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This report summarizes the recent literature on the effects of heterogeneity on group problem solving effectiveness. Conclusions and recommendations for future work are made.

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INFLUENCES ON GROUP PRODUCTIVITY II:

FACTORS INHERENT IN THE PERSON

A Bibliographic Synopsis

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Comments on Person Factors

The study of traits is one of the oldest domains in personality theory and even (if we include ability 'traits') in psychology (as Eysenck, 1983 points out, even Cicero anticipated some of the modern variants). Despite the onslaughts of Michele and other 'situationists', trait approaches retain their allure and even some usefullness. That being the case, it is hard to understand why fully articulated trait models have not been used more often in the study of group heterogeneity effects. With the exception of some degree of interest in the Myers-Briggs typology, many of the researchers seem to concentrate (when non-demographic measures are used) on a catch-as-catch-can definition of their subjects. Probably due to the sloppiness of most 'trait' tests, much of the effort seems to have directed also at obvious attributes of the subjects (e.g. sex), which may tell us little about whether indeed the group <u>was</u> heterogenious. Clearly, as the attached synopsis indicates, we will have to be far more precise about our concepts of heterogeneity before we can say much about its likely effects in field let alone laboratory settings.

The present summary examines the effects of heterogeneity on a group's productivity. Heterogeneity has been defined on many different dimensions without much consistency between workers. For the sake of clarity, we have grouped the studies by the type of variable used to define "heterogeneity": personality variables or sociodemographic variables. In all the studies surveyed,

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these different variables have served as the independent dimension.

The studies are summarized in Tables 1, 2, 3, and 4. Table 1 indicates the demographic characteristics of the subjects. College students, as is common, were used in over half of the studies. Depending on the task being used, this subject bias would certainly raise questions about the external validity of the researches.

Table 2 reports the dimensions on which heterogeneity was defined, whether the task measure was clearly metric (ie. had an obvious and reliable outcome measure) or sociometric (e.g. judged "goodness" of a solution), and finally, the reported effect(s) of heterogeneity (ie., positive, negative, and/or neutral). The evidence indicates that there are no consistent effects which have attained even the status of a single replication. We did not include the many studies which used "ability" as the measure of level of heterogeneity. This exclusion was due to the obvious confounding of ability with type of task, an interaction which will only cloud an understanding of the way in which heterogeneity works.

Table 3 lists the tasks which were used in the reviewed studies and categorizes them according to the Steiner, 1972 typology. Relating this typology back to the effects listing (Table 2), we still cannot see any consistency.

Finally, Table 4 gives information on the measure used in the studies using personality variables as the index of heterogeneity and whether or not this measure is indexed in the

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most recent Buros Mental Measurement Yearbook. Unfortunately, few of the measures are so indexed so that we have some degree of trouble interpreting whether or not heterogeneity was actually achieved.

The following initial and tentative conclusions are drawn from this review of the literature:

1. In most studies, no rationale is given for the selection of the dimension(s) on which heterogeneity is defined. This holds especially true for the personality variables, where the dimensions seem to have been chosen at random.

2. The sex dimension accounts for relatively large portion of the studies on sociodemographic variables. This might be due to the fact that sex is an easily distinguishable variable and hence quite easy to manipulate. Selecting on ethnicity is often difficult and runs into practical problems in most university settings. The failure, except in one case (Sabban, 1977) to include either socioeconomic status or social mobility as defining variables may be due to this "convenience" factor.

3. In many studies the independent variables are not well defined. For example, the Petzel, Johnson, Johnson, and Kowalski, 1981 study used the MMPI Depression Scale. However the MMPI-D scale has been shown to have little validity (as well as reliability) in assessing depression. Furthermore, the use of a single scale (or even multiple scales with scores within the normal range) on the MMPI to form groups is a generally acknowledged misuse of the test.

4. The lack of consistency of heterogeneity effects across studies might be due to a lack of rigor (theoretical as well as

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practical) in choosing the independent and dependent variables.

5. We also see little concern for either controlling or manipulating situational variables. Without belaboring this point, the settings across the various studies might be sufficiently different so as to produce the confusing results.

Based on these conclusions, we make the following recommendations:

1. Manipulation checks on the level of perceived heterogeneity should be a part of each study. Unless the subjects perceive a level of heterogeneity consonant with the experimentally defined level, the results are open to question.

2. Multiple and converging measures should be used in defining heterogeneity (i.e. use a Multi-trait, multi-method design, Campbell and Fiske, 1959). Only two studies in this summary have taken this approach (Triandis, Hall and Ewen, 1965; Tuckman, 1967).

3. In selecting subjects, newer techniques of prior grouping based on similarity of responses should be used. For example, the multi-dimensional approach formulated by Tzeng and Landis, 1978 might prove profitable.

4. The interaction of the task and person variables in group settings should be subject to more intense scrutiny. The task is often given rather short shrift in these studies as it is assumed that any (heterogeneity) effect will be clear. Such a conclusion is unjustified and may well account for the contradictory results.

5. Heterogeneity is a concept which is murkely understood,

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if at all. Before additional studies are initiated, work needs to be done on explicating in a theoretically defensible fashion the dimensions of the phenomenon. Triandis, in a recent and as yet unpublished paper, has drawn together what appear to be a set of factors on which people judge the similarity of others to themselves. This set, while large, provides a promising beginning which will have to be followed by models linking the dimensions in a process mirroring the judgmental activities of people. Further, once the dimensions are identified as their precesion in the cognitive process set, scaling along the dimensions will remain the next major task. This effort will involve once again facing the age-old problem of philosophy and psychology--the nature of similarity. We are no closer, we suggest to a solution in social psychology, than we were in the field of learning when Osgood called attention to the problem in 1953. Nevertheless, unless we can clearly identify the process and elements of the similarity judgement, the potential for understanding the status and future of heterogeneity effects will remain unfilled.

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Table 1

DEMOGRAPHIC SUMMARY OF STUDIES

STUDY		N	SEX	GROUP SIZE	POPULATION
Triandis, Hall, & Ewen, 1965,	I	32	M	2	college students
	IIA	82	M	2	?
	IIB	96	?	2	?
Tuckman, 1967		36	M	3	Navy, enlisted men
Hornsby, 1974		72	F	8	undergraduates
Hovey, 1974		96	?	4	college students
Petzel, Johnson, Johnson, & Kowalski, 1981		66	?	6-8	undergraduates
Aamodt & Kimbrough, 1982		48	both	4	undergraduates
Summers, Stewart, & Oncken, 1968		56	M	2	college students
Clement & Schiereck, 1973		48	both	4	?
Oslin, 1974		80	?	4	parochial high school
Kraft & Vraa, 1975		48	both	8	high school
Rosenthal, 1975		60	both	2	undergraduates
Aries, 1976		?	both	5-7	undergraduates
Lindsey, 1976		178	?	?	graduates
Rothschild, 1978		144	both	6	?
Sabban, 1977		169	M	4	high school
Bizman, Yinon, Mivtzari, & Shavit, 1978		119	?	?	kindergarten
Eichenbaum, 1978		38	F	?	?
Foddy, 1978		80	both	2	undergraduates

? indicates information was unavailable in original report.

STUDY	N	SEX	GROUP SIZE	POPULATION
Wall, 1978	67	both	?	mental health center clients
Fagerstrom & Petrakis, 1980	84	both	3	undergraduates
Goldman, 1981	116	both	?	preschool
Ferriolo, 1974	?	?	?	college students
Gruba, 1977	?	?	5-8	parents, divorcees, and spouses

? indicates information was unavailable in original report.

Table 2

STUDIES ON HETEROGENEITY

I. Personality Variables

STUDY		DIMENSION(S)	TASK MEASURES	EFFECT
Heslin, 1964		Ability	Various	+
		Adjustment	"	+
		Extraversion	"	o
		Dominance	"	o
		Authoritarianism	"	o
Triandis, Hall, & Ewen, 1965	I	Cognitive Similarity	2	o*
	IIA	Liberalism	2	o*
		Creative Abilities	1,2	o*
	IIB	Liberalism	2	+
		Creative Abilities	1,2	o
Tuckman, 1967		Abstractness	1,2	o,-
Hornsby, 1974		Affection Behavior	2	o
Hovey, 1974		Jungian Personality Typology	2	o
Petzel, Johnson, Johnson, & Kowalski, 1981		Depression	1	+
Aamodt & Kimbrough, 1982		Behavior Style	2	+

II. Sociodemoraphic Variables

Summers, Stewart, & Oncken, 1968		Cultural Composition (American vs. Arab)	2	o
Clement & Schiereck, 1973		Sex	1	-
Oslin, 1974		Race (Black vs. White)	2	o
Kraft & Vraa, 1975		Sex	2	-
Rosenthal, 1975		Sex	1,2	o
Aries, 1976		Sex	2	+

1 clear metric
2 sociometric

+ positive
- negative
o neutral
* significant when interacting with another variable

STUDY	DIMENSION(S)	TASK MEASURES	EFFECT
Lindsey, 1976	Race (Black vs. White)	2	o
Rothschild, 1978	Sex	2	-
Sabban, 1977	Socioeconomic Status	2	o
Bizman, Yinon, Mivtzari, & Shavit, 1978	Age	1	+
Eichenbaum, 1978	Sex	2	o
Foddy, 1978	Subgroup Membership	1	o
Wall, 1978	Sex	2	o
Fagerstrom & Petrakis, 1980	Sex	1	o*
Goldman, 1981	Age	2	+,-
	III. Other		
Ferriolo, 1974	Group Experience	2	-
Gruba, 1977	Presenting Problem	2	o,-

Table 3

TASKS USED IN HETEROGENEITY STUDIES

STUDY		TASK	TYPE
Triandis, Hall, & Ewen, 1965	I	Give solution to a social problem	U-O
		Discuss social problem in dyad, then give solution individually	U-O
	IIA	Church Problem (A)	U-O-DC
		Fame Problem	U-O-DC
	IIB	Church Problem (B)	U-O-DC
		Fame Problem	U-O-DC
Tuckman, 1967		Combat Information Center Task (CIC)	D-A-S
		Island Problem	U-O-DC
Hornsby, 1974		Systematic Human Relations Training	U-O-DC
Hovey, 1974		Production Task	U-O
		Discussion Task	U-O
		Problem-Solving Task	?
Petzel, Johnson, Johnson, & Kowalski, 1981		NASA-Exercise	U-O-DC
Aamodt & Kimbrough, 1982		Human Relations Discussion Task	U-O-DC
Summers, Stewart, & Oncken, 1968		Predict effects of foreign policies	U-O-DC
Clement & Schiereck, 1973		Visual Signal Detection Task	U-M
Oslin, 1974		NASA-Exercise	U-O-DC
Kraft & Vraa, 1975		Group Discussion	U
Rosenthal, 1975		Survey	U
		Verbal Problem-Solving	U-O
		Quantitative Problem-Solving	U-M

STUDY	TASK	TYPE
Aries, 1976	Discussion	U-O
Lindsey, 1976	Group Discussion	U
Rothschild, 1978	Discuss a human relations problem	U-O-DC
Sabban, 1977	Shooting of the Captain and His Son Problem	U-O
Bizman, Yinon, Mivtzari, & Shavit, 1978	Story Completion	U-O
	Pretzel Donation	U-M
Eichenbaum, 1978	Assertion Training	U-O
Foddy, 1978	Password Game	D-A-S
Wall, 1978	Behavior Role-Plays	D-A-US
Fagerstrom & Petrakis, 1980	Juggling Task	U-M
Goldman, 1981	Free-play	U
Ferriolo, 1974	Encounter Group	U-O-DC
Gruba, 1977	Human Relations Training	U-O-DC

U Unitary
O Optimizing or M Minimizing
DC Discretionary

D Divisible
A Assigned or UA Unassigned
S Specified or US Unspecified

? Indicates information was unavailable in original report

Table 4

MEASURES OF PERSONALITY

STUDY		MEASURE	IN BUROS MENTAL MEAS.?
Triandis, Hall & Ewen, 1965	I	18-scale semantic differential	
	IIA	Factor analysis of 23 measures of liberalism.	
		Church Problem (A)	
		Fame Problem	
	IIB	Factor analysis of 23 measures of liberalism.	
		Church Problem (B)	
		Fame Problem	
Tuckman, 1967		Interpersonal Topical Inventory (ITI) of Integrative Complexity	
		Sentence Completion Test (SC) of Integrative Complexity	
		nDominance Scale of the Edwards Personal Preference Schedule (EPPS)	X
Hornsby, 1974		FIRO-B	X
Hovey, 1974		Myers-Briggs Type Indicator	
Petzel, Johnson, Johnson, & Kowalski, 1981		MMPI Depression Scale	X
		DACL, Form E	
Aamodt & Kimbrough, 1982		Personal Profile System	

APPENDIX

Personality Variables

Heslin, R. Predicting group task effectiveness from member characteristics. Psychological Bulletin, 1964, 62, 248-256.

Purpose: A review of studies which focus on the effects of member characteristics on small-group productivity. Specifically, Heslin groups these characteristics into six categories: ability (both general and specific), adjustment, extraversion, dominance, authoritarianism, and "other" characteristics. A tentative conclusion was made as to which characteristic was best in predicting small-group effectiveness, based on the reviewed literature. Ability (both general and specific) and adjustment were "fairly consistently" related to performance measures. A positive relationship was consistently found between ability (general and specific) and performance, and between adjustment and performance. Heslin notes, however, that this relationship will be affected by the type of group task used in the study and by the organization of the group.

Triandis, H.C., Hall, E.R., & Ewen, R.B. Member heterogeneity and dyadic creativity. Human Relations, 1965, 18, 33-35.

EXPERIMENT I

Purpose: Investigated the relationship of cognitive dissimilarity to creativity. Homogeneous and heterogeneous dyads were formed on the basis of cognitive characteristics. Both types of dyads participated in two communication condi-

tions, one with no treatment (control) and the other involving learning each other's points of view (training). By participating in the latter condition, it was expected that communication problems would decrease and interpersonal attraction would increase. Three hypotheses were stated: 1. Homogeneous groups, irrespective of communication condition, would be average in dyadic creativity. 2. Heterogeneous groups in the control condition would be low in dyadic creativity. 3. Heterogeneous groups in the training condition would be high in dyadic creativity.

Independent Variables: Cognitive Similarity: Subjects judged 20 maximally heterogeneous concepts concerning social issues on an 18-scale semantic differential. Results were factor analyzed, and the only important dimension that was isolated was the conservatism-liberalism dimension. On this basis, subjects were separated into Low Cognitive Similarity dyads (extreme liberal with extreme conservative), Medium Cognitive Similarity (extreme conservatives with moderate liberals, and moderate conservatives with extreme liberals), and High Cognitive Similarity dyads (two extreme liberals, extreme conservatives, moderate liberals, or moderate conservatives with each other). Communication Training Condition: Half the dyads in each cognitive similarity condition were trained by letting each member of the dyad study the semantic differentials produced by the other member of the dyad. The other half of the dyads did not have access

to the semantic differentials.

Subjects: 32 male college students participated in this experiment.

Tasks: Dyads were presented with a social problem and were asked to discuss it for half an hour and write a one-page solution that was as original as possible.

Measurements: Solutions were rated by 30 "judges" (another group of students) on originality, practicality, and creativity. Definitions of these terms were provided by the experimenter. Indices of creativity were obtained by using Thurstone's successive intervals procedure.

Results: Analyses of variance indicated an interaction between cognitive similarity and training, which was significant at the .06 level (one-tailed test) for originality and practicality, and at the .05 level for quality. There were no significant effects due to cognitive similarity or training alone.

EXPERIMENT IIA

Purpose: Determine how heterogeneity of both attitudes and abilities of subjects would interact to produce particularly creative or uncreative dyads.

Independent Variables: Attitudes: Subjects were put in high homogeneous, low homogeneous, or heterogeneous groups on the basis of degree of liberalism. Subjects completed a battery of tests, from which 23 variables were factor analyzed to produce the homogeneous and heterogeneous

groups. Creative Abilities: Creative ability was measured in terms of quality and quantity. Subjects were asked to write down as many solutions to the "Church Problem" and then to choose what he/she considered the best solution. Subjects were assigned to one of six ability classifications. In homogeneous dyads, either both subjects were high on both the quality and the quantity factors, or both were low on both factors, or both were high on one factor and low on the other. Heterogeneous dyads consisted of one subject who was high on both the quantity and quality factors and one who was low on both factors, or one subject who was high on quantity and low on quality and one subject who was high on quality and low on quantity.

Subjects: Subjects were 82 males in 41 dyads.

Tasks: Subjects worked on the "Church Problem" and the "Fame Problem" first individually, and then in a dyad. They were to record as many solutions they could think of.

Measurements: Observers judged the solutions on their quality.

Results: The interaction between attitudes and abilities was significant at the .05 level for the Fame Problem, but none of the effects was significant for the Church Problem. It was hypothesized that a sequencing effect could account for the difference in performance on the two different tasks. For the Fame Problem (on which differences in attitudes do not tend to cause antagonism), heterogeneity in

attitudes was beneficial to creativity, provided that abilities were homogeneous. Dyads heterogeneous in attitudes which worked on this problem first cooperated successfully, and the members of the dyads developed interpersonal attraction. This attraction presumably carried over to the Church Problem and enabled them to be more creative on that problem as well. Members which were heterogeneous in attitudes and worked on the Church Problem first probably became antagonistic to each other. They were therefore less creative on that problem, and to a lesser extent, on the Fame Problem which followed.

EXPERIMENT IIB

Purpose: Replicate the effect of sequence on dyadic creativity and test the hypothesis that heterogeneous dyads experienced more interpersonal attraction in the Fame-Church sequence than in the Church-Fame sequence. Three hypotheses were stated: 1. Dyads in the Fame-Church sequence would be more creative than in the Church-Fame sequence. 2. Heterogenous dyads on the attitude dimension would be more creative than homogeneous dyads on the attitude dimension. This would hold true in the Fame-Church sequence, but not for the Church-Fame sequence. 3. Heterogeneous dyads on the attitude dimension would have higher interpersonal attraction in the Fame-Church sequence than in the Church-Fame sequence.

Independent Variables: Level of Creative Ability: Subjects

were classified as high or low. Levels of Attitude: Subjects were homogeneous or heterogeneous, as defined in Experiment IIA. Instructions: Dyads were told that they were similar, dissimilar, or neither.

Subjects: 96 subjects participated in 48 dyads.

Tasks: A revised version of the Church Problem and the Fame Problem. Subjects also rated their partners on six semantic differential scales and gave a description of himself/herself, a most-preferred co-worker, and a least-preferred co-worker. These ratings and descriptions were taken before and after the task.

Measurements: Same as Experiment IIA.

Results: Sequence was significant at the .005 level, with dyads in the Fame-Church sequence being more creative. This supports hypothesis one. Attitudes were significant at the .05 level, with the heterogeneous dyads more creative, supporting hypothesis two. There was a slight but nonsignificant tendency for those working on the Fame Problem first to have higher esteem for their partners than those working on the Church Problem first. Therefore, hypothesis three was not supported.

Tuckman, B.W. Group composition and group performance of structured and unstructured tasks. Journal of Experimental Social Psychology, 1967, 3, 25-40.

Purpose: Demonstrate that group performance is influenced

by the interaction of group composition and task, as opposed to group composition alone. Groups which were homogeneous in abstractness and heterogeneous in abstractness were focused on.

Independent Variables: Level of Abstractness: Four types of three-man groups were formed: 1. Homogeneous abstract. 2. Heterogeneous abstract (2 abstract, 1 concrete). 3. Homogeneous concrete. 4. Heterogeneous concrete (2 concrete, 1 abstract). Task Structure: Tasks were an unstructured problem-solving task and a structured role-following task.

Subjects: 36 Navy enlisted men were selected for this study. The median age was 18, the median IQ level was approximately 117 (or 58.5, as measured by the Navy General Classification Test). Subjects were selected with the following three tasks: 1. The Interpersonal Topical Inventory (ITI) of Integrative Complexity. 2. The Sentence Completion Test (SC) of Integrative Complexity. 3. The nDominance Scale of the Edwards Personal Preference Schedule (EPPS).

Tasks: The Combat Information Center (CIC) Task was considered to be a concrete, structured task. The Island Problem was a discussion problem and was considered to be an abstract, unstructured task.

Measurements: The CIC task was measured by the Weighted Report Score, which reflected the number of correct res-

ponses made by each group. The Island Problem Task was coded and compared to a criterion formed by eight groups, independent of the experimental groups. After each of the tasks, a trained observer rated the degree of role differentiation, and subjects completed a Self-Report Questionnaire on task preference.

Results: Results supported the hypothesis that group performance is affected by the interaction of group composition and task demands. Groups which had a majority of high abstractness subjects performed better on the abstract, unstructured Island Problem. No performance differences were found between the high abstract and low abstract groups on the concrete, structured task. Group composition was found to be nonsignificant.

Hornsby, J.L. The effects of group composition on systematic human relations training. DAI, 1974, 34(8-A, Pt. 1), 4871-4872.

Purpose: Investigate the effects of homogeneous versus heterogeneous personality grouping upon Systematic Human Relations Training.

Independent Variables: Affection Dimension: Subjects were classified as "personal" types (ideal affection behavior) or "underpersonal" types (deficient affection behavior).

Subjects: 72 female students from the University of Georgia were randomly assigned to one of nine 8-person groups. All subjects were enrolled in an introductory course in educa-

tion.

Tasks: Approximately 18 hours of Systematic Human Relations Training was administered by three experienced male trainers. Each trainer administered training to two homogeneous groups (one personal, one underpersonal) and one heterogereous group.

Measurements: The Index of Responding was used before and after the Human Relations Training to assess the level of interpersonal functioning. The FIRO-B was used to assess the affection variable.

Results: No significant differences for groups composition were found.

Hovey, F.E. Group composition, group cohesiveness, and several process variables. DAI, 1974, 35(6-B), 3087-3088.

Purpose: Examine the effect of group composition on group cohesiveness and five process variables: agreement, disagreement, friendliness, solidarity, and spread of participation.

Independent Variables: Jungian Personality Typology: Subjects were defined as being in 1. A homogeneous group (subjects with identical functions), 2. A heterogeneous group (combined subject functions of the greatest possible variety), or 3. The complementary group (combined subjects where commonality existed on one function, but variety existed on the other).

Subjects: 96 college students were selected and assigned to one of 24 4-man groups. There were 8 groups for each of the 3 different conditions.

Tasks: There were three tasks to perform, a production task (creating a story), a discussion task (creating alternatives to a topic), and a problem-solving task (planning and constructing a tower of cardboard cards).

Measurements: The Myers-Briggs Type Indicator was used to assess Jungian personality typologies. The production task was measured by a cohesiveness questionnaire, and a five-item questionnaire. The discussion task was assessed by the return-to-group questionnaire, and a single-item questionnaire. The problem-solving task was measured by reassembly time, time period for the completion of questionnaires, and return to the group. A video tape was also taken during the session so that a trained observer could determine the amount of agreement, disagreement, friendliness, solidarity, and spread of participation.

Results: No significant differences were found due to group composition. There was a significant change in scores due to the effect of time. Cohesiveness, friendliness, and solidarity all showed an increase over time, whereas reassembly time, agreement, and spread of participation decreased over time.

Petzel, T.P., Johnson, J.E., Johnson, H.H., & Kowalski, J. Behavior of depressed subjects in problem solving groups. Journal of Research in Personality, 1981, 15, 389-398.

Purpose: Investigated leadership selection in groups which were homogeneous versus heterogeneous with regards to level of depression of group members. The study also measured members' satisfaction with group activities as a function of group composition. It was expected that nondepressed members would talk more frequently than depressed members and that the homogeneous group members would report more efficiency and organization within their groups than the heterogeneous group members. The latter hypothesis was made in light of the leadership and followership roles assumed by nondepressed and depressed members, respectively. That is, the followership role would be assumed by the depressed members more readily, thereby creating less competition for leadership.

Independent Variables: Level of Depression: Subjects were classified as low or high depressed. Three groups were formed on this basis: 1. Homogeneous, low-depressed. 2. Homogeneous, high-depressed. 3. Heterogeneous, high-depressed and low-depressed.

Subjects: Subjects were 66 introductory psychology students chosen from an original pool of 536 students based on their MMPI Depression Scale *t* scores. Students with *t* scores of 70 and above were classified as high-depressed, and those with *t* scores of 50 or below were classified as low-depressed. The DACL, Form E was also given during data collection as a check on the depression status of

subjects. The mean for subjects classified as high-depressed on the MMPI-D was 12.77, whereas those subjects classified as low-depressed on the MMPI-D had a mean score of 8.37 on the DACL-E. These DACL-E scores were found to be statistically significant.

Tasks: Subjects were asked to complete the NASA-Exercise, after which they were to rate group members' relative importance in contributing to this exercise. They were then administered a questionnaire concerning satisfaction with their group's interaction. The questionnaire asked subjects to rate their impressions on 4- to 6-point forced choice rating scales.

Measurements: Scores on the NASA-Exercise, ratings on other group members, and ratings on the questionnaire were used for analysis. In addition, frequency of statements made by group members was recorded.

Results: It was hypothesized that heterogeneous groups would be perceived as more efficient and better organized by group members, and that this would be reflected by greater homogeneous agreement on how much group members contributed to the group product. It was determined that the subjects in the heterogeneous groups showed significantly smaller range percentages than subjects in either of the homogeneous groups. The differences between the homogeneous groups were not significant. It was also hypothesized that nondepressed subjects would talk more

frequently than depressed subjects. This was also supported. A chi square analysis indicated a significantly greater number of statements made by nondepressed subjects when compared to depressed subjects. No group differences were found for task performance on the NASA-Exercise, and results from the questionnaire indicated significantly greater satisfaction ratings from group members in heterogeneous groups on 5 of the 9 questions.

Aamodt, M.G., & Kimbrough, W.W. Effect of group heterogeneity on quality of task solutions. Psychological Reports, 1982, 50, 171-174.

Purpose: Investigate the effects of group composition based on behavior style, as defined by the Perosnal Profile System. It was hypothesized that heterogeneous groups would perform better than homogeneous groups.

Independent Variables: Group Composition: Subjects were randomly assigned to both homogeneous and heterogeneous groups on the basis of behavior style, as defined by the Personal Profeil System (Geier, 1979). There were four categories of behavior style: dominance, influence, steadiness, and compliance. The heterogeneous groups combined four individuals in each of the four categories, while the homogeneous groups were comprised of four individuals with the same behavior style.

Subjects: Subjects were 48 (26 female, 22 male) students enrolled in one of two sections of a Psychology of Business

and Industry course and participated in the experiment as part of normal class procedure.

Tasks: Two human relations discussion tasks were used. Both were of equal difficulty and had the same cooperation requirements. For each task, five possible solutions to the problem were presented, from which the group was to pick the best possible solution. Subjects participated in a discussion task in a homogeneous and a heterogeneous group. The order of participation was counterbalanced throughout the experiment.

Measurements: The solutions to the discussion were scaled for quality to allow for a more objective analysis of group performance.

Results: Analysis indicated significantly better quality results from the heterogeneous groups than from the homogeneous groups, thereby supporting the experimental hypothesis.

Sociodemographic Variables

Summers, D.A., Stewart, T.P., & Oncken, G.R. Interpersonal conflict in heterocultural dyads. International Journal or Psychology, 1968, 3, 191-196.

Purpose: This study focuses on interpersonal conflict arising from dissimilar beliefs regarding a major socio-political issue. Specifically, conditions in which both cognitive and cultural differences will be investigated.

Independent Variables: Cognitive Similarity: Similar versus dissimilar beliefs regarding foreign policy in America. Cultural Composition: Dyads were Arab-American versus American-American.

Subjects: Students at the University of Illinois were used in this study. 14 Arab and 42 American males were given a foreign policy prediction task to assess their beliefs. Dyads were classified as similar or dissimilar on this basis.

Tasks: Subjects were to make initial predictions about the long-term effects of seven hypothetical American foreign policies. They were to announce these predictions, discuss differences (if any) to reach an agreement, and finally, to announce compromise predictions.

Measurements: Initial conflict was assessed by the initial difference in subjects' predictions or judgments. The subjects' compromise on a policy was measured by the ratio of the initial prediction minus the compromise prediction to the initial conflict. Final conflict was

measured by the ratio of the final difference in judgment to the initial conflict on that policy.

Results: Conflict was significantly greater in the cognitively dissimilar than in the cognitively similar dyads. Total compromise did not differ on cognitive similarity, or cultural composition of the dyads. However, it was found that American subjects compromised a significantly greater distance than Arab subjects.

Clement, D.E., & Schiereck, J.J. Sex composition and group performance in a visual signal detection task. Memory and Cognition, 1973, 1, 251-255.

Purpose: Determine the effects of sex composition of groups on a visual signal detection task.

Independent Variables: Sex Composition: Subjects were assigned to all-male, all-female, mixed-alternate (seated male-female-male-female), or mixed-adjacent (seated male-male-female-female) groups.

Subjects: 48 subjects (24 males, 24 females) were run in groups of 4.

Tasks: Participate in a visual signal detection task.

Measurements: Proportion correct was calculated for four different target locations.

Results: There were no significant differences in performance of all-male or all-female groups. However, both mixed-sex groups had poorer performance. Specifically, mixed-adjacent groups had significantly lower scores than

homogeneous groups. It was hypothesized that "information coalitions" form between like-sex group members when seating patterns allow this.

Oslin, Y.D. An assessment of the differential effects of race on small decision-making groups. DAI, 1974, 34(11-B), 5660.

Purpose: Assess the effects of race on individual and group decision-making.

Independent Variables: Race of the Group Members: Members were Black or White. Race of the Facilitator: Facilitators were Black or White. Nature of the Group: Groups were coacting or interacting.

Subjects: 40 Black and 40 White students in a parochial high school were assigned to the following groups: Black subjects only, White subjects only, and an equal number of Black and White subjects in a biracial group. There were four subjects per group, and each of the homogeneous conditions had six groups, while the heterogeneous conditions had eight groups, for a total of twenty groups.

Tasks: The National Aeronautics and Space Administration's Lost on the Moon Decision-Making Task (NASA-DEM) was used to assess decision-making.

Measurements: The error score on the NASA-DEM was obtained for all groups.

Results: There were no significant differences due to group composition or race of the facilitator. Interacting

groups, regardless of racial composition, produced more accurate results than coacting groups.

Kraft, L.W., & Vraa, C.W. Sex composition of groups and pattern of self-disclosure by high school females. Psychological Reports, 1975, 37, 733-734.

Purpose: Examine how same-sex versus mixed-sex groups affect self-disclosure of high school females.

Independent Variables: Sex Composition: Females and males were assigned to same-sex (female) or mixed-sex groups. There were three homogeneous groups, and three heterogeneous groups, each comprised of four males and four females.

Subjects: Subjects were volunteers in the Core Program at Red River High School in North Dakota. The Core Profram is a vocationally oriented history and English program for non-college bound students.

Tasks: Subjects were to participate in group discussion. They were encouraged to express feelings about themselves and the group honestly. Sessions lasted for 6 or 9 weeks and were an hour in length.

Measurements: A content analysis was carried out on video-tapes of the sessions. A frequency count was taken on the following categories: 1. Non-personal remarks referring to inanimate objects. 2. Statements about other people. 3. Statements reflecting ideas, opinions, and/or

attitudes that evoke another member's feelings but do not commit one's own feelings to disclosure. 4. Statements disclosing self or feelings.

Results: Females made significantly more self-disclosing statements in the same-sex group than the mixed-sex group.

Rosenthal, S.F. The performance of same- and mixed-sex dyads on problem-solving tasks. DAI, 1975, 36(4-B), 1975-1976.

Purpose: Five hypotheses were devloped to assess the effect of sex and sex composition on performance and interaction in dyads: 1. Tasks commonly used in social psychology research have sex content. 2. Differences in styles of interaction are evident by dyad sex composition. 3. Sex composition of the dyad and sex content of the task interact in the prediction of performance. 4. Interpersonal attraction improves performance in homogeneous groups on the task with appropriate sex content. 5. Interpersonal attraction negatively affects performance in heterogeneous groups, irrespective of sex content of task.

Independent Variables: Sex Composition: Subjects were assigned to all-male, all-female, or mixed groups.

Subjects: 30 dyads were studied, 10 in each of the groups noted above.

Tasks: The first hypothesis was tested by administering a survey to 329 undergraduate students. The second through fifth hypotheses were assessed by asking subjects to perform

a verbal and a quantitative problem-solving task in their respective groups.

Measurements: Audio-tapes of each session were collected. No other information given on measurement.

Results: Results from the survey supported hypothesis one, that is, that tasks commonly used in experimental research have sex content. In regard to the second hypothesis, data from the audio-tapes indicated that there are systematic and consistent differences in interaction by dyad type, although they were not statistically significant. Results partially supported hypothesis three, while also suggesting that mixed-sex groups can be better performers than same-sex groups on problem-solving tasks. Interpersonal attraction improved performance for all-female and mixed-sex dyads, but not for all-male dyads. This supports hypothesis four and disconfirms hypothesis five.

Aries, E. Interaction patterns and themes of male, female, and mixed groups. Small Group Behavior, 1976, 7, 7-18.

Purpose: Determine the effects of a group's sex composition on the interaction styles of group members. It was hypothesized that there would be differences between interaction styles in all-male, all-female, and mixed groups.

Independent Variables: Sex Composition: Subjects were assigned to one of the three groups noted above.

Subjects: Subjects were drawn from an undergraduate popu-

lation at an Eastern Ivy League school. Six groups were formed, two all-male groups, two all-female groups, and two mixed groups. All groups ranged in size from five to seven subjects.

Tasks: Subjects were presented with the task of getting to know each other. All groups were co-led by the author (female) and a male co-leader. The leaders played a minimal role, each initiating less than 4% and receiving less than 5% of the interaction.

Measurements: Observers used Bales' method of recording member interaction. Interrater reliability of the rates of interaction initiated and received was 95%. Sessions were tape-recorded and the content of the interactions was analyzed by the General Inquirer, a computer-aided content analysis system.

Results: Speaking was rank ordered to investigate the patterns of initiating and receiving interaction. The author hypothesized that rank order of speaking reflects the relative power of members in a groups, in that members who initiated interaction more often took up the most tiem in the group, and could be considered to have taken a leadership role. In the mixed groups, males both initiated and received more interaction than females, assuming at least two of the top three ranks in every session. In all-male and all-female groups, males extablished a more stable dominance order over time than the female groups.

The amount of interaction addressed to the group as a whole was also examined. Significantly more interaction was addressed to the group as a whole in all-male groups (36% and 30%) than in all-female groups (9% and 4%). In mixed groups, men addressed significantly more of their interaction to the group than in all-male groups. Females remained constant in both all-female and mixed groups.

Lindsey, R.B. A study of white dominance behaviors in interracial task-oriented small groups. DAI, 1976, 36(11-A), 7299-7300.

Purpose: Questions if there are dominance behaviors which White people exhibit which would limit the contribution of Black people to group discussions.

Independent Variables: Race Composition of Groups: Subjects were assigned to all-White groups, majority White groups, or majority Black groups.

Subjects: 178 graduate students in the School of Education at the University of Georgia were involved in the study.

Tasks: Participate in a discussion group.

Measurements: Bales' Interaction Process Analysis was used to collect data on seven different dominance behaviors: total acts of communication by each group participant, each participant's acts of interruption, each participant's acts of clarification, the acts of failure to provide feedback by each participant, each participant's acts of distraction, the acts of support by each participant, and each participant's

acts of attempted answers.

Results: No significant differences were found for group composition effects. White-to-White communication was significantly higher than the other groups on total acts of communication and attempted answers.

Rothschild, E.S. Decision-making behavior of males and females in mixed- and single-sex groups. DAI, 1978, 39(1-B), 448.

Purpose: Examine the effects of sex composition of groups on decision-making processes.

Independent Variables: Sex Composition: Groups were composed of all-male, all-female and equally mixed subjects.

Subjects: There were a total of 144 subjects in the experiment. Each group noted above consisted of six persons, previously unacquainted.

Tasks: Discuss a human relations case problem for 40 minutes. Subjects were to achieve a unanimous group decision regarding the best possible solution.

Measurements: A modified version of Bales' Interaction Process Analysis technique for coding group interaction was used to assess the following variables: power-dominance, task-orientation, social-emotional-orientation, assertiveness, leadership, the ratio of instrumentality to expressiveness, and the ratio of positive to negative affect. Pre- and post-group attitude change on the case problem discussion was considered an eighth dependent

variable of yielding to influence.

Results: Subjects in all-female groups yielded to influence more than subjects in all-male groups or mixed-sex groups. This difference was not significant in terms of an absolute value of attitude change, but when attitude change was redefined in terms of the nature of the attitude preference on the bi-polar rating scale.

Sabban, Y. The effect of socioeconomic group composition on small group interactions and linguistic elaboration in problem solving discussions. DAI, 1977, 38(4-A), 2008-2009.

Purpose: Determine the effects of socioeconomic status and group composition in a small group problem-solving discussion on the following variables: 1. The interaction process. 2. Linguistic elaboration. 3. Use of group time. 4. The degree of elaboration of the solutions.

Independent Variables: Socioeconomic Status: Subjects were classified as working class or middle class. Group Composition: Subjects were randomly assigned to 20 homogeneous groups (10 working class, 10 middle class) and 20 heterogeneous groups. There were four subjects in each group.

Subjects: Subjects were 169 White American-born male eleventh grade students in New York City.

Tasks: Discuss the "Shooting of the Captain and His Son" problem.

Measurements: Subjects were scored on the quality of discussion. The variables that were examined were the ratio of the categories of interaction, the linguistic elaboration, the time of session, the average interaction time, and the elboration of the solutions. The Lorge-Thorndike Intelligence Test was administered at a separate session to control for verbal intelligence factors.

Results: Middle class subjects were higher in "giving information" and "disagreeing" and lower in "asking for information" and "agreeing", and controlling for verbal intelligence, the relationship between socioeconomic status and the ratios of the categories of interaction were "maintained". This held true for all the categories except for "disagreeing". In heterogeneous groups, working class subjects were higher in "giving information" and lower in "asking forinformation" when compared to homogeneous groups. Middle class subjects were higher in linguistic elaboration (syntactical) than working class subjects. Linguistic elaboration did not differ in homogeneous versus heterogeneous groups, with the exception of the proportion of "nonpersonal" pronouns versus nouns used by middle class subjects. The mean time of the sessions differed for the middle class versus lower class groups and the degree of elaboration was not found to differ across groups.

Bizman, A., Yinon, Y., Mivtzari, E., & Shavit, R. Effects of the age structure of the kindergarten on altruistic behavior. Journal of School Psychology, 1978, 16, 154-160.

Purpose: Investigated the effects of age heterogeneity versus age homogeneity kindergarten structure on childrens' verbal and behavioral altruism.

Independent Variables: Age Structure: Subjects were assigned to groups in terms of age. Homogeneous groups were comprised of only 5-year-olds, while heterogeneous groups consisted of one-half older subjects (mean age= 66.94 mos.) and one-half younger subjects (mean age=55.74 mos.). Place of Residence: Subjects were studied in kindergartens of kibbutzim or kindergartens in the city.

Subjects: Subjects were 119 children from 7 kindergartens in Israel. All were at least 5 years of age. 54 subjects were from 2 city kindergartens and 65 subjects were from 5 kindergartens of 3 kibbutzim. Kindergartens were matched for socioeconomic status and ethnic origin of parents.

Tasks: Subjects were to complete two stories with one of three forced choice answers per story. This was used as an indirect measurement of the subjects' willingness to give aid. 2. A lotto game made up of six boards with six pictures per board. Subjects were rewarded with pretzels for solving easy riddles parallel to the pictures on the cards. At the end of the session, all subjects had six pretzels. They were told that they could share their

pretzels with other children in the class by putting them in a box, which was behind the experimenter. The second task was used as a behavioral measure of altruism.

Measurements: Subjects were scored on the two story completions with a score of "1" for giving aid and a score of "0" for not giving aid. If the subjects gave the third alternative (different solution) as a response, he/she was eliminated from the experiment. For the behavioral measure, if the subject gave one or more pretzels, a score of "1" was assigned. Those who gave none were given a "0" score.

Results: A factorial chi square analysis was used on the two measures of altruism and it was found that heterogeneous kindergartens chose to give aid in the story completion task significantly more often than the homogeneous kindergartens. The heterogeneous group also contributed a significantly higher number of pretzels to other children.

Eichenbaum, L.A. The effects of same-sex versus mixed-sex assertion training groups on assertiveness, sex-role attitudes and locus of control beliefs of women. DAI, 1978, 39(5-B), 2493.

Purpose: Determine whether sex composition of assertion training groups affects female participants on the following variables: 1. General assertiveness. 2. Assertiveness with the opposite sex. 3. Sex-role attitudes.

4. Locus of control beliefs.

Independent Variables: Sex Composition: Female subjects were assigned to same-sex or mixed-sex groups.

Subjects: 38 female subjects participated in the experiment.

Tasks: Assertion training groups which met once a week for six weekly sessions of one and one-half hours each.

Measurements: The Adult Self-Expression Scale, the Bem Sex-Role Inventory, and the Rotter I-E Scale were administered before and after the training sessions.

Results: There were no significant differences due to sex composition of the group on any of the variables examined. The assertion training produced a significant increase in the subjects' reported assertive behavior.

Foddy, M. Role-taking in a communication task. Personality and Social Psychology Bulletin, 1978, 4, 388-392.

Purpose: Determine if role-taking is affected by shared subgroup versus mixed subgroup membership. Subgroup membership was defined by field of study in school.

Independent Variables: Subgroup Membership: Subjects were assigned to one of four conditions: 1. Psychology sender with psychology receiver (P-P). 2. Psychology sender with non-psychology receiver (P-NP). 3. Non-psychology sender with psychology receiver (NP-P). 4. Non-psychology sender with non-psychology receiver (NP-NP).

Subjects: 40 third year psychology students (16 male, 24 female) and 40 second and third year humanities and physical

science students (20 male, 20 female) volunteered for the experiment. 10 dyads were assigned to one of the 4 conditions noted above.

Tasks: Subjects participated in the "Password" game. The sender was given 16 target words, of which 8 were general words and 8 were related to psychology. The receiver in each of the dyads had to respond to the sender's cues with either a guess or a pass. If the response was a pass or an incorrect guess, the sender gave another clue. If the response was a correct guess, the sender would move on to the next word. At any point in the game, either sender or receiver could suggest giving up on a word. If this occured, the receiver was shown the word, and the sender would move on to the next word, untial all words were used.

Measurements: Communication efficiency was measured by the average length of time to reach the target word, averaged over eight words in each Word Type, and the average number of cues per word. Another index of communication efficiency was the number of target words successfully guessed. Difficulty in communication was expected to produce a higher proportion of "give up" responses. The ratio of psychology-related cues to the total number of cues given was measured to see if psychology students would purposefully draw on subgroup-relevant associations when paired with a receiver from the same subgroup (psychology)

versus a different subgroup (humanities and physical sciences).

Results: No significant main effects for groups were found, using a 4 x 2 ANOVA (groups x word type). The mean time per word was significantly less for general versus psychology words. There was a significant interaction between groups and type of word, attributed to the longer times for gneeral words in groups with psychology receivers (P-P and NP-P).

Wall, K.E. Effects of all female and mixed-sex assertion training groups on the assertive behavior of females. DAI, 1978, 38(12-B), 6184-6185.

Purpose: Test to see if females in the mixed-sex groups would be more assertive in delivering refusals or disagreement statements to males or females, than females in same-sex groups, or no-treatment control groups.

Independent Variables: Sex Composition: Female subjects were randomly assigned to mixed-sex, same-sex, or a no-treatment control group. 67 mental health center clients participated.

Tasks: Four behavior role-plays.

Measurements: Two self-report measures were taken before and after the role-plays. These measures were the Adult Self Expression Scale (ASES) and toh ASES Male Authority Scale (AA). Judges rated the audio-taped role-plays on the following variables: Duration of Reply, Latency of

Response, Loudness, Compliance Content, Request for New Behavior, Affect, and Overall Assertion. Inter-rater reliability ranged from r = .94 to r = .72.

Results: Self-report measures revealed no significant differences between the two training groups. However, both training groups reported significantly more assertiveness than the control groups on the ASES. There was no significant difference in assertiveness with males of females between women trained in mixed-sex groups versus women trained in same-sex groups. The same-sex group was significantly more assertive on 14 measures across the study, while the mixed-sex group was significantly more assertive on 7 measures.

Fagerstrom, M.L., & Petrakis, E. Effects of gender grouping on performance of a novel task. Perceptual and Motor Skills, 1980, 50, 1235-1238.

Purpose: Tested if group composition by gender significantly affected learning and performing a novel task.

Independent Variables: Sex Composition: Subjects were assigned to the following groups: nine groups of all-males, eight groups of all-females, four groups of two males and one female, and sever groups of one male and two females. Each group had three subjects.

Subjects: There were a total of 42 males and 42 females in the experiment. Subjects were students who were enrolled in three sections of an introduction to physical education

class. They participated in the experiment as part of a class assignment.

Tasks: The novel task presented was juggling two balls with the dominant hand. If the subject had previous juggling experience, the non-dominant hand was used. No subject was able to complete 20 successive catches in a 15 second pretrial session, so they were all considered novices at this task. Subjects were told they would have 10 trials of 1 minute each, rotating within their group. This rotation provided a 2 minute rest between trials

Measurements: Total number of successful catches per trial was recorded.

Results: A one-way ANOVA revealed significant differences in performance by the four groups. A *t*-test indicated that males scored significantly higher than females. However, a *post hoc* analysis using Scheffe's test did not indicate a significant difference between the groups.

Goldman, J.A. Social participation of preschool children in same- versus mixed-age groups. *Child Development*, 1981, *52*, 644-650.

Purpose: Investigated the amount of time that children in same-age versus mixed-age groups spend in different types of social participation. Also, the age relationships of the mixed-age groups were examined.

Independent Variables: Age Structure: Subjects were in same-age versus mixed-age groups. Classes were designated

as same-age groups if at least 80% of the children were within the designated age rage of 3-year-olds or 4-year-olds. 3 classes of 3-year-olds and 3 classes of 4-year-olds were observed, in addition to 3 mixed-age classes. Classes were defined as mixed-age if at least 40% of the subjects were 3-year-olds and 40% were 4-year-olds. Sex Composition: All classes had at least 40% males and at least 40% females.

Subjects: 116 children from 9 nursery school classes in a homogeneous middle-class neighborhood. Subjects classified as 3-year-olds ranged in age from 2.9 to 3.8 years of age at the beginning of the school year. Subjects classified as 4-year-olds ranged from 3.9 to 4.8 years of age. Classes were matched for time-of-day variables.

Tasks: Subjects were observed during their free-play period.

Measurements: Behaviors were coded using an integration of the categories of social participation used by Parten (1932). These categories were: unoccupied, onlooking, solitary play, parallel play, teacher-directed activity, positive interaction, negative interaction, and adult-only relationships. Categories were defined in terms of overt body movements, eye contact, verbalizations, and proximity. Each class was observed for a minimum of 30 minutes per day on 10 different days.

Results: 4-year-olds: Subjects in heterogeneous groups

spent significantly more time in solitary play and less time in parralel play and teacher-directed activities.

3-year-olds: Subjects in heterogeneous groups spent significantly less time in parallel play. Boys spent significantly more time in positive interaction than girls, and girls spent significantly more time in parallel play. Sex, rather than age, was the more dominant factor in influencing choice of playmates within the mixed-age groups.

PART II

Purpose: Assess the salience of age as a factor in playmate selection by investigating age relationships within the mixed-age classes.

Independent Variables: Sex Composition and Age Structure within the mixed-age group. Sex-composition and age structure were the same as in Part I.

Subjects: The same subjects in the mixed-age groups in Part I were used.

Tasks: Same as Part I.

Measurements: Observation and coding procedures were those described in Part I. Observer agreement for choice of playmates ranged from .85 to .95.

Results: Results were reported in terms of percentages of subjects engaged in positive interactions with same- versus mixed-age and same- versus mixed-sex peers significantly more than expected by chance. The frequency of negative interactions in the mixed-age groups was too low to conduct

a similar analysis. Rather, sign tests were used to assess the distribution of negative interactions between groups. Positive Interactions: The 3-year-old girls were the only group in which a majority of the subjects showed no preference for same-sexed peers. Among the 3-year-old boys, the 4-year-old boys, and the 4-year-old girls, 83%, 88%, and 100% of the subjects, respectively, interacted with same-sex peers significantly more often than would have been expected by chance. The importance of sex, as opposed to age, as a factor in the selection of playmates was emphasized by the fact that 47% of all subjects interacted with same-sex, mixed-aged peers significantly more than would have been expected by chance, while only 5% of the subjects (2 3-year-old girls) interacted with mixed-sex, same-age peers significantly more. None of the subjects interacted with mixed-sex, mixed-age peers significantly more than expected by chance. Negative Interactions: Sign tests revealed that the frequency of negative interactions was equally distributed across age groups. The frquency of girls' negative interactions were not significantly different from chance, while the boys' negative interactions approached significance ($p < .06$, two-tailed), indicating boys engaged in more negative interactions with other boys than with girls.

Other Variables

Ferriolo, M.F. The effect of homogeneity and heterogeneity, in terms of group experience, on success in group among counseling students. DAI, 1974, 35(1-A), 186.

Purpose: Determine the effects of group composition, defined in terms of group experience, on the subjects in those groups.

Independent Variables: Group Experience: Subjects were assigned to one of four groups: 100% group-wise subjects, 100% group-naive subjects, 20% naive to 80% group-wise subjects, or 50% naive to 50% group-wise subjects.

Subjects: Students at the University of Southern California were used in this experiment. They were all in beginning courses which required participation in encounter groups.

Tasks: Participate in an encounter group.

Measurements: The Personal Orientation Inventory and the Marlowe Crowne Social Desirability Scale were given before and after the encounter group sessions to assess positive or negative feelings about these sessions. Subjects were also asked to assess themselves and other members of their group at the end of the semester, using the Scales for Assessment of Interpersonal Functioning.

Results: Group-naive subjects in heterogeneous groups received significantly lower scores on peer evaluations and on self evaluations. In heterogeneous groups, group-wise subjects tended to give lower peer evaluations than

group-wise subjects in homogeneous groups. It was hypothesized that, in heterogeneous groups, group-naive subjects may be viewed as group deviates. They may receive negative feedback and evaluations and therefore feel inadequate.

Gruba, G.H. Homogeneous versus heterogeneous groups for clients with different presenting problems. DAI, 1977, 38(1-B), 358-359.

Purpose: Determine how homogeneous and heterogeneous composition of human relations training groups affects subjects' perceptions of curative factors, groups cohesiveness, and the immediacy of verbal interaction.

Independent Variables: Three homogeneous and three heterogeneous groups were formed on the following Presenting Problem Type: parents of problem teenagers, recent divorcees, and spouses of alcoholics.

Subjects: Subjects participated in one of the six groups, each of which had five to eight subjects. Subjects had one of the presenting problems noted above.

Tasks: A workshop on human relations training, which included structured personal growth exercises, and two 60-minute periods of unstructured discussion toward the beginning and end of the group experience.

Measurements: Rohrbaugh and Bartels' 14-Scale revision of Yalom's (1970) curative factor Q-sort was used to measure curative factor perceptions at the end of the workshop. Cohesiveness was measured at the beginning and the end of the

workshop using a seven-item questionnaire. The Group Interaction Profile (GRIP) classified the unstructured discussion on two dimensions: group-related versus group-unrelated and personal versus impersonal.

Results: A two-way ANOVA (composition x problem type) on curative factor data indicated "focussed expressivity" was valued more by homogeneous group members when compared to heterogeneous group members. "Feedback" was rated higher by heterogeneous group members. A three-way ANOVA (compositon x problem type x time) indicated no significant main effect for composition or problem type. A sgnificant main effect of time indicated greater cohesiveness at the end of the workshops than at the beginning. A significant interaction of composition x problem type reflected greater cohesiveness in homogeneous groups than heterogeneous groups for divorcees. Chi square comparisons of the GRIP revealed heterogeneous groups engaged in more personal discussion than homogeneous groups.

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