table 3 shows the percentage of total responses emitted by the teacher leader and student leader by session. Figure 7 shows the percentage of responses emitted by leaders and students in each session.

Table 3
Percent Distribution of Responses by Teacher Leader and
Student Leader in Each Session

Session	Percent Rs by Teacher Leader	Percent Rs by Student Leader
I	60%	29%
II	50%	38%
III	53%	(No student-led portion)
IV	62%	26%
V	61%	51%
VI	64%	28%
VII	69%	27%
Averages	60%	33%



FIGURE 7a: percent distribution of R's per session per individual

There are two histograms per session except for session III, with the left one showing the teacher-led session and the right one showing the student-led session.

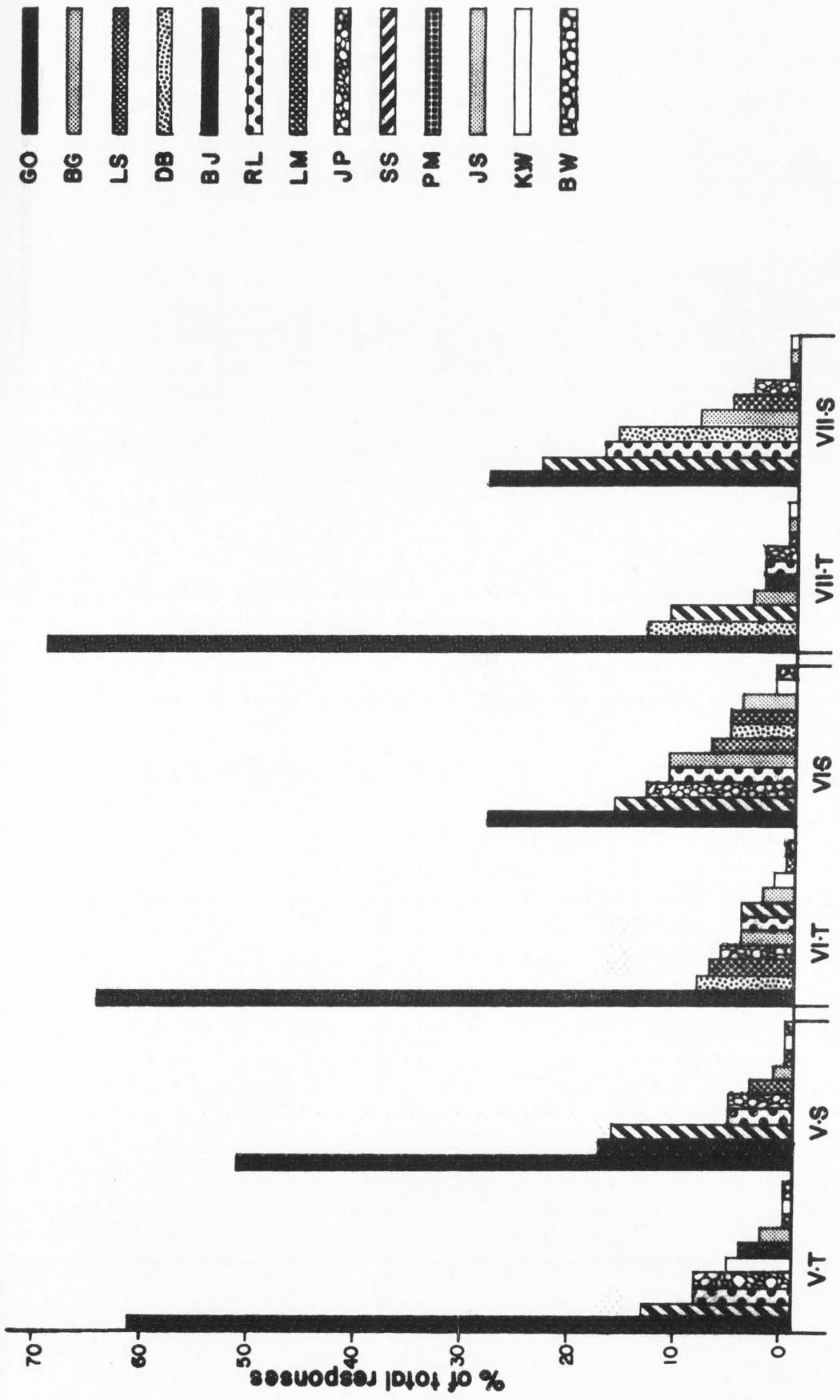


FIGURE 7b. percent distribution of R's per session per individual

The teacher leader accounted for a higher percentage of the responses than did the student leader, the average percentages being 60% and 33%, respectively. As a result, the group members were left with 40% to be distributed under teacher leadership, and 67% left to be distributed among the members of the student-led group. In the teacher-led portions, the percentages emitted by the leader ranged from a high of 69% to a low of 50%. In the student-led portions, the percentages emitted by the leader ranged from a high of 51% to a low of 26%.

Individual Performance

An examination of Figure 7 and of Table 4 indicates that for seven of the 12 subjects, the highest mean percent of responses occurred for each of these seven students in the student-led portions of the seminar sessions. One subject had an equal percent of responses in both the teacher-led and the student-led portions of the seminar discussion sessions. The teacher of the seminar, GO, had his highest percent of responses in the teacher-led portion of each seminar session (see Table 4).

Distribution of Responses According to Categories

Figure 8 represents the distribution of responses according to Bale's 12 categories for all seven seminar sessions totaled. The highest number of responses (1,857 responses/51%) occurred in the category of "gives information." The second most used category was "shows agreement," with a total of 692 responses which accounted for 19% of the total responses given. The category of "gives opinion" received 533 responses which accounted for 15%

Table 4
 Individual Rankings: Ranked for Teacher-Led and
 Student-Led Portions of all Sessions According
 to Averaged Percentages Spoken

Subjects	Teacher-Led	Rank	Student-Led	Rank
GO	60% ^a	1	24%	1
DB	10	2	16 ^a	3
JP	6	3.5	10 ^a	5.5
SS	6	3.5	18 ^a	2
RL	5	4.5	10 ^a	5.5
BG	5	4.5	7 ^a	6
LS	4	5.5	4	7.5
BJ	4	5.5	12 ^a	4
LM	3	6	4 ^a	7.5
PM	2 ^a	7	1	8
KW	1 ^a	8	0	9.5
NW	0	9	0	9.5

^aHigher of the two percentages.

Note: The percentages above were arrived at by totalling the percentages for all individuals in all sessions and computing an average. Before making the above tabulations, the individuals' combined percentages equaled 100% in each session. However, when the percentages for each individual, for each session, were totaled and averaged, the percentages arrived at above totaled more than 100%.

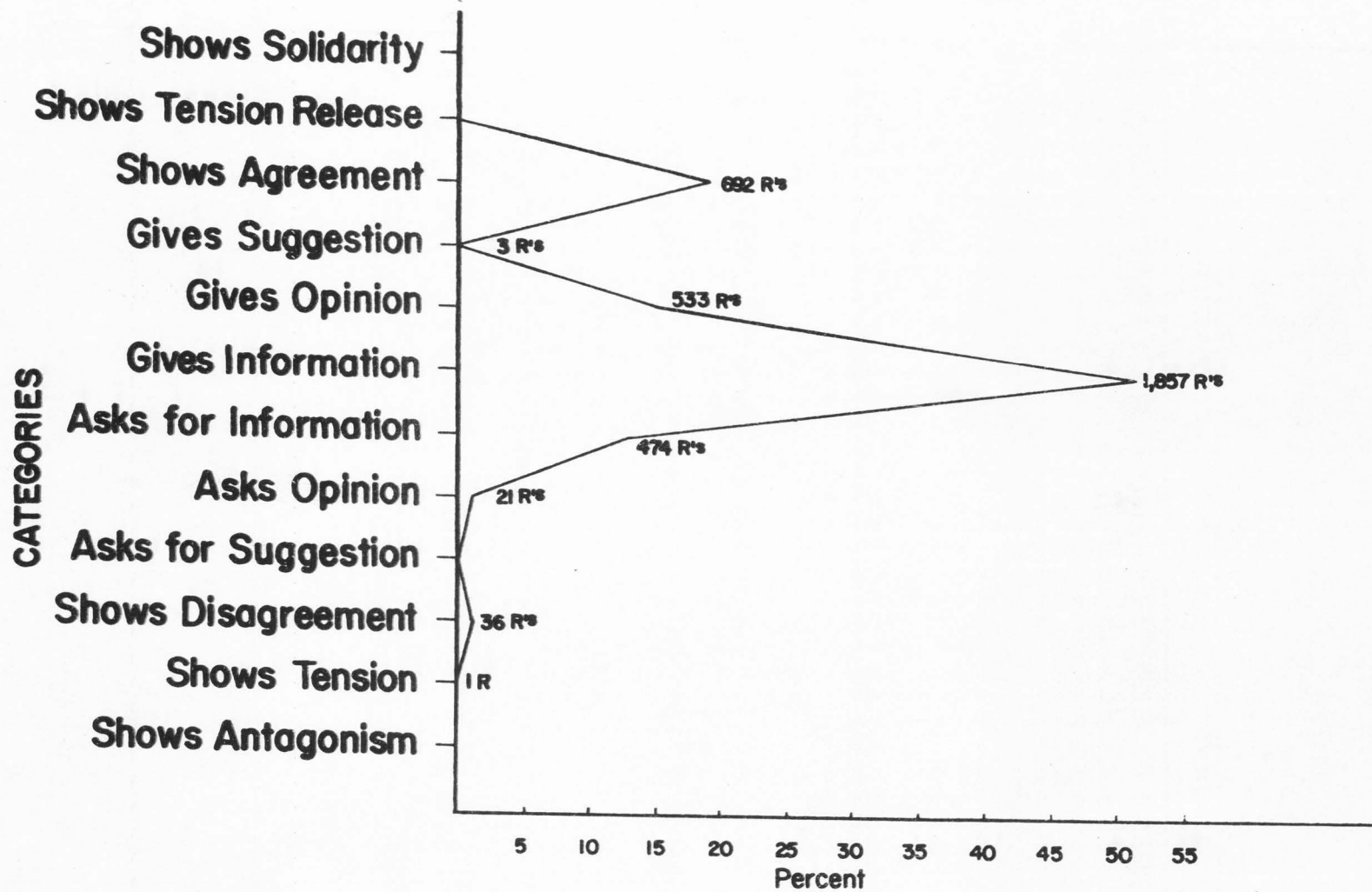


FIGURE 8. Interaction profile for college discussion seminar. Percent distribution of responding according to categories for all sessions.

of the total number of responses made. Closely following the "gives opinion" category was the "asks for information" category which showed 474 responses and which comprised 13% of the total number of responses. These four categories, i. e., "gives information," "shows agreement," "gives opinion," and "asks for information," accounts for 2,551 responses out of a total of 2,612 responses, or 98% of the total responses made and recorded during the seminar discussion sessions observed and studied. The remaining 61 responses were distributed among the categories of "shows disagreement," 36 responses (1% of the total responses), "asks for opinion," 21 responses (1% of total responses recorded), "gives suggestion," three responses (0% of total responses given), and "shows tension," one response which did not equal 1% of the total responses studied. The remaining categories received no responses.

Discussion

The task of this research was two-fold. First, the author was interested in examining the rates and patterns of verbal interaction that occurred in university seminar discussion classes. And, secondly, he was interested in whether these rates and the structural patterns of verbal interaction were affected when the student assumed the role of leader as opposed to leadership assumed by the professor. As the task was centered around the above two items, the discussion will center around these particular features of the study. In addition, a comparison of this research's interaction profile and an interaction profile of another small discussion group (Bales, 1955) will be made.

Rates and Patterns of Verbal Interaction

An examination of the rate of response indicates that the student-led portions of each seminar session were more conducive, or alternately, less repressive to the rate of response than were the teacher-led portions of each discussion session. The overall rate of response for the student-led portion was 6.50 responses per minute as compared to only 2.85 responses per minute during the teacher-led portions of the sessions. A comparison of these rates show that the rate of response for participants during the student-led portion of each session was an average of two times higher than the rate of response during teacher leadership. From this examination, it appears that the student

leadership was either more conducive to eliciting student responses, or that teacher-led seminar sessions were inhibitory

An examination into the patterns of verbal interaction indicates that the student-led portions of each seminar discussion session were more conducive to student-to-student paired interaction than was the teacher-led portions of the same or similar seminar discussions. It should be noted that when student-to-student interaction was not occurring, what occurred was teacher-student interaction. In most teacher-student interaction, the leader usually assumes a lecture oriented role. Bales (1952) noted in the construction of a who-to-whom matrix, that each person receives about half as many responses as he initiates. When one assumes the role of lecturer, he may suppress verbal interaction, which is important in a seminar situation. Seminar situations should be characterized by as much interaction as possible, especially interaction involving student-to-student, which would help maximize learning opportunities and experiences (Bradford, 1958; Skinner, 1968).

High rates of verbal responding and an increased number of student-to-student paired interaction lend themselves to involvement of the student in the learning process. This situation has been deemed advantageous by educators (Skinner, 1968; Diener, 1973).

Structural Activities

Cohen (1973) has noted that classroom interaction studies must be aimed at determining if the structural activities are taking place as planned

and if they are producing the outcomes which they were intended to produce. This series of seminars, as do most seminars, had as its goal, the critical discussion of a series of pre-assigned readings. The syllabus stated that verbal interaction, in the form of questioning, answering, and embellishing the comments of others, would be expected of the participants. As mentioned in Section V and VI of the results, and as gleaned from Tables 3 and 4, and from Figure 7, not all individuals participated as expected. In fact, under teacher leadership conditions, 10 of the students participated (on the average, overall sessions) less than 7% of the time and one person did not participate at all. Under student leadership conditions, five students participated (on the average, overall sessions) less than 5% of the time and two people did not participate at all.

During teacher leadership portions of the sessions, the teacher dominated verbal interchange to the average of 60% of all responses emitted. It is apparent that when the leader makes 60% of the total responses only 40% of the responses remain to be distributed among the other 10 actively participating subjects. An effective way to reduce this dominance by the leader appears to be to change from teacher leadership to student leadership. When this was done, the student leader took, on an average, only 33% of the total responses which left a total of 67% of the responses to be distributed among the remaining participants.

Although changing leadership from teacher to student helped increase overall participation and student-to-student interaction, there were still three

students who responded less than 3% of the total; one who responded only 1% of the total number of responses recorded; and two who never responded at all. It is clear that although changing leadership orientation helps in increasing some participation, the leader's behavior must be directed to certain individuals in order to elicit some response or verbalization from them.

One of the features of changing leadership from teacher oriented and controlled to student oriented and controlled was a physical one. The teacher, in this series of seminars, tended to assume a position in the front of the classroom in the traditional lecture position and location. When the student assumed leadership, he/she remained physically close to the group. This close physical proximity of the student-teacher was probably conducive to increased interaction among the participants in the seminar discussion session (Batchelor & Goethals, 1972).

Teacher-Leader Versus Student-Leader

Leadership assumed by students, as opposed to leadership assumed by the professor, was conducive to producing: (1) higher rates of verbal behavior; (2) higher numbers of and rates of paired student-to-student interactions; and, (3) a more equitable distribution of responses among participants.

It is difficult to determine whether the three results mentioned above are products of the student-leader being facilitative or are a result of the

teacher-leader being repressive. If one considers the role-history of students and teachers in the academic setting, particularly in lecture oriented classes, one can hypothesize that the traditional role of both teacher and student interferes with seminar type discussion and interaction. It could be, as evidenced by some of the data, that the teacher has a difficult time rejecting his lecture oriented role, and that students, as well, have a difficult time rejecting the role of teacher-dominated, passive learner, and accepting the role of participating, active learner.

Interaction Profile Comparisons

In Figures 8 and 9, Bales refers to the first three categories, "show solidarity," "shows tension release," and "shows agreement," all positive reactions, which coupled with the three negative reactions, "shows disagreement," "shows tension," and "shows antagonism," as constituting social-emotional behavior. The six categories describing task behavior, also are grouped in sets of three, "gives suggestion," "gives opinion," and "gives information," all problem-solving attempts, and, "asks for information," "asks for opinion," and "asks for suggestion," all questions.

An analysis of the typical actions and reactions of a small task-oriented group without a formal leader (Bales, 1955) as shown in Figure 9, shows that about one-half (56%) of the acts during a group session are problem-solving attempts, whereas the remaining 44% are distributed among positive reactions, negative reactions, and questions.

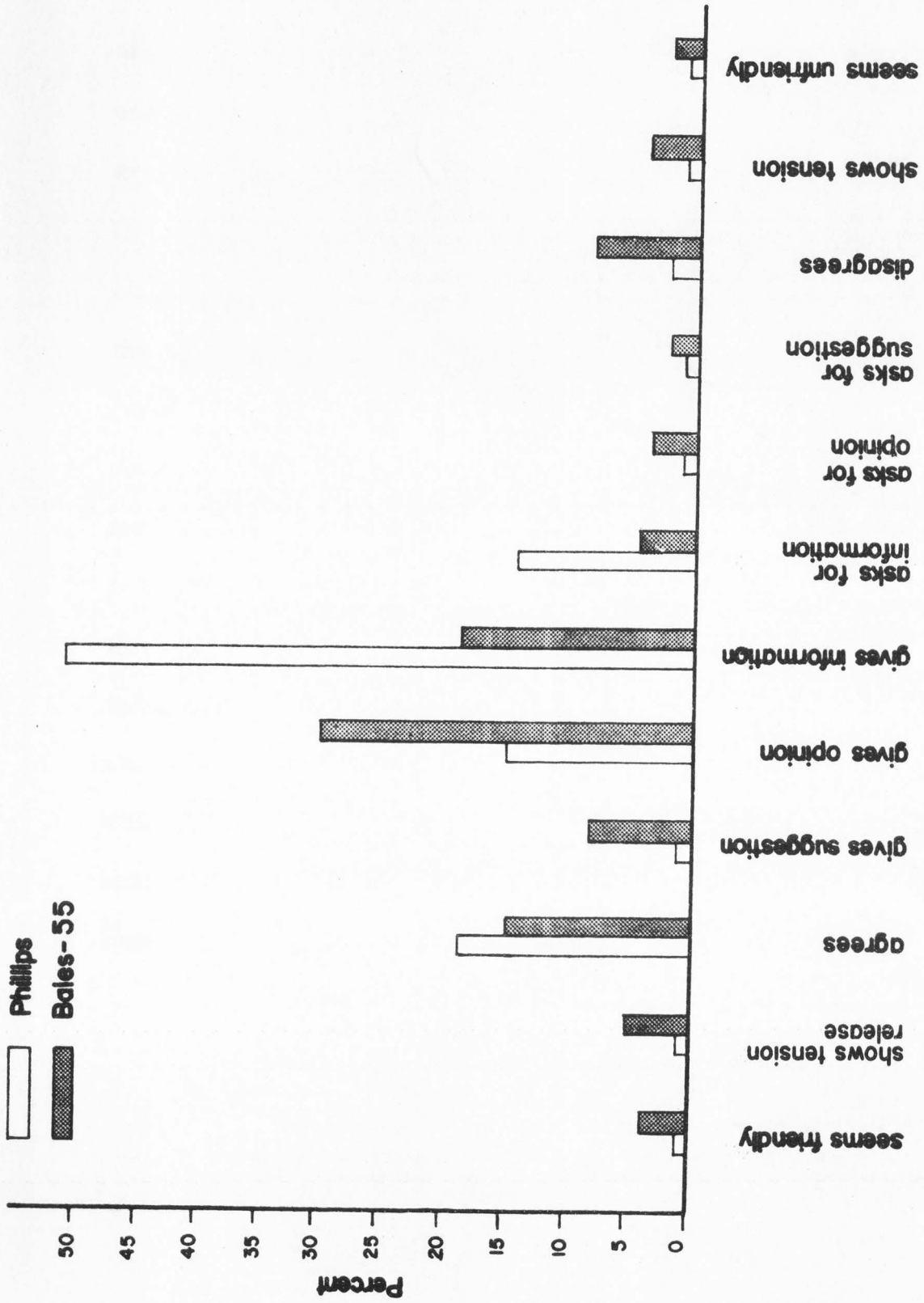


Figure 9. Interaction profile comparisons.

An analysis of the actions and reactions in our research on a series of university seminar discussions, as shown in Figure 8, indicates that over one-half (65%) of the acts are problem-solving, whereas the remaining 34% are distributed mostly among positive reactions and questions.

A close examination of the two figures (Figures 8 and 9), shows a striking difference between the two. For Figure 8 on Bales' profile (1955), the category with the most acts is "gives opinion," with 30% of the acts, and "gives information," with 18% of the acts. Referring to Figure 9, the profile obtained from this research, the category with the most acts is "gives information," with 51% of the acts, and "gives opinion," with only 15% of the acts. In the category of "gives opinion," one deals with evaluation and analysis through the expression of feelings and wishes. In the category of "gives information," one deals with orientation toward the material and repeats, clarifies, and confirms the material being reviewed or critiqued. These differences in the distribution of acts would indicate that in this series of seminars, the students were more oriented toward objective analysis of material than toward subjective analysis.

Conclusions and Implications

As noted earlier, Maier (1971) has suggested that an educated person is one who is able to communicate, able to adapt himself to new situations, able to process information, and able to produce ideas rather than merely recall them. These skills are not learned from books, lectures, or from demonstrations, but rather are shaped through interpersonal interaction.

It is apparent from the research results contained in this thesis, that if one wants to increase interpersonal interaction in a seminar, as evidenced through relatively high rates of verbal responding, relatively high numbers and rates of paired student-to-student interactions, and a relatively equitable distribution of responding, one could take advantage of student leadership. The method of using student leaders in seminar discussions is advantageous in shaping the skills mentioned by Maier (1971).

Directions for Future Investigations

Future research should be oriented toward examining the relative effects of the following upon college seminar discussions:

1. Seating arrangement; as evidenced by research done by Batchelor and Goethals (1972) the arrangement of chairs in groups serve to either facilitate or suppress interpersonal communication. A study by Adams and Biddle (1970) is of particular interest here. They found that classroom interaction is dominated by the talking of the teacher. This finding is not unique as evidenced by citation in this thesis. Much more profound is their finding that for more than 75 percent of the total time, the classrooms were organized so that only a central communication group existed with the teacher at the most frequent emitter and target in the group. Of the occasion when there was a student emitter, that student was located in three seats, one behind the other down the center of the room 63% of the time. Adams and Biddle state that if this center area is extended to include seats at the front block of desks immediately on either side of the strip, so there is a T-shaped zone of six seats, virtually all of the student emitters are accounted for.

2. Numbers of seminars participated in by students and the possible assessment of reinforcement and/or punishment histories of verbalization in these past seminars. It should be possible to access the histories through the administration of questionnaires. It would be essential to know the histories

of participants before any future investigation as future participation would be a function of past reinforcement or punishment for verbalizing in seminars.

Bibliography

- Abercrombie, M. L. J. The anatomy of judgement. London: Hutchinson, 1960.
- Adams, R. S., & Biddle, B. J. Realities of teaching: Explorations with videotape. New York: Holt, Rinehart, & Winston, 1970.
- Atherton, C. R. Lecture, discussion, and independent study: Instructional methods revisited. The Journal of Experimental Education, 1972, 40, 4.
- Bales, R. F. Interaction process analysis: a method for the study of small groups. Reading, Massachusetts: Addison-Wesley Publishing Co., Inc., 1950.
- Bales, R. F. Personality and interpersonal behavior. New York: Holt, Rinehart, & Winston, 1970.
- Bales, R. F. Some uniformities of behavior in small social systems. In Theodore M. Swanson, Newcomb, and Eugene L. Hartley (Eds.). Readings in social psychology. New York: Holt, Rinehart, & Winston, Inc., 1952.
- Bales, R. F., & Borgatta, E. F. Size of group as a factor in the interaction profile. In A. P. Hare, E. F. Borgatta, & R. F. Bales (Eds.). Small groups. New York: Alfred A. Knopf, 1965.
- Bales, R. F. How people interact in conferences. Scientific American, 1955, 192, 3, 31-35.
- Batchelor, J., & Goethals, G. Spatial arrangements in freely formed groups. Sociometry, 1972, 35, 270-279.
- Blank, H., Gottsegen, G. B., & Gottsegen, M. G. (Eds.). Confrontation. New York: Macmillan Co., 1971.
- Bloom, B. S. Thought processes in lectures and discussions. Journal of General Education, 1953, 7, 1960-69.
- Bradford, L. Group forces affecting learning. In Kemp L. Grafton (Ed.). Perspectives on group process. Boston: Houghton, Mifflin, Co., 1964.

- Bradford, L. P., Gibb, J. R., & Benne, K. D. T-group theory and laboratory method. New York: Wiley, 1964.
- Canter, F., & Gallatin, J. Lecture versus discussion as related to students' personality factors. Improving College and University Teaching, 1974, 22, 111-112.
- Cohen, A. R. Upward communication in experimentally created hierarchies. Human Relations, 1958, 11, 41-53.
- Diamond, M. J. Psychology in action. American Psychologist, 1972, 27, 978-981.
- Greene, Jr., & Sisson, R. L. Dynamic management decision games. New York: Wiley & Sons, 1961.
- Horton, P. B., & Hunt, C. L. Sociology. New York: McGraw-Hill, 1972.
- Jahoda, M., Deutsch, M., & Cook, S. S. Research methods in social relations. New York: Dryden, 1951.
- Kelley, H. H. Communication in experimentally created hierarchies. Human Relations, 1951, 4, 39-56.
- Krech, D., Crutchfield, R. S., & Ballachey, E. C. Individual in society. New York: McGraw-Hill, 1962.
- Lindzey, G. (Ed.). Handbook of social psychology. Reading, Massachusetts: Addison-Wesley Publishing Co., 1954.
- McKeachie, W. J. Research on teaching at the college and university level. In N. L. Gage (Ed.). Handbook of research on teaching. Chicago: Rand, McNally, 1963.
- Maier, N. R. F. Innovation in education. American Psychologist, 1971, 26, 722-725.
- Maier, N. R. F. Problem solving discussions and conferences. New York: McGraw-Hill, 1963.
- Miller, G. R., & Burgoon, M. New techniques of persuasion. New York: Harper-Row, 1973.
- Owen, C. M. The seminar. Improving College and University Teaching, 1970, 18, 203-205.

- Raven, B. H. A bibliography of publications relating to the small group. Los Angeles: University of California, 1969.
- Schmerler, J. F. Undergraduate discussion leaders for a large lecture class. Improving College and University Teaching, 1974, 22; 257-258.
- Skinner, B. F. The technology of teaching. New York: Appleton-Century-Croft, 1968.
- Thomas, E. J., & Fink, C. F. Effects of group size. Psychological Bulletin, 1963, 60, 371-384.
- Webb, N. J., & Grib, T. F. Teaching process as a learning experience: The experimental use of student-led discussion groups. Final Report, Project No. 5-0923-2-10-1. Washington, D. C.: U. S. Department of Health, Education and Welfare, 1967.

Appendix

Behavior Modification

Dr. Osborne
Fall, 1974

- Text: 1) Bandura: Principles of Behavior Modification
2) Selected readings on reserve in the library

- Objectives: 1) Verbal mastery of the nine chapters of Bandura as indicated by oral interview and class participation.¹
2) Discussion knowledge of the readings as indicated by class participation.

Procedures

- 1) Class will meet weekly; during this period lectures, films, and discussions will occur. Discussion will center largely on parts of Bandura that are difficult to understand, and the outside readings.
- 2) Each week the student will schedule an interview with the course instructor or a proctor. To gain admission to the interview, the student will present an answered set of study guide questions which he received the week prior. The student will orally present his knowledge of the chapter to the interviewer. This will ordinarily take 45-60 minutes. For this exercise, the student should prepare a set of speaker's notes or may use the book for headings which provide similar cues. Study guides will not be used for this purpose. When the student successfully completes the interview he will receive the study guides for the following chapter. Rate of proceeding through the course will be fixed at one interview per week.

There are three possible outcomes of interviews: successful completion, the outcomes of which are indicated above; partial remediation in which the student may be asked to review some concepts in the chapter which he then prepares for a remedial interview; or complete remediation in which the student repeats the entire interview. There are no failures; students may re-mediate until successful.

- 3) Students will be expected to demonstrate their knowledge of the readings in class by active participation in class discussion. This connotes asking pertinent questions, answering questions, and helping to embellish answers to other questions by making learned verbal inputs to the discussion.

¹If class size is large and enough proctors are not located, an examination procedure may replace or be added to the oral interview, otherwise everything will remain the same.

4) Grades: A = Completion of nine Bandura Chapters and adequate participation in class discussion.

B = Completion of nine Bandura Chapters and little or no class participation

less than B = Less than nine Bandura Chapters completed and little class participation