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ANNUAL TECHNICAL REPORT

Basic Studies on Individual and Group Behavior

UNIVERSITY OF MINNESOTA

under Contract N8 onr-66216
with the Office of Naval Research

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The research program covered by this technical report includes three specific projects each of which is separately reported below. The fourth project under the above sustaining grant was completed September 15, 1952 and the technical report on it will be separately submitted.

A. RESEARCH ON GROUP STRUCTURE AND FUNCTION AS RELATED TO
THE PERSONALITY CHARACTERISTICS AND INTERESTS OF GROUP
MEMBERS.

I. General Purpose

The purpose of this research has been to determine whether the specific personality and interests of group members are related to the structure, functions, and achievements of particular types of groups. More specifically, we have sought to determine (1) whether certain kinds of groups have tended to attract certain kinds of persons, and (2) whether this selection process is related to the effective functioning of the group.

II. Abstract of Progress since Annual Report, February 15, 1952

The groups studied this past year are 39 University of Minnesota campus organizations selected to represent the extremes of a Task-No Task functional continuum.^{1/}

^{1/} Task groups were defined as those engaged in action intended to achieve specific goals outside the members themselves, such as changes in community attitudes or government policy, or in providing services to the community. No-task groups were defined as those not engaged in action intended to achieve specific external goals, but have as their ostensible purpose the direct satisfaction of some "need" of the members themselves such as sociability, recreation or self-education. The groups were classified by five independent judges, each given information about the stated purpose and actual activities of each group. Where the judges did not agree in classifying a group, that group was dropped from further consideration, so that groups retained for analysis clearly fall into either the task or no-task classification. Of the 96 groups of less than 25 members at the University, 25 task and 26 no-task groups were agreed on by all judges, while 45 groups were discarded as not falling clearly into either of the two groupings. Twelve other groups were dropped because of non-availability or non-cooperation.

A. Instruments Constructed or Utilized:

1. The Minnesota Multiphasic Personality Inventory (MMPI). This well-known instrument provides measures of several personality characteristics. It has been completed by 81.5 per cent of the members of the groups studied.
2. Group Members Schedule. This schedule contains a series of questions intended to collect data descriptive of the way the member perceives his group and feels about its accomplishments in meeting its objectives and in satisfying its members. The schedule also contains items designed to give the members a chance to evaluate their group leader. The schedule contains in addition a number of sociometric items. This schedule has been completed by 90 per cent of the members of the groups studied.
3. Leader's Check-List. This schedule was designed to collect factual data on groups and to obtain information on the leader's perception of his group. This schedule has been completed by one leader for each of 38 out of the 39 groups.
4. Observer's Check-List. This was used by outside observers who attended regularly-scheduled meetings of the groups studied. Items contained in the Check-List relate to the formal characteristics of the group as well as to the conviviality manifested by group members in their meetings. Fifty schedules have been completed for 32 of the 39 groups.

From the Group Members' Schedule (number 2 above), the following Guttman-type scales were developed and scores calculated for each member:

1. Personal Satisfaction Scale (PS). A measure of the individual's sense of personal satisfaction with the group.
2. Estimate of Group Effectiveness Scale (EE). This scale yields scores indicating how a member of a group believes fellow members judge the effectiveness of the group in achieving its purpose.
3. Formalization of Group Structure (F). A measure of the relative degree of formality and informality in the group.

Additional measures are currently being developed:

4. Types of interest in campus activities.
5. Attitude toward leader scale.

B. Tentative Conclusions

The following conclusions have been reached on the basis of the analysis thus far:

1. Task group members do not differ significantly from No-Task group

members in MMPI mean score values and variances or in mean scale value on the PS and EE scales. The dichotomy of "Task-No-Task" is still an important one, however, since it is found that when other sociometric variables are considered, differences do appear. Highly significant differences between Task-No-Task groups appear when the intercorrelations of the PS, FE, F scale values as well as sociometric indices are compared. The table on page four indicates these relationships.

2. When the subjects are placed in a four-fold table on the basis of effective and ineffective Task and No-Task groups, the MMPI scales do differentiate members of groups. The multiple critical ratio tests indicate that members of effective Task groups have on the average MMPI scores near a standard score of 50; the members of ineffective No-Task groups tend to have higher MMPI scores; those in effective No-Task groups still higher average MMPI scores, and finally the members of ineffective Task groups have the highest mean MMPI scores. Therefore the MMPI scores do tend to differentiate significantly between effective and ineffective Task and No-Task groups; the members of highly ineffective Task groups deviate most markedly from the standardizing population of the MMPI. Thus the FE scale and the Task-No-Task functional dimension together aid in sorting out persons in terms of different personality characteristics.

3. There is a tendency for some of the MMPI scales to differentiate the members of Task and No-Task groups when such groups are classified as "sacred" (religious and reformist) and "secular" (governing body, advisory group, publication group, etc.). Both the psychasthenia and the psychopathic deviate scales of the MMPI differentiate significantly between the members of such groups.

4. The members of the groups studied tend to have higher MMPI scores than do the members of the general population. The means of all the subjects studied are above a standard score of 50 on eight of the MMPI scales, while the means on the MMPI scales of leaders of the study groups are even higher.

5. The Task and No-Task groups appear to differ in mean social participation scores of the members. The members of Task groups participate more actively in study groups as well as in other groups than do the members of No-Task groups. There is also a tendency for leaders of the two types of groups to differ in the same fashion. Whether these differences are significant and how they are related to other characteristics of the groups under study remains to be explored.

6. A difference between the age-sex composition of Task and No-Task groups has been found. Thus males that belong to task groups tend to be older than males belonging to No-Task groups, while females of Task groups tend to be older than females of No-Task groups. *Task = male, No-Task = female*

7. "Spontaneous" groups were distinguished from "enacted" groups on the basis of the manner in which new members enter an organization. In spontaneous groups, new members want to come into the organization primarily because they believe its existing membership to be personally congenial, and older members "select" the new members on the basis of the latter's assumed congeniality. In enacted groups, new members enter the group because they are appointed or elected to it. The hypotheses underlying this classification were:

Table I

Pearsonian Correlations of Selected Variables for Task and No-Task Groups

Correlations for TASK groups: N = 23 groups

	<u>Cohesion</u>	<u>Coherence</u>	<u>Mean Personal Satisfaction</u>	<u>Mean Estimated Effectiveness</u>	<u>Mean Formalization</u>
Expansiveness*	.603	-.021	-.697	-.642	.613
Cohesion*		.351	-.404	-.554	.308
Coherence*			-.006	-.072	-.255
Mean Personal Satisfaction				.802	-.648
Mean Estimated Effectiveness					-.722

Correlations for NO TASK groups: N = 16 groups

	<u>Cohesion</u>	<u>Coherence</u>	<u>Mean Personal Satisfaction</u>	<u>Mean Estimated Effectiveness</u>	<u>Mean Formalization</u>
Expansiveness	-.071	.562	-.370	-.141	.096
Cohesion		.255	.189	.079	-.107
Coherence			-.006	-.009	.077
Mean Personal Satisfaction				.477	-.118
Mean Estimated Effectiveness					-.192

* Expansiveness, cohesion, and coherence are measures derived from the sociometric data. Expansiveness represents total number of within-group choices divided by the number of individuals in the group. Cohesion represents the number of reciprocated pairs divided by the number of pairings possible to the group. Coherence represents the ratio between reciprocated and unreciprocated choices adjusted for the number of choices made by each group member. These measures are defined in: Research Methods in Social Relations, Marie Jahoda, Morton Deutsch, S. W. Cook, et al, (Dryden Press, N. Y., 1951), pp. 572-73. COHESION INDEX may be used where each individual is allowed an unlimited number of choices. COHERENCE INDEX is designed for the situation where a restricted number of choices is allowed. We did not specifically limit the number of choices but had five mimeographed lines on the questionnaire, and this in effect amounted to a limit for most subjects. Hence, we are tentatively using both indexes.

^ Personal Satisfaction, Estimated Effectiveness, and Formalization of Group Structure are so scored that lower score values represent greater degrees of satisfaction, effectiveness, and formalization.

(1) the spontaneous groups have a different pattern of variation in personality characteristics than do enacted groups; (2) this lower variation does not enhance the effectiveness of group functioning or the members' personal satisfaction with the group. The practical impact of these hypotheses is intended to be that of indicating the effect of "enacting" a group. Is a group likely to be as effective if it is set up in terms of such "external" criteria as convenience, ability and interest of the members in relation to the task in hand, leadership status of the members outside the group in question, etc., as it is when the group is also based on self-selection of the members? Not much generalizability value inheres in studies of campus groups, and our groups may be particularly weak as they were not selected to be representative of campus "enacted" and "spontaneous" groups. Calculations are now being made to test the first hypothesis; the more important second hypothesis is confirmed by our data: Using both the Personal Satisfaction (PS) and Estimate of the Effectiveness of the Group (EE) scales as criteria of success, the enacted groups in our sample are judged to be significantly more successful than the spontaneous groups. This does not appear to be a function of the fact that all enacted groups are also task groups, since task groups which are not enacted have still lower PS and EE scores (they are significantly lower than enacted groups, but their difference from spontaneous groups is not significant.) Thus, the fact that a group is enacted does not seem to hurt its effective functioning.

8. For task groups only, the multiple correlation predicting personal satisfaction (PS) on the basis of Social Participation (SP) and Expansiveness (Expan.) is + .739.

9. For task groups only, members estimate of whether the formal leader is the real leader is correlated with favorable attitudes toward the leader. There is no such relation for no-task groups.

10. Correlations of our various independent variables tend to correlate to approximately the same magnitude with the two dependent variables, Personal Satisfaction (PS) and Estimate of Effectiveness of Group (EE), except for a measure of attitude toward the leader (LF). The relevant correlations here are significantly different:

	<u>PS</u>	<u>EE</u>
LF for Task groups	-.095	.118
LF for No-Task groups	.001	.344

This suggests that an attitude of favorableness toward the leader is more related to the members' estimate of the effectiveness of the group than it is for their personal satisfaction with the group, but that attitude toward the leader is the only one of the personal variables we consider which thus differentiates the two measures of group success.

C. Work in Progress

A considerable number of intercorrelations of our data need to be calculated and analyzed. Multiple regression equations with presumed predictive value will then be formulated. Work has just begun on leadership

attitudes. Plans have been formulated for tapping the variable of "interests" as distinguished from personality characteristics.

Once the task of following through all of the possibilities offered by the collected data has been completed, it is planned that the hypotheses growing out of this phase of the study will be tested. Such groups as industrial task groups, religious groups, recreational groups, and policy making groups will be selected for study.

III. Personnel

Mr. Frank Atelsek (third-year graduate student)
Dr. F. Stuart Chapin (Professor of Sociology)
Miss Bertha Davis (second-year graduate student)
Dr. Elio D. Monachesi (Professor of Sociology)
Mr. Donald Olmsted (fourth year graduate student)
Dr. Arnold Rose (Professor of Sociology)
Mr. Philip Sagi (fourth year graduate student)

B. RESEARCH STUDIES ON THE ROLE OF LANGUAGE IN BEHAVIOR.

The major results of the research conducted under this project during the past year are summarized below. The team members have been simultaneously engaged in a series of studies of verbal behavior designed to encourage the development of a broad psychology of language which will be capable of embracing data from several levels of investigation. To date, the work has tended to center around three groups of closely related experiments. Although inter-relationships among these groups are under continued consideration and act as guides for future research, these divisions provide convenient headings for a review of our progress during the first full year of research activity.

First, there have been studies stressing the verbal behavior of the individual in a strict laboratory setting, and dealing with the person's use of language in recall, recognition, etc. These have been summarized under I, Associative Factors in Verbal Behavior. Second, are those studies exploring the formal characteristics of speech in relatively simple clinical or "two-man" situations. These are reviewed under II, Syntactical Features of Speech as Diagnostic or Prognostic Indices. Finally there are those studies involving the reception of connected discourse by social groups. The third heading, III, Conditions Affecting Reception of Controversial Statements deals with these. The investigators primarily concerned with each phase of research are indicated after the research titles.

I. Associative Factors in Verbal Behavior (Investigators: Wallace A. Russell and James J. Jenkins).

Several experiments during the past year have been concerned with the influence of associative factors in verbal behavior. The possible relevance of verbal association as a behavior determinant has been both implicitly and explicitly recognized for many years. The generality of interest is evident

when one considers the use of word association techniques in such diverse fields as psychoanalytic therapy and advertising market research. Free association has long been considered a basic tool in the former and is being used experimentally to pretest the acceptability of brand names and advertising slogans in the latter.

In the past, research in free association has, in the main, dealt with qualitative analysis of the responses obtained. Response words have been categorized according to the grammatical nature of the response, the logical relations of the response word to the stimulus word, the psychoanalytic symbolism involved, etc., etc.. Quantitative research efforts have been limited largely to studies of response latency, as for example, the comparison of response time in free association with response time for controlled association. The results of such research have found wide application. Lie detection and clinical diagnosis are but two examples of this. Nevertheless, the general laws of word associations have not been precisely formulated, the phenomena have not been related to systematic psychological theory, and the place of association in a psychology of language has not been adequately explored.

It is known that a given stimulus word (S) elicits from a group of people a set of responses ($R_1, R_2, R_3 \dots R_N$) such that in general the frequency of $R_1 > R_2 > R_3 \dots > R_N$. That is to say, the responses are not random but form a hierarchy of response frequency. Further, the hierarchy of responses obtained from one group may differ from that obtained from other groups. For example, typical responses for children will be different from those obtained from factory workers. It is possible, then, to note the degree of similarity between a given individual's responses and the responses characterizing a particular group.

It has been recently demonstrated that equivalent response hierarchies may be obtained when external stimuli other than the original spoken word are presented. The printed word, pictures of objects, and the objects themselves all give rise to roughly equivalent responses. This rather broad range of stimulus equivalence in situations where the external stimuli are so markedly different, suggests the possibility of some common, internal, perhaps verbal, mediating response which is elicited by all of these differing stimuli and which in turn provides the stimulation producing the common overt response word. If one assumes that the mediating response is an implicit verbalization of the stimulus word and if a situation can be created where this implicit verbalization may reasonably be inferred, the overt response word occurring in such a situation should be predictable from our knowledge of responses in word association tests. This possibility opens the way for empirical investigation of the role of word associations in the determination of overt behavior and only such experimentation can determine the importance of associative phenomena in a general psychology of language.

The first experiment carried out in connection with this phase of the project was designed to test the assumption that a subject would respond to his own verbal production as if those stimuli had originated from an external source. This assumption, is crucial to the line of reasoning presented above. The experimental task required the subjects to recall a partially learned list of words which consisted of stimulus and response words from the Kent-Rosanoff word association test. The order of the words was randomized and the tendency of a

subject to recall Kent-Rosanoff stimulus-response pairs together was measured. The recall task required the subject to produce each word himself. It was hypothesized that these self-produced stimuli would tend to elicit next the words commonly associated with them in the word association test. The results, which confirmed the hypothesis, were reported in detail as Technical Report Number 1, Associative Clustering During Recall, and were subsequently published in the Journal of Abnormal and Social Psychology (October 1952).

After this exploratory study had established the applicability of association test results to the case in which the stimulus word is self-produced, and a measurable consequence of inferred associations had been noted in the clustering of words during recall, it seemed desirable to investigate the possibility of a functional relationship between association strength and degree of clustering during recall. The assumption was that the clustering of associated words would become greater as the strength of the associations increased, although no guess could be made as to the exact nature of this relationship. One difficulty in its empirical determination was the lack of a sensitive measure of association strength. Three possible measures have been tried out, with the feeling that the effort to discover an adequate measure would be of value over a wide range of problems in addition to the immediate one.

One indirect index of the average association strength for a given set of Kent-Rosanoff pairs might be derived from the commonality score obtainable for this test. It was hypothesized that persons whose responses to the word association test conform closely to those typical of the norm group would tend to have stronger associative bonds for Kent-Rosanoff pairs than persons who do not conform closely to the norm groups. If associative clustering during recall is a function of association strength, then groups showing high conformity, should show more associative clustering than persons with low conformity. Three experiments, reported in detail as Technical Report Number 3, Associative Clustering and Commonality of Response in the Kent-Rosanoff Test, were performed to test this possibility. Commonality scores, based on the number of responses per subject which were primary responses in the normative tables, were used to separate high and low commonality groups and differences in associative clustering on a recall task similar to that used in the exploratory study were noted. In each case high commonality groups showed significantly more associative clustering than low commonality groups. Correlations between commonality score and clustering were positive but low.

Another measure of associative strength might be derived directly from the normative tables for word association tests. On the average, the most frequently occurring response to a given stimulus word may be a reflection of a stronger associative bond than that indicated by the second ranking response, etc. An experiment reported as Technical Report Number 2, Associative Clustering and Response Rank in the Kent-Rosanoff Test investigated the relation between this possible measure of association strength and clustering during recall. Three word lists comprised of stimulus and response pairs from the Kent-Rosanoff test were constructed so as to differ only with respect to the response words. In the first list the most frequent response for each stimulus word was employed; in the second, the next ranking response for each stimulus word was used; in the third, the third ranking responses were substituted. Each list was presented to a separate group in the same randomized order. Group I, working with the first list, showed the greatest tendency to recall the Kent-Rosanoff pairs together. The groups using the second and third lists showed less

associative clustering but still showed more than chance would allow. The latter two groups did not differ significantly from one another. The data suggested that similarities between the absolute frequencies of the response words in list two and list three may have accounted for the similar measures of associative clustering obtained with these lists.

The use of the absolute frequency of occurrence of a response word in the norms suggested itself as a still more effective index of association strength. Eighty-four subjects were presented with four word-lists which varied systematically with respect to the frequency of occurrence of the Kent-Rosanoff response words included. While in general the results showed a clear relationship between the culture frequency of the response words and the amount of associative clustering, one unexpected reversal of the predicted positive relationship was found. Significantly more clustering occurred with lists containing word-pairs with an average frequency of 250 per 1,000 subjects (Schellenberg's norms) than with lists containing pairs averaging 350 per 1,000. After a careful search for possible explanations of this phenomenon, it appeared that the most likely possibility was that the tabular frequencies of response listed in the Schellenberg norms were no longer precisely applicable to our experimental groups. The Kent-Rosanoff test was administered to a large class of undergraduate students and a preliminary check of frequency of occurrence of given response words indicated that the frequencies obtained from present day students did not conform well to those obtained by Schellenberg almost 20 years ago. This finding had two implications: First, it provided at least a partial explanation of the anomalous results of the study on response frequency by indicating an increase in frequency for certain words in the list formerly averaging 250 per 1,000 and a decrease for certain words in the list formerly averaging 350 per 1,000, and second, it indicated that any further work using response frequency in the Kent-Rosanoff test as an index of association strength could not hope for reasonable precision due to the fact that the existing norms were out of date.

The indications that Schellenberg's norms for college students had become obsolete were of interest in their own right, since it has been commonly assumed that association phenomena among the fairly common words of the Kent-Rosanoff test represent fairly stable linguistic tendencies. Thus the necessity of better norms for the continuation of the study of associative clustering and related behavior, plus the possible intrinsic theoretical interest of a 20-year comparative study, led to the undertaking of a full-scale effort to revise the relevant norms for the Kent-Rosanoff test. Tabulation of responses of 1,010 college students is now nearly completed. The results will shortly be reported and will subsequently be used as the basis for estimating cultural association strength. It is hoped that the new estimates will allow a more precise determination of the functional relationship between association strength and clustering during recall.

Meanwhile, work has continued on other experimental approaches to language. An informal study of word associations in the French language conducted among a group of adult Frenchmen did not show a significant tendency for the associations made to a stimulus word to be modified by adjectives preceding the stimulus words. Due to the small number of subjects available, however, the results could not be considered conclusive.

Analysis of the characteristics of verbal behavior where the subjects are

required to emit discrete words without making sentences or phrases has continued. The role of association in this task seems marked, although precise measures of its influence have been difficult to obtain.

Studies of the tachistoscopic recognition of words have been carried out and still another significant influence of associative factors has been revealed. Prior to this, however, several efforts failed to result in a difference in recognition time for words related to a subject's values, and one analysis (using a limited range of frequencies) did not confirm Howes' reported relationship between word frequency and recognition time. Those results are still considered tentative. Mr. William O'Neil conducted an experiment using a similar technique with the exception that, prior to the exposure of the word to be recognized, other words with varying associative relationships to the stimulus word were displayed as "background" or "context" words. His results showed conclusively that recognition time was more rapid for those words preceded by an associated context word than for those which were preceded by a non-associate. This finding provided further evidence of the fairly widespread effect of association in verbal behavior.

II. Syntactical Features of Speech as Diagnostic and Prognostic Indices.

A. Dynamic Changes in Formal Features of Speech Emitted in an Unstructured Situation (Investigators: Paul E. Meehl, Kenneth MacCorquodale).

Work in this area has been concerned with a restricted therapeutic situation in which it would be possible to examine very carefully the syntactical features of the client's verbal behavior in order that these might be correlated with clinical diagnosis and appraisal of progress of the patient. The therapist has intentionally limited his verbal output and in many sessions has not spoken at all. Protocols on two complete therapies were recorded during the past year and work has proceeded along two major lines.

First, three selected aspects of speech have been chosen for intensive study: verb tense, verb frequency, and adjective frequency. Counts on these are nearly completed on the twenty-six hour protocol of a successful therapy case treated with minimum behavior by the therapist. (The second case was discontinued partly because more active therapeutic intervention became necessary but chiefly because the subject's speech was not accurately readable even under optimal recording conditions). Secondly, several concrete methodological problems have been attacked. The original classification of words (Boder's system) was found to be insufficiently specific to get reliable counts, and after much trial-and-error a modified syntactical category system was evolved. It has been shown that, for verb tense, verbs, and adjectives, satisfactory inter-scorer reliabilities (.90 and above) are obtainable. Several alternative measures of scorer agreement convinced us that these aspects of speech are sufficiently accurately countable by independent scorers after a period of scorer indoctrination. It was also found that scorer consistency measures are not greatly affected by the size of speech sample taken as a block for counting, and that high scorer consistency exists with relatively small blocks such as 100 words (average of five sentences) or even single sentences. Many incidental calculations (e.g. central tendency and range of sentence length) and scoring decisions (e.g. when to call a compound sentence

two sentences) have been made which will be useful in subsequent work.

The following procedures are contemplated in the near future:

1. Completion of the above counts on several fairly long protocols,
2. Try-out of several alternative transformations (e.g. normalizing) on the very skew distributions,
3. Calculation of certain indices which theory or literature suggests (e.g. verb-adjective index, verb tense ratios) for blocks of various sizes,
4. Running of sequence-orderliness significance tests (e.g. Wallis test, autocorrelations for various temporal displacements) on these indices,
5. "Clinical" judgment of the protocol in regions of marked deviation on the preceding curves,
6. Time-series significance tests (e.g. for trend-line over the whole series of interviews).

If these analyses are encouraging, we have a much longer list of syntactical measures which will be applied to the same protocols, with a matrix of temporal covariation coefficients ("P - correlations") ultimately in mind for cluster or factor analysis.

B. Verbal Behavior as a Function of Induced Set Toward the Listener
(Investigator: Ephraim Rosen).

The fundamental hypothesis of this investigation, currently in progress, is that characteristics of the verbal behavior of an individual vary, in part, as a function of the set induced in him toward his listener. To test this hypothesis, sets can be induced in the speaker such as like-dislike of the listener, perception of similarity of speaker and listener vs. perception of difference between them, etc.

To date, 42 verbal behavior protocols have been recorded, half in the "like" situation. Liking and disliking have been induced by controlling instructions given to the subjects, and by controlling the behavior of the listener. A simple questionnaire is used to check on the success of the induction of the desired set. Each subject, after induction, is given a short word-association task, and then proceeds to the major part of the experimental session, viz. answering a number of open-ended questions about himself, his activities, etc.

These interview protocols are recorded and are to be analyzed for 53 variables. A list of these variables is appended. To date one protocol has been completely analyzed.

It is planned to continue acquiring protocols and to begin intensive protocol analysis.

Response Variables to be Analyzed

- | | |
|---|--|
| 1. Total words | 27. Ratio of 22/26 |
| 2. Words in final form | 28. Number of copulas of uncertainty |
| 3. Sentence length | 29. Number of copulas of certainty |
| 4. Starting time | 30. Ratio of 28/29 |
| 5. Length of any pause longer than 5 seconds | 31. Sum of 28/29 |
| 6. Total time | 32. Ratio of 22/31 |
| 7. Speed of speaking | 33. Ratio of 22/(31 plus 26) |
| 8. Speed of producing | 34. Number of concrete nouns |
| 9. Hesitating sound index | 35. Number of abstract nouns |
| 10. Repetition and rephrasing index | 36. Number of ambiguous (not clearly concrete or abstract) nouns |
| 11. Instances of repetition and rephrasing | 37. Ratio of 34/35 |
| 12. Contraction index | 38. Number of magnifying adjectives |
| 13. Number of clauses in each sentence | 39. Number of minimizing adjectives |
| 14. Sentence type (simple, compound, complex, compound-complex) | 40. Ratio of 38/39 |
| 15. Index of complexity (of clauses) | 41. Number of favorable adjectives and adverbs |
| 16. Number of self-references | 42. Number of unfavorable adjectives and adverbs |
| 17. Number of references to others | 43. Ratio of 41/42 |
| 18. Ratio of 16/17 | 44. Type/token ratio |
| 19. Number of verbs | 45. Number of negatives |
| 20. Number of adjectives | 46. Ratio of 45/1 |
| 21. Ratio of 19/20 | 47. Number of usages of concept of cause |
| 22. Number of action verbs | 48. Ratio of 47/1 |
| 23. Number of sensory verbs | 49. Number of instances of repetition of content |
| 24. Number of cognitive verbs | 50. Ratio of 47/1 |
| 25. Number of affective verbs | 51. Number of "content" words |
| 26. Sum of 23, 24, 25 ("Psychological" verbs) | 52. Number of "structural" words |
| | 53. Ratio of 51/52 |

III. Conditions Affecting Reception of Controversial Statements
(Investigator: Howard Gilkinson).

A series of three experiments on the effect of bias on recall has been completed. The first of these was begun in the fall of 1951. Thirty statements favorable to the Fair Deal (Truman administration) and thirty statements unfavorable to the Fair Deal were presented orally to college students, who were then asked to indicate their attitudes toward the administration on a seven point scale, and were given a sixty-item multiple choice test of their ability to correctly identify the statements just heard. One-half of the subjects heard a "mixed" form of presentation in which the pro and anti statements were mingled in random fashion. The pro and anti statements were separated in the presentation to the other subjects. Analysis of the data showed a tendency toward more successful identification of statements conforming to the bias of the listener: Republicans scored better on statements attacking the Fair Deal than on statements defending it, with Democrats exhibiting the opposite trend. These trends were more marked for mixed than for separated statements.

Another experiment was run in the fall of 1952 (one week before the election) chiefly for the purpose of confirming the difference found in the first experiment between the "mixed" and the "separated" forms of presentation. As in the first instance the statements were political in nature; thirty were presumably favorable to the Republican point of view and thirty favorable to the Democrats. Analysis of these data showed again a general tendency toward more successful identification of statements conforming to the bias of the listener, but there was no consistent difference between the "mixed" and "separated" presentations.

The third study was similar in general design to the other two, but the tested statements were factual and referred to events which had transpired before most of the subjects were born. There were sixty test statements, thirty favorable and thirty unfavorable to the Republican administrations of 1920 to 1932. There were two forms of presentation, a proactive form in which the statements were preceded by a strong interpretative paragraph and a retroactive form in which the interpretative paragraph followed the statements. A multiple choice test was used in the experiment, and was also given to a small group of subjects who did not hear the statements. The latter scored only a little better than chance, and men scored only a little better than women, suggesting that the experimental subjects had very little familiarity with the historical events with which the test statements dealt. Analysis of these data showed a tendency for both party groups to identify pro-Republican items better than anti-Republican items. This trend was stronger (4% level) for Republicans than for Democrats. There was no observable difference in the effects of the proactive and retroactive forms of presentation.

There are over 1200 subjects in the three experiments who are identified with one or the other of the two major political parties. The data are now being combined to provide maximum Ns for sub-group analysis. Interest centers particularly on possible differences between men and women, and between Republicans and Democrats.

An experimental study concerned with the effects of the prestige of the source of a communication and the relative effectiveness of one-sided and both-sides presentation of a controversial issue was completed during the year. The subjects checked a shift-of-opinion ballot indicating whether they were in favor, undecided, or against lowering the voting age to eighteen years. One-half of the subjects then heard a recorded speech favoring lowering the voting age to eighteen by a speaker who was introduced as a professor of Political Science. The other half of the subjects heard the same speech, but the speaker was introduced as a college sophomore. Approximately one-half of those who listened to the "professor" and one-half of those who listened to the "student" heard a speech which gave only arguments in favor of lowering the voting age--the "one side" speech. The remaining subjects heard the same speech except that the leading arguments against lowering the voting age were mentioned--"both sides" speech. After hearing the speech the subjects again checked the opinion ballot and took a fifty item multiple choice retention test on the material presented. Analysis of the data showed that the female subjects were no more responsive in terms of opinion shift to the "professor" than they were to the "student". The men who heard the "professor" showed a significantly greater shift of opinion toward the speaker's point of view than did the men who heard the "student". The mean retention scores of those (men and women)

who heard the "professor" and those who heard the "student" were not significantly different. The "both sides" speech did not secure a greater shift of opinion than did the "one side" speech, neither among men nor the women. The men who listened to the "both sides" speech had significantly higher retention scores than the men who heard the "one side" speech. This latter differentiation did not appear among the female subjects.

A third series of studies is now being prepared which will be concerned with the effect of order of arguments. Speeches on three controversial topics are being prepared, in each of which the main contention will be supported by three arguments. The relative importance of the supporting arguments will be judged by a sample of subjects drawn from the experimental population and the amount of space devoted to each supporting argument will be determined by these ranks. Two orders of presentation will be tried: order of least-to-most-important (climax order), and order of most-to-least-important (anti-climax order). Shift of opinion ballots and retention tests will be employed to determine the relative effectiveness of the two forms of presentation.

Although the studies in this section differ in specific purpose, they have certain things in common. All are direct studies of communication; connected discourse constitutes the stimulus material in each, and each has for its general purpose the relating of some condition or form of presentation to some distinctive listener reaction. All represent a follow-up of some previous study, and the main purpose is to discover how consistently outcomes occur in a series of experiments in which the same general features of presentation are preserved. This is important not only because statistical tests of significance do not entirely eliminate anomalous outcomes, but because studies of connected discourse are notoriously tricky. To date we have found rather consistent general outcomes for the studies of the effect of political attitude on recall, although the attempts to introduce incitement of attitude-effect (mixed statements and indictment or commendation early in discourse) have not produced consistent results. There appear to be some differences between sub-divisions of listeners, but no definite statement can be made until combined analysis is completed. The original design of these studies did not permit a clear-cut interpretation of causes; the results in Edwards' original study and in the first two in this series could have been due to frame of reference, or bias, or familiarity, or all these. The third study in this series suggests that differential recall can be secured under conditions where familiarity is eliminated as a cause. Because of its theoretical importance, this particular study should be extended. The effects of prestige suggestion and "both sides" treatment of a controversial issue did not emerge very consistently. The subjects in these experiments were fairly highly selected college students, and they may not take a very submissive attitude toward prestige symbols connected with a discussion of the qualifications of an eighteen year old person as a voter, and they may not have regarded the mere mention of opposing arguments as a true two-sided treatment of the subject. These possibilities will be taken into account if we do further experimentation with these variables.

IV. The personnel listed on the following page were employed on these projects in the period, 15 February 1952 - 15 February 1953.

<u>Staff</u>	<u>Graduate Students</u>	<u>Undergraduate Students</u>
Howard Gilkinson	Peter Briggs	John Kangas
James J. Jenkins	Frances Clayton	Patricia King-Ellison
Kenneth MacCorquodale	Gerald Helmstadter	Carol Nielson
Paul Meehl	James Loomis	Marilyn Pearson
Ephraim Rosen	Boyd Mathers	Merriam Savelkoul
Wallace A. Russell	Walter Mink	Evalyn Segal
	Stanley Paulson	
	David Premak	
	Ann Schwartz	
	Donald Sikkink	
	Lowell Storms	

C. RESEARCH IN COHESIVE AND DISRUPTIVE TENDENCIES
IN COALITION-TYPE GROUPS

I. General Problem.

The past year has been devoted to obtaining data relevant to the Inter-Fraternity Council, which is being studied as a coalition type of group. In the early stages of investigation two problem-areas were isolated for study: 1) To study the "representative role" and the forces which influence the behavior of a representative to a coalition type group; and 2) to explore possible factors relevant to a member group's support or non-support of the coalition.

II. Abstract of Progress since Annual Report, February 1952.

A. Representative Role

The representative is seen, in this study, as potentially subject to influences from two groups, the coalition-group and the member group which he represents. Forces exerted upon him from these groups may vary from case to case, may be mutually compatible on some issues, and conflicting on other issues. From unofficial ballots distributed at each meeting, the following tentative results were established:

1. There appears to be a "pressure toward uniformity" within the coalition meetings. This is inferred from the fact that representatives who vote contrary to the majority, consider the outcome of the motion as more important.
2. When the representative disagrees with his member group, it is found that his opinion conforms to the majority or the leadership in the coalition. This result was expected on the bases of representative identification with the coalition.
3. Representatives tend to see their respective fraternities as being less interested in the outcome of specific issues than they are themselves.

The representatives were interviewed at some length. Within this interview, a sociometric item was included, asking which other representatives were his friends. A measure was thus obtained of the extent to which the representative had socially extended himself in the coalition group. Using this measure, the following results were obtained from other interview items:

1. Rank order correlations were computed between the prestige of the representative's fraternity, and the prestige of the fraternities whose representative he chooses as a friend. These correlations were computed both for outgoing choices and incoming choices, on prestige and size of group.

Table I

Representative Sociometric, Rank-Order Correlations

	<u>Prestige</u>	<u>Size</u>
Incoming Choices (N = 17)	.50	.17
Outgoing Choices (N = 21)	.73	.55

2. Those representatives who have formed more social friendships in the coalition feel less restriction from the group they represent upon their role as a representative. This is inferred from the following:
 - a) they tend more to "vote as they themselves feel",
 - b) they are more active in trying to persuade their fraternity to go along with IFC proposals.
3. There is further evidence of their (those high in social friendships) involvement with the coalition group in the fact that they participate more in discussions over issues.

Analysis of data relevant to the "representative role" is not entirely complete as yet. One line of investigation shall be to explore the differences between simple "member" roles, wherein role-prescriptions are the same for all members by virtue of being a member, and "official" roles involving special or unique behavioral prescriptions. Another area for study shall be the method which the group employs in ascribing official positions to selected representatives. How does the executive committee replace itself, and what is the effect of this upon the stability of the coalition?

B. Variables Related to Support of the Coalition by Member Groups

At the time of the last Status Report, a questionnaire had been administered to the members of 26 fraternities, and responses were being tabulated. Since that time, tabulations have been completed and rechecked for accuracy. A mean score for each fraternity has been computed on most items, and these means have been checked. Finally, most of the items have been correlated with one

another (Product moment correlation employing group means as scores. $N = 26$) and these correlations are now being checked. This information, along with an index of fraternity size (mean size over three quarters), and an index of prestige (mean rank assigned by 31 representatives interviewed), are being employed in preliminary checks upon the original hypotheses.

The tentative conclusions with respect to the hypotheses are as follows:

Hypothesis # 1. Perceived benefit from membership in the coalition is a direct function of perceived commonality-of-fate with coalition members.

Fraternities which feel that they are harmed when another fraternity receives bad publicity, feel that they gain more through the Inter-Fraternity Council. ($r = .57$) Fraternity members do not feel so much "common fate" where mutual benefit is concerned, however. Those groups which feel they benefit when others benefit, feel they gain from IFC ($r = .44$).

Hypothesis # 2. Perception of benefit from membership in the coalition is a direct function of perceived influence in the policy of the coalition.

Fraternities which feel they have a lot of "say" in IFC, feel they benefit from membership therein. ($r = .69$)

Hypothesis # 3. Perception of benefit varies directly with the confidence the member group has in the leadership of the coalition.

Those fraternities which feel the officers of IFC will effectively represent the "fraternity point of view" in dealing with the University administration, feel they gain from membership in IFC. ($r = .62$)

Concerning the analysis of hypotheses in this section, the study is concerned with a coalition among groups for which size and prestige are important factors throughout. The alignment of power in IFC and the perception of that power by the groups are closely related to these variables. Consequently, attention is being directed toward the independence of the hypotheses advanced and tested.

C. French Cabinet Study

An exploratory study of the French Cabinet was undertaken during the summer months, as described in the Status Report of August 1952. One hypothesis developed in the fraternity study is being explored, which states that cohesion of the member group is a necessary but not sufficient condition for support of the coalition. Mr. Robert Holt, who is working on this phase of the study, is preparing a revision of the first draft, which should be ready in the near future.

III. Professional Personnel Involved During the Year.

B. J. Borreson, Consultant, Director, Student Activities Bureau
Mr. Richard Emerson (graduate student, sociology)
Mr. Robert Holt (graduate student, political science, Princeton.
No longer officially connected with the study)
Mr. David Lewit (graduate student, psychology)
Mr. Leonard Swanson (graduate student, psychology. No longer
officially connected with the study)
Dr. Benjamin Willerman (Assistant Professor, psychology)