Group Effectiveness Research Laboratory

DEPARTMENT OF PSYCHOLOGY · UNIVERSITY OF ILLINOIS · URBANA, ILL

DEVELOPMENT OF A SET OF DIMENSIONS FOR ANALYZING VERBAL GROUP PRODUCTS

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TECHNICAL REPORT NO. 23
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Group and Organizational Factors Influencing Creativity
Office of Naval Research Contract N8 177-472, Nonr-1834(36)

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Principal Investigators

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Foreword

One of the major problems in the development of small group theory has been the lack of comparability among research studies in the field. This incomparability arises in part from: (a) insufficient understanding of the effects of some of the main parameters of the research situation--such as the group task, the experimental setting, and the group output, and (b) a lack of operational equivalence among the instruments, concepts, and procedures employed by various researchers.

Two technical reports of this laboratory, prepared under ARPA Order No. 454, Office of Naval Research Contract NR 177-472, Nonr-1834(36), address themselves to these two difficulties.

Technical Report No. 23 represents an attempt to systematize the study of group output. It derives a set of dimensions which may be used for describing the general properties of written group products and applies these to a set of written group products.

Technical Report No. 24 speaks to the second of the sources of incomparability mentioned above. This report describes all principal experimental materials--tests, questionnaires, and tasks--which were used in the last decade by the Group Effectiveness Research Laboratory. All of the tasks and many of the questionnaires are appended to the report, and normative information on the instruments is presented where available in the hope that this will facilitate their use by other researchers.

Fred E. Fiedler,
Director
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A B S T R A C T

Development of a Set of Dimensions for Analyzing Verbal Group Products

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This report presents the factor analytic development of a set of descriptive dimensions for use in the systematic comparison of verbal products prepared by interacting groups. The dimensions are reliable and account for a major portion of the variance of group products. They are: (a) action orientation, (b) length, (c) originality, (d) outlook (positive vs. negative), (e) quality of presentation, and (f) issue involvement.

Relations of the dimensions with selected group and task characteristics are presented. Other applications of the dimensions to problems in the systematic study of group behavior are suggested and discussed.

Development of a Set of Dimensions for Analyzing Verbal Group Products[1]

J. Richard Hackman and Lawrence E. Jones[2]
University of Illinois

The study of small groups in laboratory settings is now one of the most researched areas of social psychology. However, as reviews of the literature by Argyle (1957), Hare (1962), and McGrath and Altman (1965) emphasize, theoretical integration of the area is proceeding very slowly. This state of affairs appears in part due to the difficulty of comparing different studies in the field.

This lack of comparability has been particularly problematical in the study of the characteristics of written products prepared by laboratory groups. Although the experimental paradigm in which interacting[3] groups are asked to write "answers" to group tasks has been very popular, means have not been available for comparing the general characteristics of the answers or products written by different groups.

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[1]This study represents Technical Report No. 23 of the Office of Naval Research Project NR 177-472, Nonr 1834(36), F. E. Fiedler, C. E. Osgood, L. R. Stolurow, and H. C. Triandis, Principal Investigators. The research also was supported in part by the Air Force Office of Scientific Research (Behavioral Division) Project AF 49 (638) 1291, J. E. McGrath, Principal Investigator. The advice and assistance of Drs. J. E. McGrath, F. E. Fiedler, and L. R. Tucker are gratefully acknowledged.

[2]Now at the University of California at Los Angeles.

[3]The term "interacting" as used by Fiedler (1964, pp.152-153) indicates a situation in which individuals must work cooperatively toward a group goal, and in which the work of individual group members cannot be assessed independently.

The present research attempts to alleviate this difficulty by providing a set of descriptive dimens ons on which products from different groups or from different experimental investigations can be compared.[4]

The analytic strategy involves successive (iterated) factor analyses of group product ratings to determine a final set of descriptive dimensions (or factors) from a large initial sample of scales (or items). Each iteration involves:

1 Specification of a number of descriptive scales which are predicted to load highly on several hypothesized factors.

2. Rating a large number of verbal group products on each scale.

3. Factor analysis of the scales.

4. Comparison of the resulting factors with those hypothesized.

5. Revision of the hypothesized factors and the sample of scales on the basis of the above comparison.

This five-step process is repeated until predictable, stable factors are obtained. Each dimension finally determined is thus a factor, which is described by a specific sub-set of scales.[5]

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[4]It should be noted that the present concern is only with those aspects of products which are not specific to a particular task. A dimension measuring "correctness," for example, would usually not be applicable to group products independent of specific task requirements, and thus would be inappropriate for present purposes. The aim of this research then is to determine those dimensions accounting for major portions of the task-independent variance of group products.

[5]This general analytic strategy was suggested by Professor L. R. Tucker.

Method

Five specific aspects of the method will be discussed separately:

1. Collection of the initial sample of descriptive scales.

2. Selection of a set of group tasks, from which group products were subsequently taken.

3. Collection of group products from the tasks.

4. The judgement process, by which ratings of each group product on each descriptive scale were obtained.

5. The statistical procedures employed.

Scales

From a first collection of over 200 descriptive scales (such as "long" or "unusual") a working sample of 119 was obtained by eliminating (a) those which could not be logically differentiated from one another, (b) those explicitly requiring knowledge of the experimental task for judgement, and (c) those necessitating considerable inference on the part of the judge. It was assumed that these 119 scales, taken as a group, would account for virtually all of the task-independent variance of the products.[6]

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[6]Since the opposite of a given adjective or scale is often not clear-cut, products were judged only as being relatively "true" or "false" with respect to a single adjective, rather than being assigned to a position on a bi-polar continuum. For example, products were rated on separate true-false scales for "closely knit," "loosely done," and "rambling," avoiding the necessity of deciding whether "closely knit--rambling" or "closely knit--loosely done" is the more useful bi-polar scale.

Tasks

To help insure that the sample of group products used in the factor analyses would be as diverse and as representative of the field as possible, it was decided to collect the products from a large and diverse set of group tasks.[7]

One hundred forty-five tasks were obtained. Of these, 81 were written especially for this study, 34 were taken from on-going research projects at the University of Illinois or from published research reports, 18 were obtained from undergraduate class projects at the University of Illinois, and 11 were adapted from the collection presented by Shaw (1963).

Only tasks requiring the production of a coherent verbal passage were included. The sample of tasks was further defined by four of the ten task dimensions formulated by Shaw (1963):

1. Decision verifiability. Only tasks with solutions which could not be immediately verified (e.g., by appeal to authority or by logical procedures) were included.

2. Goal path multiplicity. Only tasks which could be solved in a variety of ways (e.g., a "human relations" problem) were included.

3. Intellective-manipulative requirements. Tasks requiring "reasoning" or "thinking" activities were included; tasks primarily requiring motor activities were excluded.

4. Solution multiplicity. Only tasks with more than one acceptable or "correct" solution were included.

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[7] It was assumed that about 150 products (observations) would be necessary to achieve reasonably stable factor analyses. At the outset it was expected that three to five products would have to be taken from each task to achieve this number. However, enough tasks were eventually collected to permit selection of only one product from each task, presumably further enhancing the diversity of the sample of products.

Finally, as a precaution against systematic biases of task characteristics entering into the selection process, tasks were written and selected so that four other dimensions suggested by Shaw were each represented at all combinations of high, medium, and low levels.[8] These dimensions are:

1. Cooperation requirements. The degree to which the task requires coordinated or integrated action on the part of group members for successful solution.

2. Difficulty. The amount of intellectual effort required to complete the task.

3. Intrinsic interest. The degree to which the task in and of itself is likely to be interesting to the group members.

4. Population familiarity. The degree to which the content and/or intellectual processes called for by the task are likely to have been previously encountered by the group members.

Products

When several group products were available for a particular task, one product was randomly selected for use. Otherwise, the task was administered to an ad hoc group to obtain one. A total of 98 products were obtained from 32 ad hoc groups. These groups varied in size and in member characteristics, and were run under a variety of experimental conditions. The sample of products used in the factor analyses thus includes products from a considerable diversity of group-task situations.

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[8] Determinations of level on these four dimensions were made consensually by the experimenters.

Judgement Process

With the exception of the first iteration (in which ratings were made by the experimenters) numerical scores for each product on each scale were obtained by a "sort-resort" procedure adapted from that used by Shaw (1963). Judges sorted products into seven categories, ranging from "very true" to "very false." Thus, if a scale were titled "unusual" and the particular product under consideration was a narrative involving methods of cheating at lacrosse among Martian space slaves, the product would be placed in the "very true" category. A rather mundane discussion of midwestern humidity, on the other hand, would likely fall in the "very false" category on the scale "unusual." Products for which there was little evidence relevant to the scale, or for which evidence was internally conflicting, would be sorted into one of the middle categories.

Several steps were taken to minimize systematic judgement errors. Products and scales were presented to judges in random orders, to reduce the effects of rater response biases. Intensive training procedures were implemented to minimize differences in interpretations of the scales among judges, and judge-to-experimenter feedback was encouraged to detect and correct sources of ambiguity in written descriptions of the scales. Attempts to improve training procedures and scale descriptions were made throughout the project, although the basic sorting procedure itself was not changed. Judges were students at the University of Illinois. New judges were employed for each iteration. Materials used in training judges and in administering the product sorting are presented in Appendix A.[9]

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[9]One important aspect of the training procedure deserves brief mention here. After the first iteration, a sample of the group products themselves was factored, using scales as observations. Seven factors were obtained. Fourteen "pseudo-group products" were written to correspond to the apparent

Statistical Procedures

Inter-rater reliabilities, means, variances, and distribution analyses (including indices of skewness and kurtosis) were obtained for each scale at each iteration. These data were helpful in revising scale descriptions and in deciding which scales should be eliminated and which retained after each iteration. Factor analyses of mean judgements were by the principal axis method, with rotation to the varimax criterion (Kaiser, 1958). Communalities were estimated by a procedure developed by Professor L. R. Tucker and described in detail by Bass (1963).

Results

Three iterations were required to achieve stable factors.

The first iteration established that the 119 scales could be described adequately in terms of between five and eight factors. The second iteration yielded six factors, and the final iteration replicated these six. Detailed descriptions of the three iterations are presented in Appendix B.

The six factors obtained were characterized as follows:

1. Action orientation. Degree to which a product states or implies that a specific or general course of action should be, might be, or will be followed.

2. Length.

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positive and negative poles of each of these seven factors, and these pseudo-products were carefully rated by the experimenters on each of the scales in the sample. Then, before a judge began to rate the set of 144 products on a particular scale, he rated the "training products" on that scale, and compared his ratings with the experimenters' "criterion ratings." Differences between the judges' and the experimenters' sorts were fully discussed, hopefully increasing the judges' understandings of the meanings and implications of the scales.

3. Originality. The degree to which the ideas and/or mode of presentation of a product are fresh and unusual as opposed to obvious and mundane.

4. Outlook. The degree to which the general point of view or tone of a product can be characterized as "positive" or optimistic as opposed to "negative" or pessimistic.

5. Quality of presentation. Evaluation of the grammatical, rhetorical, and literary qualities of the product.

6. Issue involvement. The degree to which a product takes or implies a particular point of view regarding some goal, event, issue, value, or procedure.

Examples of products high and low on each of these dimensions (except difficulty) are presented in Appendix C.

Scale reliabilities were measured by intra-class correlation among judges. Two judges were used for the first and third iterations. At the second iteration judges were added for each scale until the intra-class correlation for summed ratings for that scale exceeded .74. This criterion was adopted to insure reasonably stable judgements for the critical second iteration, and was met with four or fewer judges for all but two scales.

A statistical profile of the scales used in the third iteration is presented in Table 1. The final set of written descriptions of the 24 scales used in this iteration is presented in Appendix D.

The six factors obtained in Iteration III were rotated to both Varimax and Oblimax (Pinzka and Saunders, 1954) criteria. A description of these rotated matrices is presented in Table 2.

The factor analysis replicated the hypothesized clusters of scales very well. For each of the six factors obtained, a spread of about .40 or more was obtained in the Varimax rotation between the lowest scale predicted to load on the factor and the next highest loading of any scale on that factor. The rotated variance was evenly distributed among the six factors.

Table 1

Hypothesized Factors, Source, and Statistical Characteristics of the Scales: Iteration III

Scale Name	Source[b]	Polarity	Intra-Class Correlation	Adjusted Intra-class Correlation	Standard Deviation	Mean
Factor I: Action Orientation						
Suggests action	old	+	.76	.87	1.72	4.05
Constructive	old	+	.69	.82	1.67	3.86
Descriptive	old, revised	-	.64	.78	1.60	3.94
Passive	new	-	.59	.74	1.61	4.01
Factor II: Length						
Short	old	-	.93	.96	1.63	3.97
Number of words[a]	old	+			1.58	3.97
Lacks detail, elaboration	old	-	.72	.84	1.59	3.86
Number of adjectives[a]	old	+			1.60	3.96
Factor III: Originality						
Bizarre	old	+	.56	.72	1.55	3.42
Not unusual	old	-	.68	.81	1.68	4.30
Original	new	+	.53	.70	1.40	3.96
Realistic	old	-	.57	.73	1.61	3.89
Factor IV: Outlook						
Positive outlook	old	+	.57	.72	1.30	4.10
Supportive	old	+	.51	.67	1.33	4.18
Disapproves	old	-	.61	.76	1.39	4.07
Shows antagonism	old	-	.52	.68	1.28	3.83
Factor V: Quality of Presentation						
Choppy	old	-	.68	.81	1.56	3.69
Stylistically well-integrated	old	+	.57	.73	1.61	3.97
Understandably presented	old	+	.58	.73	1.59	4.57
Poor mechanics	old, revised	-	.56	.71	1.49	4.04
Factor VI: Issue Involvement						
Low issue involvement	old	-	.60	.75	1.63	3.99
Propagandistic	old	+	.54	.70	1.64	3.92
States a belief, opinion	old	+	.56	.72	1.58	4.00
Detached	old, revised	-	.52	.68	1.50	3.64

[a] These are operational scales.

[b] "old" indicates that the scale was used in a previous iteration; "new" scales were used for the first time in this iteration.

Table 2

Factor Analysis of the Scales: Iteration III

Method of analysis:	Principal axis
Methods of rotation:	Varimax and Oblimax
Number of variables:	24
Number of observations:	144
Number of factors rotated:	6
Per cent of total variance accounted for:	99

Scale Name	Varimax Loading	Oblimax Pattern Loadings
Factor I: Action Orientation		
19% rotated variance		
Suggests action	.90	.96
Constructive	.89	.93
Descriptive	-.84	-.88
Passive	-.84	-.83
Next highest Varimax loadings:	-.41, -.29	
Next highest Oblimax loadings:	-.16, -.14	
Factor II: Length		
18% rotated variance		
Short	-.96	-.99
Number of words (operational)	.93	.98
Lacks detail, elaboration	-.82	-.80
Number of adjectives (operational)	.73	.74
Next highest Varimax loadings:	-.32, -.28	
Next highest Oblimax loadings:	.22, .20	
Factor III: Originality		
18% rotated variance		
Bizarre	.87	.87
Not unusual	-.84	-.89
Original	.81	.88
Realistic	-.76	-.79
Next highest Varimax loadings:	-.38, -.26	
Next highest Oblimax loadings:	-.38, -.15	

Table 2 Cont'd.

Scale Name	Varimax Loading	Oblimax Pattern Loadings
Factor IV: Outlook		
16% rotated variance		
Positive outlook	.86	.89
Supportive	.84	.86
Disapproves	-.83	-.85
Shows antagonism	-.76	-.78
Next highest Varimax loadings:	-.29, .24	
Next highest Oblimax loadings:	.13, .12	
Factor V: Quality of presentation		
16% rotated variance		
Choppy	-.89	-.90
Stylistically well-integrated	.83	.86
Poor mechanics	-.81	-.84
Understandably presented	.73	.73
Next highest Varimax loadings:	-.34, -.25	
Next highest Oblimax loadings:	-.21, -.16	
Factor VI: Issue involvement		
13% rotated variance		
Low issue involvement	-.76	-.81
Propagandistic	.74	.86
States a belief, opinion	.68	.84
Detached	-.64	-.69
Next highest Varimax loadings:	-.23, .22	
Next highest Oblimax loadings:	-.10, .09	

The Oblimax rotation yielded results nearly identical to those of the Varimax rotation. Primary factor correlations for the Oblimax rotation are presented in Table 3.

Several of the factors were found to be moderately correlated: issue involvement was correlated over .35 with action orientation, length, and outlook; in addition, outlook was correlated .35 with action orientation and -.39 with quality of presentation. Originality correlated .30 with length.

Application of the Dimensions

Following the determination of the six descriptive dimensions, an attempt was made to explore their usefulness in terms of relations with other aspects of the group-task situation. This section reports exploratory investigation (by analysis of variance) of the relations of the product dimensions with group size and with selected task characteristics.

Group size (1 to 4 Ss for all but 3 of the groups) and the task characteristics served as independent variables in the analyses, and six product "dimension scores" served as dependent variables. These dimension or "factor" scores were computed for each of the 144 group products by averaging ratings of the products across judges and across the four scales defining each dimension. This straightforward "averaging" procedure was considered satisfactory because of (a) the uniformly high loadings of each set of defining scales on the several factors, and (b) the empirical findings of Mosley and Klett (1963) that the usual "fractional" methods of arriving at factor scores yield results highly correlated with those obtained using this "unit weight" method.

Table 3

Primary Factor Intercorrelations: Oblimax Rotation, Iteration III

		I	II	III	IV	V	VI
Factor I:	Action orientation	--					
Factor II:	Length	-.03	--				
Factor III:	Originality	-.03	.30	--			
Factor IV:	Outlook	.35	-.07	.09	--		
Factor V:	Quality of presentation	-.13	.01	-.09	-.39	--	
Factor VI:	Issue involvement	.52	.40	.22	.37	-.12	--

Relations with Group Size

Table 4 presents product dimension means by size of group, and indicates F-levels and probability values obtained in these analyses of variance.

Differences significant at the .05 level were obtained for three of the six product dimensions. Originality of the products increased as size increased, degree of issue involvement decreased with size, and amount of action orientation was least for groups of size four, little difference being obtained among groups of smaller size.

Relations with Task Characteristics

The tasks from which group products were taken seemed to fall into three general classes or types: (a) "production" tasks, which require a group to elicit images and synthesize them into a story or other coherent passage; (b) "discussion" tasks, which require group members to resolve some issue and write a summary of their consensus; and (c) "problem solving" tasks, which require a group to generate and evaluate procedural implementations.

In addition, it will be recalled that the tasks were rated and selected on four of the Shaw (1963) dimensions prior to the factor analyses as a precaution against task selection biases. These ratings (on cooperation requirements, difficulty, intrinsic interest, and population familiarity), together with the classifications of tasks by "type" (production, discussion, or problem solving) served as independent variables in the analyses of relations among task characteristics and product dimensions.

Table 5 presents means, F-ratios, and probability values obtained in these analyses.

Table 4

Analysis of Variance of Product Dimension Scores Arranged by Group Size

Product Dimensions	Group Size					
	1	2	3	4	F	p
Originality	3.05	3.56	3.57	4.93	5.50	.01
Quality of presentation	5.00	4.34	4.02	4.41	2.17	.10
Issue involvement	4.83	4.53	4.48	3.43	3.25	.05
Action orientation	4.32	4.46	4.39	2.89	4.64	.01
Outlook	3.90	4.27	4.15	3.78	0.96	n.s.
Length	4.07	3.39	3.40	3.52	1.48	n.s.
N	16	72	39	14		

Note. -- df = 3, 137

Table 5

Analyses of Variance of Product Dimension Scores by Task Characteristics

Product Dimensions	Task Type			F	p
	Problem Solving	Discussion	Production		
Originality	3.46	3.14	4.78	16.69	.001
Quality of presentation	4.11	4.55	4.53	1.91	n.s.
Issue involvement	4.62	5.16	3.04	33.70	.001
Action orientation	5.27	4.02	2.35	90.62	.001
Outlook	4.28	4.01	3.95	1.18	n.s.
Length	3.50	3.36	3.68	0.64	n.s.
N	68	44	32		

	Difficulty			F	p
	High	Medium	Low		
Originality	3.80	3.63	3.51	0.41	n.s.
Quality of presentation	4.49	4.18	4.46	0.87	n.s.
Issue involvement	4.43	4.66	3.99	2.73	.10
Action orientation	4.06	4.51	3.93	2.06	n.s.
Outlook	4.16	4.12	4.09	0.04	n.s.
Length	3.64	3.62	3.10	2.48	.10
N	43	67	34		

Table 5 Cont'd.

	Interest			F	p
	High	Medium	Low		
Originality	4.20	3.55	3.16	5.88	.01
Quality of presentation	4.22	4.43	4.32	0.32	n.s.
Issue involvement	4.42	4.54	4.23	0.59	n.s.
Action orientation	4.06	4.35	4.26	0.47	n.s.
Outlook	3.69	4.12	4.70	7.90	.01
Length	3.31	3.60	3.55	0.70	n.s.
N	44	66	34		

	Familiarity			F	p
	High	Medium	Low		
Originality	3.02	3.57	4.20	9.11	.01
Quality of presentation	4.29	4.34	4.38	0.06	n.s.
Issue involvement	4.88	4.72	3.85	8.99	.01
Action orientation	4.67	4.55	3.66	7.12	.01
Outlook	4.18	4.04	4.15	0.18	n.s.
Length	3.46	3.59	3.45	0.20	n.s.
N	41	48	55		

Table 5 Cont'd.

	Cooperation Requirements			F	p
	High	Medium	Low		
Originality	3.15	3.89	3.82	3.71	.05
Quality of presentation	4.11	4.28	4.52	1.20	n.s.
Issue involvement	4.47	4.26	4.53	0.46	n.s.
Action orientation	4.80	3.57	4.34	7.46	.01
Outlook	4.21	4.09	4.12	0.18	n.s.
Length	3.36	3.50	3.60	0.46	n.s.
N	40	42	62		

Note. -- df = 2, 141

Task type. Analyses by task type yielded large and significant differences on the product dimensions originality, issue involvement, and action orientation. Production tasks were high and discussion tasks low on the originality dimension; discussion tasks were high and production tasks low on issue involvement; and problem solving tasks were high and production tasks low on action orientation.

Difficulty. Splitting on high, medium, and low difficulty yielded no differences significant at the .05 level, although differences reaching the .10 level were obtained for issue involvement and length. Tasks which were "easy" tended to yield products which were both short and low on issue involvement.

Intrinsic interest. Two relationships significant at the .01 level were obtained when tasks were split on intrinsic interest. The more interesting tasks were found to yield products which were at the same time high on originality and pessimistic in outlook.

Population familiarity. The split on population familiarity produced three relationships significant at the .01 level. Highly familiar tasks had products which were high on issue involvement and action orientation, but low on originality.

Cooperation requirements. Splitting on high, medium, and low cooperation requirements produced two significant relationships. Tasks with high requirements for cooperation yielded products of low originality, although little difference was obtained between tasks of medium and low levels of cooperation ($p < .05$). Tasks high on this dimension also yielded products high on action orientation, although the medium level of cooperation requirements yielded products of lowest action orientation ($p < .01$).

Implications for the Usefulness of the Product Dimensions

These results suggest that the product dimensions derived in this investigation have considerable potential for the systematic study of small group input-process-output relationships. Four of the six product dimensions yielded relationships with one or more of the task characteristics significant at the .05 level, and the other two dimensions (quality of presentation and length) each had results reaching the .10 level. Three of the dimensions were related to group size with probability less than .05.

The results obtained may represent a conservative estimate of the magnitude of relationship actually existing between the product dimensions and task characteristics or group size. For example, in the present analyses, size ranged only from 1 to 4. It might be expected that obtained relationships would have been larger if the sample had included products from groups with a greater variation in size.

Results relevant to task characteristics, too, are especially promising, since the task ratings and classifications used in the analyses were made consensually by two judges, without reliability check. If more judges were used to make the ratings, stability would undoubtedly improve, and the magnitude of external relationships would be expected to increase.

In summary, it may be concluded from these exploratory analyses that the set of product dimensions derived in this investigation shows considerable promise of becoming a useful tool in future investigations involving verbal group products.

Discussion and Conclusion

The major purpose of this project was to determine a minimal set of descriptive dimensions which would account for a major portion of the task-independent variance of verbal group products. Six such dimensions have been obtained, and they appear to account for a high percentage of product variance. Scale reliabilities and the variances of the products on the dimensions are sufficiently high to warrant use of the dimensions in practical research situations.

These six dimensions, each defined by four descriptive scales, are: (a) action orientation, (b) length, (c) originality, (d) outlook (positive vs. negative), (e) quality of presentation, and (f) issue involvement.

Several new avenues of substantive and methodological investigation are suggested by the availability of the product dimensions. Two general applications will be discussed briefly below.

1. The dimensions can be applied to the general problem of criterion formulation in small group research. Although many researchers judge group products with respect to criteria of "goodness" or "creativity" in the study of group performance, few have studied other, non-evaluative aspects of group output. Moreover, since descriptive scales which are used as criteria are usually prepared for a particular set of task instructions, they are in fact task specific and of little use in describing general properties of group products or in investigating the general relationships among various aspects of group behavior.

Given the present dimensions, a researcher in search of criteria could (a) statistically control the variance tapped by the product dimensions in formulating his criterion (if, for example, he were interested only in

differences among group products relevant to certain specific task requirements); (b) include certain of these task-independent factors as components of an evaluative criterion, fully aware of their meaning and characteristics; or (c) expand his notion of the "criterion" of group performance to include these more general, non-evaluative aspects of group output

Relevant to the second alternative above is work presently in progress by the first author toward development of an operational definition of group "creativity" in terms of a sub-set of the present dimensions plus one or two task-dependent scales. It appears that certain general task-dependent scales (e.g., 'practicality") may be used profitably in combination with certain of the task-independent product dimensions (e.g., "originality") for an entire class of tasks (e.g., problem solving tasks). Such a procedure might largely eliminate the need to use scales which are specific to particular tasks.

2. General links between group output (products) and input variables at the member, group, or environmental levels can now be more systematically investigated, as can the relationship between group interaction (process) and products. The application reported, in which product dimension scores were shown to be systematically related to group size and task characteristics, illustrates one specific direction such research can take. Another, which is currently in progress, involves the "cataloging" of a set of group tasks in terms of the product dimension means and variances which are to be expected from their use. Availability of such a "catalog" of expected outputs, when taken in conjunction with Shaw's (1963) scaling of task characteristics, could be of considerable value to the small group researcher in search of the "right" task for his particular subjects, variables and purposes.

In general, such systematic delineation of group product differences as a function of tasks--or as a function or other input, process, or output variables--can potentially aid the study of groups in two important ways. First, it may help systematize understanding of the general relations among input or process variables and group output. And, secondly, the patterns of product differences may help develop significant new insights into the nature of group interaction, and the consequences of interaction for individuals, for the group as a social system, and for the social environment.

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APPENDIX A

Rater Training Materials and Sorting Instructions

GENERAL RATER TRAINING

I. Pre-sort training: All raters together.

1. General orientation.
   General purpose of research, what has been done, general job of the raters, where the products came from. (see page 27)

2. Description of scales.
   a. Difference between "scale" (molecular) and "dimension" (molar).
   b. Importance of using scales as defined, even though the rater may have a different idea about its meaning.
   c. Importance of making task independent judgments.

3. Description, demonstration of sorting procedure.
   a. The mechanics of the sorting process are explained. (diagrammed on page 28)
   b. A demonstration sort on a specially written sample of fourteen products is made.
   c. Each rater sorts the sample of fourteen on a selected scale (not in the set to be used in the actual sorting process). Inter-rater agreement is checked, and questions discussed. Raters are encouraged to vocalize each decision in this process, to get them in the habit of knowing why they make a particular choice in sorting.
   d. The problem of inter-rater reliability is discussed. Emphasis is placed on honest disagreement, as opposed to disagreement because of sloppy sorting. Raters are told that reliability checks will be made throughout the rating sequence.

4. The "General Instructions" (pages 29-30) are read and discussed.

II. Before each rater begins to sort on a particular scale:

1. He reads a paragraph or two defining the scale.

2. He sorts the fourteen sample products on the scale.

3. His sort is compared to a "criterion" sort made previously by the experimenters, and differences are discussed until all concerned are satisfied that the rater has the meaning of the scale well in hand.

4. Finally, he re-reads the "General Instructions."

ORIENTATION TO THE PRODUCT DIMENSION STUDY

This study is an attempt to determine a minimal set of dimensions on which verbal group products may be described. The products being used in the study were selected to represent a wide variety of subjects, situations, and tasks. We have a sample of 144 products written for 144 different tasks.

The following steps are being taken to determine the descriptive dimensions underlying the products:

1. Over two hundred possible scales (e.g., good, closely knit, risque, long) were initially gathered.

2. Those scales which could not logically be differentiated from others were eliminated or combined, reducing the number to 119.

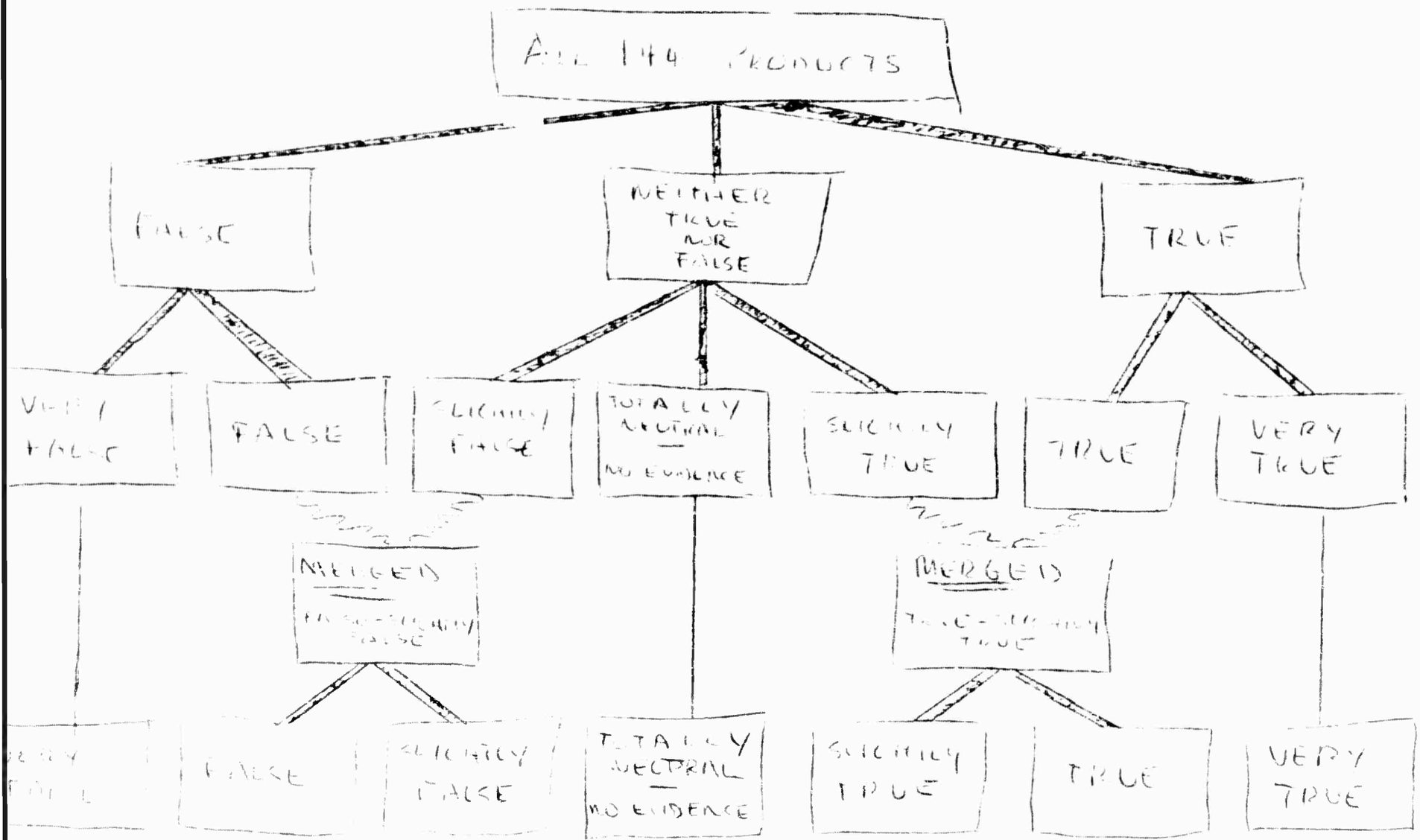
3. Each of the 144 products was rated on each of the 119 scales and these ratings were factor analyzed, to allow a first approximation of a set of dimensions to be made.

4. We now have about 50 scales, each of which is hypothesized to reflect one of seven factors obtained in the first factor analysis.

5. It will be your job to rate each of the 144 products on each of these scales, using a sorting technique. It is hoped that a factor analysis of your ratings will roughly replicate the earlier factor analysis. If it does, we will be able to specify these scales as indicators of the seven factors (dimensions) we have hypothesized. If it does not, scales will be rewritten, and the process repeated.

SORTING MECHANICS

Product Dimension Study



GENERAL INSTRUCTIONS TO RATERS

I. Before sorting:

1. Each time that you come in to rate, try to put yourself in a "rating mood." If you flunk an exam before coming in, get rid of your hostility before you start sorting. Moods can devastate ratings.

2. Make sure that the meaning of the scale that you are to sort is clear to you. Ask questions if there is any doubt in your mind as to the scale's meaning or implications.

3. Before actually starting to sort products on a scale, read over a small sample of the products. Notice how the scale applies to them. This will help re-establish your frame of reference and increase your understanding of the scale.

II. While sorting:

1. As you sort and when you finish, keep reconsidering your decisions, looking back and forth from pile to pile, reshuffling products as necessary to be sure that each is correctly classified.

2. Do not try to get the same number of products in each pile. The products are not necessarily evenly distributed on any of the scales.

III. After sorting:

1. When you have finished your sorts, record the numbers of the products in each pile on the sheet provided. (see page 31)

2. Finally, shuffle all the products, using the "four-pile sort" demonstrated.

IV. General

1. You should make no assumptions about the composition or structure of the group which wrote the products, or the task for which a product was written. This study is concerned only with those characteristics of products which are independent of task, situation, and subjects. You will need to keep constantly in mind that ratings are to be made only on the basis of what is written down on the card; no inferences are necessary or desired.

2. Your frame of reference for the sorts should be the set of 144 products. For example, among the products you will be rating are a number of "stories." If you were to rate these using published novels as a frame of reference, all of them would likely be rated

low on the scale "good." Keep in mind that the object of the ratings is to differentiate as much as possible among the 144 products we have; thus only these 144 should be used for comparison.

3. Never sort a product into a pile without consciously making a decision. On longer rating or sorting tasks such as this one, raters often become robot-like. Carefully consider each product, stay alert and do not let your ratings become automatic.

4. Be careful not to let your sorts "halo." This is, do not let a low rating of a product on one scale influence your rating of it on some other scale. Rate each product only on its own merits in comparison to the other products on the scale under consideration.

SORT TABULATION FORM: PRODUCT DIMENSION STUDY

Rater number _____
Scale number _____

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
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44.							
45.							
46.							
47.							
48.							
Σ							

APPENDIX B

Detailed Descriptions of Iterations I, II, and III

Detailed Descriptions of Iterations I, II, and III

Complete results for each iteration and any irregularities of method for that iteration are presented below.

Iteration I

The first iteration was unique in two ways: (a) no predictions were made of the factors to be obtained, because no empirical basis for such predictions yet existed; and (b) judgments were made by the experimenters on four-point scales. Ratings for this first iteration entailed a total of 34,272 separate judgments (144 products by 119 scales by 2 raters), and required over 250 man-hours for completion. The magnitude of the judgment task was considered to be practical -- if not scientific -- justification for these compromises made in the judgment process.

The initial 119 scales and a statistical profile of each are presented in Table B-1. On the basis of these data, 24 scales were eliminated from the sample, leaving 95 for subsequent analyses. A scale was eliminated if any of the following criteria was met: (a) intra-class correlation <.60 (adjusted <.75); (b) skewness >1.3; (c) standard deviation <.69; and (d) mean <2.0 or >4.0.

The 95 scales were factor analyzed and, after examination of the plots of the eigenvalues of successive factors, three, seven, eleven and thirteen factors were rotated to a Varimax criterion. The rotated matrices indicated that the seven-factor solution described the data most adequately.

A summary of the seven factor rotation is presented in Table B-2. The seven factors, which together accounted for 87 per cent of the total variance, seemed to connote:

Table B-1

Statistical Characteristics of the Initial Set of Scales

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	1.	Risque	.72	.84	.93	2.09	-1.12	.72
	2.	Masculine	.64	.78	.76	2.86	- .32	-.23
	3.	Mundane	.77	.87	1.07	2.97	.17	-.82
	4.	Dogmatic	.61	.76	.79	3.27	.11	-.21
	5.	Discussion-like	.84	.91	1.08	3.00	.29	-1.14
	6.	Naive	.60	.75	.85	2.69	- .45	-.29
X	7.	Earthy	.49	.66	.76	2.90	.08	-.22
	8.	Objective	.71	.83	.92	3.27	.65	-.29
X	9.	Authoritarian	.50	.67	.69	3.36	.23	.06
	10.	Phony	.67	.77	.88	2.66	- .03	-.76
	11.	Coherent	.78	.88	.99	3.22	.35	-.89
	12.	Descriptive	.73	.85	1.03	2.97	- .35	-.87
	13.	Practical	.89	.94	1.44	3.21	.25	-1.46
	14.	Radical	.65	.79	.85	2.65	- .46	.00
	15.	Closely knit	.64	.78	.96	3.10	.19	-.80
X	16.	Correct	.41	.58	.58	3.50	.29	.08
X	17.	Worthwhile reading	.56	.72	1.02	2.81	.13	-1.04
	18.	Wishy-washy	.66	.80	.93	2.25	- .67	-.27

Table B-1 Cont'd.

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	19.	Convincing	.65	.79	.87	3.14	-.13	-.79
	20.	Shows command of language	.69	.82	.95	3.04	-.27	-.78
	21.	Impelling, demanding of attention	.70	.83	.94	2.77	-.51	-.54
	22.	Colorful, flowery	.81	.90	1.03	2.20	-.86	-.26
	23.	Has continuity	.77	.87	1.06	3.22	.57	-.81
	24.	Shows imagination, is novel, original	.69	.82	1.02	2.91	-.33	-.68
X	25.	Respectful	.59	.74	.64	3.11	.01	.00
X	26.	Follows a central theme	.61	.76	.65	3.99	2.17	6.53
	27.	Warm	.60	.75	.85	2.51	-.34	-.46
	28.	Formal	.72	.84	.93	3.30	.39	-.68
	29.	Childish	.69	.81	.91	2.48	-.35	-.46
	30.	Choppy	.78	.88	1.10	2.81	-.50	-.92
X	31.	Story-like, has a plot	.91	.95	1.09	1.59	-1.78	1.60
	32.	Agrees	.60	.75	.46	2.85	.89	7.73
X	33.	Believable	.66	.80	.79	3.49	1.31	1.32
	34.	Verbose	.70	.82	.88	2.48	-.28	-.63
	35.	Repetitive ideas, facts	.79	.88	.98	2.40	-.39	-.76
X	36.	Symbolic	.90	.95	.89	1.39	2.58	5.92
X	37.	Easy to read	.57	.75	.86	3.52	.53	-.32

Table B-1 Cont'd.

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	38.	Repetitive sentence style.	.70	.82	.95	3.09	.07	-.93
	39.	Shows antagonism	.65	.78	.89	2.89	-.02	-.34
	40.	Successful	.64	.78	.78	3.35	.52	-.35
	41.	Creative, ingenious, shows insight	.74	.85	.99	3.12	-.02	-.78
	42.	Apathetic	.62	.77	.78	2.41	-.80	-.05
	43.	Technical, operational	.88	.94	1.28	3.03	.03	-1.24
	44.	Theoretical, hypothetical	.78	.88	1.10	2.90	-.03	-1.07
	45.	Cumbersome	.74	.85	.94	2.67	-.35	-.90
	46.	Elaborated	.76	.88	.96	3.01	.40	-.92
	47.	Sincere	.64	.78	.70	3.72	.52	.08
	48.	Gives suggestions	.84	.91	1.24	2.84	-.09	-1.41
	49.	Confusing	.75	.86	.89	2.55	-.81	-.22
X	50.	Calm	.54	.70	.84	3.19	.56	-.86
	51.	Tolerant, open-minded	.68	.81	.76	2.96	.07	-.01
	52.	Vulgar, common	.61	.76	.70	2.86	-.63	.24
	53.	Suggests action	.88	.94	1.26	2.59	-.25	-1.34
	54.	Constructive	.71	.83	.91	3.32	.14	-.80
	55.	Slangish	.76	.86	.82	2.18	-1.22	1.26
	56.	Trite	.76	.87	.94	2.67	-.34	-.72

Table B-1 Cont'd.

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	57.	Important	.72	.84	.92	2.95	.23	-.81
	58.	Easy to understand	.74	.85	1.00	3.61	.94	.03
	59.	Controversial	.81	.90	1.13	3.13	.05	-1.00
	60.	Deep, profound	.65	.79	.87	2.18	-.67	.20
	61.	Socially relevant	.86	.92	1.17	3.11	.14	-1.15
X	62.	Satirical	.76	.86	.89	2.01	-1.33	1.54
	63.	Supports	.68	.81	.87	3.00	-.09	.04
	64.	Detailed	.71	.83	.82	3.29	.50	-.42
	65.	Is axiomatic	.48	.65	.72	2.31	-.64	.17
	66.	Interesting	.76	.86	.97	3.11	.22	-.69
	67.	Sensational	.83	.90	1.09	2.85	-.11	-1.03
	68.	Justifies	.78	.88	1.09	2.91	-.01	-1.14
	69.	States an opinion	.75	.86	1.06	3.63	.64	-.19
	70.	Sensible	.68	.81	.70	3.67	1.01	1.70
	71.	Shows knowledge of subject	.62	.76	.69	3.44	.24	-.05
X	72.	Liberal	.55	.71	.67	3.06	-.13	.51
	73.	Emotional	.81	.89	1.12	2.68	-.19	-.93
	74.	Serious	.68	.81	.77	3.67	1.30	2.03
	75.	Optimistic	.77	.87	.89	2.89	.31	-.51
	76.	Enjoyable reading	.65	.79	.87	2.94	.04	-.43

Table B-1 Cont'd.

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	77.	Logical	.65	.79	.85	3.47	.59	.17
	78.	Enlightening	.65	.79	.97	3.33	.20	-.82
X	79.	Explains, clarified	.50	.67	.80	3.85	.73	.19
	80.	Long	.92	.96	.90	2.95	.01	-.23
	81.	Factual	.70	.82	.91	3.06	-.03	-.40
	82.	Loosely done	.66	.79	.97	2.65	-.28	-.80
X	83.	Defensive	.55	.71	.69	2.88	.06	.55
	84.	States a belief	.78	.87	1.17	3.38	.38	-.87
	85.	Uses examp'	.62	.77	.98	2.74	-.37	-.72
	86.	Uses good vocabulary	.65	.79	.73	3.38	.22	.06
	87.	Approves	.62	.77	.70	2.99	.18	2.06
	88.	Fails to develop ideas, sketchy	.79	.88	1.15	2.84	-.32	-.96
	89.	Fantastic, nonsensical	.78	.88	.97	2.44	-.88	.21
X	90.	Flows smoothly, fast moving	.59	.74	.71	3.83	.72	.78
	91.	Grammatically correct	.65	.79	.88	3.48	.83	-.26
	92.	Well written	.77	.87	.99	3.33	.35	-.61
	93.	Reasonable	.69	.82	.82	3.67	1.13	1.24
X	94.	Humorous	.81	.89	1.00	1.92	-1.47	1.54
	95.	Complex in ideas and terms	.66	.79	.91	2.91	-.19	-.52

Table B-1 Cont'd.

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	96.	General	.72	.84	1.08	2.52	-.20	-1.19
	97.	Analytic	.65	.79	.90	3.10	.29	-.27
X	98.	Positively stated	.56	.72	.72	3.47	.64	.05
X	99.	Cliche ridden	.68	.81	.68	2.33	-1.39	1.59
	100.	Philosophical	.71	.83	.88	2.18	-.75	-.20
	101.	Plain	.66	.80	.98	3.11	.33	-.71
	102.	Simple	.65	.80	.97	3.18	.33	-.76
	103.	Refined	.60	.75	.80	3.16	.37	-.43
X	104.	Uses many analogies	.70	.82	.65	1.94	-2.58	10.19
	105.	Clear	.69	.82	.85	3.63	1.20	1.37
	106.	High pressured	.71	.83	.92	2.84	-.05	-.66
X	107.	Pretentious	.51	.68	.75	2.96	-.03	-.23
	108.	Propagandistic	.79	.88	1.11	2.98	-.01	-1.10
	109.	Gets point across	.73	.84	.93	3.63	1.04	.53
	110.	Concrete	.63	.77	.88	3.57	.49	-.07
	111.	Has moral implications	.76	.86	1.10	2.70	-.42	-.76
X	112.	Safe	.59	.74	.80	3.12	.03	-.62
	113.	Good	.75	.86	.88	3.28	.27	-.67
	114.	Carefully thought out	.72	.84	1.10	3.30	.33	-.71
	115.	Number of words, rescaled[a]			1.07	2.93	-.07	-.57

Table B-1 Cont'd.

Rejected	Scale Number	Scale Name	Intra-class Correlation	Intra-class Correlation Adjusted for Summed Judgements	Standard Deviation	Mean	Skewness	Kurtosis
	116.	Number of adjectives, rescaled			1.20	3.06	.05	-.81
	117.	Number of adjectives / Number of words rescaled			1.18	3.00	-.03	-.77
	118.	Number of grammatical errors, rescaled[b]			1.12	2.88	-.17	-.67
X	119.	Written out (vs. outline form)			1.27	1.67	-1.64	1.60

[a]Scales 115-119 were in "operational" form.

[b]Errors in paragraphing, spelling, sentence structure, use of tense, use of verbs, and punctuation as determined by a high school English teacher.

Table B-2

Factor Analysis of the Scales: Iteration I

Method of analysis:	Principal axis
Method of rotation:	Varimax
Number of variables:	95
Number of observations:	144
Number of factors rotated:	7
Per cent total variance accounted for:	87

Scale Name	Loading
Factor I	
Percent rotated variance: 23.2	
Well-written	.83
Loosely done	-.76
Good	.75
Has continuity	.74
Clear	.74
Confused	-.72
Choppy	-.69
Easy to understand	.68
Logical	.67
Grammatically correct	.66
Enjoyable reading	.65
Refined	.64
Sketchy	-.63
Successful	.60
Gets point across	.54
Good vocabulary	.52
Cumbersome	-.52
Carefully thought out	.50
Interesting	.50
Repetitive style	-.49
Creative	.4[illegible]
Sensible	.40
Factor II	
Per cent rotated variance: 13.4	
Deep, profound	.73
Plain	-.69
Creative, ingenious	.65
Trite	-.60
Shows imagination	.58
Complex in ideas, terms	.58
Vulgar, common	-.55
Simple	-.52

Table B-2 Cont'd.

Scale Name	Loading
Successful	.47
Carefully thought out	.43
Philisophical	.43
Interesting	.43
Childish	-.42
Uses good vocabulary	.41
Factor III	
Per cent rotated variance: 20.0	
Constructive[a]	-.75
Formal	-.74
Colorful	.73
Serious	-.67
Suggests action[a]	-.66
Gives suggestions[a]	-.64
Technical	-.64
Reasonable	-.63
Emotional	.62
Fantastic	.62
Warm	.59
Important	-.59
Analytic	-.56
Concrete	-.54
Slangish	.54
Childish	.52
Sensible	-.50
Shows knowledge of subject	-.45
Theoretical	.40
Factor IV	
Per cent rotated variance: 13.5	
States a belief	.82
States an opinion	.73
General	.64
Propagandistic	.63
Philisophical	.54
Theoretical	.52
Technical	-.51
Socially relevant	.49
Justifies	.49
Concrete	-.47
Controversial	.46
High pressured	.46
Sincere	.43
Factual	-.41

Table B-2 Cont'd.

Scale Name	Loading
Factor V	
Per cent rotated variance: 14.0	
Number of words	.84
Long	.80
Number of adjectives	.72
Elaborated	.69
Detailed	.68
Sketchy	-.58
Verbose	.56
Complex in ideas, terms	.52
Number of grammatical errors	.50
Carefully thought out	.47
Uses many examples	.44
Simple	-.43
Repetitive	.40
Factor VI	
Per cent rotated variance 9.6	
Shows antagonism	-.77
Supports	.65
Approves	.63
Sensational	-.60
Controversial	-.53
Optimistic	.47
High pressured	-.43
Has moral implications	-.40
Factor VII	
Per cent rotated variance: 6.3	
Radical	.58
Phony	.58
Closely knit[b]	.45
Convincing[b]	.42
"Wishy-washy"	.38
Descriptive	.34
Risque	.32

[a]When eleven factors were rotated, these items split off this factor and formed the nucleus of a spearate, "action oriented" factor.

[b]These two items form the nucleus of a new factor when eleven factors are rotated; they are here apparently as "residue."

1. Evaluation of the style and quality of the presentation.

2. Evaluation of the content, the substance of the product.

3. The degree to which the product was removed from a formal, business-like reality. In the eleven factor solution, a "suggestion-action orientation" factor split off this factor.

4. The degree to which the product was involved in an issue or intellectual "position."

5. Length, including amount of detail and elaboration.

6. The degree to which the product expressed positive (as opposed to negative) "outlook" or orientation.

7. The degree to which the product deviated from the "typical" or "normal": its unusualness or "off-centeredness."

After examination of the scales loading on each of these factors, a set of 40 scales was assembled, designed to best reflect and differentiate among the factors obtained in this iteration. The set consisted of five scales for each obtained factor, plus five "action-orientation" scales to enable more adequate study of the nature of Factor III to be made.

The factors hypothesized for judgment in the second iteration are presented in Table B-3.

Iteration II

It was considered very important to achieve stable estimates of the values of the products on the various scales at Iteration II, since the process of refining the factor analytic results would begin in detail with this iteration. Therefore, enough judges were used to achieve an intra-class correlation for summed ratings approaching .75. For some scales, two judges sufficed; for others, four raters were needed to approach this criterion.

Table B-3

Hypothesized Factors, Source, and Obtained Statistical Characteristics of the Scales: Iteration II

Scale Name	Source[b]	Polarity	Intra-class Correlation	Adjusted Intra-class Correlation	Standard Deviation	Mean
Factor I						
Well written	old	+	.38	.71	1.32	4.28
Choppy	old	-	.68	.86	1.74	3.76
Understandably presented	old, revised	+	.65	.79	1.74	4.41
Bad mechanics	new	-	.43	.75	1.37	3.76
Stylistically well-integrated	new	+	.46	.77	1.37	4.46
Factor II						
Deep, profound	old	+	.49	.80	1.51	4.07
Trite	old	-	.38	71	1.86	4.00
Creative, ingenious	old, combined	+	.58	.81	1.57	3.82
Plain, everyday	old, revised	-	.59	.81	1.59	4.01
Above average content	new	+	.56	.79	1.61	4.10
Factor III						
Number of words[a]	old	+			1.58	3.52
Number of adjectives[a]	old	+			1.60	3.44
Short	old, revised	-	.89	.96	1.74	4.20
Lacks detail, elaboration	old, combined	-	.63	.78	1.83	3.67
Number of lines[a]	new	+			1.38	3.80
Factor IV						
Propagandistic	old	+	.70	.83	1.83	4.49
States a belief, opinion	old, combined	+	.63	.77	1.80	4.07
Takes a general philosophical position	old, combined	+	.60	.75	1.73	3.46
Low issue involvement	new	-	.64	.78	1.71	3.80
Detailed, uninvolved	new	-	.44	.76	1.48	3.48
Factor V						
Colorful	old	+	.82	.90	1.87	3.80
Emotional	old	+	.74	.85	1.76	3.55
Formal, serious	old, combined	-	.70	.87	1.65	4.42
Realistic	new	-	.60	.75	1.65	4.30
Business-like, down to earth	new	-	.74	.89	1.71	4.46

Table B-3 Cont'd.

Scale Name	Source[b]	Polarity	Intra-class Correlation	Adjusted Intra-class Correlation	Standard Deviation	Mean
Factor VI						
Shows antagonism	old	-	.58	.80	1.39	4.03
Disapproves	old, revised	-	.57	.80	1.44	4.10
Supportive	old, revised	+	.61	.76	1.27	4.24
Pessimistic	old, revised	-	.51	.76	1.65	4.20
Positive outlook	new	+	.68	.81	1.55	4.08
Factor VII						
Radical	old	+	.60	.82	1.51	3.72
Phony	old	+	.53	.82	1.49	3.76
Not unusual	new	-	.58	.81	1.66	4.27
Bizarre	new	+	.67	.80	1.67	3.37
Typical	new	-	.72	.88	1.81	4.18
Factor VIII						
Suggests action	old	+	.77	.87	1.87	4.36
Gives, implies suggestions	old, revised	+	.68	.81	1.90	4.31
Constructive	old, revised	+	.84	.91	1.93	4.44
Has no implications for action	new	-	.76	.91	1.84	3.70
Descriptive or meditative	new	-	.53	.77	1.59	4.12

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[a] These are operational scales.

[b] "Old" indicates that the scale was used in a previous iteration; "new" scales were used for the first time in this iteration.

Final unadjusted intra-class correlations for this iteration ranged from .3[illegible] to .89; adjusted for summed ratings, they ranged from .71 to .96. The median adjusted intra-class correlation was .81. A statistical profile of the 40 scales used in this iteration is included in Table B-3.

These 40 scales were factor analyzed (using product ratings averaged across judges as observations), and six and seven factor solutions were rotated to a Varimax criterion. The six factor solution, accounting for 95 per cent of the total variance, appeared to describe the data more adequately. A summary of this rotation is presented in Table B-4. The six factors connoted:

1. Unusualness, originality, lack of a serious, "down-to-earth" point of view.

2. Action orientation.

3. Length.

4. Issue involvement.

5. Evaluation of quality of presentation.

6. Positive (vs. negative) outlook or orientation.

All factors except the first consisted of items which had been predicted to cluster together. The "evaluation of content" factor was lost in this analysis, and a relatively clear-cut "unusual" or "original" factor seemed to appear, mostly from items which had been hypothesized to load on the "evaluation of content" and "realistic-business like" factors obtained in Iteration I.

It may be that the "evaluation of content" factor was obtained in the first iteration in part because the judges (the experimenters) were well acquainted with the experimental tasks. In the second iteration, the judges had not read the tasks, and perhaps for that reason were unable to make consistent evaluations of content. That is, judges in the second iteration

Table B-4

Factor Analysis of the Scales: Iteration II

Method of analysis:	Principal axis
Method of rotation	Varimax
Number of variables:	40
Number of observations:	144
Number of factors rotated:	6
Per cent total variance accounted for:	95

Scale Name	Loading
Factor I	
Per cent rotated variance: 24.2	
Not unusual	-.87
Bizarre	.83
Radical	.82
Plain, everyday	-.79
Realistic	-.79
Creative	.72
Phony	.71
Colorful	.68
Trite	-.64
Formal, serious	-.63
Business-like, down to earth	-.56
Typical	-.55
Emotional	.52
Factor II	
Per cent rotated variance: 17.9	
Constructive	.91
Has no implications for action	-.91
Suggests action	.91
Descriptive, meditative	-.87
Business-like, down to earth	.63
Gives, implies suggestions	.58
Emotional	-.56
Factor III	
Per cent rotated variance: 17.2	
Short	-.91
Number of words	.90
Lacks detail, elaboration	-.83
Above average content	.77
Number of adjectives	.73
Deep, profound	.68
Creative	.49

Table B-4 Cont'd.

Scale Name	Loading
Factor IV	
Per cent rotated variance: 14.8	
Propagandistic	.85
Low issue involvement	-.81
States a belief, opinion	.75
Detached, uninvolved	-.70
Takes a general philosophical position	.65
Gives, implies suggestions	.61
Factor V	
Per cent rotated variance: 13.1	
Stylistically well-integrated	.87
Bad mechanics	-.86
Well written	.86
Understandably presented	.74
Choppy	-.67
Factor VI	
Per cent rotated variance: 12.9	
Positive outlook	-.90
Disapproves	.85
Supportive	-.83
Pessimistic	.82
Shows antagonism	.81

probably could not know whether a product was or was not "good," because they did not know what the task was for that product.

In any case, the prediction that an "evaluation of content" factor would be obtained was not substantiated in this iteration, and most of the scales which were expected to define this factor did not load highly on other factors obtained. Most of these scales subsequently were dropped from further consideration.

The factors obtained in this iteration appeared, in general, very clear-cut. Thus, these same six factors were hypothesized for the third iteration, with minimal changes in the sets of items predicted to load on each. The hypothesized factors are presented in Table 1 of the text.

Iteration III

Since the third iteration was viewed mainly as a replication of results obtained in Iteration II, the attainment of high reliabilities was not deemed as important as before, and only two judges were employed. These new judges were not informed about the nature of the group tasks, nor which scales were hypothesized to cluster together.

Written descriptions of the scales were still being revised at this stage of the research, and the meanings of a few scales were misunderstood by one of the judges. This judge was retrained with improved scale descriptions on these scales, and his second ratings were considerably more in agreement with the other judge and with the meanings implied in the descriptions. Only the re-ratings of these scales were used in the analyses for this iteration.

A statistical profile of the scales used in this iteration is included in Table 1 of the text. Reliabilities (again by intra-class correlation)

ranged from .51 to .93, and adjusted reliabilities ranged from .67 to .96. Median adjusted reliability was .73.

Summaries of the factor analysis and the rotations made in this iteration are presented in Tables 2 and 3 of the text.

APPENDIX C

Examples of Group Products High and Low on Each of the Product Dimensions

Dimension #1: Action Orientation

High Action Orientation:

A cooling system should be devised for the booster, perhaps of an air-cooled or cover or water-colled type. This should be used rather than running the pump at intervals. An engineer who could handle the problem of devising or putting into effect a cooling system should be called in.

The cooling system's operation and the pumping of the crude oil should be put off till the end of 3 wks.

Low Action Orientation:

A light turns on among the skyscrapers, it glows
Through a forest of filetted bones; a lamp
Shimmers just over the carapace of the hill;
Then fades, blurs; a bucket of water, waxes, no glow.
Stars are not bright enough
To warn if the clouds reel
Awash in the gutter,
Or what ne'er-do-well in the grave
Of night is out hunting Wheaties box tops.
Under the phanasmagoria of sky
Our thoughts lie black, secret; only that brilliance
Waiting to dazzle the loser, to flash
Death in his eyes--Oh, but that light
Has cleared the bright are of darkness;
Is is then simply the moon out hunting mice-- and fear and I?

Dimension #2: Length (no examples given)

Dimension #3: Originality

High Originality:

The story takes place 15 miles of the shoreline of Chicago on a notoriest gambling ship, the SS. Hope. The ship is owned and operated by a beautiful and illustrious gambling queen, the Duchess of Maxwell Street.

This illegal vessel of sin has been successful in eluding the treasury department in their quest to seize the gambling ship. Their first line of defense for the ship was speed. It was always able to outrun any pursuer. Our gambling ship now lies at the mercy of the coast guard. As the cutter gains ground on the ship they bring out there final line of defense.

This is block and tackle on the fantail of the "good" ship hope. A 500 pound wrecking ball is attached to the tackle. As the cutter pulls within 25' of the gambling ship the wrecking ball is swung at the cutter, destroying its hull - "Hell," said the Duchess as she crossed her legs & lit a cigar, "It was the most beautiful flying tackle I have ever seen."

Low Originality:

First, pull the car off the road enough so as not to be a hazard to traffic. Leave the park lights on and put out a flare or trouble light to warn other cars. Take of hub cap. Loosen bolts. Jack up car. Take off nuts holding tire on. Take off tire. Put on spare. Put on nuts, Jack down car. Tighten bolts. Put on hub cap. Carefully merge with traffic.

Dimension #4: Outlook

Positive Outlook:

Upperclass students would be an equally good subject for these reasons:

1 experience -- He can, through the courses he's taken, he can contribute more to the experiment. He mind also might be atuned to organize ideas in an orderly, and scientific method.

2 maturity -- He would tend to be more rational than the average beginning student.

3 unfamilarity -- His unfamiliarity equalled to that of the others would make him an equally good subject.

Negative Outlook:

As I awoke, I was acutely aware of the blackness and the silence. I reached out and felt the grainy surface of wood surrounding me. I pushed up on the wooden surface above me. It did not give. I paniced, screaming and thrashing. I suddenly realized that this would do no good so I tried to calm myself enough to think. It was then I realized I was buried alive. I searched the confining walls for flaws which might aid my escape but I found none. I used all the strength of my body to try to pry open the lid but to little avail. Then I tried to fight my way out, feeling the splinters dig into my fingers as I clawed at the immovable lid. My breath came in gasps. Each gasp seemed to further sap my strength.

Suddenly it seemed as if my gasps were to no avail for there was no air left in the coffin. I thrashed wildly. And then nothing

Dimension #5: Quality of Presentation

Well Presented:

It is chastening to realize that out of the high cultures of the past there remain at best only the battered torsos of great art, such as a gold wine cup found in the dust of a ruined city. Of the great classical libraries, a few scrolls remain. Of other scripts some cannot be read; from yet others perhaps five men in the world might be able to decipher fragmentary thoughts. About man's past there lingers, to the perceptive eye, an autumnal and unreal haze. It may well be with us as it was with other societies; our beliefs may prove no more substantial, our hold on men's memories no more secure. Nations and civilizations whose traditions were millennia longer than our own, and whose existence must have seemed endowed with a permanence beyond our ability to realize, have vanished from the light of day.

Poorly Presented:

Development: two Russian cosmonots Boris Batinoff & Natash go to moon only to find Schiltz beer cans scattered about.

Humor fragments

1. (launch)

(2.) (In flight) Remember - we left our flag at home.

Chinese stowaway

(3.) (struggle to land) climb out of chracter

Dimension # 6: Issue Involvement

High Issue Involvement:

We have decided that the only way to solve the integration problem in Georgia is to run all of the Negroes out of the state or ship them back to Africa. Those who recommend that "they need to be educated" are on the wrong track--education takes too long--we want to stop the trouble now. Legislation is not the answer either. --past and current legislation has been too full of loopholes and inspired by vote-hungry politicians.

Low Issue Involvement:

The University could build sound proof rooms for classrooms.

APPENDIX D

Written Scale Descriptions

SUGGESTS ACTION

This scale indicates the degree to which a product states or implies that a specific or general course of action should be, might be, or will be followed. The high end of this scale might be stated as, "Product demands a specific course of action"; and the low end as "Product has no suggestions or implications for action."

On this scale, a high rating should be given to those products that tell what to do and how to do it; one would expect these products to contain many words and phrases such as "should," "we recommend", and "ought to." Products that strongly imply or suggest action should also be rated toward the high end of this scale.

Products which should be rated low on this scale would be impartial descriptions, stories, lists of facts, and others that neither imply, suggest, or outline actions or steps to be taken. A very important distinction to be drawn here is that products that simply describe action should not be rated high; in fact, a product describing a hockey game, for example, should receive a low rating on this scale.

The middle of this scale might include products which seem to imply action, but not in an obvious manner; there may also be many products for which there is no evidence by which the product can be rated high or low.

Examples:

HIGH -- A product which told how pencils should be sharpened.

LOW -- A product which discussed prehistoric artifacts in cross cultural perspective or a description of men digging a ditch.

Stories, in general, will fall low on this scale, while proposals and suggested procedures will fall high on this scale. Content and style of products should be the main considerations in making judgments on this scale. Accurate ratings will require very careful reading of the products with particular attention paid to word usage.

CONSTRUCTIVE

This scale is one of those for which the definition of the "title" takes a meaning slightly removed from that of colloquial use.

"Constructive" here is defined in terms of "doing something" -- in the sense of "constructs a building" -- as opposed to constructive in the sense of "constructive-destructive." Thus, this scale reflects the degree to which a product is concerned with action -- whether it makes actual suggestions, implies them, "does something" by itself, or just has a general "constructive" tone.

High on this scale would be a product which was totally involved with doing something, minimizing discussion or other irrelevant aspects. Low would be a discursive, perhaps meditative or philosophical discussion of abstract ideas.

Stories will probably fall low on this scale. All other types of products should vary widely.

Any aspect of the product, including tone and style of presentation, which implies constructiveness should be considered in sorting on this scale.

DESCRIPTIVE

This scale indicates the degree to which a product is concerned with describing an activity, event, object, or person. The low end of this scale should contain products primarily concerned with something other than description, such as selling, ordering, suggesting, or criticizing.

Rated high on this scale would be, for example, a description of a movie, athletic event, or outdoor scene. Rated low would be a written command to deliver a message to an army officer. Those products which involve general discussions, such as an essay on the problems of the world population explosion, would normally be rated toward the middle of this scale since they are neither particularly descriptive or particularly non-descriptive.

The rater should find some elements of description in nearly all products, but it should be remembered that it is the extent that description is the purpose or main concern of the product that he is rating. A product, for example, could describe quite vividly a household gadget and yet be primarily concerned with selling the gadget rather than describing it.

PASSIVE

This scale should reflect the degree to which a product is inactive, complacent, quiet, or restful.

Any description or abstract discussion would be rated high on this scale, while a proposal or set of explicit suggestions would be rated low. For example, a description of a wooded lane on a spring afternoon would be rated very high on this scale, as would a meditative discussion of the nature of the universe. On the other hand, a set of lucid instructions for acting out pages 23-24 of the Tropic of Cancer should be given a low rating.

Falling into the middle of this scale might be a description of a very active event such as a boxing match. The logic behind rating such a product toward the middle of this scale should be apparent when it is recognized that a mere description (as opposed to participation) tends to be passive. Conflicting evidence exists in this type of product and would therefore cause them to be rated toward the middle of the scale.

SHORT

This scale reflects an estimation of the number of words in the product. One estimated as having few words would be rated high on this scale; one with many words low. DO NOT actually count the words.

Establish a frame of reference and a rough idea of what each of your seven final piles will include before starting your rating. Maintain this frame of reference throughout your ratings and then go back through the piles to verify that you have done so.

NUMBER OF WORDS

This is an operational scale.

Count the number of words.

LACKS DETAIL, ELABORATION

This scale simply indicates the degree to which the product is devoid of detail, examples, and elaboration.

High on this scale would be a mere skeleton of a product; one which is incomplete, underdeveloped, and unembellished. Low on this scale should be products characteristically the opposite, i.e., detailed, finished, and elaborate.

Only the amount of detail, examples, and elaboration is relevant here--content per se and tone are irrelevant. It must be noted, however, that it will be necessary to study the content to determine what is detail and what is not.

NUMBER OF ADJECTIVES

This is an operational scale.

Count the number of adjectives.

BIZARRE

This scale reflects the degree to whi h the product is unique, odd, or "far out" in a morbid, ribald, "sick," or highly unusual sense.

A product rated high on this scale should be extremely out of the ordinary. It should contain an obviously weird theme or an exceptionally unusual treatment of the subject discussed. An example of a product which would be given a high rating on this scale would be a lucid description of disembowelment via table knife.

Products rated low on this scale might be considered mundane, commonplace, very straightforward, drab, or otherwise "non-bizarre;" for example, a discussion of the merits of two-hole versus three-hole notebook paper.

Products falling into the middle of the scale should be those which provide no evidence for judging the "bizarreness" of their content. A product which would receive a middle rating, for example, might be one which presented a brief, three-step procedure for accomplishing something.

Products may tend to be non-bizarre, but examine them carefully so as to be able to differentiate among them as much as possible.

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NOT UNUSUAL

This scale should reflect the degree to which a product is ordinary, everyday, or usual in content.

Products rated high on this scale should be those which give information about, discuss, make plans concerning, or are generally relevant to topics that are uninteresting, common, or overworked (e.g., civil rights).

Products rated low on this scale should be those that are really unusual in presentation or content; most would concern something fantastic, unbelievable, out-of-the-ordinary, or otherwise different in content. It should be understood, however, that a product may be concerned with a commonplace (not unusual) topic and still be rated <u>low</u> on this scale because of a highly unique or unusual treatment.

Falling into the middle of the scale should be those products which provide "no-evidence" and/or "conflicting evidence." For example, products which are not clear (i.e., "no-evidence;" it is hard to tell what the writer is talking about) and products which involve a reasonably unique treatment of exceptionally drab topics (i.e., conflicting evidence) should be rated in the middle of the scale. Products placed in the middle of the scale, however, should be carefully considered, for few will have "no-evidence," although some may have "conflicting evidence."

An example of a product that should be rated high on this scale would be a discussion of the advantages of an integrated school system; low on this scale would be a discussion of the implications of men with two heads for industry.

Remember:

Ratings should be based on the dominate theme or topic of the products--if two sentences of a product are "usual" and the remaining four paragraphs are unusual, the product should be rated toward the low end of the scale.

Products which are unclear should be rated at the middle.

Establish a frame of reference before starting your ratings--be sure your ratings are made exclusively within the frame of reference of the products on hand. Be careful with products dealing with integration, politics, or religious-moral issues.

Go back through the piles after your last sort to verify that you have used your frame of reference consistently, and have properly rated the "not unusual" products high and the unusual products low.

ORIGINAL

This scale reflects the degree to which the ideas contained in the product are unique as opposed to "everyday." It does not necessarily imply that a product is "good."

A product rated high on this scale should contain fresh, novel, and insightful ideas, or be characterized by an unusual or unique combination of ideas, facts, or procedures. Such a product may be surprising, refreshing, really different, or "far out."

Products rated low on this scale should fail to produce a new or fresh outlook. They will lack unique and uncommon ideas and facts, and will read like yesterday's newspaper.

Those products falling into the middle of the scale should contain conflicting evidence--for example, one which starts off with common, even drab, ideas and ends by arriving at an uncommon, fresh conclusion.

A short story telling of the destruction of a town by a berserk mountain goat would be considered highly original, as would a procedure for extraction of alcohol from chicken fat. However, a product containing commonplace and hackneyed arguments and ideas would be rated low on the scale--for example, one explaining that the United States should disarm because "it is better to be Red than dead."

Because original is a rather global concept, it is essential that the rater study the product from all "angles" in making a rating on this scal

REALISTIC

This scale reflects the degree to which the product is true to life--dealing with real objects in a realistic way. In the negative sense, it reflects the degree to which a product is removed from reality.

Products rated high on this scale should be those which view things as they exist, approach problems (or offer solutions) in a sensible, down to earth manner. A high rating might be given, for example, to a description of an ant crawling across the floor, or a presentation of a quick procedure for tying shoes.

Low rated products should be those which are concerned with the abstract, supernatural, imaginary, or intangible. In the case of a procedure, a low rating might be given to a product that fails to take into account available or well-known facts; and for stories a low rating might be given to a science fiction type as opposed to a high rating for a biography. An example of a product rated low on this scale would be a philosophical discussion of the philosophy of discussions, or a very funny but very unreal story.

Products rated at the middle should be those for which there is either no evidence or conflicting evidence; if it is not clear what the product is about do not try to infer how realistic the content is, but rate it at the middle. As always, base your ratings on the major portion of the content--i.e., if one-fourth of a product is realistic and three-fourths unrealistic, the product should be given a rating toward the low end of the scale.

Keep in mind that this scale does not necessarily reflect how "far out" or "typical" a product is, but rather how close to reality the content is.

POSITIVE OUTLOOK

This scale should indicate the degree to which the general outlook, attitude, tone, or orientation of a product can be construed as "positive" as opposed to "negative."

Products rated high on this scale should be those which have and/or provide a happy, optimistic outlook. "Proposals" may sometimes tend to convey an optimistic impression or outlook. For example, the sponsors of a Civil Rights proposal might back up their suggestion with glowing oratory promising solutions to a multitude of social injustices. This proposal would thus be rated high on this scale, as would be a discussion of how a certain toothpaste reduces cavities in children and offers the promise of little or no tooth decay for years to come.

Products rated low on this scale should offer a dismal, pessimistic outlook or orientation. A discussion of the corruption of public morals, its dismal effects on society, and what it will eventually lead to would be an example of a product that should receive a low rating.

The middle of this scale should include both products which have no discernable outlook (i.e. no evidence) and those which are equally positive and negative in outlook. An example of a product which should be rated in the middle of this scale would be a list of villages in Illinois having populations under 100. Most products concerned with facts, figures, and procedures should be rated at the middle of the scale by right of "no evidence."

Discussions, especially those which look at a problem from all angles, should be given careful consideration; such a product may be part positive, part negative, and part "bland" in its outlook--ratings should be made according to the major portion of the product.

Since this is a relatively global scale, all aspects of products which can be construed to reflect "outlook" should be taken into consideration in making ratings. However, the most valuable means the rater will have to determine "outlook" is to determine the major "point" of the product and consider its content in relation to that "point."

SUPPORTIVE

Tnis scale reflects the extent to which a product lends or implies support for some cause, issue, person, or event.

Rated highest on this scale would be a product which was in its entirety a "case for" something--that is, one which has support as its sole purpose. Lowest would be a product which is just the opposite--one which has refutation or "destruction" as its sole purpose. A product consisting of pure unbiased discussion, strictly facts, or some other types for which it is impossible to discern either a supportive or destructive element would be rated toward the middle of the scale on the basis of no evidence.

Obviously, in making judgments on this scale content is of prime importance, though tone and mode of presentation can also indicate a supportive or a destructive tenor. For stories, content may at times be irrelevant in sorting on this scale, and judgments must be based entirely on the tone of the narrative.

DISAPPROVES

This scale reflects the degree to which a product openly disapproves of some idea, person, or institution, or the degree to which disapproval is implied. The low end of the scale is "approves-shows approval."

Products rated high on this scale should be those which make their disapproval plain. Such disapproval may take the form of parody, criticism, indication of dislike, or derogation; a product rated at the high end should be consistently disapproving. Extreme disapproval involves a value judgment, not simply straight-forward presentation of facts.

Products rated low on this scale should be those which show obvious approval which may take the form of praise or positive evaluation.

The middle of this scale should contain products which give no evidence of approval or disapproval, or for which there is conflicting evidence, i.e., some approval and some disapproval. An objective evaluation of an issue from all points of view would probably fall at the middle of this scale.

A product which outlines what seems to be a "bad" course of action, should not be rated high on this scale if no indication of disapproval of the object or institution towards which the action is direction is given.

Products rated on either side of the middle of the scale might be disapproving or approving in tone, i.e., the disapproval or approval is not obvious, but word usage and general treatment of the topic under consideration provide enough evidence to warrant a "slightly true" or "slightly false" rating.

An example of a product rated high on this scale would be one which describes a political position, and then tells why those who hold it are inadvertently responsible for a national crisis. Middle on this scale might be a description of a room or building which is very objective. An example of a product rated low on this scale would be a description of a city's social work program outlining all the good that the program has accomplished among the poor.

SHOWS ANTAGONISM 74

This scale reflects the degree to which a product exhibits an antagonistic, belligerent, disagreeable or haughty approach, idea, or tone. The other end of this scale (note carefully) is "sympathetic" or "well-meaning."

Products rated high on this scale are those which take offense or exhibit antagonism towards an idea, state of affairs, institution, or person (ordinarily products which disagree with some policy or idea will be rated high on the scale). A type of product which should not be rated high on this scale is one which simply describes violence, unpleasant situations, or otherwise undesirable states of affairs.

Products rated low on this scale should be those which are characterized by empathy, friendly tone, sympathy for an idea, person, or organization. Products agreeing with an idea or supporting a point of view will usually be rated low.

Middle on the scale should be products for which there is no evidence or conflicting evidence. Most of the products rated at the middle should be stories, objective descriptions, or lists of facts. (It is important that the middle of the scale be distinguished from the lower end of the scale.)

An example of a product rated high on this scale would be one which suggests shooting all Negroes back to Africa in order to solve the integration problem. Middle on this scale would be a product explaining, in a very technical way, how to operate a machine of some sort. Low on the scale would be a product appealing for charity funds giving details of how the money will be used to help orphans and the aged. Another example would be a description of living conditions in a slum area with recommendations for improvement.

Both content (especially choice of words) and tone should be taken into consideration in sorting on this scale. Be sure to keep in mind the distinction between the middle and the low end of the scale; if it is not clear to you, ask about it.

CHOPPY

This scale reflects the degree to which the writing of the product is fragmented, broken, discontinuous, or staccato as opposed to flowing or harmonious.

Products rated high should be those which consist of a disconnected list of fragments; low on the scale should be products which flow smoothly sentence to sentence and paragraph to paragraph. The middle should be characterized by either conflicting evidence (some choppy and some smooth parts) or by the absence of any characteristics distinguishing it as either particularly choppy or smooth.

Ratings of products on this scale should be made considering only style and format; content and tone, as such, are irrelevant. A product which discusses, for example, ten different topics in one paragraph need not automatically be considered choppy as defined above, nor would a product having a well-integrated theme automatically be considered smooth. The rater should be especially careful when rating outline-form products on this scale; an outline is not necessarily choppy, for if it is a sentence outline it may flow very smoothly, especially if the sentences are well related. Sentence structure, paragraphing, transitional phrases, or the lack of these, and similar stylistic considerations are of prime importance in making judgments on this scale.

STYLISTICALLY WELL-INTEGRATED

This scale indicates the degree to which the writing of the product blends together in an appropriate manner. Consistency and synchronization of the style of the product is of main importance for making judgments on this scale.

A product judged high on this scale should have well-integrated word usage, sentence and paragraph structure, and in general should show an awareness of the finer points of style, balance and internal rhetoric consistency. If the product is concerned with something unpleasant--say a description of a man burning to death--then the overall style should reflect this "unpleasantness" consistently. On the other hand, if the product is of a generally "refined" character--say a discussion of Mozart's contribution to human culture--the product should, if it is "stylistically well-integrated," have a consistently "refined" style.

Judged low on this scale would be a product written in a gross, inconsistent style, with pronounced changes of stylistic "tone" throughout the product. Improper or inconsistent word usage, sentence construction or paragraphing would also constitute evidence for a low judgement on this scale.

What is actually said in the product--its content--is not relevant to making judgments on this scale. Only the written presentation should be considered.

POOR MECHANICS

This scale should reflect the degree to which a product uses incorrect or poor punctuation, spelling, sentence structure, paragraphing, dependent-independent clause relationships, verb forms, or use of verb tense.

Products rated high on this scale should have many errors in the above-mentioned areas. Products rated low on this scale should demonstrate near perfect grammar, spelling, etc. For this scale the "no evidence," middle of the scale rating of products does not apply; every product has evidence in that it is written out. The rater can think of the middle of the scale as applying to those products which fall in an area between "slightly poor grammar" and "slightly good grammar," i.e. conflicting evidence. The middle should, therefore, be represented by products which have some mechanical errors but not enough to mar the total product.

General types of products to examine carefully on this scale are the outline, listing, or procedure type, all of which are capable of presenting excellent ideas in a sensible manner while being mechanically atrocious through the use of improper paragraphing, misspelling, and incomplete sentences. However, if a product is a highly structured outline and consistently uses incomplete sentences as part of its form it may very well receive a low rating. In the case of lists of ideas in good sentence form, the product should be rated low even though there is no real paragraphing.

Be especially careful with products (especially stories and descriptions) using dialogue; such usage naturally breaks the continuity of the product but should not be the sole basis for a high rating.

Good ratings on this scale will require very careful reading of each product; remember not to use the middle as a "no evidence" or "undecided" catch-all.

UNDERSTANDABLY PRESENTED

The degree to which a product can be read and understood easily is reflected on this scale. The high end of the scale is "presentation understandably presented" and the low end is "presentation hard to understand."

A product rated high on this scale should be one which can be read once and be thoroughly understood--the point, plot, or procedure to be followed should be crystal clear. There should be no doubt as to what each sentence, phrase, and paragraph means, both alone and in relation to the rest of the product.

Products rated low on this scale should be completely incomprehensible, e.g., word usage may be poor, sentences may not follow one another, and generally the point of the product is obscured by the poor presentation. Generally, if the product, or parts of it, must be read more than once to be understood, it should be rated low on this scale.

The only product which should receive a middle rating on this scale is one which has conflicting evidence, e.g., half is understandably presented and half is not.

An important distinction should be kept in mind while rating: content per se is of little importance, for example, if a product is concerned with the atomic reactions occurring in a betatron (complete with equations), the rater will not be able to understand what the product is about--similarly for products concerned with the more esoteric aspects of politics, economics, philosophy, etc.--this should not, however, influence your rating; only the presentation of the content is important, even though familiarity with the content may be helpful in rating the "understandability" of the presentation.

To summarize, the emphasis should be on the PRESENTATION--even if you understand what the writer is trying to say, if the point of the purpose of the product is obscured by the mode of presentation, the product should be rated low. Products which are sketchy and incomplete also will tend to fall toward the low end of the scale. All types of products should vary widely on this scale.

LOW ISSUE INVOLVEMENT

This scale indicates the degree to which a product is uninvolved in an issue, in other words, how noticeably it fails to take a position or point of view with respect to some matter. The low end of this scale should be characterized by products which strongly defend, sell, oppose, or simply discuss very thoroughly some idea or issue--so long as the product shows real involvement.

Products rated high on this scale can be of many varieties, very objective descriptions or lists of facts, superficial stories which do not go into detail in describing characters, and skeletal proposals and procedures. Generally, those products which should receive a high rating will be cold, impersonal, terse, and/or objective in nature.

Products rated low on this scale should really get "wrapped up" in their topics. This involvement may take the form of a definite committed stand on an issue, or details on what to do when the emphasis is on "why do it" (proposals-procedures); involved plots (stories); a careful weighing up of consequences (proposals); deep contemplation (philosophical discussions); emotional involvement (descriptions); and so on.

Caution: although frequent use of "we" is often a good index of involvement, "we" need not always indicate high involvement. Do not automatically rate products low on this scale simply for using "we"; this is only one of many possible indications of issue involvement. Another point to remember is that although most products concerned with controversial issues (e.g., integration, politics) will probably receive low ratings, a product need not be controversial in order for high issue involvement to be present.

Correct judgements on this scale will require careful reading of the products. Generally, the content of the product will be most relevant in making judgements.

Remember: LOW ISSUE INVOLVEMENT - HIGH END OF SCALE

HIGH ISSUE INVOLVEMENT - LOW END OF SCALE

PROPAGANDISTIC

This scale indicates the degree to which a product attempts to sell or "push" a particular point of view. Usually the "point of view" will consist of the doctrines or principles of an organization, e.g., the NAACP, but may also represent the ideas of one or a few people on a specific topic.

An example of a product rated high on this scale would be a "letter to the editor" giving reasons why socialized medicine should be a boon to the country.

Products rated low on "propagandistic" might be a story, an objective description of an object or event, or a very impartial discussion of an issue. Products having no evidence of either propagandism or impartiality should fall in the middle on this scale. An example of "no evidence" might be a very short product that seems to be a discussion of the pros and cons of federal control over television but is not long enough to provide a basis for judging the discussion either "impartial" or "propagandistic."

Be particularly careful to eliminate your own ideas on the subjects discussed in the products, especially for products discussing controversial issues about which you have definite opinions.

STATES A BELIEF OR OPINION

This scale should reflect the degree to which a product states, or very strongly implies, a belief or opinion about some event, philosophical issue, organization, etc.

Products rated high on this scale should be those that contain few or no facts--only out and out opinions. Generally, products judged high will be totally subjective discussions of current issues, controversial organizations, etc. Products rated low on this scale should be those that are completely factual and thus totally objective. The middle of the scale will often include products for which there is conflicting evidence.

A product telling why integration is essential for the well-being of the country would fall high on this scale. A product idscussing the types of accidents women drivers are often involved in, and documented by statistics, would fall in the middle. A fairy story for children (pure, non-opinionated description) would fall low on this scale.

It is necessary that the products be read very carefully in making judgments on this scale; it is important to differentiate opinion from fact. Content is most important in making judgments on this scale, although tone may occasionally be of some help in making judgments.

DETACHED

This scale indicates the degree to which a product is "aloof" or "detached" from its subject matter. "Detached" does not necessarily imply "objectiveness." A product may take one side of an issue--and thus be non-objective--and still remain "aloof" by revealing or implying an indifferent tone or attitude. The detached product should never work out a problem in detail; it may offer a generalized solution but will not "dirty its hands" by providing a detailed procedure or solution. The high end of the scale (the detached end), then, indicates a product which will seldom reveal any personal concern for issues; it is one which tends to treat an issue or problem as if it belonged to some other group, society, individual, etc.

If a product gets "wrapped up" or very "involved" in a problem, it would be rated low on this scale. Note that this "involvement" may be either intellectual, as in the case of a strong but reasoned appeal for better schools, or emotional, as in an impassioned discussion of the evils of Communism. Do not attempt to distinguish between the emotional and intellectual aspects in making judgments; both emotional and intellectual involvement are to be considered equally as <u>opposites</u> of "detached." Ordinarily a product that should be rated low on this scale (i.e., involved) will contain a commitment to the issue, problem, etc., and will sound very much like conviction.

It is likely that "stories" will fall near the middle of this scale, since there will not often be evidence of either detachment or involvement in the subject matter. All aspects of the product which can be construed as evidence for or against detachment should be considered in making judgments on this scale.

Remember: HIGH END OF SCALE - DETACHMENT
LOW END OF SCALE - INVOLVEMENT

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13. ABSTRACT

This report presents the factor analytic development of a set of descriptive dimensions for use in the systematic comparison of verbal products prepared by interacting groups. The dimensions are reliable and account for a major portion of the variance of group products. They are: (a) action orientation, (b) length, (c) originality, (d) outlook (positive vs. negative), (e) quality of presentation, and (f) issue involvement.

Relations of the dimensions with selected group and task characteristics are presented. Other applications of the dimensions to problems in the systematic study of group behavior are suggested and discussed.

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Security Classification

Security Classification

14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Culturally heterogeneous groups Leadership Group Performance Leadership Training Contingency Model						

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