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LEADERSHIP AND VERBAL PARTICIPATION

Bobby J. Calder, Univ. of Illinois

Christopher G. Wetzel, Univ. of North Carolina

#111

College of Commerce and Business Administration
University of Illinois at Urbana-Champaign



FACULTY WORKING PAPERS

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May 15, 1973

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PROBATION DEPARTMENT

REPORT OF THE PROBATION DEPARTMENT
FOR THE YEAR ENDING 1900

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Leadership and Verbal Participation

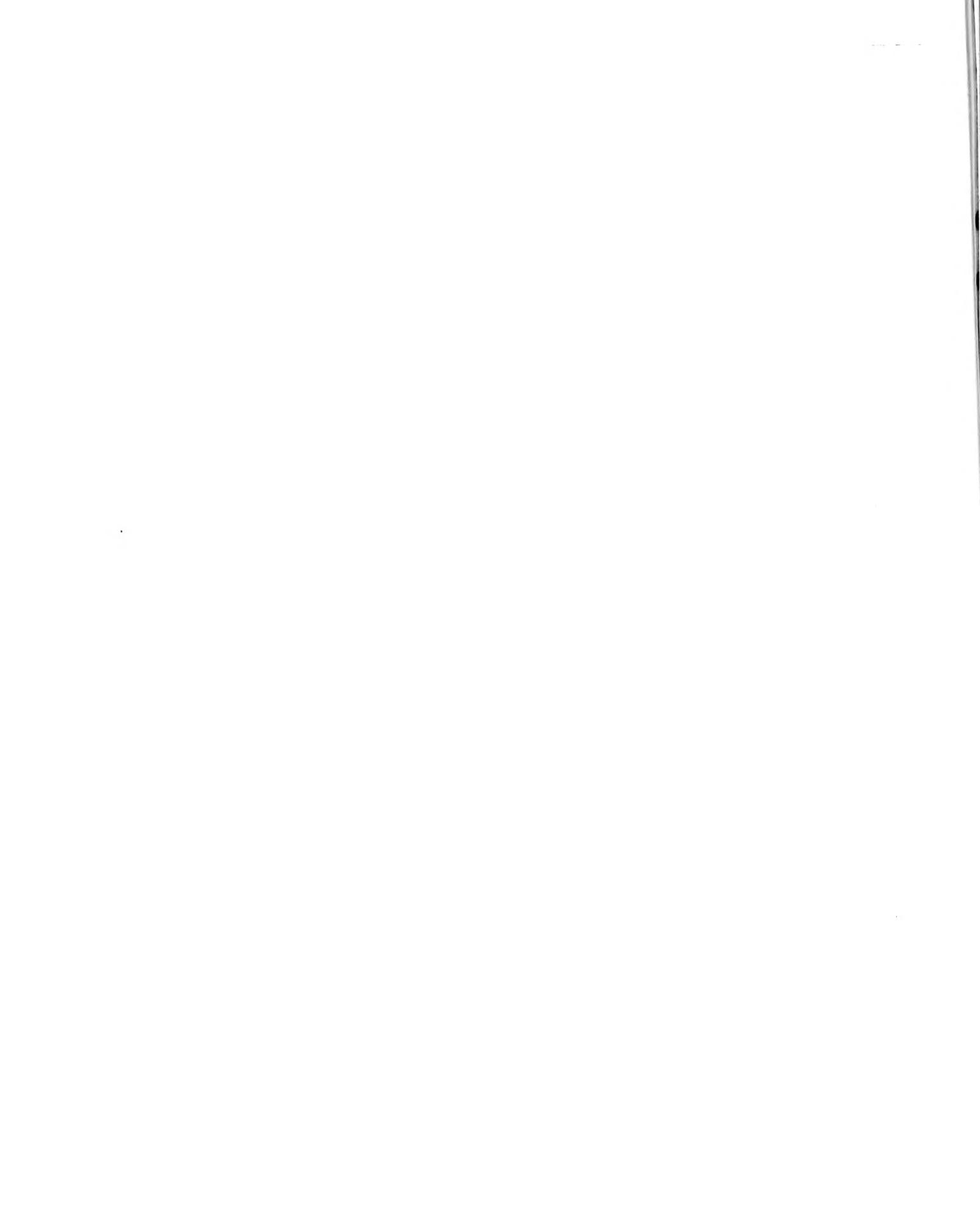
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Leadership and Verbal Participation

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Abstract

An experimental investigation of the relationship between amount of participation (talking) and leadership status is reported. The results indicated that participation does affect the perception of leadership and that this effect is not qualified by different sequences of participation information across two discussions. Observers appear to be even more sensitive to participation than actual participators in the discussions, however. The importance of these findings for a role theory approach to leadership is discussed.



Leadership and Verbal Participation

Historically four different orientations have guided psychological studies of leadership. From the turn of the century to the 1940's, researchers attempted to identify the personal attributes and personality traits which leaders possess. Hundreds of studies compared leaders and nonleaders on variables such as height, intelligence, and dominance, but failed to establish any strong relationships between these variables and leadership. The many inadequacies of this work were revealed by the reviews of Stogdill (1948), Hemphill (1949), Gibb (1954), and Mann (1959). Most importantly, the trait approach failed to distinguish between leadership as a process and the leader as a person. The next approach shifted from the characteristics of leaders to focus on the actual behavior of leaders and their style of leadership. Bales (1950) developed a methodology for observing group discussions and recording member actions. He found two kinds of leadership styles which he termed task and maintenance (interpersonal) behaviors. Similar categories of leader behavior, initiation of structure and consideration, were obtained by Shartle and his coworkers (1952). Although the behavioral approach did point out some important aspects of leadership, as with the trait approach, it did not provide any theoretical explanation of leadership processes.

The trait and behavioral approaches to leadership were followed by a recognition of the importance of the situational context in which leadership occurs. Fiedler (1964, 1967, 1971a, 1971b) proposed a "contingency model" which hypothesizes that leadership effectiveness depends on the relationship between the leader's task versus interpersonal orientation and the favorableness of the situation. Although empirical

support for this model has been mixed (see e.g., Hunt, 1967; Graen, Alvares, Orris, and Martella, 1970; Fiedler, 1971b, 1971c; Chemers and Skrzypek, 1972), it has clearly been valuable in stimulating research concerned with more than just the characteristics of leaders. Katz and Kahn's (1966) discussion of leadership has also been influential in emphasizing the interaction of style and task demands in determining leadership effectiveness.

Recently an even broader view of leadership has begun to emerge, one fully recognizing the multiple contingencies of the leadership process. In order to place the present study in context, we should briefly characterize this perspective. Hollander and Julian (1968, 1969, 1970) have developed a "transactional" approach to leadership which emphasizes the exchange relations between leaders and followers. The leader provides resources in achieving group goals and in return receives status, esteem, influence, and legitimacy. Gibb (1969a, 1969b), along the same lines, has discussed an "interactional" approach. Leadership is viewed as a "a concept applied to the interaction of two or more persons, when the evaluation of one, or of some of the parties to the interaction is such that he, or they, come to control and direct the actions of the others in the pursuit of common ends (Gibb, 1969a, p. 221)." The crux of these views is probably best captured in terms of role theory. Any group develops a "group structure" (Cartwright and Zander, 1968) within which each person occupies a position. Various functions must be performed on the basis of this structural differentiation. Leadership is one such function. The leader thus performs a complex set of role demands specified by the expectations of the other group members. The personal characteristics of the leader



matter only to the extent that they are engaged by these role expectations and relevant task requirements.

Besides emphasizing the interaction between leaders and followers, the role theory perspective also recognizes the importance of perceptions. It is not merely the expectations of group members or the traits of leaders which affect leadership, it is the perception of these factors by the group members and the leader. The key to understanding the psychological processes underlying leadership lies in investigating these behavioral expectations and perceptions.

Verbal Participation

In terms of expectations and perceptions, one of the most salient dimensions of behavior in any group is verbal participation or talking. Early research frequently obtained moderate correlations between talkativeness and leadership (cf. Stogdill, 1948), and later research has tended to bear out this relationship (Norfleet, 1948; Bass, 1949; Kirscht, Lodahl, and Haire, 1959). For example, the most frequent participator in terms of Bales' categories is usually perceived as a leader (Bales, 1950; Bales and Shils, 1953). Of most relevance here, however, is a well-known experimental investigation by Bavelas, Hastorf, Gross, and Kite (1965). Each experiment in this study followed a similar procedure. Industrial engineering and industrial psychology students were placed in four-person groups to discuss three human relations problems. The primary concern of the experiments was to modify one group member's verbal output with operant conditioning techniques (cf. Oakes, Droge, and August, 1960; Bachrach, Candland, and Gibson, 1961; Hastorf, 1964) and to observe the effects of this change in behavior on the perceptions of the other group



members. Each subject had in front of him a red and a green light which only he could see. The red light functioned as a negative reinforcer, flashing on whenever the subject's comments supposedly hindered the discussion. The green light served as a positive reinforcer, flashing on whenever the subject's comments supposedly helped the discussion. On the basis of the first discussion, the subject who ranked next to last in participation was selected as a target person (TP). Reinforcements were delivered during the second discussion to increase the TP's participation. As in the first discussion, no reinforcements were delivered during the third discussion.

In the first experiment reported by Bavelas et al., the TP was positively reinforced and the other group members were negatively reinforced. The TP's participation increased significantly in the second discussion and remained higher during the third discussion. These increases were accompanied by increases in the perception of the TP as a leader by the group members. The second experiment obtained the same effects when the reinforcements were delivered after some of the TP's remarks according to a fixed schedule, independent of the content of the remarks. Subsequent experiments failed to alter the TP's participation when only positive or only negative reinforcement was used. Zdep and Oakes (1967) replicated the Bavelas et al. findings and demonstrated that the presence or absence of the initial leadership questionnaire exerts no effect on the TP's leadership status.

An important question arising with the relationship between participation and leadership concerns the role of content. As a lower limit, it seems likely that the relationship is strongest for groups whose members



are of comparable task ability. An individual increasing his participation with entirely irrelevant remarks probably would not raise his leadership status. It is possible, moreover, that content accounts for the relationship entirely in that amount of participation is merely highly correlated with quality of content. Bavelas et al. have no check on what their reinforced TP's were actually saying, though Oakes (1962) has found that the Bales' category of giving opinion and evaluation is most susceptible to reinforcement. There is some evidence to suggest that content is not the sole causal factor, however. Riecken (1958) identified the highest and lowest participators in a group discussion. Subjects later worked on a difficult problem. For half the groups, a hint was secretly slipped to the highest participator. For the other half, the hint was given to the lowest participator. As expected, the highest participator was seen as contributing more to the group. And, most interestingly, the correct solution was more likely to be accepted if offered by the highest participator, indicating the impact of participation above and beyond content. Recent research by Hayes and Meltzer (1972), in fact, implicates sheer amount of talking in the formation of a variety of interpersonal judgments.

Another problem in interpreting the Bavelas et al. results concerns the awareness by subjects of the experimenter's role in reinforcing them. That is, a subject receiving negative reinforcement may have assumed that the TP must be getting positive reinforcement and, by virtue of the experimenter's expert judgment, must therefore be a leader. Support for this contention is provided by an experiment (Smith, 1972) suggesting that, when subjects were told that the reinforcement was an evaluation of their personal contribution to the group, it was "used as a means of evaluating



the other members of the group on the basis of external authority (p. 428)."
The present experiment is designed to test the participation-leadership relationship in a situation in which subjects cannot associate high participation with a positive evaluation by an outside source. A more careful attempt is also made to control content while varying participation.

Attribution Theory and Leadership

As already noted, one consequence of viewing leadership as an interaction between leaders and followers is to emphasize the importance of perceptions. Recently, under the rubric of attribution theory, increased attention has been given the problem of how an individual makes inferences about other people based on observations of their behavior (e.g., Jones and Davis, 1965; Kelley, 1967, 1971). This thinking may be extended to the leadership process. One class of variables known to be important for attributions are called order effects: "It is clear that information within an interpersonal episode is neither produced nor perceived all at once. Since this is the case, it is reasonable to ask whether the attribution process is in systematic ways affected by the order in which the information is received (Jones and Goethals, 1971, p. 1-2)." The usual question asked is whether initial information or later information is weighted more heavily, a primacy versus recency effect.

Consider attributions of leadership based on observations of verbal participation. Suppose that a group held two discussions. Would a person who was a high participator in the first discussion but a low participator in the second be more likely to be perceived as a leader than someone who was a low participator in the first discussion and a high participator in the second? In addition to investigating whether high participation

produces a stronger perception of leadership than low participation, the present experiment also seeks to determine whether the order in which such participation information is received affects this relationship. While current knowledge of the processes underlying order effects (cf. Jones and Goethals, 1971) does not allow a specific prediction, the order effect variable would seem to be a logical beginning for the application of attribution theory to leadership.¹ It is also relevant in that few studies have examined variables affecting the sequence of group development (Tuckman, 1963).

Another interesting variable from the standpoint of attribution theory involves the presence of observers as well as actors in the experimental situation (cf. Calder, Ross, and Insko, in press). It may be that observers of a group discussion react differently to participation levels than do group members actually taking part in the discussion. Accordingly the present experiment contains some subjects who are participators and some who simply observe the group from behind a one-way mirror.

Method

Overview of the Design

The basic experimental design consisted of three factors: discussion, participator-observer, and participation order. The first factor was within-subjects, all subjects participated in two discussions and the major dependent variables were assessed after each one. The other two factors were between subjects. For each experimental session, some subjects actually took part in the group interaction (participators) while others merely watched (observers). In the high-low participation order, a confederate's participation was high in the first discussion but low in the second. In the low-high participation order, the confederate's



participation was low in the first discussion but high in the second.

There were also two counterbalancing factors in the design. Each discussion concerned a different topic, either "student fees" or "24-hour visitation." To help control for topic order effects, some subjects discussed fees first and then visitation while others discussed visitation and then fees. In addition, the identity of the confederate was varied, some subjects interacted with one confederate and other subjects with another.

A control condition was introduced into the design in an attempt to determine whether simply measuring the dependent variables after the first discussion might alter the results for the second discussion. Control subjects were treated the same as experimental subjects except that the dependent variables for the first discussion were assessed after the second discussion and the measurement of the dependent variables for the second discussion. All factors were manipulated except that the control subjects were all participators. Thus, any analysis of variance effect involving the experimental-control factor would indicate a measurement interaction (cf. Campbell and Stanley, 1963).

Procedure

All subjects were undergraduate females. Not including the confederate, from three to seven subjects volunteered for each experimental session. The discussion groups consisted of a female confederate and three randomly selected subjects. If additional subjects reported for the experiment, they were taken to a room adjacent to the experimental room and told not to talk to each other and to observe the discussions through a one-way mirror. The participators were then led to the experi-

mental room and seated randomly (it was arranged for the confederate to always get the same seat). The participators did not know about the observers. The subjects were seated around a rectangular table with two girls on each end and two girls on the side away from the one-way mirror (so that no participator had her back to the observers). The group was then told:

As I said before, we are interested in group size and its effects on a discussion. You will have two discussions, each fifteen minutes long. After the first discussion you will be given a short questionnaire. After the second discussion, you will be given two questionnaires, and then you are finished. As you probably have noticed, there is a microphone on the table. It is connected to a tape recorder in the room behind the mirror which is, by the way, one-way. Since I cannot possibly make all the observations I need simultaneously, I will be recording your discussions for further study and making observations through the one-way mirror. I am the only one who is going to listen to the tapes, so feel free to speak freely.

After stating the topic, the experimenter asked the subjects to simply give their opinions, thoughts, and feelings in the discussion. The topics were presented in the form of propositions: "Twenty-four hour visitation should be adopted for women's dormitories" and "Student activity fees should be voluntary." At the time, there was considerable student interest in both topics.

Confederate's Participation

Although there was necessarily some trade-off in experimental control in order to achieve better external validity than previous studies, great care was taken with the manipulation of the confederate's participation. Two conversational-style speeches were prepared for each topic, a long version and a short version. The speeches for both topics were written

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so as to appear equivalent in terms of a liberal-conservative dimension, relative to the apparent majority opinion of the student body. Although the speeches were controversial enough to generate discussion, they were not designed to arouse antagonism. Of course the greatest concern is not whether the speeches were equivalent between topics, but rather whether they were equivalent between the long and the short versions.

Of first concern is whether the speeches had the same content. Since the low participation speeches were created by lifting the topic sentences from the high participation speeches, one can safely assume that on some level the contents are almost identical. It is, of course, difficult to determine whether the content perceived by the subjects was equivalent. For example, if subjects did not pay close attention to what was being said, the topic sentence mentioned once in the short version could be missed; but, since the long version contained reiterations of topic sentences, it might not be ignored. On the other hand, because the short version was succinct, particularly observant subjects might have considered it more fluent. Even granting these caveats, the two versions do seem to convey comparable information.

Assuming the speeches, as written, are equivalent, one must decide if the two accomplices used during the experiment accurately reproduced them. In order to help assure the accurate reproduction of the speeches, the confederates were instructed and rehearsed to make their speeches in the following manner. First, they were to evenly space their topic statements throughout the fifteen minute session (a clock was hung on the wall for this purpose). In the opinion of the experimenter, any differences in the timing of the confederate's statements appeared to randomize out

over sessions. Second, the confederates were to speak first in both high and low participation conditions. Third, each of the topic sentences was to be spoken in the same order. However, in order to avoid discontinuity and unnatural, stilted speech, if the confederate was interrupted by a question that was answered later on in her speech, she skipped to the section that answered the question and then returned to where she was interrupted. Likewise, if a subject stated the confederate's topic sentence before she could, the confederate, after the subject had finished, agreed with her and then either stated the topic sentence or slightly reworded it. Because of frequent interruptions, the topic sentences rarely could be stated exactly in their proper order. The confederates did not engage in arguments with girls who disagreed with them, nor did they introduce any new material to the speeches. These instructions were carried out extremely well by the confederates except where they had to answer direct questions with novel material (this was relatively rare). In summary, lack of deviation from the speeches was stressed, but a certain amount of deviation was tolerated in order to maintain a natural, fluent discussion.

The tape recording of each discussion was also examined to ensure that the confederate had in fact attained the desired participation level. Each person's percentage of the total amount of participation was determined. The speeches for the high participation condition were designed to take forty to fifty-five percent of the discussion time, and the short versions were to take fifteen to twenty percent. The actual mean percent for the high was forty-five percent and for the low, sixteen percent. Two criteria were used to decide whether an experimental session was valid. First, the confederate could not leave out major portions of the speeches.

Second, the confederate's rank in participation for the high condition was to be either first or tied for first, and her rank in the low condition was to be either third or tied for third. Three sessions were eliminated from the analyses.

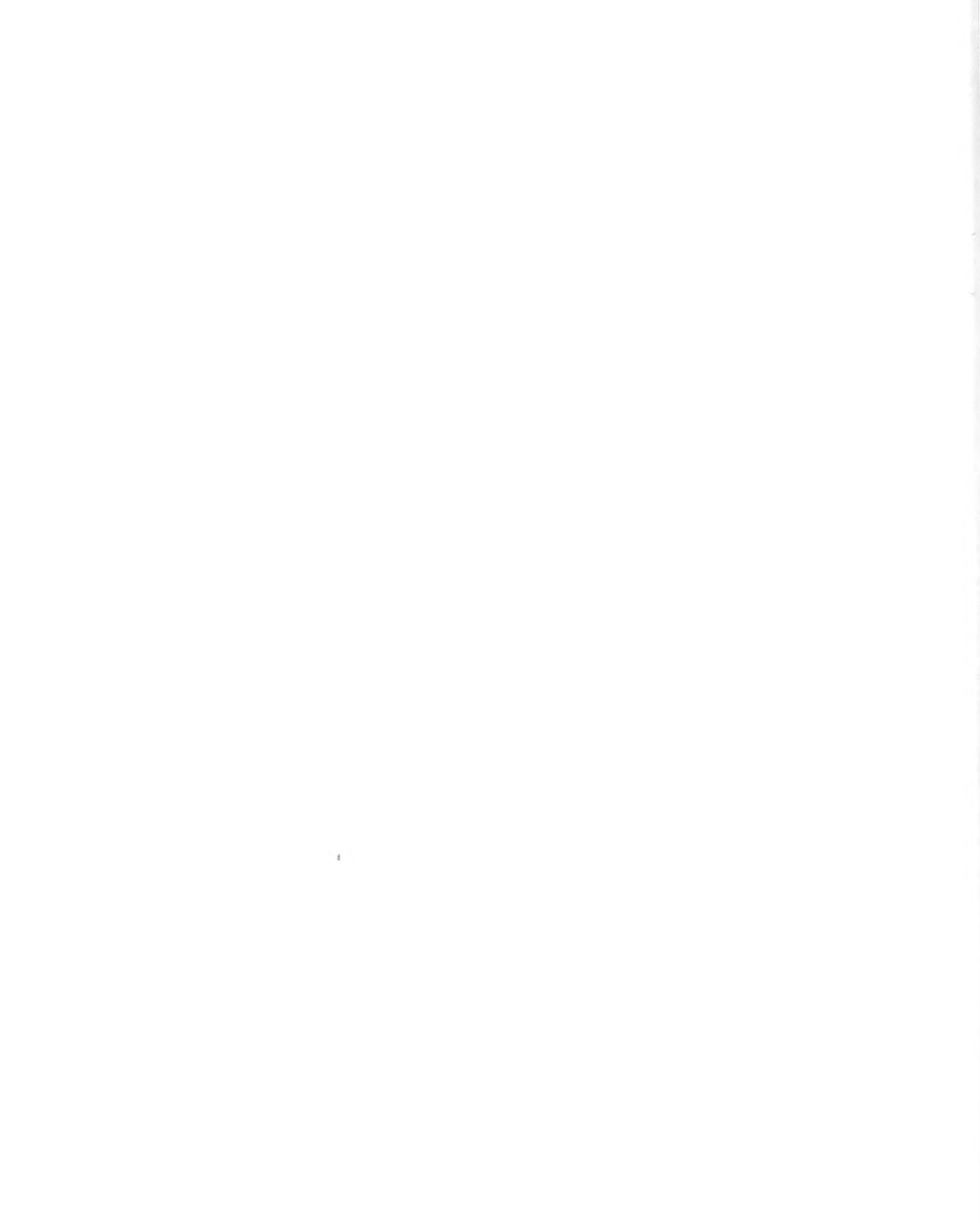
Dependent Variables

After each discussion both participators and observers completed a questionnaire concerning their reactions to that discussion. Subjects were asked to rate (10-point scales) each member of the group on how much she contributed overall, how much leadership she displayed, how much relevant knowledge or information she contributed, and how sociable or likable she was. The confederate's ratings on these questions constitute the leadership dependent variables. Other questions concerned the discussion itself. A final post-experimental questionnaire asked subjects to rate each group member on participation for each discussion.

Results

It should be noted that all the analyses reported use the group as the unit of analysis. It is incorrect to employ the typical individual unit of analysis in a study of this type because observations on the individual are not independent--members within a group may have influenced each others' ratings (cf. Campbell and Stanley, 1963). The level of replication is the group, not the individual. Each observation thus consists of the average of the questionnaire ratings for all members of a group of participators or observers.

Two sets of preliminary analyses were performed to check on possible



confounding effects due to topic order and the confederate's identity and to compare the experimental and control conditions. Analyses of variance with four between-subjects factors, participation order, participator-observer, topic order, and confederate's identity, and one within-subjects factor, discussion, were conducted for the seven major dependent variables. Since none of these analyses showed effects for topic order or the confederate's identity which qualify the results for the other three factors, the statistical analyses are reported below with these factors collapsed for clarity of presentation. The experimental groups were compared to the control groups by means of three factor (participation order, experimental-control, and discussion) analyses of variance. These analyses were for participators only; there were no control observer-subjects. No effects were obtained for the experimental-control factor which qualify the other results. Accordingly the results are reported with this factor collapsed too.²

Confederate Ratings

Subjects rated the confederate on four dimensions: general contribution to the discussion, leadership displayed, information contributed, and the extent to which the confederate was credible. Table 1 presents the means and Table 2 the least squares analyses of variance for these four variables.

Insert Table 1 and 2 about here

The independent variables in these analyses were participation order and participator-observer as between-subjects factors and discussion as a within-subjects factor. As can be seen from Table 2, three effects emerge from these analyses. There is a triple interaction between all three

factors for the contribution and leadership ratings and a two-way interaction between discussion and participation order for the contribution, leadership, and information variables. Also, there is a main effect on the participator-observer factor for the sociable variable.

Since all four of these dependent variables were considered to be interrelated in the perception of leadership status, a repeated measures multivariate analysis of variance (see Table 2) was performed. The two interactions were again highly significant indicating that the corresponding univariate effects may be safely interpreted. The participator-observer main effect obtained for the sociable variable is not significant in the multivariate analysis, but this effect appears theoretically less interesting anyway. Observers apparently see the confederate as less sociable than the participators.

The interaction effects are quite interesting. The interaction between discussion and participation for contribution, leadership, and information indicates that these variables decrease from Discussion 1 to Discussion 2 with the high-low participation order but increase from Discussion 1 to Discussion 2 with the low-high participation order. For the contribution and leadership ratings, however, this effect is complicated by the participator-observer factor. The triple interaction for contribution is shown in Figure 1. (The leadership results are very similar.) Notice

Insert Figure 1 about here

that the form of the effects for participators and observers are the same as for the two-way interactions. Contribution and leadership decrease

with the high-low participation order and increase with the low-high participation order. Thus, the triple interactions do not qualify the two-way interactions but do indicate that the effect is significantly magnified for the observers.

The two-way interactions demonstrate that both participators and observers were sensitive to the contributor's amount of participation in making their leadership judgments. Moreover, the observers are even more sensitive in terms of contribution and leadership than the participators. In order to explore these effects further, a series of independent contrasts (Winer, 1962, p. 244) on the differences between the means within the triple interaction were done. For participators, ratings of contribution were significantly greater in the high participation condition than in the low participation condition for both Discussion 1 ($F = 9.44, p < .004$) and Discussion 2 ($F = 22.31, p < .001$). For observers, contribution was again significantly greater in the high participation condition for both Discussion 1 ($F = 10.63, p < .001$) and Discussion 2 ($F = 13.40, p < .001$). These contrasts were somewhat different for the leadership ratings (see Table 1). For participators, high participation was significantly greater than low participation for Discussion 1 ($F = 5.36, p < .017$) but not for Discussion 2 ($F = 2.74, p < .10$). The contrasts were again highly significant for observers in Discussion 1 ($F = 21.15, p < .001$) and Discussion 2 ($F = 6.06, p < .02$). These contrasts thus confirm the impact of high participation.³ The lack of significance between high and low participation for the leadership ratings by the participators in Discussion 2 fits in with the general tendency of observers to be more sensitive to participation.



Finally, a set of analyses parallel to the ones reported in Table 2 are useful in interpreting the effect of order. The experimental design for these analyses is viewed as consisting of three factors: amount of participation (high versus low), participator-observer, and participation order (high-low versus low-high). In other words, amount of participation replaces discussion as the within subjects factor. When the data is grouped in this way, there is a main effect for amount of participation on contribution, ($F = 58.54, p < .001$), leadership ($F = 57.57, p < .001$), and information ($F = 12.71, p < .001$), high participation being greater than low. There is also a two-way interaction between amount of participation and participator-observer on contribution ($F = 9.11, p < .005$) and leadership ($F = 3.80, p < .06$). Amount of participation has a greater effect for observers than participators. While these effects are merely a different way of looking at the effects in Table 2, they do help to make clear the role of participation order: The amount of participation main effect is not qualified by the order in which the participation information is obtained. The high-low order is not significantly different from the low-high order in affecting leadership status.

Discussion Ratings

Subjects also rated the discussion itself in terms of enjoyment, learning, and quality. Table 1 presents the means for these variables. Repeated measures analyses of variance yielded only one significant effect, a participator-observer by participation order interaction ($F = 9.04, p < .005$). This interaction indicates that, averaged over discussion, participators enjoyed the low-high participation more than the high-low whereas observers enjoyed the high-low more than the low-high. While this effect is not

readily interpretable, it does suggest the importance of sequence effects for group discussions. In any event, reactions to the discussions do not seem to be possible mediators of ratings of the confederate.

Post-experimental Questionnaire

A questionnaire administered after the second discussion obtained ratings of the confederate's amount of talking in each discussion. Interestingly, these perceptions of participation show the same significant effects as the leadership status variables. There is a significant two-way interaction between discussion and participation order ($F = 58.00$, $p < .001$) and a significant triple interaction between discussion, participation order, and participator-observer ($F = 13.79$, $p < .001$).

Discussion

One purpose of the present experiment was to provide evidence about the relationship between verbal participation and leadership in a situation in which participation is not correlated with external authority. The results offer strong evidence that participation does affect leadership status: For one group of subjects, participation increased from Discussion 1 to Discussion 2 and the perception of leadership increased. For another group of subjects, participation decreased from Discussion 1 to Discussion 2 and the perception of leadership decreased. For all subjects, high participation always resulted in a greater perception of leadership than low participation. Additional support for the causality of the participation changes is provided by the fact that subjects' perceptions of the confederate's participation parallel these effects while variables such as

the quality of the discussion do not.

Another purpose was to introduce attribution theory variables to the study of leadership. At this point we should perhaps elaborate on our earlier discussion of order effects. Usually order effects are investigated in the context of summary judgments after a sequence of information. A second type of order effect, however, deals with the impact of earlier information on judgments only about later information. This latter type might also be called a sensitization effect. It is these sensitization order effects which we believe to be most relevant to group development.

The present experiment failed to find that participation order affected the difference between high and low participation. The difference between high and low amounts of participation did not depend on the order of this information. This indicates that the participation-leadership relationship may not be limited to initial group development. It should be noted, however, that this result applies only to sensitization order effects. In a situation in which a person attempts to integrate participation information across discussions, we would still expect an order effect.

The participator-observer differences are also important from the attribution theory perspective. The participators and observers were in quite different role relationships with the confederate. Nonetheless, they reacted quite similarly to the participation variable in their perceptions of leadership, except that the observers did tend to be more extreme than those actually involved in the group interaction.

Conclusions

What are the implications of this experiment for the role theory

approach to leadership with which we began? A good deal is known about the amount of participation aspect of group interaction. This behavior is strikingly systematic. The leader in a group, for example, usually accounts for about 40% of the total communication over a range of group sizes. Moreover, if the remaining group members are ranked in terms of participation, the percentages of participation for adjacent ranks approximate a constant ratio, and mathematical functions can be written to describe the data (Bales, Strodtbeck, Mills, and Roseborough, 1951; Stephan and Kishler, 1952; Coleman, 1960; Kadane and Lewis, 1969). Such regularities suggest that people may have very stable expectations about the participation structure of groups. These expectations may be associated with various functions performed by group members. Thus, when an individual actually observes differing amounts of participation, this may trigger other perceptions such as that of leadership status.



Footnotes

- ¹Hastorf, Kite, Gross, and Wolfe (1965) report an experiment manipulating the order of participation information, but do not present their results in sufficient detail to show whether order affected the perception of leadership.
- ²All the significant effects reported are also significant for the experimental groups considered alone.
- ³While conventional levels of significance are not appropriate for these independent contrasts, the obtained p values are sufficiently low enough to warrant interpretation.



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Table 1

Means for the Confederate and Discussion Ratings

Variable	Participant				Observer			
	Discussion 1		Discussion 2		Discussion 1		Discussion 2	
	H-L ^a	L-H	H-L	L-H	H-L	L-H	H-L	L-H
contribution	8.24	7.04	7.18	8.11	9.00	6.33	6.15	8.64
leadership	7.85	5.86	6.40	7.11	7.90	5.21	5.12	7.19
information	7.15	6.59	6.05	6.41	5.49	5.43	6.07	6.90
sociable	7.08	7.57	7.04	7.31	5.96	6.76	6.54	6.33
enjoy	5.09	6.01	5.57	6.22	7.70	6.55	6.60	6.26
learn	4.59	3.82	3.61	4.45	3.55	3.74	3.56	4.11
quality	0.74	1.41	1.59	1.29	1.77	1.07	1.33	0.64
n	(11)	(11)	[11]	[11]	(6)	(7)	[6]	[7]

Note.--Parentheses contain the number of groups per cell; brackets contain cell frequencies which are repeated measures.

^aOrder--high-low (H-L) or low-high (L-H).

Table 2

Repeated Measures Analyses of Variance of Confederate Ratings

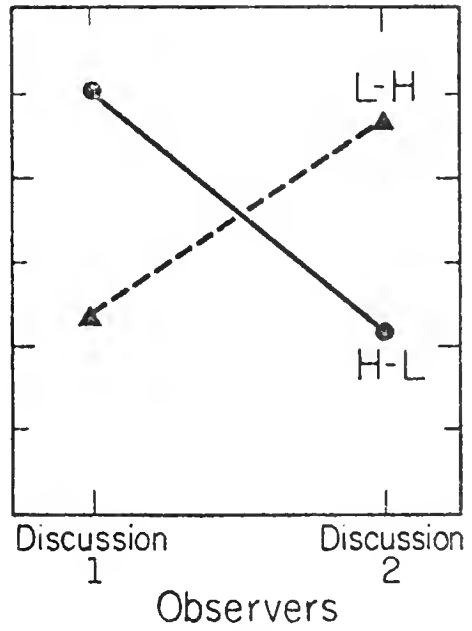
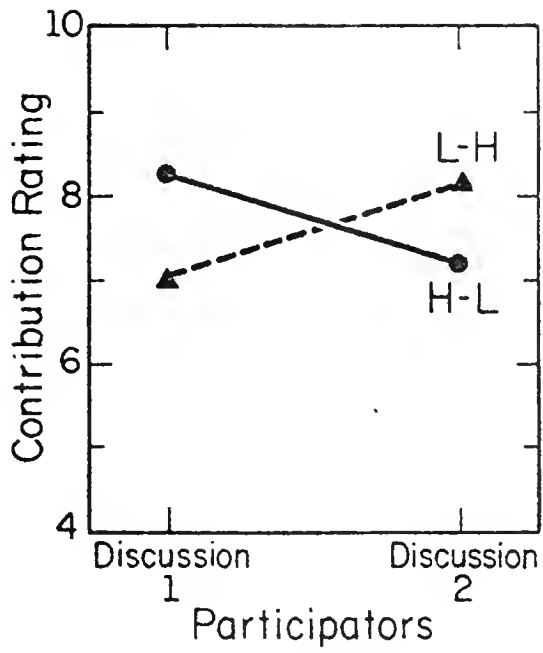
Source	<u>contribution</u>		<u>leadership</u>		<u>information</u>		<u>sociable</u>		<u>MANOVA^a</u>	
	F	p	F	p	F	p	F	p	F	p
Discussion (A)	<1	N.S.	<1	N.S.	<1	N.S.	<1	N.S.	<1	N.S.
Participant- Observer (B)	<1	N.S.	<1	N.S.	<1	N.S.	6.49	.016	<1	N.S.
Order (C)	<1	N.S.	1.08	N.S.	<1	N.S.	<1	N.S.	1.33	N.S.
A x B	<1	N.S.	<1	N.S.	2.28	N.S.	<1	N.S.	<1	N.S.
B x C	<1	N.S.	<1	N.S.	<1	N.S.	<1	N.S.	1.55	N.S.
A x C	58.80	<.001	57.94	<.001	12.51	<.001	<1	N.S.	27.58	<.001
A x B x C	9.10	<.005	3.85	<.059	1.32	N.S.	1.11	N.S.	5.45	<.002

^aRepeated measures multivariate analysis of variance (MANOVA) of contribution, leadership, information, and sociable variables.

Figure Caption

Fig. 1. Mean contribution ratings for the discussion by participator-observer by participation order interaction.











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