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DECISION PROCESS MODELS OF PEER NOMINATIONS.(U)
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"Decision Process Models of Peer Nominations"

Duke University

Graduate School of Business Administration

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Principal Investigator

June 30, 1977

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Abstract

The objective of this research project is to develop an information processing theory of the judgemental process individuals engage in, while rating their peers. The complete research paradigm is described in Lewin and Zwany (1976). The approach taken was to utilize protocol tracing methods to construct decision process models of how individuals rate their peers for seven widely used sociometric questions: (1) Who would you go to for help on a tough problem?; (2) Who is pulling most for the group?; (3) Who was best at handling people?; (4) Who has the most ability to think critically and analytically?; (5) With whom can you work best?; (6) Who shows the greatest independence of thought?; and (7) Who shows the best overall leadership qualities?

The protocols revealed that individuals evaluated their peers along five primary behavior categories - (1) mutual influence, (2) categorizing-summarizing, (3) having a comprehensive view, (4) giving direction, and (5) listening. The detailed protocols were then used to develop a scoring method of videotaped group interactions which included content scoring of the verbal interactions and the non-verbal behavior (i.e. head nodding, eye contact, openness, etc.).

Research is being done on two groups of subjects, Duke University students and officers of the Naval Postgraduate School in Monterey. To date the analysis of Duke University subjects has been completed. High rank correlations (r_s range from .5143 to .964) were obtained between the model predicted peer rankings and the actual peer rankings, using first order models only.

Other results indicate that, in the subjects' minds, questions 1, 2, and 3 of the sociometric measures mean the same thing. The findings are also quite relevant to the leadership literature on Consideration and Initiating Structure. It seems that a primary component omitted in the present literature, involving the Consideration factor, is the importance of a mutual influencing process. In addition the results provide clearer and more operationally defined descriptors for what is meant by Consideration and Initiating Structure.

Lewin, Arie Y. & Zwany, Abram. Peer Nominations: A Model, Literature Critique and a Paradigm for Research. Personnel Psychology, 1976, 29, 423-447.

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Introduction

The objective of this research project is to develop information processing models of the judgemental process individuals engage in, while rating their peers. The complete research paradigm is described in Technical report #1 and in Lewin and Zwany (1976). This report describes in detail the research effort to-date - the experimental procedures, the data analysis and results.

The approach taken in this research was to utilize protocol tracing techniques to construct decision process models of how individuals rate their peers on seven sociometric questions: (1) Who would you go to for help on a tough problem?; (2) Who is pulling most for the group?; (3) Who was best at handling people?; (4) Who has the most ability to think critically and analytically?; (5) With whom can you work best with?; (6) Who shows the greatest independence of thought?; and (7) Who shows the best overall leadership qualities?

The complete experimental procedure is described in a later section of this report. It should be noted however, that the research design entailed two separate but identical studies. Study #1 utilized Duke University students whereas Study #2 utilized officer students at the Naval Postgraduate School in Monterey. The results reported on in this report are primarily from Study #1.

Data Analysis

The data analysis consisted of several distinct phases:

1) Protocol analysis.

This involved transcribing the protocol interview with each subject. For each sociometric question the number of useable protocols which were obtained ranged from 6 to 8 in Study #1 and from 7 to 10 in Study #2. (see the experi-

mental section for details regarding protocol interviews).

Once a protocol was transcribed it was analyzed for operational and non-operational verbal descriptors of the subject's thought process. Operational descriptors refer to statements about behavior which are tangible, observable and measurable. For example, the statement "agreed with me" is defined as operational because it connotes a specific type of behavior communicated in a verbal statement signifying agreement which can be reliably scored. It is also possible to signify agreement with a non verbal communication which can also be reliably scored (e.g. head nodding). The statement "he seemed personable," however, is considered to be a non-operational verbal description. It does not suggest any specific behaviors which the person being described, engages in, that make him "personable."

The appendix contains samples of complete protocol transcripts for each sociometric question.

The following are typical examples of operational and non-operational descriptors for each sociometric question from each study. The complete set of descriptors are shown in the appendix to this report.

DUKE DESCRIPTORS

NPS DESCRIPTORS

1. Who would you go to for help on a tough problem?

(operational)

gave me feedback
 gave things direction
 would draw others out
 agreed with me
 wasn't trying to take over
 wouldn't object to what I'd say

(nonoperational)

listened
 relaxed
 personable

(operational)

Had ideas not expressed by
 anyone else
 Had new thoughts rather than
 expand on old
 Had alot of initiative
 I agreed with him
 He didn't butt in
 He was quick to say something
 positive

(nonoperational)

he wasn't detached from the group
 he's competent
 he understood people-had respect

2. Who was pulling most for the group?

(operational)

organized group together
 told us when to move on
 wants to get responses from others
 summarized
 both listened and spoke
 talkative
 asked questions

(nonoperational)

provided eye contact with everyone
 seemed more committed

(operational)

organized the group together
 kept things going and in order
 draws others out
 agreed with me
 adapts and understands other
 views
 he had something to say about
 all areas
 He contributed alot

(nonoperational)

most aggressive
 was a good thinker

3. Who was best at handling people?

(operational)

kept conversation rolling
 kept people on the track
 responds to what people say
 brings ideas into a synopsis
 aggressive without being overly so
 brings others into the conversation
 makes you feel he values your work
 when disagreed didn't make you feel
 you were wrong

(nonoperational)

approachable - wouldn't intimidate
 understanding and open

(operational)

moved us from one step to another
 redirects us to the question at hand
 willing to agree with others
 summed up what had been said
 doesn't make a conscious effort
 to dominate
 prods others to talk
 there was give and take
 not threatening

(nonoperational)

not terribly aggressive
 listened and looked at everyone

DUKE DISCRIPTORS

NPS DISCRIPTORS

4. Who has the ability to think most critically and analytically?

(operational)

categorized general statements
 initiated stuff
 talked the most
 summarized
 introduced alot of ideas
 had total scope

I agreed with her ideas

(nonoperational)

made a good impression
 made sense
 understood what was going on

(operational)

brought us back on track
 first to comment
 talked the most
 summarized, put stuff together
 had more comments on all the areas
 looked at whole problem and broke
 it down

I agreed with his conclusions

(nonoperational)

was charismatic and forward
 had clearest thoughts
 had a grasp on the problem

5. With whom can you work best?

(operational)

takes initiative
 keeps things going
 give and take

I agreed with him
 was tactful when disagreed
 can expound on my ideas
 able to persuade him
 wouldn't dominate or restrict

(nonoperational)

friendly
 confident
 easy to talk to

(operational)

takes initiative to organize the
 group
 tried to keep answers flowing
 cooperative, willing to listen, give
 and take
 we think along the same lines
 didn't jump on others' ideas
 reinforces my ideas
 had influence over him
 didn't impose his will

(nonoperational)

would be completely honest with me
 was aggressive and ready to tackle
 the problem
 is sensitive

6. Who has the most independence of thought?

(operational)

raises the most questions
 lead group to different areas
 doesn't follow others ideas or repeat
 them
 keeps group on track
 takes an overall view
 evaluates input from each person
 has ideas not considered before

(nonoperational)

puts force behind what he says
 more knowledgeable

(operational)

his ideas agreed with mine
 looks at the problem from different
 directions
 doesn't just regurgitate what others
 have said
 wasn't swayed by the rest of the
 group
 is least affected by what others say
 listens to other people
 brought up points not considered
 before

(nonoperational)

had concrete proposals
 thoughts were organized

DUKE DISCRIPTORS

NPS DISCRIPTORS

7. Who has the best overall leadership qualities?

(operational)

got things going
doesn't monopolize the group
concerned for others
likes to talk, but not all the time
summarizes and corrolates ideas
got people into the conversation
had greater number of ideas
asked for ideas when conversation died
lets his ideas flow to direct ours
had the ideas I thought of

(nonoperational)

easy to get along with
self-confident
not defensive

(operational)

got us working as a team
listens as much as he talked
doesn't interrupt others
lets us know what he thought, but
wants to hear from others
summarized and consolodated things
wouldn't dominate all the time
didn't attack others opinions
asks for responses from others
viewed the whole problem
best at influencing people

(nonoperational)

has be best control over people
seemed calm and very sure of himself
is considerate of other peoples talents

(2) Decision Process Models

In this research no a-priori models of the subjects decision behavior were postulated. The protocol tracing methodology is intended to provide a process description of the information processing strategies employed by subjects when evaluating their peers.

It was expected that a content analysis of the descriptors (operational and non-operational) obtained from the decomposition each protocol would identify a few key dimensions which subjects considered in evaluating their peers. Based on prior research and a review of the literature (Lewin and Zwany 1976) it was expected that these dimensions would be situationally common for a particular sociometric question. In other words it was expected to find a common core of criteria used by subjects to evaluate their peers on a particular sociometric question for the Duke subjects and the NPS subjects. These criteria could differ between the two groups. It was also expected that individual differences would occur due to unique personality characteristics, individual needs and different past experiences. The initial models which were developed and the results of which are reported on the next section are considered to be the simplest and most naive.

Since an examination of the protocols yielded only information categories considered by subjects without providing any indications as to priority levels of the information a simple additive model was hypothesized for

each sociometric question. The basic model for each question considered only the common primary factors which appeared in each protocol. For example for sociometric question #5, "Whom can you work best with?" the single primary factor was:

Mutual Influence - the existence of give and take in the interaction between two or more group members with no individual imposing his ideas or restricting the interchange.

The five commonly recurring primary factors which were gleaned from the protocol analyses were: (1) Mutual Influence (MI); (2) Categorizing and summarizing information already discussed (CS); (3) having an overall comprehensive view of the problem (OC); (4) giving direction to the group (D); and (5) listening (L). The primary factors which were employed in the basic additive models for each sociometric question by experimental group are summarized below.

	Duke	NPS
Q1	(1) MI	(1) MI
Tough Problem	(2) L	(2) L
Q2	(1) MI	(1) D
Pulling for Group	(2) L	(2) L
Q3	(1) MI	(1) MI
Handle People	(2) L	(2) L
		(3) D
Q4	(1) CS	(1) CS
Critical & Analytical	(2) OC	(2) OC
Q5	(1) MI	(1) MI
Best to Work With		(2) D

	Duke	NPS
Q6 Independence of thought	no clear indication as to primary parameter	
Q7 Overall Leadership	(1) MI (2) CS (3) OC (4) D	(1) MI (2) L (3) OC (4) D

2) Content Analysis of Group Videotapes

The descriptors into which protocols are decomposed and which were used for developing the basic models also serve as the basis for a scoring procedure of group interactions. The raw-data consists of 20-30 minutes of group interactions on videotape. The groups were in the role of a management consulting group meeting for a first preliminary discussion on a client company case in the absence of the project leader (complete details are given in the experimental section).

The content categories which were used in the analysis of the group videotapes are shown below.

Content Categories Used in the Analysis of the Group Videotape

Verbal Communications:

Opinion: Used when a person is stating his own opinion, belief, or idea.

Fact: Used when a person is communicating a fact which is obtained from the case material.

Question: Used when a person states a question. He usually uses the word "what" in the content of the statement.

Suggestion: Used when a person makes some suggestion. It is usually prefaced by the words "please," "will" or "lets", etc.

Noise: Used when the communication is inaudible or makes no sense in the context of the discussion.

Agreement: Used when a person is stating his agreement or approval of some previous communication.

Disagreement: Used when a person is stating his disagreement or disapproval, or when he is correcting *someone else*.

Incorrect: Used when the statement made by a person is factually incorrect.

Incomplete: Used when the statement being made is incomplete due to an interruption or a failing thought process.

Interrupts(T): Used when a person interrupts in a tactful and polite manner by excusing himself to agree, disagree and/or build on previous communication.

Interrupts (O): Used when a person interrupts in a obnoxious manner by totally ignoring another person speaking, cutting a person off and/or disagreeing beligerently.

Builds: Used when a person continues with another's idea.

New Area: Used when a person changes the subject to a different area not being presently discussed.

On Track: Used when a person changes the subject to bring the focus of the discussion back on track.

Direction: Used when a person gives the group direction, suggests structure or order of discussion, tells others what to do, and keeps things organized.

Categorize/Summarize: Used when a person puts some communication in a specific category and summarizes previous statements.

Cosmic View: Used when a person makes a comment that is directed at the whole problem inclusively and not at just one area.

Humorous: Used when a person makes a joke or invokes laughter of any kind.

Nonverbal Communication:

Length of Communication: Used when a person's communication is perceived as being longer in duration than average. A substantially long communication indicates someone is dominating the discussion.

Silence: Used when there is an obvious pause in the conversation. Note is taken of who breaks the silence and keeps the conversation going.

Volume: The volume of the communication is scored if it is perceived as being particularly loud or soft. A strong voice, along with a high rate of speech, indicates a person is more aggressive, active, dynamic and persuasive.

Gesticulation: A person is scored as to how much hand gesturing he engages in. A person high on gesticulation is seen as being open and seeking approval.

Eye Contact/Observation: A person is scored on the amount of eye contact he has with other group members while speaking and while others are speaking. This is used as a non verbal measure for listening.

Orientation: A person is scored on the amount of his forward or background leaning. Forward leaning is a nonverbal cue that the person is more active and interested in the on going discussion. Persons leaning away from the group convey a more negative attitude or one of being withdrawn or superior.

Relaxation: A person is scored on the amount of hand and neck relaxation reclining angle, sideways leaning and leg and arm position asymmetry. Greater relaxation implies self assurance, dominance, status or potency.

Smiling & Head Nodding: These two behaviors are scored to indicate that a person is seen as being warm, open, friendly and seeking approval.

Conflict: This category is used if an apparent conflict exists between two or more members of the group.

They represent the classification of the verbal and nonverbal interactions among group members while discussing the case. In a sense they represent a sub-set of the information used by each subject to evaluate the other members of the group classified in terms of the descriptors obtained from the protocol analyses. It should be noted that initially only verbal communications were content analyzed and scored and only when matched to an operationally defined descriptor. It became evident, however, that subjects were also processing a variety of nonverbal cues for which in general no operational definitions were available. Subjects for example evaluated the extent to which other group members were "listening"; seemed "open and relaxed"; were "seeking approval"; were "friendly"; seemed "intelligent" and so forth. A study of the nonverbal literature indicated that the nonverbal categories could be reliably scored and thereby increased significantly the subset of information being processed by the subjects which could be scored.

Analyzing the content of a group videotape consisted of four time consuming steps. First the order in which group member speak is written down. The videotape is viewed twice by two observers who create two sequential lists. The lists are then compared and any inconsistencies are corrected. In the second step the audio of the video tape is transcribed.* A sample audio-video transcript is shown in the appendix. The third step involves scoring the content of the audio transcript for the verbal interactions in the group. The scoring consists of recording the type of verbal statement communicated by each group member. The scoring procedure also involves tracking, when appropriated, who responds to whose comments. In the fourth and final step

*A thirty minute tape takes a research assistant over 8 hours to transcribe.

the nonverbal interactions are scored by repeated viewing of the videotape. In this last step the objective is to view the videotape "through" the eyes of each group member. This requires repeated viewing of the tape.

In order to check for scoring reliability the principal investigator and a research associate scored the audio-video transcripts independently. A comparison of the categories scored showed that the error factor (i.e. when two scores did not agree) was less than five percent. The error factor in scoring the nonverbal communications categories varied by type of category. Agreement was high when scoring "length of communication," "silence," "smiling and nodding," and "conflict." The error rate ranged up to twenty-five percent for the remaining categories. This was largely attributable to the difficulty in determining for some group members such nonverbal dimensions as "eye contact," "orientation," and "relaxation."

Results

At this time the first phase of the data analysis for Study #1 (Duke subjects) has been completed. These are presented in this section. The comparable analysis for Study #2 was started, however, the results indicate some unexpected interaction effects, discussed later on, which delayed the analysis for a period of time.

In analyzing the data the objective is to use relevant interaction scores (in accordance with each basic model) to predict the actual aggregate peer rating rank of each group member. The primary factor, for example, in the basic model of sociometric question #5 (who do you like best to work with) was Mutual Influence. This factor was interpreted as the occurrence of give and take among group members. An attempt by a group member to dominate the group by imposing his ideas or restricting discussion is viewed as the negative of what is meant by give and take. The same is true for a submissive conforming individual who always agrees with someone else's position.

An analysis of the group interactions for Mutual Influence indicates that give and take is related to the exchange of agreements, disagreements and building on previously stated ideas or facts etc. It is also necessary to properly identify individuals who can be described as attempting to dominate the group. The procedure involved obtaining an aggregate count of the number of times each individual in a group was scored on "agreement", "disagreement" and "building".

The decision rule for predicting the peer rankings on question #5 were as follows: (i) rank each group according to the aggregate additive score

of "agreements," "disagreements" and "building"; (ii) rank group on "dominance" scale. Least dominating member is ranked highest; (iii) combine the two ranks.

Rule (i) ranks the group members on the primary factor of Mutual Influence. It uses as a measure the quantity of verbal interactions indicative of a give and take exchange. Rule (ii) ranks the group on dominating and restriction behavior. The least dominating member is ranked highest. Rule (iii) achieves a correction for dominance by combining the two rank orders.

It is on the basis of such naive additive information processing rules that predictions were made for each group as to their rank order on each sociometric question. The results for Study #1 for each sociometric question follow. In each case the decision rules for obtaining the rankings are stated as well as the Spearman Rank correlation coefficient.

Q1. Who would you go to for help on a tough problem?

Primary parameters - Mutual Influence and Listening

- i Rank group on Mutual Influence
- ii Rank group inversely on Dominance score
- iii Rank group on listening
- iiii Combine rankings

Group #1

<u>Real Rankings</u>	<u>Ours*</u>	<u>di²</u>
1. J	M	2
2. Jo	Jo	.5
3. C =	J	2
4. M	S	.5
5. K	S	1
6. S	K	1
7. E	E	0
		<u>10.5</u>

$$r_s = .8125^{**}$$

Group #2

<u>Real Rankings</u>	<u>Ours*</u>	<u>di²</u>
1. C	G	3
2. J	C	1
3. D	J =	.5
4. G	M =	1.5
5. M	D	2
6. Do	Do	0
7. E	E	0
		<u>6.5</u>

$$r_s = .8839^*$$

Group #3

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. S	S	1
2. J	G =	1
3. G	J	1
4. Jt	Jt	0
5. Jo	Jo	0
6. P	C	.5
7. C	P	.5
		<u>3.5</u>

$$r_s = .9375^{**}$$

Group #4

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. S	S	.5
2. El	E	1.5
3. E	El	2
4. P	F =	0
5. C	C	1
6. U	D =	.5
7. D	U =	.5
		<u>8.0</u>

$$r_s = .8571^*$$

Group #6

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. D	D	0
2. T	S	.5
3. S	T	.5
4. P	E	.5
5. E	P	.5
		<u>1.0</u>

$$r_s = .95^*$$

Group #7

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. N	N	0
2. J	G	1
3. G	J	1
4. B	B	0
5. Jo	Jo	0
6. D	D	0
7. Gr	Gr	0
		<u>2.0</u>

$$r_s = .9642^{**}$$

Group #8

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. R	D	1
2. D	R	1
3. F	Ro	2
4. C	F	1
5. Ro	C	1
6. A	Da =	.5
7. Da	A =	.5
		<u>8.5</u>

$$r_s = .8482^*$$

Group #9

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. L	L	0
2. P =	P	.5
3. C =	F =	1.5
4. A	C =	1
5. F	Li =	.5
6. Li	A =	1.5
		<u>6.0</u>

$$r_s = .8285^*$$

Group #10

<u>Real Rankings</u>	<u>Ours</u>	<u>di²</u>
1. Jo	K =	1.5
2. B	Jo =	.5
3. K	S	1
4. S	J =	.5
5. J	B =	2
6. P	P	0
7. D	D	0
		<u>7.75</u>

$$r_s = .8616^*$$

* $P > .05$
** $P > .01$

Q2. Who is pulling most for the group?

Primary parameters - Mutual Influence and Listening

- i Rank group on Mutual Influence
- ii Rank group inversely on Dominance score
- iii Rank group on listening
- iiii Combine rankings

Group #1

Real	Ours	di^2
1. M	M	.5
2. Jo	Jo	.5
3. J	J	0
4. C	C	0
5. S	S	0
6. K	K	0
7. E	E	0
		1.0

$$r_s = .9821^{**}$$

Group #3

Real	Ours	di^2
1. S	S	1
2. J	G	1
3. G	J	0
4. Jt	Jt	0
5. P	Jo	2
6. C	C	.5
7. Jo	P	1.5
		8.5

$$r_s = .5357$$

Group #6

Real	Ours	di^2
1. D	D	0
2. T	S	.5
3. S	T	.5
4. P	E	.5
5. E	P	.5
		1.0

$$r_s = .9500^*$$

Group #2

Real	Ours	di^2
1. J	G	3
2. C	C	0
3. M	J	2.5
4. G	M	.5
5. D	D	0
6. E	Do	1
7. Do	E	1
		17.5

$$r_s = .6875$$

Group #4

Real	Ours	di^2
1. E	S	.5
2. S	E	.5
3. El	El	1
4. P	P	0
5. C	C	1
6. U	D	0
7. D	U	0
		2.5

$$r_s = .9554^{**}$$

Group #7

Real	Ours	di^2
1. N	N	0
2. G	G	0
3. J	J	.5
4. B	B	.5
5. D	Jo	1
6. Jo	D	1
7. Gr	Gr	0
		2.5

$$r_s = .9554^{**}$$

Group #8

Real	Ours	di^2
1. R	D	.5
2. D	R	.5
3. F	Ro	1
4. Ro	P	1
5. Da	C	1.5
6. A	Da	1.5
7. C	A	.5
		7.5

$$r_s = .8661^*$$

Group #9

Real	Ours	di^2
1. C	L	1
2. L	P	2
3. A	F	1.5
4. P	C	2.5
5. F	Li	.5
6. Li	A	1.5
		16.0

$$r_s = .5429$$

Group #10

Real	Ours	di^2
1. K	K	.5
2. Jo	Jo	.5
3. B	S	2
4. J	J	.5
5. S	B	1.5
6. P	F	0
7. D	D	0
		7.0

$$r_s = .8750^*$$

* $P > .05$
 ** $P > .01$

Q.3 Who is best at handling people?

Primary parameters - Mutual Influence and Listening

- i Rank group on Mutual Influence
 ii Rank group Inversely on Dominance score
 iii Rank group on listening
 iiii Combine rankings

Group #1			Group #2		
Real	Ours	di^2	Real	Ours	di^2
1. M	M	.5	1. C	G	3
2. Jo	Jo	1	2. J	C	1
3. J	J	.5	3. M	J _m	1.5
4. K	C	1	4. G	H _m	.5
5. C	S	1	5. D	D	0
6. S	K	2	6. Do	Do	0
7. E	E	0	7. E	E	0
		7.5			12.5
$r_s = .8661^*$			$r_s = .7768^*$		
Group #3			Group #4		
Real	Ours	di^2	Real	Ours	di^2
1. J	S	.5	1. S	S _m	.5
2. G	G	.5	2. E	E _m	.5
3. S	J	2	3. El	El _m	1
4. Jt	Jt	0	4. P	P _m	0
5. C _m	Jo	2	5. U	C	2
6. P _m	C _m	1	6. C _m	D _m	.5
7. Jo	P _m	.5	7. D _m	D _m	1.5
		9.75			8.0
$r_s = .8259^*$			$r_s = .8571^*$		
Group #6			Group #7		
Real	Ours	di^2	Real	Ours	di^2
1. D	D	0	1. N	N	0
2. S _m	S	.5	2. G	G	0
3. T _m	T	.5	3. D	J	1
4. P	E _m	.5	4. J	B	1
5. E	P _m	.5	5. B _m	Jo	.5
		1.0	6. Jo _m	D	2.5
$r_s = .9500^*$			7. Gr	Gr	0
					8.5
$r_s = .6482^*$					
Group #8			Group #9		
Real	Ours	di^2	Real	Ours	di^2
1. R	D	1	1. C	L	2
2. D	R	1	2. P	P	0
3. F	Ro	.5	3. L	F _m	.5
4. Ro	F	.5	4. F	C	2.5
5. C	C	0	5. A	Ll _m	0
6. A _m	Da _m	0	6. Ll _m	A _m	0
7. Da _m	A _m	0			
		2.5			10.5
$r_s = .9554^{**}$			$r_s = .7000$		
Group #10					
Real	Ours	di^2			
1. Jo	K _m	2.5			
2. B _m	Jo _m	.5			
3. S _m	S	.5			
4. K	J _m	1.5			
5. P	B _m	2			
6. J	P	1			
7. D	D	0			
		14.0			
$r_s = .7500^*$					

* $p > .05$
 ** $p > .01$

Q.4 Who has the ability to think most critically and analytically?

Primary parameters - Categorizing and Summarizing, Overall and Comprehensive View.

- i Rank group on categorizing and summarizing scores
 ii Rank group on overall and comprehensive view scores
 iii Combine the two rankings

Group #1			Group #2		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. J	Jo	1	1. M	M	0
2. Jo	J	1	2. J	C	1
3. C	C	0	3. C	J	1
4. M	M	0	4. G	G	0
5. S	S	0	5. D	D	0
6. K	K	0	6. Do	E	1
7. E	E	0	7. E	Do	1
		2.0			4.0

$$r_s = .9643^{**}$$

$$r_s = .9286^{**}$$

Group #3			Group #4		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. J	J	0	1. S	E	.5
2. S	S	0	2. E	P	.5
3. G	G	0	3. P	S	2
4. Jo	Jt	1	4. El	El	0
5. Jt	Jo	1	5. C	C	0
6. P	P	0	6. U	U	0
7. C	C	0	7. D	D	0
		2.0			4.5

$$r_s = .9643^{**}$$

$$r_s = .9196^{**}$$

Group #6			Group #7		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. T	D	1	1. J	J	0
2. D	T	1	2. N	N	0
3. S	S	0	3. G	B	3
4. P	P	0	4. Jo	G	1
5. E	E	0	5. D	D	0
		2.0	6. B	Jo	2
			7. Gr	Gr	0
					14.0

$$r_s = .9000^*$$

$$r_s = .7500^*$$

Group #8			Group #9		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. D	D	0	1. L	F	2.5
2. R	Ro	2	2. P	L	1.5
3. F	F	0	3. A	P	.5
4. Ro	R	2	4. F	C	1
5. C	C	.5	5. C	Li	1
6. A	A	.5	6. Li	A	2.5
7. Da	Da	1			17.0
		9.5			

$$r_s = .8304^*$$

$$r_s = .5143$$

Group #10		
Real	Ours	d_i^2
1. J	K	3
2. Jo	J	1.5
3. B	Jo	0
4. K	S	1
5. S	B	2.5
6. P	P	.5
7. D	D	0
		18.7

$$r_s = .6661$$

* $P > .05$
 ** $P > .01$

Q.5 With whom can you work best?

Primary factor - Mutual Influence

- i Rank group on Mutual Influence scores
 ii Rank group reversely on dominance score
 iii Combine the rankings

Group #1			Group #2		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. M	M	.5	1. C	G	2
2. Jo	Jo	.5	2. J	C	1
3. J	S	1	3. G	J	1
4. S	J	1	4. Do	D	1
5. C	C	.5	5. D	M	1
6. K	K	.5	6. M	Do	2
7. E	E	0	7. E	E	0
		3.0			12.0
$r_s = .9464^{**}$			$r_s = .7857^*$		

Group #3			Group #4		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. S	G	1	1. S	E	.5
2. G	S	1	2. E	S	.5
3. Jt	Jt	0	3. El	P	2
4. C	J	1	4. C	El ^m	.5
5. J	Jo	2	5. P	C	.5
6. Jo	C	1	6. D	U	1
7. P	P	0	7. U	D	1
		8.0			7.0
$r_s = .8571^*$			$r_s = .8750^*$		

Group #6			Group #7		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. P	P	0	1. N	G	1
2. S	S	.5	2. G	B	2
3. D	D	.5	3. Jo	N	2
4. E	T	1	4. B	J	2
5. T	E	1	5. D	Jo	2
		2.5	6. J	D	.5
			7. Gr	G	0
$r_s = .7500$			$r_s = .6875$		
					17.5

Group #8			Group #9		
Real	Ours	d_i^2	Real	Ours	d_i^2
1. R	D	2	1. L	L	0
2. F	Ro	2	2. C	P	2
3. D	R	2	3. A ^m	C	.5
4. Ro	F	2	4. P	A	1.5
5. C	Da	2	5. Li	P	1
6. A	C	1	6. F	Li	1
7. Da	A	1			
		22.0			8.5
$r_s = .6071$			$r_s = .7571$		

Group #10		
Real	Ours	d_i^2
1. B	Jo	1
2. Jo	K	2
3. S	S	0
4. K	B	3
5. P	P	0
6. J	J	0
7. D	D	0
		14
$r_s = .7500^*$		

* $P > .05$
 ** $P > .01$

Q.7 Who shows the best overall leadership?

Primary factors - Mutual Influence, Categorizing and Summarizing, Overall and Comprehensive view, giving direction.

- i Rank group on Mutual Influence scores, Categorizing and Summarizing, Overall comprehensive view and direction
- ii Rank group inversely on dominance scores
- iii Combine the rankings

Group #1			Group #2		
Real	Ours	di^2	Real	Ours	di^2
1. M	M	0	1. J	C	1
2. J	Jo	1	2. C	J	1
3. Jo	J	1	3. C	G	0
4. S	S	0	4. D	D	0
5. C	C	0	5. M	M	0
6. K	K	0	6. Do	Do	0
7. E	E	0	7. E	E	0
		2.0			2.0
$r_s = .9643^{**}$			$r_s = .9643^{**}$		

Group #3			Group #4		
Real	Ours	di^2	Real	Ours	di^2
1. S	J	1	1. S	E	1
2. J	S	1	2. E	S	1
3. G	G	0	3. P	P	0
4. Jt	Jt	0	4. El	El	.5
5. P	G	1	5. C	C	.5
6. C	P	1	6. D	D	0
7. Jo	Lo	0	7. U	U	0
		4.0			2.5
$r_s = .9286^{**}$			$r_s = .9554^{**}$		

Group #6			Group #7		
Real	Ours	di^2	Real	Ours	di^2
1. T	D	1	1. N	G	1
2. D	T	1	2. G	N	1
3. P	P	0	3. J	D	1
4. S	S	0	4. D	J	1
5. E	E	0	5. Jo	Jo	1
		2	6. B	B	0
			7. Gr	Gr	0
					4.0
$r_s = .9000^*$					

Group #8			Group #9		
Real	Ours	di^2	Real	Ours	di^2
1. R	D	1	1. C	C	0
2. D	R	1	2. F	L	1.5
3. Ro	F	1	3. L	F	.5
4. F	Ro	1	4. P	P	.5
5. C	C	0	5. A	Li	1
6. Da	A	.5	6. Li	A	1
7. A	Da	.5			
		4.5			4.75
$r_s = .9196^{**}$			$r_s = .8643^*$		

Group #10		
Real	Ours	di^2
1. Jo	B	1
2. B	K	1
3. K	Jo	2
4. J	J	.5
5. S	S	0
6. P	P	0
7. D	D	0
		6.25
$r_s = .8884^*$		

An examination of the results indicates that overall these naive additive models obtain satisfactory results regarding aggregate predictions of the peer rankings in each group. This holds true for all the sociometric questions except for question #6 "who whows the greatest independence of thought?" No primary parameters were obtained from the protocol analyses and as a result no simple model could be tested.

It should also be noted that for Duke University subjects in Study #1 the sociometric questions - "who would you go to on a tough problem?", "who is pulling most for the group?", and "who is best at handling people?" - apparently have the same meaning. This became clear from the analyses of the protocols and is supported by the empirical tests of the model. All three questions employed the same basic model.

A comparison of the protocol analyses between the two studies shows that the NPS subjects differentiated more clearly between the sociometric questions (see summary of key parameters on page). Of particular interest was the inclusion of a third dimension that of giving direction for the sociometric questions - "who is pulling most for the group?", "who is best at handling people?", and "with whom can you work best?". Similarly, in evaluating overall leadership the NPS subjects considered listening as a primary factor but excluded the factor of categorizing and summarizing.

The NPS protocol analyses also provided clues that the NPS subjects were also processing other information (which did not appear to be of primary importance) in evaluating their peers. Specifically, it appears that the NPS peer ratings are affected by the service ranks of the participating officers. The data on the officer rank of the NPS subjects was not originally collected at Monterey. Subjects came to the experimental session dressed

casually in civilian clothing and in almost every case were strangers to one another. The ranks of the participating officer students were subsequently obtained and a preliminary chi-square analysis indicates the existence of a rank effect. This suggests that the NPS subjects had a means for assessing the service ranks of their peers, that these ranks influenced their peer ratings evaluation and yet, the utilization of this information was not clearly and repeatedly articulated in their protocols.

Discussion

The results to-date can be viewed as strongly supportive of the experimental approach taken in this research. The naive additive models used in Study #1 seem to capture the essential information which is being processed by the subjects. The results might have an important input to the design of sociometric instruments and other questionnaires regarding the meaning attributed by subjects to question items.

More important are the potential implications to the large body of research on leader behavior. Specifically the "Mutual Influence" factor is not given explicit recognition in the consideration - initiating structure literature. Yet, "Mutual Influence" seems to be a primary factor in our subjects' leadership attribution process. In addition the results may provide clearer and more operationally defined descriptors for is meant by Consideration and Initiating Structure.

The results to-date also raise some important questions? For example, what accounts for the differences in results between the two studies?; the officer rank effect in Study #2?; do individual differences affect the basic models when these are used to predict individual peer ratings? It is hoped that these and other issues will be investigated in later phases of this research,

EXPERIMENTAL PROCEDURE

Overview

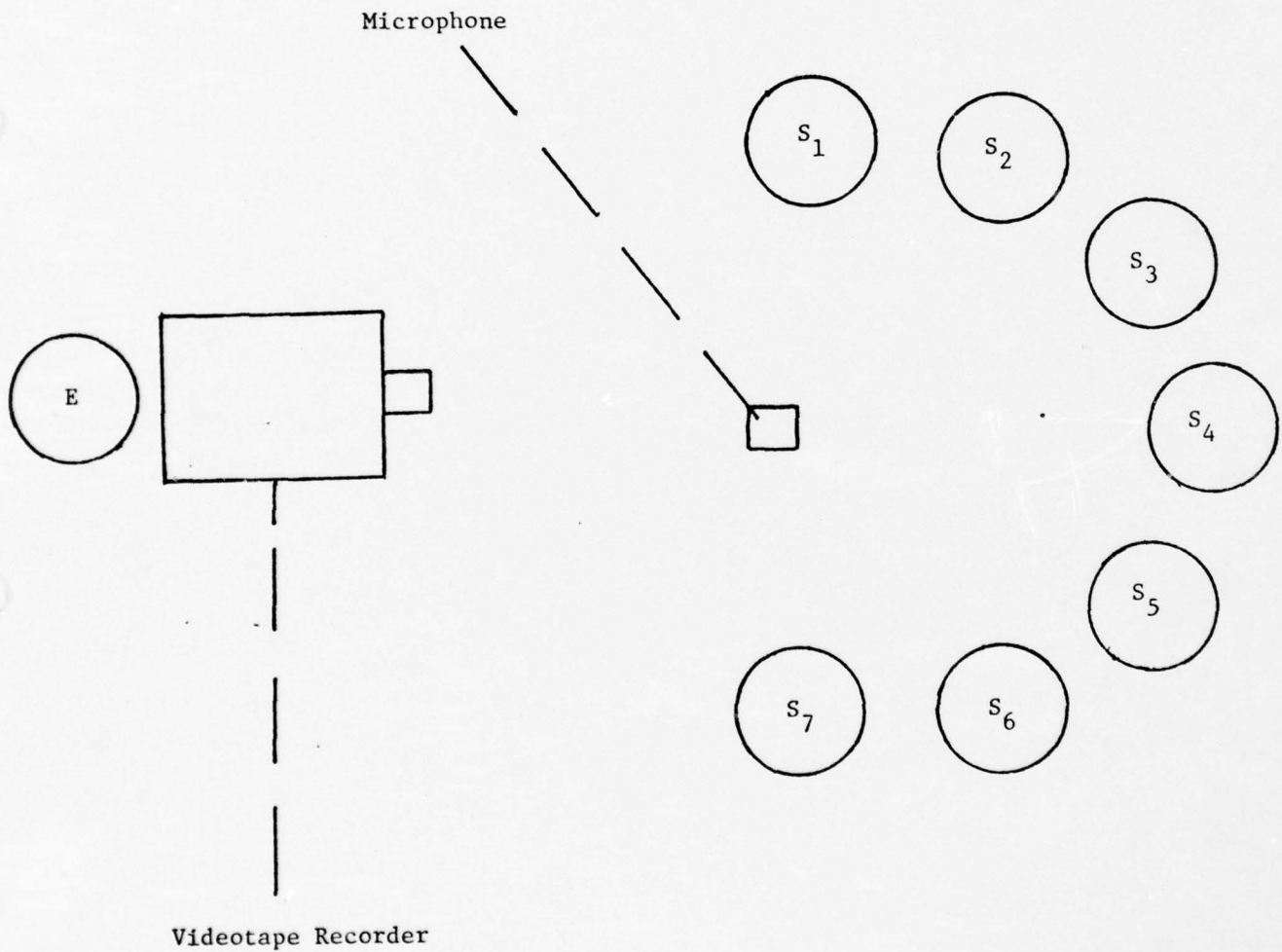
The procedure in these studies was adapted from Akula (1969). The experimental environment simulated managerial decision making. It was chosen because the predictiveness of evaluations....."depends in part upon how closely the rated activities simulate real-life leadership situations." (Roadman, 1964, p.211). The sociometric instrument used in this research was composed of 9 items that Hollander (1965), Weitz (1958), and Roadman (1964) found to be valid predictors of future performance.

Two studies were conducted; the first with Duke University students as subjects, the second with naval officers at the Naval Postgraduate School in Monterey. Subjects were members of seven-person teams participating in a management simulation, in which they were to assume the role of management consultants, hired by a hypothetical company, to review the present state of the company, analyze its problems and arrive at initial recommendations to be made to management. In order to make sure that no person was pre-designated as the group leader they were to convene in the absence of the project team leader. Ten such teams were run in each study. Ten out of the total twenty were to be used as a control groups to test the predictive validity of the peer rating models being developed.

Each simulation required approximately two and a half consecutive hours to complete. A total of six phases comprised the entire procedure. In phase one, subjects received an orientation. Phase two, case material was read individually by each student. Phase three, the company's present state was jointly discussed and analyzed to arrive at preliminary recommendations. Phase four, subjects viewed themselves on videotape. Phase five, subjects completed the nine item peer evaluations form. Phase six, protocols were obtained for each of the nine questions in each of the two studies.

Physical Setting

Subjects were seated in a semi-circle facing the videotape camera. Recent research indicates that this physical arrangement is not detrimental to group behaviors (Lonetto, 1973):



Pilot Tests

Four pilot tests were also conducted at Duke, the objective was to perfect the researcher's skills in obtaining protocols, and to perform complete trial runs of the entire simulation and experimental procedure. Certain adjustments were made in the orientation instructions, seating, completion of viewing the videotape, the peer evaluation instrument, etc. These preliminary tests were important and useful learning experiences to the researchers. No pilot tests were run at the Naval Postgraduate School in Monterey.

Study #1: Duke University Subjects

All subjects for this phase of the research were summer school students at Duke University. They ranged in age from 19 to 21. The sex mix was not controlled, resulting in a random distribution of males and females for each of the test teams. All 65 participants were paid volunteers. Ten testing sessions were scheduled with seven-person teams in each. Full attendance was assured by over-scheduling each test session by one or two persons. If eight persons showed up for the testing, one member was assigned to be the project team leader who was subsequently excused after the individual reading of the case. Despite these extra efforts, on occasion, the groups were short one subject.

Prior acquaintanceship was minimized as much as possible. However, on occasion two friends did participate in the same group. Before the start of each test session the researcher would obtain an indication of prior acquaintanceship and/or friendships.

Procedure

Phase One:

For orientation purposes, subjects were told that they were involved in an exercise examining how a group approaches an unstructured problem situation.

They were told what the entire process would involve, briefly describing each phase of the exercise. (It was also imparted that they would be videotaped). It was stressed that we were not interested in anything about them as individuals. Only first names were used insuring anonymity. They were asked to make an effort to match the names with the faces of the other members in the group to facilitate later recall. Each participant wore a name tag bearing only his or her first name. (See appendix for introduction sheet).

Phase Two:

Case material was distributed along with a pencil and writing pad for note taking if desired. Approximately 20 minutes were allowed for reviewing the case. (see appendix for case)

Phase Three:

Instructions for this step in the experiment were reread. Subjects were told that they were now to convene as a project staff meeting to prepare preliminary recommendations. They were also meeting in the surprise absence of the project team leader who was called away on urgent business. If an eighth team member was present, he was excused at this time as the leader.

The videotape was then started. Discussion was stopped after 20 to 30 minutes.

Phase Four:

Here the videotape of the group discussion was replayed for 10 to 15 minutes. This was for the purpose of letting the subjects see how they functioned as a group and to refresh their memories as to what was said.

Phase Five:

The peer evaluation instrument was distributed. Subjects were asked to disperse around the room in order to fill out the questionnaires in greater privacy. The peer rating instrument consisted of nine items selected from those Hollander (1965), Weitz (1958), and Roadman 1964, found to be valid predictors of managerial success.

The questions were as follows:

1. Who would you prefer to go to for help on a tough problem (Weitz)?
2. Who is pulling most for the group? (Weitz)
3. Who is best at handling people (Weitz)
4. Who has the most ability to think critically and analytically?
(Roadman)
5. With whom can you work best? (Weitz)
6. Who makes the best general impression? (Roadman)
7. Who has the widest breadth of knowledge and interests? (Roadman)
8. Who shows the greatest independence of thought? (Roadman)
9. Who has the best overall leadership qualities (Roadman)

Subjects were asked to exclude themselves and rank the members in their group from first to last on each of the questions in their booklet.

Although the set of questions in the peer rating instrument consisted of nine items, each booklet contained only eight. The missing question was completed during the protocol session. In order to get an equal number of protocols for all nine measures, the omitted question alternated in each booklet. For further explanation, see design of questionnaire below. (samples of questionnaire booklet are available on request from the researchers).

Phase Six:

After the questionnaire was completed, each subject was taken to a separate office to be interviewed privately. At the start of the interview, permission was obtained for recording the session and the subject was told that he could listen to the tape at the conclusion of the interview if he desired. The recorder was then started to get the subject comfortable with a tape recorder before the actual question was asked.

He was then told that the researchers' main interest was the thought process involved in making a decision. The subject would be asked to think aloud, to verbalize his thoughts, as he answered a question similar to the ones in the questionnaire. He was to say whatever came into his mind, however silly, impolite, irrelevant, fragmentary or unimportant. And whenever he should fall silent for more than a moment he would be asked "to please talk....."

Next a practice question was tried to give the subject an idea of what it was like to verbalize his or her thoughts. The problem used was a simple cryptarithmic problem. Subjects were to solve, by thinking out aloud, the values of the letter B, O, and J, given the value of the letter E and the numeral value of the sum:

$$\begin{array}{r}
 \text{B O B} \\
 + \text{J O E} \\
 \hline
 627
 \end{array}
 \qquad
 \text{E} = 3$$

After the subjects completed solving the trial problem, it was reviewed, pointing out the entire thought process i.e. "you said, or should have said, 'since E = 3, and this is addition, 7 minus 3 equals 4, therefore, B = 4 because 4 + 3 equals 7,' etc." what the researchers were after was a statement of the entire chain of thoughts.

Next the relevant experimental sociometric question was presented. The subject was told to think back of the group interaction, and again, excluding himself, to rank the members in his group from first to last remembering to verbalize everything that he is thinking. The question was then read to the subject and also presented on a 7"x9" index card placed before him for reference. In addition the groups seating arrangement was made available to the subject to help him in remembering who was who. (see appendix for interview instructions).

During the subjects verbal report, the interviewer would write down what appeared to be non operational statements and short hand labels for complete thought process strings that the subject would verbalize in his evaluations. Examples are the use of labels such as "intelligent", "friendly", etc. The meanings of these words or phrases were then explored with the subject at the end of the protocol session.

At the conclusion of the interview, when the subject had no more thoughts, all questions or comments that he might have concerning the experiment were answered; and he was allowed to listen to his recording. Subjects were informed that the results of their peer evaluations (i.e. how they were perceived by their group members) would be available upon request. Only aggregate ranks were reported to maintain anonymity.

Design of Peer Rating Questionnaire

As was noted earlier, each questionnaire booklet contained eight of the nine sociometric measures, with one question systematically omitted from each booklet. The procedure was constructed in such a way that the subject would have an unfamiliar question for which to give a protocol. Table 1 illustrates this procedure. Table 2 summarizes the number of protocols obtained for each question by group.

Study #1		Q	1	2	3	4	5	6	7	8	9
G ₁	Subject 1	x	x	x	x	x	x	x	x	x	x
	S ₂	x	x	x	x	x	x	x	x	x	x
	S ₃	x	x	x	x	x	x	x	x	x	x
	S ₄	x	x	x	x	x	x	x	x	x	x
	S ₅	x	x	x	x	x	x	x	x	x	x
	S ₆	x	x	x	x	x	x	x	x	x	x
	S ₇	x	x	x	x	x	x	x	x	x	x

Table 1: The Circled X was the question omitted from questionnaire and used for protocol.

Q	1	2	3	4	5	6	7	8	9
Group #1	X	X	X	X	X	X	X		
G2	X	X	X	X	X			X	X
G3	X	X	X			X	X	X	X
G4	X			X	X	X	X	X	X
G5			X	X	X	X	X	X	
G6		X	X	X	X	X			
G7	X	X	X	X			X	X	X
G8	X		X		X	X	X	X	X
G9				X	X	X	X	X	X
G10	X	X	X	X	X	X	X		
Total # of protocols	7	6	8	8	8	8	8	7	6

Table 2. The X's represent the protocols collected by question and by group.

Study #2: Naval Postgraduate School Subjects

The sixty-two (62) officers* were non paid volunteers randomly selected and scheduled by their commanding officers. All subjects were newly admitted students to the various programs in Administrative and Quantitative science offered at the NPS. They represented various branches of the armed services including the U.S. Army, U.S. Air Force, U.S. Coast Guard, U.S. Marine Corps, as well as the Navy. Within the Navy several branches were represented including intelligence, supply corps, submarines, pilots, surface warfare, Aero Engineering, etc. They ranged in rank from LTJG to Commander in the Navy and from 1st Lieutenant to Major for the other services.

As in Study #1 an attempt was made to control for prior acquaintanceships and friendships. This was done by scheduling the experimental sessions during orientation week - the first week - of the second quarter. In addition, the groups were composed of subjects from the various services and branches thus further minimizing the chance of prior acquaintanceships and/or friendships occurring within an experimental group. Direct questioning of the subjects during the experiment indicates that with the exception of two instances no prior friendships were reported.

Procedure

All phases in Study #2 were the same as those in Study #1 except for the following changes:

(1) experimental sessions were conducted concurrently in two separate studios.

*One subject was a civilian and one was from the United Kingdom.

(2) Based on a preliminary analysis of the data from Study #1, the sociometrics "Who makes the best general impression?" and "Who has the widest breadth of knowledge and interests?" were omitted from Study #2. It was decided that these two questions were irrelevant to the subjects in the current experimental situation.

(3) In conjunction with the on-going research of Professor John Senger at the Naval Postgraduate School, various personality tests were administered to all in-coming students registered for the required Organizational Behavior course. This included all the subjects in Study #2. The students' "Mail Center Codes" were used to relate the subjects scores on these tests to our experimental groups and their peer rankings, and at the same time protect the subjects' privacy and anonymity.

The tests administered included: the Edwards Personality Preference Schedule, the California Psychological Inventory, the Least-preferred Coworker Score, a test for Machiavellianism, and the F-test for authoritarianism.

Design of Peer Ranking Questionnaire

The design of the questionnaire was the same as in Study #1. Below Table 3 summarizes the number of protocols obtained for each question by group.

Study #2

Q	1	2	3	4	5	6	7
Group #1		X	X	X	X	X	X
G2	X	X	X	X	X	X	X
G3	X	X	X	X	X	X	X
G4			X	X	X	X	X
G5	X	X	X	X	X	X	X
G6	X	X	X	X	X	X	X
G7	X	X	X		X	X	X
G8	X	X	X				X
G9	X	X	X	X	X	X	X
G10		X	X	X	X	X	X
Total # of protocols	7	9	10	8	9	9	10

Table 3. The X's represent the protocols collected by question and by group.

APPENDIX

Sample Experimental Instructions and Materials:

Instructions to groups

Case material: Universal Wicket Inc. Case

Instructions for protocol interview

Sample cards with questions asked for protocol

Sample seating chart given to subject

Peer evaluation instrument (Duke)

Peer evaluation instrument (NPS)

Data Analysis:

Sample protocols (Duke)

Sample protocols (NPS)

Transcript of group discussion (Duke)

Transcript of group discussion (NPS)

Sociometric descriptors (Duke)

Sociometric descriptors (NPS)

(34)

SAMPLE EXPERIMENTAL INSTRUCTIONS
AND MATERIALS

Instructions to Groups:

This is an exercise on how a provisional group approaches an unstructured problem situation. You will be given a description of a case concerning a hypothetical company, first to be read individually, then to be discussed by the group.

The group interaction will be recorded on videotape for the purpose of obtaining a record of the group dynamics. You will view the tape at the conclusion of the group discussion. This first phase of the exercise will probably take about an hour and a half.

After viewing the group interaction we shall ask each of you to fill out a short questionnaire concerning your perception of fellow participants. Lastly, we shall interview each of you individually.

The entire process should take approximately two and a half hours, perhaps less.

Please understand that we are not interested in anything about you as an individual. The data and results of this experiment will be kept anonymous by using only first names. We do ask you to please make an effort to match the names with the faces of the other members in the group.

Distribute case
Stop after 20 minutes
Reread Step Two instructions

STEP TWO (20 minutes) Group Interaction

Convene as a project staff meeting to prepare preliminary recommendations to Mr. Pex. Assume that you and your colleagues are meeting in the surprise absence of Mr. _____, the project team leader who was unexpectedly called away on other urgent business.

Discuss the situation of UWI as a group with the objective of determining a preliminary statement regarding the nature of the problems facing UWI and a statement of the recommendation to be made by DMA to UWI.

UNIVERSAL WICKET INC. CASE

Instructions

You and your fellow group members are the staff of a consulting team from Duke Management Associates. Your project team has been called in to trouble-shoot a company called Universal Wicket Inc., which has been experiencing certain management difficulties. The originating letter from UWI's president to your firm and a general description of the situation are attached.

Please work as follows:

STEP ONE (30 minutes) Individual Preparation

Read the attached materials individually and try to jot down your own thoughts on Universal Wicket's problems for the coming meeting. Identify problems and try to outline possible actions for a solution. Be prepared to share your findings with the rest of the group. Some attention to the financial and organizational information provided should prove helpful.

STEP TWO (30 minutes) Group Interaction

Convene as a project staff meeting to prepare preliminary recommendations to Mr. Pex. Assume that you and your colleagues are meeting in the surprise absence of Mr. _____, the project team leader who was unexpectedly called away on other urgent business.

Discuss the situation of UWI as a group with the objective of determining a preliminary statement regarding the nature of the problems facing UWI and a statement of the recommendations to be made by DMA to UWI.

UNIVERSAL WICKET INC.

1231 Wright Blvd., Dayton, Ohio

Office of the President

April 11, 1976

Senior Partner
Duke Management Associates
Durham, North Carolina 27706

Dear Sir:

As you are perhaps aware from the current cover story in Business Week, Universal Wicket's profits took a substantial turn for the worse this year, as we experienced our first operating loss since 1932. This is a matter of some concern here and my financial vice president and I would like to engage your firm to conduct a managerial audit of UWI. Our company believes strongly in the principle of external review and, if you are amenable to taking on our account, we would like your study to consider the following specific areas:

FACTFINDING. Prepare an assessment of strengths and weaknesses as you see them, within the respective departments. Look for organizational slack, inefficiency, hidden assets, and so on. Describe the nature of what might be called underlying problem.

DIRECTION. Give some thought to the company as a whole and what we might do to improve our position.

I am looking to your study to provide me with definite action decisions to correct our current problems and restore profitability.

I have directed our financial vice president to enter into contract negotiations with you regarding the scope, duration, and cost of the study. He has final authority for these negotiations.

Sincerely,

A. Pex
President

DELETIONS AS MARKED

Background of Universal Wicket, Inc.

Universal Wicket, Inc. is a 53-year-old specialized company engaged in manufacturing and selling recreational supplies. During its history it has failed to show a profit only during the years 1932-34. It began by producing croquet sets, and in recent years has diversified into closely allied lines, including above-ground swimming pools. Its largest seller at the present time is the 108-gram professional-model flying saucer.

During the fiscal year just concluded, Universal Wicket showed an operating loss of over \$500,000 on sales of just over \$26,000,000. The cash on hand has decreased, but not markedly. Current cash account is about \$1 million; weekly payroll is \$150,000. The stockholders and board members, as well as management and labor, are deeply concerned about the operating loss. Most people in the organization feel that immediate remedial action is required.

The company president not only feels this pressure but he also feels a definite commitment to getting the company on the upward track again. He knows that the situation cannot continue as it is now.

He and the executive vice-president, who serves as V-P Finance and who works closely with him on overall company affairs, have been given as much latitude as they need by the board of directors. They can deal with the various problems and formulate any new policies they wish.

In addition to the president and vice-president, Universal Wicket has the following functional groups, each headed by a vice-president:

1. Research
2. Production
3. Personnel
4. Sales
5. Marketing

Brief thumbnail sketches of the present situation in each of the five major departments of Universal Wicket follow.

Marketing Department Situation

1. This is a sophisticated market research group that has developed team skills at staying ahead of the competition in developing new markets.
2. The competition has cut into sales through lower prices on merchandise first introduced to the market by Universal.
3. The department which is also in charge of advertising has not been able to decide on places where future advertising dollars would be best spent.

Sales Department Situation

1. The Sales Department includes fifty field representatives, almost evenly divided between men who formerly sold other items (appliances, clothing, and the like) and men who taught recreation before joining Universal.
2. Sales to department stores have decreased as more former recreational personnel have joined the sales force.
3. Sales to schools and institutions have increased as former recreational personnel have joined the company.

Production Department Situation

1. During the past fiscal year, production was up 20 percent over the preceding year.
2. Labor costs, however, rose by 24 percent during the year, largely due to increased overtime and time loss through mechanical failure.
3. The rate of rejection of finished products increased by 14 percent from retailers and 19 percent from sales personnel.

Personnel Department Situation

1. Through the efforts of its Personnel Department, Universal Wicket has developed the reputation of being an excellent place to work.
2. Competition from other organizations and a slight increase in turnover have put added strain on the department in its efforts to recruit top quality people.
3. The department has recently begun to experiment with some new management development programs; not enough time has passed to evaluate the results.

Research Department Situation

1. During the past two years the Research Department has developed more patents than any company in the recreational field.
2. Only three of a total of fifty-six patents have reached the production stage.
3. Only one of those three items has been put on sale, with sales results thus far inconclusive and unexciting.

Instructions for Protocol Interview

Debriefing statement

This interview is being taped for later reference. If you wish, at the end of your verbal report, you may listen to the tape.

Start tape: report group # and subject's name

What we are interested in now is your thought process when you make a decision.

We want you to think aloud, verbalize your thoughts, as you answer a question similar to the ones on the questionnaire.

Say whatever comes to your mind, however silly, impolite, irrelevant, unimportant or fragmentary. Whenever you fall silent for more than a moment I will ask you to "please talk".

We will first give you a practice question to give you some experience with verbalizing your thoughts.

Give subject copy of
problem on separate
sheet of paper

B O B
+ J O E
6 2 7

Cryptarithmic:
Human Problem Solving

You are given that $E=3$, and you must figure out what the values are of the remaining letters, B, O, and J; such that their sum equals 627. Remember to say whatever comes to your mind as you do your figuring and make your decisions.

Subject responds

Now the other question. Excluding yourself, think of the group interaction and rank the members in your group from first to last, again remembering to verbalize everything that you are thinking as you answer this question:

Read question into tape (be sure it's the question missing from subject's booklet!)

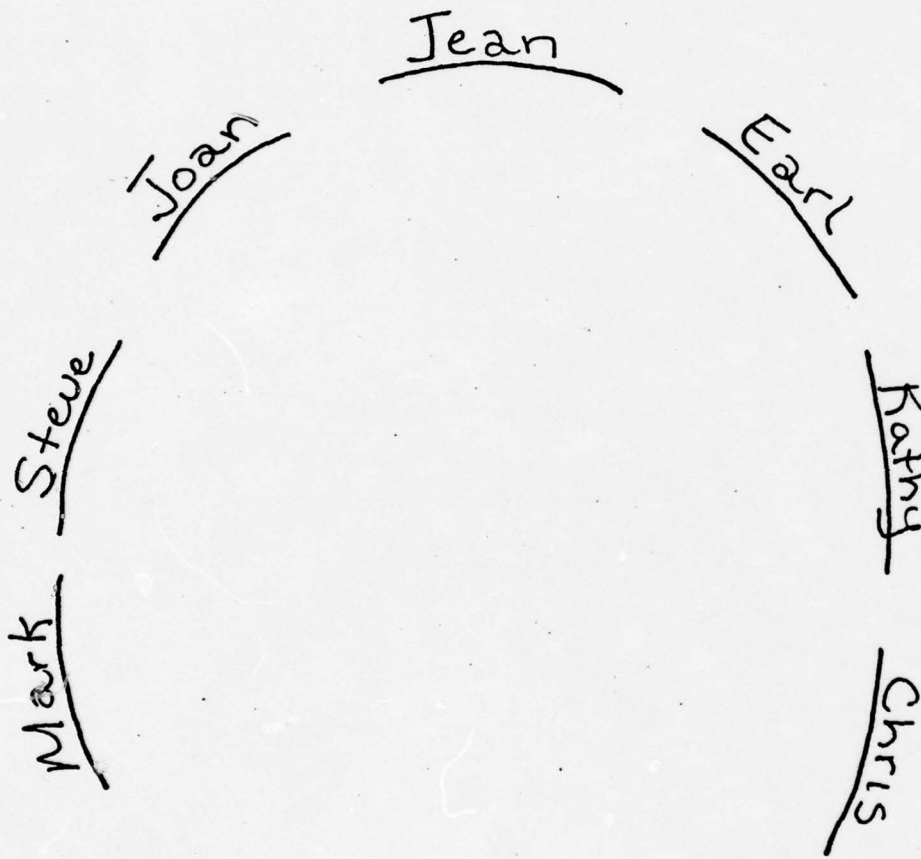
Sample Cards with Questions Asked for Protocol

1. WHOM WOULD YOU
GO TO FOR HELP
ON A TOUGH PROBLEM?

CRYPTARITHMETIC PROBLEM:

$$\begin{array}{r} \text{BOB} \\ + \text{JOE} \\ \hline \text{627} \end{array} \quad E=3$$

Group # | seating chart



PEER EVALUATION INSTRUMENT (DUKE)

For each question please rank the order of all six members of your group on the following items; exclude yourself.

1. Who would you prefer to go to for help on a tough problem?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

2. Who is pulling most for the group?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

3. Who is best at handling people?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

4. Who has the most ability to think critically and analytically?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

5. With whom can you work best?

- 1st _____
- 2nd _____
- 3rd _____
- 4th _____
- 5th _____
- 6th _____

6. Who makes the best general impression?

- 1st _____
- 2nd _____
- 3rd _____
- 4th _____
- 5th _____
- 6th _____

7. Who has the widest breadth of knowledge and interests?

- 1st _____
- 2nd _____
- 3rd _____
- 4th _____
- 5th _____
- 6th _____

8. Who shows the greatest independence of thought?

- 1st _____
- 2nd _____
- 3rd _____
- 4th _____
- 5th _____
- 6th _____

9. Who has the best overall leadership qualities?

1st _____

2nd _____

3rd _____

4th _____

5th _____

6th _____

PEER EVALUATION INSTRUMENT (NPS)

For each question please rank the order of all six members of your group on the following items; exclude yourself.

1. Who would you prefer to go to for help on a tough problem?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

2. Who is pulling most for the group?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

3. Who is best at handling people?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

4. Who has the most ability to think critically and analytically?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

5. With whom can you work best?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

6. Who shows the greatest independence of thought?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

7. Who has the best overall leadership qualities?

1st _____
2nd _____
3rd _____
4th _____
5th _____
6th _____

(49)

DATA ANALYSIS

Sally G10-Q3 (Duke Subject)

Who is best at handling people?

S: From the start

I'm going to have to eliminate

Patti and Denna

because they didn't say anything

and they were sitting next to me

so I couldn't watch them.

I had a negative reaction to Julie

She was just throwing things in

that didn't make sense.

She seemed kind of cynical.

I don't think she was very responsive to the people.

Joe seemed to respond to what people were saying

the most.

It's a tie between Joe and Kay.

Q: What's "responding to people?"

S: Seemed like most other people there

weren't in tune with the group process,

it was just a matter of throwing out their ideas;

So it's hard to respond to a question like this
in handling people.

It's like they weren't that aware of the people.

I never noticed Julie

reinforcing anything anybody said.

Kay reinforced some,

and Joe did some,

that is agreeing

or maybe adding a comment.

Julie would just say her ideas.

She wouldn't elaborate on something someone said

or respond to a specific thing.

Bob didn't say much

until halfway through,

then he just came on

with what I thought was real perceptive.

I guess I really didn't notice

how he handled people

cuz he was quiet most of the time.

I'd rate them then

Joe 1st

Kay 2nd

Bob 3rd

Julie 4th

Deena 5th

Patti 6th

Q: Why is Kay 2nd to Joe?

S: She might aught to go 1st,

That quality of responding to people,

being agreeable,

that doesn't necessarily mean agreeing with what was said

validating people

just letting you know

that she heard you say something.

Q: Bob was perceptive?

S: I just liked what he had to say,

With all the information we had there

he couldn't make a judgement.

He wasn't afraid to say there was insufficient material

Q: Do you think he was good at handling people?

S: I really have no impression

Q: How was Julie "cynical?"

S: A couple of times she just jumped on something

someone said

about a concentration camp atmosphere -

It's just this feeling.

She looked like she felt like

she thought the whole thing was kinda silly.

She wasn't that interested.

Cynical wasn't the right word.

She was kinda belittling

or she tried to stay above.

How about Patti or Deena?

S: I wasn't even watching them.

Patti was the first person to say anything

later she shut up,

so she probably saw herself as a quiet person

and knew she had to say something.

And Deena didn't say a thing the whole time.

There's no reason why Deena's above Patti.

I always put Patti above

because she did say something at least.

In the video tape

it was kinda hard to see Deena even though

Patti looked a little more interested

in what was going on.

She was watching the people

who were talking.

Most of the time it looked like

Deena was just looking straight ahead,

or not really tuned in.

I guess I'd put Deena last.

Q: How did Julie's comments "not make sense?"

S: I think it was twice,

I remember she either contradicted herself

or it seemed like what she said

was irrelevant;

or maybe it was that I just disagreed with her.

One thing that kind urked me

I said something about quality control,

and she immediately said "then you have to pay more money

to have people administrate",

which might be true.

But sure you'll have to pay more money

to implement something new.

But that's not really the point

if it's a good investment.

It's like the way she said it,

"Let's reject that idea because.....".

And her reasons for rejecting it

weren't the best reasons

or valid reasons.

I picked up her attitude was like that to alot of things.

Her response was like that's absurd.

Q: Why was she rated above Patti or Deena if you

disliked her so?

S: I usually just reject Patti and Deena

just because I don't feel

like I'm qualified to rank them.

On second thought

it's hard to say whether a "bad" reaction

should go below a "no" reaction.

I did like the way Patti was watching people

from the videotape,

but Julie was watching people too.

It would be purely my projection

on to Patti and Deena as to what they'd be like.

Patti G5-Q8 (Duke Subject)

Who showed the greatest independence of thought?

P: Irene

because she seemed the one to initiate the group process

She stimulated the rest of us to decide

how we'd approach the problem initially

How we would organize the group process to

achieve the goal

Also throughout she introduced a

number of relevant german considerations

which were then discussed

and considered by the group

There may have been other people who

introduced more in terms of quantity of ideas

Bill probably introduced a number of relevant

and original points

possibly more than Irene

Why I wouldn't rank him first

is because on a personal level

I disliked the way he handled the situation

He seemed to be almost too serious - take himself
too seriously

And I didn't feel drawn to him at all personally

Whereas I felt more of an attraction personally
toward Irene

That's probably influencing my ranking of them.

Dennis didn't make a great number of points

but the ones he did make were original

and hadn't been previously considered

so I'll probably put him 3rd

He brought a somewhat narrow,

but valuable perspective

He mentioned he was in engineering

and that was the slant he brought in

He didn't consider much outside of his

area of interest

But he did bring in some original ideas

in his area of expertise

It's hard to rank the last 2 - Sue & Bud

Bud seemed to keep getting us back on a certain track

or reminding us that the situation

had to be viewed wholestically

And he did make some original points

I suppose Sue did also

My impression is that Sue played

more of a reflective kind of role

in terms of reflecting and adding on to

points already made

rather than contributing a great deal of

original thought

Q: What is initiating group process?

P: She was the 1st one to speak after the

tape was started

Q: What's germain?

P: Relevant

Q: What would be examples of relevant?

P: Bring the group back to the point when

we'd get off track and drift over into

other departments

Q: Is that synonomous with showing greatest

indeneppence of thought?

P: No

Two things:

Indep. of thought in terms of taking a

nubulous, ambiguous situation and

making steps toward organizing it

And 2nd, introducing novel ideas

Ideas that should be considered that

no one had brought up before

and not implicit in the material given to us

Irene did more of the creating of organization

Bill's original thoughts were ones no one had

introduced up to that point

like pointing out things we needed to get more

data on i.e. research dept. or sales

Not considering his personality there was minimal

difference between Irene and Bill's amount of independence

of thought

Ranking someone on this question I do consider

whether I like them or not

Q: What was it that you weren't drawn to Bill?

P: He seemed to take himself much more seriously

By that I mean he focused more on himself and

the contributions he wanted to make to the group

At times he sought the center of attention

He was more interested in exploring his ideas

than other ideas presented

He tried to threaten to tear down ideas of other

people

That can be done in a creative way

or such that it puts the other person down

I felt he was putting other people down

He didn't engage in any banter, smart remarks and

tension breaking things

He removed himself from that kind of interaction

Dennis didn't create any negative impressions

He didn't participate as much

If he had done so I'd probably rank him

above Bill and possibly Irene

The idea he came up with were qualitatively

good

He just didn't introduce a great deal

Q: How was Bud different from Sue?

P: He didn't speak as much as she

when he did, it was more his own perception

He wasn't simply restating someone else's ideas

He was making an original contribution

Q: Wholistic view?

P: He reminded us that maybe things were more

simple than we were making it

And pointed out something really obvious that

no one had mentioned before

You need to view the situation as a whole, you

can't keep it compartmentalized

Q: Think of the Dennis-Bud relationship

P: I'd probably put Sue last

And I might rank Bud ahead of Dennis

I'd have difficulty differentiating the two

If I were to change my ranking it would be more capricious

than really rational

Bernie G5-Q9 (Monterey Subject)

Who has the best overall leadership qualities?

I think most of the people

there were leaders.

We had some problems because

There was conflict.

I felt Ted was the leader of the group

because he was the one who kept

pushing different things,

he'd summarize

and jot things down.

I don't think I could work as well with Ted

because he tended to dominate too much

and cut people off sometimes.

But he directed the group.

Steve had good ideas

but didn't push them

upon people.

He was trying to weigh the values
of other people.

Bill was the same way.

Gordon put his ideas out,
but didn't try to dominate the group.

It still has to be Ted
because he was the one
that drove the group.

In the real world

I'd rather work for Bill or Steve.

Ted dominates too much

I don't think he listens as he should
to help the group work together.

Bill 1st I guess.

he put out his ideas

but was also receptive to

other people's ideas

He wasn't trying to sell

any particular thing

In general he listened to other people.

and had good ideas of his own.

To be an effective leader

people have to want to follow you

Steve second

he was a cooperative type person;

had good ideas of his own.

But I think everyone had

similar ideas.

Steve didn't talk to just get

in the conversation.

He'd be a good man

to consolodate things

He's cooperative.

3rd Chuck

for the same reasons as Steve,

only a little more

original in his thinking.

Chuck had some good ideas

that he brought up

The rest of the time he

was recorder for the group.

He didn't try to take

a high profile.

Gordon had some good ideas

I didn't see alot of leadership

Paul next

he was able to synthesize things,

but he repealed

alot of what had been said.

I think the role of a leader

is to get each person

working for him

rather than do the job himself.

I think the people I ranked higher

would be better at that.

Then Ted last

because he tried to do the job

too much himself.

I don't think he

was listening to others

which would cause problems

Jack G2-Q5 (Monterey Subject)

Q. With whom can you work best?

Larry and I tended to be more alike.

He only contributed

when he had something to say

that no one else had covered.

I tend to think along the same lines

So I think I could work best with Larry.

Paul was doing alot of talking

and not saying much.

I'd rank him last.

Rich was a strong performer,

he did alot of talking.

But what he had to say

made alot of sense.

I'd put him 2nd.

David 3rd

because he and Rich were

very similar in that regard.

Mike & George

would be difficult

to distinguish between them.

Mike did alot of talking

like Paul,

without saying a great deal

George seemed a bit reserved.

I think I'd put

Mike 5th and George 6th

What other ways were you and Larry

more alike and would like to work with him best?

As the discussion started

there was alot of talking going on.

I felt that it was pretty disorganized,

and I offered some comments

that I hoped would give some organization.

That's the way I think.

I try to break a problem in basic form

and start from there up.

I don't feel that the other members of the group,

except Larry,

felt that way.

Most of the people

did alot of talking

and tended to go in many directions.

Larry only spoke up

when he had something important to say

that nobody else was covering.

I think that we're similar

I agreed with what he said

Q: What's "making sense" with Rick?

Rick was a strong member

His thoughts were collected before he spoke.

Q: How can you tell they were collected?

When anyone says something

I compare it to what I'm thinking

along the same lines

Based on the way I think,

I think Rick made sense most of the time

and it was the result of a well organized

thought process.

Things that made sense to me, I agreed with.

Paul talked more than Mike

I felt they were

spontaneously saying something

without thinking it through completely.

I often felt what they

had to say

was either wrong or irrelevant,

not really contributing to the

overall problem at hand.

I didn't feel like I had any

influence over them

in that discussion.

I felt the whole thing was

a bit disorganized

I thought it was mainly

because Paul was doing alot of talking

and going on different directions, - Mike too

George, because he was in the center,

felt he needed to get the

discussion started.

I don't think he did real well,

but he did at least get us started,

he broke the silence.

After that I don't think

he contributed a great deal.

He spoke up his share, but

didn't contribute much to

the discussion.

I knew none before

Group #1: Duke Subjects

Members of Group: J, Jo, C, S, M, K.

J: I'll start then.....

What they're saying that I think needs to be investigated is how Wicket is doing in compared to the rest of the industry. Good & bad is relative. They might be doing better than the rest of the industry.....

Jo: I also want to know what kind of products they did sell, in terms of what diversity they offer.

J: I think that brings up a good point in that they're diversified functionally and they sell flying saucers, swimming pools and croquet sets, and I think that's entirely too diversified to operate on a functional basis. I think they need to diversify on a product basis. That way there's not inefficiency in research where they're trying to research the best swimming pool and croquet set all at once. I think that's a very inefficient system.

Jo: Also the year they did show profit, 32-34, is also crucial years because I don't think any company showed a profit.....

S: Yeah.

Jo: So what could be happening right now could be the same thing that all companies are feeling right now.

J: Right.

M: Yeah.

S: The thing about this diversification.....if they'd never lost money before this past fiscal year with the same type of diversification.....

M: That's right.

J: Right.

M: So it doesn't seem to be a massive problem.....
(S continues membling softly)
I think that.....

J: Well you don't know, I mean.....

M: Yeah.

J: They might have added these last products just recently and this may be what breaks it down.....another thing is.....

M: uh.....

Group #1
Page 2

S: The competition too.

J: (rapidly) another thing is they don't necessarily.....
That could have been bad -- it could have been pulling down their profit
in years past and this is just an additional factor that has caused them
to have a loss. This year.

Jo: But the loss hasn't been that great extensively.....?

M: Yeah, not that bad.....

J: A loss is a loss.

M: Well

C: Yes we have to find out where the loss is coming from.....your
diversification might be good because you have to figure out just what
aspect of the company of production is causing the loss.

J: Well right. I'm not saying they shouldn't diversify. Obviously, they'll
do much better is they do (emphatically). But to have one production
department that concentrates on swimming pools, croquet sets and flying
saucers is just very inefficient (rapidly).

M: Noise

J: They need to do like Dupont or Sears or GM and diversify product wise
because its just too diversified.....

M: noise

C: (softly) okay

J:to follow structure, not that it shouldn't be diversify.

M: Ahh, I think we should maybe look a little more generally. Like go to
the next page and look at general departments, where the problems are,
because I think we're getting a little bit non-person study.

Jo: Uh, huh.

M: Uh, you know not to specific.

Jo: (Rapidly) The first dept they say they don't know where to place the
advertising dollars. I think an extensive study about what type of
advertising is best....

M: Ah.....

Jo: Who they want to reach and how to reach them most efficiently is very
important.

Group #1
Page 3

M: Ah, I had an idea. You know the marketing dept. -- it really seemed to me that like it says in the study -- they don't have much to do with advertising, they aren't really thinking about it and aren't apparently getting anything back from it. And I just wonder if it won't be a better idea if you had -- like Sales and Marketing get together with maybe the top executives and have some sort of a counsel. To get together every once and awhile; and they'd talk about what they feel about advertising. Where they think the markets are.

S: Research also, cuz according this, only 1 out of 56 patented products reach the market.....

M: Yeah, right.....

S: So it seems like a.....

Jo: I think that's the main.....

S: Some sort of waste. Maybe they should be working with marketing.

Jo: (con't talking while S above) I think that's the biggest waste in the company, that part about research (excitedly).

S: Maybe those *three: marketing, sales, and research?*.....

M: Yeah.

S:could work together?

J: You need executives to put everything together, but to lump everything in one big dept. is just going to cause an overload of jobs. One person can't be efficient doing five different things, as efficient as he could be if he's doing one.

C: That's just to get them together once & awhile.

M: Yeah.

C: That doesn't mean all the time.

J: Well that's what the Board of Directors does all the time

C: That's that's...

J: They're in charge of coordinating the company and coordinating the departments.

M: Well.....

Jo: In the very beginning departments also stay ahead of competition by developing new markets. Is it very important to stay ahead of competition developing new markets? Is it really....., since the competition cut into the sales (fast and jumbled).

Group #1
Page 4

S: Yeah

Jo: Now maybe they should have another group take over -- at least stay up to their level. Then that way their prices could be equal to the competition.

K: I agree with that. They're just trying to move ahead before any structure underneath what they're doing. But if they are strong in developing new markets, then that's maybe where their advertising money should go. So they can get to consumers before their....well they have to establish their market and advertising should strengthen that.

M: I got a suggestion. Maybe its not a good one. Do you want to go through each dept. and look at some of the strengths and weaknesses?

Jo: Yeah.

M: And do that - then we'll start talking about organizational type problems. Do you want to do that? Okay. You want to start off?

K: Still on marketing?

Jo: Yeah.

M: Yeah I guess, I don't know.

K: First they are introducing things. Then they're being cut out of the market because they're being undercut in pieces and they should pay attention to that I think.

M: Yeah

C: Well, the question is, what are they being undercut in pieces? Now is it because the other product is just as good quality and they use more efficient production methods, or is it because they use lower cost of raw materials to make their staff and it's still just as good a product; or is it because its a less quality product? um.....

J: I think that's a good point they should find out why.

M: Yeah.

C: Right - and I think the most important problem that this company is faced with is that they think, even though they don't specify how they have this (operating loss). It is an operating loss and its in production. And they have a great deal of rejection and they have increased labor costs and they have overtime and mechanical failure and I think this stands out as the worst problem in the whole company. They have research which doesn't seem to be all that important now because they've had a constant what.....

Jo: Profit.

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C: Profit over the years and they have shown that they have good equipment on sale. It's just that now something is going wrong - they can't produce as good equipment and people know their name obviously because they made this profit. The rejection rate has increased - so the quality of their product has decreased.

Jo: What do they mean exactly by "rate of rejection"?

M: uh

J: Its not up to par.

M: It's like there's something broken

C: Okay so the question is "How is it damaged?" "Why is it damaged?"
"Was it in transportation?"

J: It might not be damaged.

M: Well....

J: It might just be poor quality.

M: I was.....

C: Poor quality - well that just goes back.....

M: ah

C: to the quality of the raw materials you're using or putting it together.

M: Also it says right here in the study that labor cost, thats a big thing, grossed 24%; also says it was due to increased overtime. And I was just wondering if that could be causing this problem - the fact that you have workers working overtime rather than working 8 hours.

S&C: (together) yeah

Jo: Also if its overtime and time lost through mechanical failure, first of all if there is mech failure which they couldn't adjust for they should have their workers able to do something in the meantime. It says in one statement why the labor costs have increased so much because they had to pay overtime when the machines weren't working. And they still had to pay when the machines weren't working. Instead to organize the labor so if the machines aren't working they can go to other jobs. They just don't sit around.

C: noise

S: Do you think maybe the company has just over extended themselves in the face of new competition -- increased competition? They are producing more than ever but there's more competition apparently from the market....

Jo: Right

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M: Yeah

S:information. Maybe what they've been doing over the years just won't work now. Seems from the Research department situation that they aren't working too well.

M: I guess somebody brought it up before about that Research department. We were talking about the fact that they developed 56 patents and they only got one in the production stage. Somebody brought up the point that maybe they ought to get together with somebody and say, "Hey, this isn't going to sell, why develop it any further?"

Jo: Or at least limit the number of patents that come out so that it can be workable and say 2 years later or whatever, it's ridiculous to have all the patents priced up on top of one another that they haven't been able to do anything with.

J: (very rapid) well you don't know. First of all it may have provoked competition from picking it up and that might save them sales, but you don't know that, they need to find that out. Secondly you don't know how much the sales are on this one item. They could have made a million dollars on this one item and only spent two hundred thousand which certainly ought - all the patents ought to be worth it. What you need is study. Are they worth the money they're spending?

M: I would say maybe when Marketing determines that this company only wishes to market this, these helpful advices, if they wanted help, some of the patents further and sell the rights to the patents and then they can make some sort of a profit off that too. Maybe that could add profit to the company.

Jo: Also, going to the Sales department situation, but they say it decreased because of recreational personnel in the department stores - then why don't they not use recreational personnel and use people that are going to be able to increase the sales? I guess their fault.....

M: Yeah

J: What you need to do is do a study that might have been a coincidence, that may not have. But you can't tell from this information. So you need.....

S: which

C: But.....

J: to go to these stores and say "why didn't you buy from this man this year?"

S: I think we have to know how, what the percent of sales to department stores is.....

J: Yeah, that's a good point

M: Yeah, but we have to work generally though so.....

C: Yes

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M: noise

J: No, but they might not.... I mean, 2%, of sales to department stores are only 3% you can just say forget it.

M: noise

Jo: The main problem here is because they divided all the sales people....

J: BUT that means the sales are divided equally

C: Well you don't have the facts behind the statement sure, but you don't know whether this is just a statement and the facts are there so it means that there's a definite trend. But if from these two statements in the Sales department situation it just shows you that we should have say 2 salesmen cover an area and of that the salesmen that would be a former recreational person would go to the schools because he has worked in recreation, he knows what kids want to play, he knows how to play the games, he knows what things break, he knows the kind of talk that would interest the school authorities in buying. Whereas the salesmen would know what would sell and he should let the department stores. It's just natural that the people that have the tendency to sell in a certain way should sell to a certain group of people. So I think they should direct their sales personnel to the area where they'd sell most efficiently.

M: Um Hum. I think generally, we can just, using common sense, say that... I think this company should be more concerned with sales to department stores from the fact that you have a heck of alot bigger market than for schools.

Jo: That's what you'd think....

J: But you don't know.....

M: But I would imagine -- just from common sense there's only so many schools...

S: Yeah

M: But I mean you have the 200 million people....

J: But maybe what they're selling is...is....

J: You don't know the rest of these products

M: It says...It says...

Jo: I mean....

M: generally though.....

J:swing sets

M: It says generally though that they do cover the recreation market quite well so you can.....

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Jo: But the recreation market to build big swimming pools could be much more readily available in terms of a school than to a department store

C: But you have to also consider.....

Jo:individuals not going to buy....

J: Yeah you'd have to know....

C: Yeah it depends -- you have to also consider the schools and these days schools don't have all that much money. And you go to public schools and they're not going to shell out a bit.....

J: Well, I'm not talking about public schools. I'm talking about universities. Universities are going to buy pools, where department stores aren't going to buy pools.

Jo: Institutions

C: But they sell all sorts of recreational.....

J: But institutions, especially at schools, they have a big market, like there's more basketballs let's say in the schools

C: Yeah, well okay...let's not talk about that, we're just getting off on a side track.

Jo: Yeah

M: Yeah, maybe we are getting into a rut. Should.....

C: Why don't we just start at _____ and share the good points and bad points.

M: Well, we've already been that way and I think we'll all have a general idea in our mind of what's going on I guess. Do we just have some general suggestions? Maybe we could lack present -- go down the line, and present a few points that we think we could change in the Company, a few things that we think are real good about this company, a few ideas on what we should do to change this company. Maybe that would be a good idea.

Jo: Do it for each department you think?

noise

M: Yeah or maybe generally.

C: Yeah

M: Just have each person present his own ideas....

C: What you think is most important

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C: What is best about it - what they have to change the worst-most....

J: You want to start Chris?

C: Sure! What I said before um. I think the thing that really needs to be changed is the operating loss and the mechanical failure and the rate of rejection. They have to run a study or find out why these products are being rejected. They've been on the market a long time and their name must be known as quality products. They've had profit for along time. And so now the question is why is there this rejection? Why are they finding they have this operating loss? What about the products is causing it to be rejected? And once they find out what aspect of the production is causing the product to have this finished quality that is not good. Then they have to change that.

K: Yeah, I would agree with that. I think the underlying problem is they're so interested in Marketing and Research and development and pushing ahead and trying to be the leader in their field, instead of maximizing what they already have. I think maybe their loss isn't so great now, but they have real potential for loss --- in that they aren't keeping up their capital development. Also they're forcing their labor to work overtime. I don't know why they're doing that. I'm not sure how they can go about changing the structure of their hiring. It's evident that they need more people, but I don't know whether they can lay off inefficient people to do that, or where they'll get their money to finance it.

C: Why would you say they need more people? Because of the overtime?

K: Yeah

C: um

K: Well if overtime is costing them money, it might be better for them to hire more people at a lower cost.

C: Right

M: Joan

Jo: Okay.....I think the main thing ? operating cost is going down. I think the patents, that really bothers me to see that a company would produce 56 patents, have 3 reach the production stage and only is marketable. And the study in the Sales is inconclusive already and unexciting. I mean to spend all that time in the Research department and come up with 56 patents...they must have had at least 200 suggestions or ? or whatever, to be able to do this. I think they're working at too fast a rate and either they ought to slow it down or get rid of part of the department and say "Look, you have a worthwhile thing -- work on it, work on it until its at the marketable stage. Work on it until it goes on to Sales." Find what happens with the sales first before you start doing another product. I think that wastes alot of money. Even though it says the operating cost -- but that part of the Research department is the operating cost. Also about the labor cost. They need to find out where the mechanical failures are and if there are

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mechanical failures where to put the workers to work if there is anything. Therefore you won't have the overtime.

C: Okay, I would tend to agree with Jean on the patents. It's good to have alot of patents but the difference between just having 56 patents and having production is really so great that you can't have production in all those things. Its.....

Jo: Why produce 56 patents if you can't product it?

C: Because, as Jean said.....

J: Competition

C: Yeah, the idea might have been picked up by somebody else and they would lose the rights to it.

S: Well if it were such a profitable item....

(C&Jo: talk low at same time with S -- they laugh)

E: Its only been 2 years.

(Xo drowns out E)

J: But they might not have the money to develop it. They might only have so much money to develop maybe 1 product a year.

S: That's a possibility yeah.

J: were they could stockpile all these little.....?

C: That's true----the money it takes to produce a new piece of equipment is really great- you have to have alot to invest - you have to make a certain machine to make this to do that. It does cost alot of money to make the first thing and then....

Jo: But to store up a list of patents that you can't use up to 10 or 15 years, what if they themselves hadn't gotten the patent and another company had, they could produce it, then they themselves could have cut into the sales like doing it at a low price because.....

J: They might not have had the money. Again, they might not have had money to put up production to begin with.

M: Earl, you got some ideas?

E: I thought Marketing should work closer with Research so they won't be inventing all these things.....?; and for the production or the marketing I think they should find out what items are selling best and what items they're having a loss on and concentrate on those they're making money on; so that they can put all their effort into that, and lower the prices and have a better product, and kinda phase out the things that aren't selling too well. And have less overtime. And have, like we talked about before, have the recreation people handle the sales to the schools and the other people handle the department stores.

M: Okay Jean?

J: I think we've hit all the points now we're just repeating. I think, first of all, they should change from a functional structure to a product structure, I think that's inefficient management. Probably the main problems in are how much money are they spending in the patent department that isn't worth it? Inefficiency of workers? The poor - increased rate of rejections - increased labor through overtime. The high turnover rate that probably indicates dissatisfaction with the company and advertising research.

S: I don't know if I have anything to add except that I'm not so sure that the labor costs are very important. I think the competition factor is responsible for the losses and they've sustained. They've taken away the best people in the organization and they've also cut prices. And I just think it's a question of the market is flooded now. Apparently they've stayed ahead in developing new markets and they've been a real innovator in the field, but those days are no longer with us. So, I don't think they can go on just keep increasing production by 20% and increased research more and more. I think they have to possibly take a more conservative approach and consolidate some things.

M: I'll just kind of look at a general problem of labor. We've all talked about it and brought out all points you possibly can I think on this study. But.....Look at labor, we pointed out that it has a problem with turnover, it has a problem with too much overtime, obviously, that's giving alot of problems. The solution possibly to the labor problem is you need to bring in alot of good people. That's a point to bring out in here - they need more skilled people. So perhaps labor costs, event though they rose, aren't that significant. Maybe wages should be raised to encourage higher better skilled and better people to come into management and come into the labor force; and if you hire more labor, you'll have, as we said before, less problems with rejections and stuff. That's generally all I have to say.

K&M: (speak at same time)

K: Excuse me - you think that the management trainer program would be worthwhile to pursue?

M: Probably

S: noise? agreement

K: yeah I know

M: I think generally we can always say that if there's a problem you can't say "you're doing it." You know everyone has to change their attitude towards the company. You know you have to get on the winning keel.

noise

C: I think that Marketing ought to get with Sales as well as Research

M: Okay, so.....I guess. I guess.

C: But as you said the Board of Directors does all that so.....

J: Perhaps they aren't working efficiently.

M: Horrible??? ha ha ha

J: (laugh with joke and adds)

M: Do any of you have any ideas whether we should destroy departments, create new departments?

Jo: I think we should check into each department first to find out the questions we all have raised about why things are this way.....

M: Okay

Jo:before we start changing departments

M: okay, okay (softly)

Jo: I mean there's alot of facts left off of this sheet - you can't really make any evaluation until you get all the facts.

M: Yeah we have to keep kinda general why don't you take over and I'll shut up for awhile

Jo: What?

M: (You want to do that?)just do the problems.

Jo: It's just that we don't know enough information

S: yeah

Jo:about this whole thing

S: We've gone through everything, I think.

C: Yeah

Jo: The only thing is.....

M: But.....

Jo: We need more information on these things that are listed. Why? We need exact outlines; how the money was spent, where it was spent to, how was it spent last year, what was different this year than last year?

Group #2: Monterey Subjects
Members of Group: D, M, R, G, J, L, P

- G:Mr. Jones to take charge...Since I'm sittin here in the middle; a....we've been asked to make recommendations, so that we can give what's known about the problem to Mr. Pex. And we've all had an opportunity to review the problems which Wicket Company is having. But the first thing that struck me as being a major problem, is the mechanical failure here that they seem to be encountering in the production end and thus their rejections are up.
- M: I think we might be better off analyzing it department by department.
- D: Yes, you're right.
- M: from the Sales to Production etc, and go one by one through them. Although I agree with you that rejection is one of their major problems.
- Okay in Marketing then, the competition has finagled a way to undersell, eventhough Wicket has come up with the ideas. The competition is underwriting them in price. What are your thoughts on why that's occuring?
- M: ?? quality and production problems I think there are quite a few interrelated items, we can meet them as we go here, but the Marketing concept of having their old items, standbys if you will, it seems to be the main sales of the company. They're low in production of new products, although their research shows that they have some pretty good patents. Also, their reliability of their products, if their rejection rate is so high, they might want to take some of their new patents and see about getting them on the market. Get a little more emphasis in that as opposed to some of their standard items which are being undercut in the market. Two, looking into the quality control of the products they're already producing.
- P: I agree with everything you said. A looking at those patents and they only had produced 3 of the 56 they'd come up with and only one of those had any type of success. I'm wondering a little bit, I don't know what the standard rating on a company would be, but to have only 3 of those 56 go to market. I'm wondering if they've concentrating too much on developing new products and don't have enough capital or know how to actually make these patents work, or I don't know whether these patents are in fact worthless. It might be another area which would blend in with what-you're saying putting new products on the market, do they need to concentrate finances to actually putting some of those products on the market.
- M: Either that or not consentrated on patents as such, but on patents that are worth something.

- D: Really I think the basic problem for marketing situation that a cut into the Sales is a result not only to the Production scheduling and perhaps capitalization into equipment that might be causing this problem of higher rejection rate. And also ?? The R & D just pointed out the fact there isn't enough R & D money, but the fact that the R & D money is spent developing new ideas as opposed to say materials R & D, produce the cost of individual units using....they've got a product that's been on a couple years as perhaps using expensive materials that recently can be substituted with cheaper materials and reducing unit cost.
- J: I think we may be departing from our original plan of attack...
- D: Okay
- J: Certainly all the departments mesh together perhaps a good track to be to take each separately within itself and the next step examine how each department interacts with the other departments. Looking purely at Marketing, by itself, it would appear that they do have a problem properly allocating their advertising funds. Perhaps they're not up to date on the best marketing methods. And nothing is said about distribution means, but perhaps that is inefficient. Poor distribution can eat up a lot of money; as far as getting the items on the shelves.
- M: I'd recommend getting some new people in the department for just straight advertising instead of depending on the marketing people; to know how to advertise. Just get some training in straight advertising.
- D: Or subcontract that out as a separate business. Hire an advertising company to do the advertising, somebody that has the resources to do the R & D cuz there is a lot of R & D in advertising.
- M: And the machinery to make it work.
- G: We also have to make a recommendation to take a hard look at how the competitors are setting their items. They seem to be undercutting us. It might not just be price, but they may have a higher viability. So, a.....we should make a recommendation concerning advertising, that we get someone here that, perhaps is working for one of the competitive companies right now.
- M: Okay. I think the other two things listed in marketing are directly applicable to the other departments, so I suggest we go on to Sales. The Sales situation, they have 50 field representatives and ?? recreation. They also said that as the number of recreation dealers increased their sales dropped. Although they did start sending more of their equipment to institutions. I contend that their bread and butter is really Sears and Roebuck, etc. not some school down the road.
- P: I agree it's clear that the recreational people are institutionally oriented and need some sales people that are accustomed to that field and commercial sales and a.....

- J: We don't know if they have a sales trainee program. I think that's a key point that needs to be investigated
- R: Could be ?? schools and institutions may not buy as many products as the Sears and Robuck operations. Maybe if they have these 50 field representatives they need to.....a I think it says they are evenly divided.....maybe change that up. 20% to institutions where each man would have a larger area to cover ?? covering this territory in the end and put a larger percent of their assets into covering the sales to stores, K-Mart and places like that.
- D: Great. Cuz their volume is 5% to as opposed to stores.
- M: Quota system?
? D and M together?
- R: Of course it would depend. I'm not saying that's even needed, I'm saying that for example you take 25 guys and say okay we're now going to cut the territory to 10. It would appear to me that for the 10, it would be a boom to them if they're being paid on some type of commission. Now if they're being paid a flat rate - they might say "Gee wiz, that means I have to cover 2 1/2 times the territory." So you have to make it worth their while, and also worthwhile to those selling to large volume stores.
- J:get them out on the street
- R: Also I was going to say, maybe the problem is, we don't know how successful these salesmen are, are 50 field representatives successful enough?
- M: Are there too many or too few?
- Right
- D: That would take a little more analysis to figure out.
- R: We really can't identify, maybe those individuals are the best people we've got going. We don't have any figures or anything.
- D: Right
- R: Maybe its the people who use to sell appliances and clothing who are individuals who in fact are past their prime and aren't adding in or providing the company with the services they're paid for.
- D: I don't think we've agreed on the problems for this situation then, right? One sales have gone down. There could be several reasons causing that. I think one was brought up, that fact that you have too many people from the recreational areas that aren't apparently contributing to the sales to departments. That might be a problem or a cause.

R: noise

G: Right or it could be they are just trying to sell to those people that they'd known while working in these previous jobs.

D: Right

M: Yeah

D: In a field which might be a lack of training

G: Right

D: That might be one cause for all this.

R: I think rather than speculating along those lines because we don't have that information that says where the problem is. I think we'd have to say "lets go back and talk to somebody in charge of the sales department, some of the representatives to find out exactly what the situation is. Do we have 40 or 50 people who are just lousy salesmen? Or is it that they're get salesmen but their territories are wrong. I think we need to go into the Sales department even deeper than they've gone here. I don't think we have enough information to say for sure, why they're not selling.

D: That would certainly shed more light on it I think that there are still some problems that are obvious. They have no training apparently. If you have two separate groups of people, and as that ratio changed, your sales changed. There's obviously a lack of training; that some people can't relate to another area.

Silence

D: I think its fair for the purpose of our gathering to ask for an investigation into these areas with slants on those items that we've indicated. Rather than prejudge something such as that.

D & R: Um hum.

J: Does that cover Sales? Perhaps we ought to move into production.

M: They have a large mechanical failure and a large error rate apparently. I think the mechanical failure could be due to old or improper equipment. And the mistake should not be caught by the retailer. They should be caught in the plant. You lose on shipping, you lose on goodwill. If someone knows ?? they aren't going to buy from you.

J: So we need to look into their quality control area, whether they have a separate section overseeing quality control, and whether they have quality control training programs.

M: And look at the equipment.

- J: The whole accessory in implementing these new patents leads us to wonder about their production methods....whether they have to proper scale for retooling up to produce these new ideas.
- M: I would think maybe look to where the ??? who's going to buy those kinds of products?
- R: Yeah the major product; what was it, professional flying saucers?
- D: I think somebody's already sopped up that market.
- R: Yeah I was just going to say, maybe look into Marketing, whoever made the decision, if there was a large market for flying saucer maybe it doesn't really matter in this case what the product is, but I'd say these days especially to institutions and schools, that it's not such a big market.
- O. Right
- D: It might be a case of a little better interaction between Marketing and R & D also, to decide which ideas would be best. Eventhough they have 56 ideas, maybe two of them are any good, I don't know.
- R: One thing I found kind interesting is the fact that production was up 20% over the preceeding year. Of course we don't know the status, they said the first year they didn't make a profit. They went up 20%, the large error rate -- the poor products could be the fact that they were already operating at max capacity and to enable them to increase their output by 20% they may have had to turn out a much shotter product.
- P: That's right. Once the evaluation of the mechanical situation is completed, attached should be a determination whether they have enough mechanization or whether they need to increase or decrease that. And also with Personnel, an over or under balance will cost you money in the long run.
- D: It's obvious that they do need to capitalize more because of the overtime.
- P: We don't know if the overtime is due to the mechanical failure or from the fact that they don't have enough machines.
- G:leads us to believe its because of the mechanical failure.
- D: Well either case, it would be capitalization of that equipment.
- G: Right. I think we have to look at the age of the company too. I think that might have to do with the overall problem. It could have a tie in with the age of the equipment and thus the mechanical failure also the mentality of the management. They are going to be less prone to go out on a limb and make new innovations whereas these competitors are. So I think the age of the company should be looked at and the mentality of the management so to speak which again ties in with the age of their equipment.

- M: A company in business has to be able to step out so...
- G: Right
- M:so you go on the line. All it takes is one hula hoop or frizbee and youre golden.
- J: Plus if its marketable
- M: Yes if its marketable by the same token ??
- D: We might have an overall problem in that management of departments above the departmental level is not taking steps that departments aren't following up on their own shortcomings. There are possibly interrelating problems there, are sighting that problems exist because of the duality of the problem there -- say between Marketing and Production as we mentioned before. Evidently there's not somebody above the departmental level that's not coordinating this. It could be another problem.
- L: It kind of looks that way to me in that.....staff research and you don't have that much coming up. Going back to the Marketing department you have the prices being underwt., and the production ? with machines. It seems to indicate as George was saying about the mentality of the management -- not going with -- not setting up new machinery for new products manufactured a different way from the old ones. And if we've covered the Production department pretty well now, I think I'd like to slip in at this point to the Personnel department situation. If nobody has objections.
- M:new management techniques?
- L: Yeah the new management techniques. To take the worst case where they're totally dispicable to the worker. The chance of your rejection rate going up higher is likely and your labor cost through machine malfunction ?? pretty sloppy overtime is not wanted by the people. You could have a major Personnel and ? problem going at this point.
- M: You also might think that there may be a paper loss and in the old system made money as the accounting was wrong. They haven't adjusted their outlook to the way its being run now; or how the old accounting looks were kept, they weren't making a profit - or it would be declining over a number of years.
- D: I don't think that can really be assessed from this though. But it does look like the Personnel problem, like ones we've seen before, all point to management.
- G: Right. The first two paragraphs here are kind of incongruent. It says that Wicket has an excellent reputation of being an excellent place to work and yet they have a hard time recruiting top quality people. It could be they aren't willing to pay what the competitors are paying. We have to look at their salary scales first as opposed to other companies. If its an excellent place to work, why can't they get good people?

- M: Right
- D: Might be a nice place to work and not a nice place to advance, due to management.
- G: That's also true, which ties in with like I said before, the mentality of the company. You could have some people in the upper chairs that don't want to see any real change, because they might be obsolete.
- M: You don't know what they are hiring and firing.
- D: No, you don't know what their motivation is but...
- J: Weekly payroll is 150 thousand a week, that's really not a very big payroll- So we're not talking about a giantic company.
- D: No
- Especially ?
- L: 150 thousand dollars in cash looks to me like there could be a little better financial management going on
- D: That might be too much cash
We might need a little more information to determine though really, you can't form a more operational analysis without a little more information. Use some of the cash to get some new equipment. Is there another part here?
- G: Research.....I think we covered somewhat.
- M: I think they need some new people in Research or cut Research size. They're supporting more than their getting out of it. I think the number of people they've got there to produce 56 patents, that aren't worth anything apparently, wither pay -- get the advertising into it -- push these other patents they've got or cut the overhead cost on the ?? departments.
- P: I'd like to -- to that too and that's talking about the Personnel and the age and perhaps the stereotyped individuals that may be supressing research efforts.
- J: Well, I'm not sure these are valid conclusions. They appear to be very active. They've jammed up 56 patents. Maybe it's a coordination problem primarily between Marketing, Production and Research. I think perhaps if there was better coordination between these 3 departments, then the Research department would be a little more useful.
- R: Could it also be, it ?? coordination, deals in this type of product is it the fact that the Research department for one reason or the other has just grown by leaps and bounds but nobody to keep it down or maintain production and everything else at the same time. In otherwords, Research department is sitting overthere with 56 products where there's not enough personnel or capital to market all the products that they've come up with or to move them along step by step so slowly but surely they're filling the room with products

and there's no way they're going to move out with 3 products a year. The company has the make a decision to let some people go which may or may not be right, or to increase the open staffs production in Sales and Marketing so that this company is going to grow.

M: There's another thing they would do is file out some of the patents sell them.

R: Great

D: I think there's a more basic problem than that. Apparently the R&D has misdirected, more R&D efforts should be spent as I said, in conjunction with QA....I....higher costs of unit because of higher cost of materials in it. R&D should be concerned with taking the product that's been on the market, and reducing the cost of building it, if they can. This is something that should be brought around for review. There's probably no feedback from production which again points to the management problem. There's no organizational effort to make sure these departments all work together.

M: The whole thing needs some overall guidance

D: Great

Protocol Descriptors (Duke)

Q1. Whom would you go to for help on a tough problem?

Operational Descriptors:

He would listen, I could use him as a sounding board.

She listens well.

He was willing to listen.

He's very talkative and gives me feedback.

Bill works through the problem verbally. He's interested in keeping up all the time. He didn't just sit back. And he gets out what he wants to say in just a few words.

He talked the most.

He had alot to say.

We were on the same wavelength. He saw what I was thinking and we agreed.

I felt Peter was more knowledgeable because he agreed with my ideas.

I agreed with him about half of the time. We had more of a give and take.

He was willing to cooperate with everyone, he wouldn't object to what I'd say.

He wasn't trying to take over the group.

He gave things direction. He seemed concerned how the group would do in general, because he would draw other people out and would point up a problem, but not always give a solution.

He was willing to take the leadership role.

He tried to include everybody in the discussion.

She was original in that she didn't repeat what other people had already said.

He was able to range over more of the problems. He sort of took a cosmic view of the situation

Nonoperational Descriptors:

He was intelligent. He was able to keep his thoughts in a logical sequence.

She was able to analyze what she heard and put it into good form.

She provides decent solutions and jumps right into the problem.

He showed confidence. He understood the problem and had feasible solutions. He had good analytical skills too.

I think I could think through a problem with him. He showed concern for other people.

He seemed to know what was going on. He had reasonable conclusions and assumptions. I felt he made some good suggestions.

She's similar to my character.

He's like myself

He's similar to my personality and interested in the things I am.

He was an open person and showed a willingness to help.

He'd give me straightforward answers and suggest ideas to help.

He was a strong character. He stands by what he says and isn't dependent on other people.

He was friendly, warm, honest, attractive and nice; not cold and distant.

She would give definite views and wouldn't be particularly wishy-washy. She'd be sincere and say what she felt.

He seemed very paternal, understanding, sympathetic and patient.

He has more overall maturity. He was relaxed and not so concerned about how he was coming across.

He was a fast thinker, very alert. And had definite things to say.

He wouldn't necessarily reach out for my side or try to support it.

He had a reasonable head. He knew what was going on.

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Q2. Who was pulling most for the group?

Operational descriptors:

He made the opening effort. He was the first to talk.

He verbalized most.

She was very talkative. To me alot of verbalization shows interest in the group.

He both listened and spoke. There was both give and take.

He paid attention to people when they spoke, he provided eye contact. And he would discuss what others said as if it were as important as what anyone else would say. He would also look for positive reinforcement from each person when he said something.

He was jointly trying to find the problems and he tried to offer solutions to the problems. He wanted to help the group, not just get his own ideas across.

He provided eye contact, and responded to what everyone said.

He wants to get responses from everyone. He doesn't just want to give his own responses.

She showed leadership and organized the group together. She got things in order and told us when to move on.

He was sort of a facilatalor. He asked what people thought even before they volunteered. He asked questions directed at the whole group. His thoughts seem to trigger thoughts in others.

He made an effort to have everyone speak. He draws others out.

He wants to get responses from everyone. And he would acknowledge their statements instead of interrupting.

He made an effort to have each person speak the same amount. And he engaged in confidence building like saying "Hey, Joe, that's a good idea."

He vocalized what everyone said, he summarized.

He took secretarial position to write things down.

Nonoperational descriptors:

He had the corporate goal in mind.

He was perceptive and insightful and his contributions were worthwhile.

He made good points and was most involved.

She incorporated my thoughts into what she said.

He was intent on the group and not his own ego.

He seemed more committed and more interested in the problem.

She seemed to identify with the group.

She wasn't aloof.

She was easy to work with.

She thinks out something before she says it.

He was congenial

He was more interested in the actual problem.

She makes people feel comfortable.

Q3. Who was best at handling people?

Operational descriptors:

He was able to rephrase and paraphrase. He brought things into a synopsis.

He kept conversation rolling and asked questions to bring out ideas.

He lead the structure of the discussion. He brings others into the conversation too.

He was the organizer or moderator; but he wasn't overbearing. He would subtly control by not saying alot, keeping people on the track and not let them wander from the question; he restates the question rather than giving an answer, restating brings people back on focus, giving your own answer could bring disagreement; and finally, he tries to get the group to finish the task and reach a decision. He is the chairperson.

He wasn't overbearing or domineering.

He was aggressive without being overly so. He was aggressive enough to lead and dominate but wouldn't be obnoxious and asinine in an argument.

When she disagrees she didn't make you feel you were wrong. She made you feel like she respected your opinion but just had a different approach to it. She was good at being complementary in her disagreement.

He responded to what people said. He seemed aware of the other people. He listens well.

He validates people by letting you know he heard you say something. He agrees with them or adds a comment.

Nonoperation descriptors:

He asked reasonable and pertinent questions.

She was articulate and intelligent.

She was understanding and open.

He had a sense of humor. He seemed approachable and wouldn't intimidate.

He makes you feel he values himself and your work. He makes you feel you're important.

He had teaching experience. He was the oldest and male.

He was concerned and interested in what you were saying.

She participated enough.

She was in tuned with the group process.

He cared about others needs.

She has confidence in herself, she's not shy.

He made articulate and meaningful contributions.

Q4. Who has the ability to think most critically and analytically?

Operational descriptors:

He talked the most. He communicated. That's the only way you know if someone's thinking critically and analytically.

He was outgoing, he talked more, came out with more ideas.

He initiated stuff. He had more criticisms.

He did the most talking so I was able to evaluate him.

He contributed alot, he was able to communicate his thinking.

He gave more structure, he was the coordinator. He categorized stuff and drew things together.

He broke things into components.

He categorized general statements.

He was able to look at both sides and draw a conclusion.

He follows the conversation and comes up with the appropriate observation. He crystalized the group thought. He summarized.

He had a total scope. He was able to pick up cross currents and able to relate individual problems to the broad general analysis.

He substained with examples, it added strength to his ideas. He would refer back to the sheet of facts. His examples made it possible to follow his thoughts.

I agreed with her ideas, she thought the same things I thought.

He wasn't too swayed by others.

He was able to focus on something and move on.

Nonoperational descriptors:

He had good ideas and answers.

He had logical well thought out statements.

He made a good impression.

Her thoughts were organized.

She had interesting and creative ideas,

She paid attention to the things I thought most important.

He made good decisions, I liked her ideas.

She looked at facts and didn't make assumptions.

He understood what was going on.

He saw things no one else would have.

He had common sense conclusions and had reasonable comments.

She had prethought out ideas.

His thoughts were organized.

Q.5 With whom can you work best?

Operational descriptors:

She takes initiative and gets the conversation started, keeps things going - tells us when to move on.

She's willing to interject her ideas.

He tried to assume leadership. He was the moderator or mediator.

There is a give and take.

She would share responsibility.

He's most willing to listen.

He can expound on my ideas.

I don't like someone I can't persuade.

I agreed with him.

He was assertive. He could get things done, but he was also tactful when he disagreed. He wasn't belligerent in expressing his views.

He was aggressive but not threatening. He wouldn't come down hard on people's negative ideas.

He wouldn't dominate or restrict me. He gives everyone a chance.

She's not going to dominate all the time.

She wouldn't interrupt.

She was friendly, she would smile.

Nonoperational descriptors:

She was knowledgeable.

She has good ideas, ones I wouldn't have thought of.

He was most original.

She thinks before she speaks.

She could focus on the problem.

She was intelligent and articulate.

He was clear in expressing his thoughts.

I felt like we were compatible.

He knew how to work toward a problem, how to structure it and solve it.

(101)

He's confident in himself.

He talks with ease.

She made sense and was easy to talk to.

Q6. Who shows the greatest independence of thought?

Operational descriptors:

He was always raising different questions. He even questioned himself.

She raised the most questions.

She cross-examined the group. She would question what people said.

She was original in that she doesn't follow others ideas or repeat them.

He comes up with novel ideas, ones not considered before and not implicit in the material given to us.

His ideas weren't molded by others.

She evaluated input from each person.

She talked the most.

He started the talk.

He lead the group to different areas.

He introduced ideas to be discussed by the group and brought us back when we drifted.

She takes an ambiguous situation and organizes it.

She thinks about specific areas with the major purpose of the discussion in mind. It's sort of taking an overall view.

He made a good impression. He looked at everybody, didn't speak softly, and he looked enthusiastic about what he was saying. He seemed interested in what others said even though he may not have agreed with them.

Nonoperational descriptors:

He puts something behind what he says.

He comes up with his own ideas.

He's more knowledgeable and has good ideas.

She said things others wouldn't have thought of.

It's just not the normal way of thinking, It's not looking at everything the same way.

She raised questions I didn't think of myself.

He thinks independent of a self-purpose or personal connection with his work.

Q.7 Who has the best overall leadership qualities?

Operational descriptors:

Bob was a good organizer, he asked for questions when the conversation died. He kept the conversation going.

He was able to handle people. He got them to talk and got the discussion going.

We didn't really have a leader. I see a leader as being very aggressive. He totally takes over and disagrees with others. He says "I don't care what you think, we're going to do it this way."

He got things going, he took initiative.

He let his ideas flow to direct ours. He doesn't monopolize the group, he is group oriented.

She's easy to get along with in that she's not defensive, she doesn't jump on others ideas but builds on them.

We listened to him when he talked, we were silent and didn't interrupt.

A leader doesn't push the flow of thoughts, but he directs it. He asks questions of the group and directs them to the areas he thinks most important.

He pushes his ideas over in a pleasant way, he isn't belligerent in expressing his views.

He had good ideas I guess because those were the ones were implemented.

She likes to talk but not all the time.

He expresses his ideas and lets others contribute too.

He summarizes and corrolates ideas. .

He had concern for the group because he volunteered to take notes.

Susan had a greater number of ideas.

Nonoperational descriptors:

He said what he wanted to say.

He was self confident

He had the end project in mind.

She had experience and maybe maturity and age.

A leader is equal to all people.

He manipulates the group with his thoughts.

She has a good personality to get her ideas across.

She had the ideas I was thinking of.

He had the ability to express his ideas well.

He got things done, he sat up, he was intelligent.

PROTOCOL DESCRIPTORS (NPS)

Q1. Whom would you go to for help on a tough problem?

Operational Descriptors:

Gordon was most willing to express himself, to put forward his own thoughts.

He had a lot of initiative.

He came up with new thoughts rather than expanding on old ones.

He had a lot of ideas.

I agreed with him.

For an analytical problem I would go to Mike because he's an independent thinker. Some of his ideas were completely independent of a general theme that had been discussed. He had good ideas not expounded by anyone else.

He was also very analytical. He would be able to solve a practical problem concisely and figure out things using inductive and deductive reasoning.

He doesn't butt in and disrupt things. He waited for his turn to speak when he had something to say.

What he said was organized by the way he presented things. He kept notes and made reference to them when he spoke.

Bob was quick to make a positive contribution to say something positive.

He didn't have a hard time communicating. He expressed his ideas well, his words flowed, he was most expressive.

Nonoperational Descriptors:

He seems aggressive and capable.

He's very competent and appears to have more experience.

He is bright and on the ball.

He doesn't come across as being detached from the group.

He's a nice enough guy.

His thoughts were a little more contemplated, he didn't speak till he had something to say.

(Nonoperational cont.)

I liked what he said and how he said it.

He was willing to put forth something which may or may not have been popular with the group.

He had original ideas. He always contributed something different. Some things I hadn't thought of.

His ideas were plausible.

For a personal problem I'd want someone with empathy. Paul understood people, he had respect for them. He would be thoughtful and critical in examining whatever problem I presented to him; and wouldn't necessarily be interested in impressing me with his intelligence or his approach. He's a very thoughtful individual.

The things he said remain more in my memory than what the others said.

He's not cocky.

Q2. Who was pulling most for the group?

Operational Descriptors:

Anyone who solved the problem we were after was pulling for the group, a goal oriented type person. He wanted to solve the problem. He was concerned with coming up with a solution.

He had something to say about all the categories.

He opened up in the conversation.

He was responsive.

He had a lot to offer. He contributed a lot to the discussion.

He was interested in taking the leadership role or the role of moderator. He wanted to get everybody thinking together, and he drew comments out of people.

He made a point to ask each person if they had something to say to give everyone a chance to make a positive input.

He organized the group and kept it organized.

He established order and leadership.

He kept things in order, lead things along and kept things going. He kinda took responsibility for the group.

He doesn't just work for his own ideas. He cooperates with the rest of the group. He adapts and understands other people's views.

He wasn't afraid to step in and keep us on the track.

He has a tendency to get back at the central issue.

He pulled the group back together when it got off the track and on targets.

He has good ideas, ones that expand on others or coming up with your own. His ideas give you other ideas.

He was intelligent, he made a contribution. He was interested, and the things he said agreed with me. If he said something I felt was true or I hadn't thought of, but I agree with, then that's intelligent. I think of myself as being intelligent and it's my opinion about myself that when someone agrees with me you think he knows what he's talking about.

You don't always have to go along with the group to be pulling for it. You can pull for it by pointing out what we're doing wrong.

Nonoperational descriptors:

He joined in the conversation effectively.

Most aggressive guy was pulling most and problem solving. He's doing the group the most benefit.

He was a pretty good thinker.

Q3. Who is best at handling people?

Operational descriptors:

He gives group direction and takes control.

He pulls people with him by trying to redirect us to the question at hand.

He took charge to move us from one step to another. He started us talking by bringing up a subject that would start us interacting again.

He keeps the group motivation, but channels it. He would be able to get people to do what he wanted them to do and make them think that that's what they wanted to do. You get them to accomplish what you want and get them to go along with you without hurting their feelings, without making them feel manipulated.

As the moderator, he'd notice some people weren't making responses; so he'd prod them into making responses.

He took charge. He was the flashy type. He's got shiny shoes and double knit shirts. He looks like the type that would take charge. He organized the thing.

He related to us best by virtue of his voice pattern, his willingness; he didn't step on people's necks; he was willing to give credit to us for the things we brought up and yet he's say, "Let's look in another area." and "what do you think about this?" He was very direct.

He didn't get into anything controversial, he waited until the general consensus was brought out then he was able to make everyone agree that what he came up with was probably the best choice. He did this by listening first, rather than interjecting his own ideas right away; then very cleverly, he analyzed what the consensus was. He came up with a logical consensus and everyone tended to agree.

He summed up what had been said. Everyone started talking at once. Jack tried to keep things in a straight line. He'd just point out, "Hey, you're going the wrong way."

If there was a conflict he'd be the best personality type that could reach a compromise. He wasn't radical or pushy or an extremist. He was the "middle of the roader" type. If a conflict arose, I think he could calmly and analytically solve the conflict.

He was polite by not interrupting and by mentioning other people's names and bringing them back into it, rather than making it sound like he came up with it.

I don't remember him disagreeing, but basically he didn't interrupt and cut people off. That's very important. No one wants to be contradicted or interrupted.

He didn't contradict anybody and pulled for the team while trying to get a logical conclusion.

He was able to communicate his ideas without forcing the idea on me.

He doesn't make a conscious effort to dominate.

He was not threatening and wouldn't come down hard on what I'd say.

He can tell people to change something, or that they're doing something wrong without turning them off.

He didn't try to take over the group.

He was able to get himself into the conversation, whether or not you could get in, without putting everybody else out. He'd be able to get his point across whenever he felt like coming in.

He was the first to speak.

He was outspoken, he can jump up and say "I've got something to say, I'll say it now." This is a leadership trait.

He expressed himself. He wasn't afraid to speak up.

He initiated stuff and volunteered stuff.

He talked the most.

He said more.

He had alot to say.

He said more than anyone else. He always had a point to make, and always got his point into the conversation, but he did so without putting anyone out so much.

He was relaxed in dealing with a strange situation. He was comfortable. Sometimes when people are quiet it means they are uncomfortable. Bill verbalized more than anyone else.

He listens to others.

He never gave the indication that he wasn't listening when someone was talking.

There was a give and take.

He related easily and was easy-going in that he was willing to agree with other people.

Don was easy to get along with because he looked at you, he appeared to agree with me each time I made a comment.

When he spoke, he said something that contributed to the problem.

He wasn't really interested in the problem. You could tell by his answers, they were general and kind of trite responses.

I equivilate this question with leadership.

Leadership and handling people are about the same. In management you have to handle people.

He was a big guy, that's a plus for handling people.

Nonverbal Descriptors:

He was best at the thought processes.

He had enthusiasm to get a product out.

He was very perceptive.

He has the characteristics I'd want if I wanted to talk over a personal problem.

I'd have confidence and respect for him by his capabilities and performance.

He didn't seem too nervous about the camera and all.

It's important to look like you know what you're doing. Gary appears flashy like he knows what he's doing.

It's important to treat people honestly and let people know you are honest, by not lying to them and being devious with your relationships. Don't say "hey, your job is doing great" and turn around and give them a bad evaluation.

He had good ideas and wasn't terribly aggressive.

His comments were most reasonable, most concurrent with my own thoughts.

He was most imaginative.

He appeared to be most interested in us as individuals and related to us easily.

The problem was realistic to him.

He has the same accent a good friend of mine does who I know is good at leadership. That probably colored my thoughts.

I didn't like him because I'm against people with moustaches.

Q4. Who has the ability to think most critically and analytically?

Operational descriptors:

He partially summarized and made a recommendation. He tied a number of things brought up together.

Kevin did more thinking, he put alot of things together.

He had the ability to summarize in a few words. He didn't beat around the bush. He was able to look at a problem and analyze it and make a statement about it that wasn't lost in alot of words. I lose interest when a person wanders all around a problem before he gets to it

I feel he had more expertise in a business type field. He had more comments on the various aspects of the company and had comments on all the fields.

He was able to see the whole spectrum of the problem and not just focus on one thing.

From his thought processes aloud, he looked at the whole problem and broke it down.

He was very thorough, he brought us back on track and wanted to look at the whole company.

He seemed to take over the discussion. Sometimes we'd go off on our tangents and he'd bring us back to the problem.

He suggested we start in chronological order of the way different sections were presented.

He was the general leader and moderator of the group.

The moderator should listen to what the others have to say and at the end, go ahead and bring the thing on track if it's gotten off track.

He made sense, I agreed with him.

He took more notes, he wrote more, he seemed to get more out of the context you gave us. When he spoke he made sense in that I agreed with what he said.

I agreed with the conclusions he reached. His solutions were good ones.

He expressed himself most.

He talked most.

He was willing to step forward and say, "hey, this is how I feel." Roger took that step forward. It wasn't so much that his ideas were different or that we disagreed, but he's be the first one to comment.

I look for the man who's going to speak out.

I think his comments didn't tread on anyone else's. He was able to assert himself and make his point with being too abrupt. He wouldn't interrupt anybody.

Thinking analytically is taking the numerics of a problem and drawing conclusions. A person with an analytical mind is methodic, lines priorities up. In other words they can say "well, no, this is the most important aspect of the problem, and this is the 2nd most important." I really think analytic is making something jell out of facts and figures though.

Being critical and analytical is getting the most from the facts and figures that were before us. Jamie had a lot of inferences from the material. In other words he was able to project what was written down in a way I can understand and agree with.

Making an inference is taking facts on the paper and organizing it into a logical presentation that I can understand from reading the same piece of paper.

He was a strong leader, so I guess analytically he'd fall in the same category.

Nonoperational descriptors:

He carried the most thinking process in the group, not the verbal process.

He said things more succinctly.

He made some very concise statements which I thought were better than anyone else's in the group. I noticed on his list that he had listed things and organized them so that he was able to present his facts quickly and concisely.

He seemed to have more background.

He had something to say that was pertinent and meaningful.

He seemed more experienced.

I also ranked this guy highest in handling people.

He was most aggressive by the way he expressed himself. Just his thought process, he seemed to have the best handle on the whole thing.

He was charismatic.

He was more forward.

He had a better feeling for the problem overall.

It's not just talking the most, he had forcefulness.

He had the clearest thoughts, he communicated so the group could understand him.

He seemed to have a grasp on the problem.

My ranking was based upon what I felt to be the overall contribution to the problem.

Q5. With whom can you work best?

Operational descriptors:

I go with someone that's going to talk alot. I can't work well with someone that sits back and doesn't say too much.

Rich was a strong performer, he did alot of talking.

He was more outgoing in that he had ideas.

You have to have alot of interaction.

If I don't get feedback I don't feel like I'm getting anywhere, that they aren't listening, there's no give and take.

Joel was more cooperative, willing to listen, and less authoritarian. He wouldn't cut you off in the middle of your opinion. There was more give and take.

I didn't like the others. I didn't feel like I had any influence over them.

If we both were working on the same job with each other, we'd be on the same plane, on equal par. Whenever I do something, the other guy is going to do something. I expect him to do certain things, and he's going to expect me to do certain things.

I like to work with someone who's easy to work with, who has a certain amount of personality, compatability. I couldn't work with someone whose ideas were totally opposite mine. I work well with someone I can reinforce and they can reinforce me. Like even saying, "that's a good idea, but...." and going on with his own idea.

He would say things that stimulated other people.

It helps when someone has ideas similar to mine. It reinforces your own opinions. Although you do need the "other" opinions also, but I prefer people who go about things in a logical sequence like myself.

We think along the same lines.

Larry felt the same way I did, I don't think the rest of the group did.

I think we're similar. I agreed with what he said.

He made sense. Things that make sense to me, I agree with.

He never cut people off. I think that shows insensitivity and bossiness.

He was cooperative, in that he's respect the opinion of other people before he's assert his own. He respected the whole group environment, and he'd probably respect the groups decision on something. He didn't impose his will.

If someone said something Gary didn't agree with, he wouldn't jump right on them, he just presented his opinion.

Joel was able to get things rolling.

He got the whole thing running. He might be able to organize things better than some of the rest. Organization would be one of the primary things I'd want.

He organized the group. He set the structure and asked certain people what they thought of certain areas.

He gave his opinions and asked for rebutals from the rest. Taking the initiative here shows an organizing tendency.

He's the guy who tried to lead the group. He tried to keep answers flowing. He tried to work out arrangements and sequences of getting the right answers and responses from people.

As opposed to darting around, he started the discussion by saying, "Let's take it through in an orderly fashion." And tried to get people to speak around. People usually go with those who are dynamic and try to lead people as well as help distribute it out.

He put in his own thoughts and tried to get others to give their thoughts as well. He drew responses out of other people as well as contributed himself.

He was the moderator of the group. He didn't butt in, but when it came to needing responses, he was there to respond.

His thoughts were organized because he suggested we take the material topic by topic and he pointed out the important strong points.

Nonoperational descriptors:

He did alot of constructive parts

He had the aggression and readiness to tackle the problem. He was ready to jump right into the problem.

I felt he thought through what he said. His comments weren't wrong or irrelevant.

He would be more sensitive.

He was a strong member, his thoughts were collected before he spoke.

I feel Jim would be completely honest with me; he'd feel free to tell me what the problems are rather than tell me the things I want to hear.

Q6. Who shows the greatest independence of thought?

Operational descriptors:

Jack was first, he'd listen to other people.

We'd start talking about an area and agree. Then Ken would say what he thought which was independent of what we thought. He had his own reason why he thought that way. He wasn't just contradicting the group.

He didn't follow the pattern.

This question means that what others are saying doesn't necessarily effect what your opinion is. You can take them in and analyze it and either reject them or not. But you stick to your guns. I guess your rejection rate shows independence.

He was least affected by what others in the group were saying. He advanced his own opinion inspite of the comments that were made prior to his opinion.

He really didn't care whether anybody else had something to say, he had his own version. I don't think he was swayed that much by the rest of the group.

He brought up points not yet considered by the others.

He brought out the initial verbalization of the particular topic. Everyone else was thinking of the five areas, where Gary went back to the background sheet and was trying to find some underlying problems there.

He had originality. That's being able to attack a problem without being prompted.

He had originality, the ability to back off, look at a problem and come at it from different directions.

As far as new unique ideas, Steve probably would be the guy initially to bring something up.

His ideas were good to me because they agreed with mine.

He seemed to look at the problem, the pluses and minuses. He grasp that it might not be an item by item problem. That's the approach we used. Gary said to look at each group independently.

Joe was first because in each of the different areas we talked about, he had input. His thoughts weren't generalized and non-specific like the others.

What he said he presented to the group bluntly. He made his point right away and didn't bother with alot of adverbs and adjectives. He was able to convey his thoughts without making a big show.

Tom was least independent. He was just reinforcing everyone else and regergitated alot of what everyone else said.

He didn't pick up on anyone else's phrases. He had thoughts independently himself, he wasn't just reacting to somebody.

He was the least in independence of thought because he was generally reacting to other people's comments. He didn't have any ideas of his own.

He seemed thoughtful, by the nonverbal type stuff. He looked pensive rather than reactive to the comments being made.

Nonoperational descriptors:

Independence of thought is you view something and have an idea without being influenced by others.

You let yourself be channeled along your own direction and arrive at your own conclusion based on your own facts. You can take what others say and weigh it, but you're not swayed by it.

He makes his own decisions in his own way. Not necessarily using the guidelines set by the group.

He seemed more independent in his thought structure.

I feel it comes more to how I feel about the guy than to a critical analysis. Then I go to personality, what he looks like, etc.

He treated the thing like an actual problem, the others realized it was just an exercise.

I didn't think of the things he said myself, but I agreed with them.

He'd hit the problem from more different angles.

Being able to assemble your own thoughts and go on from there to a fairly organized presentation.

He came up with concrete proposals.

Q7. Who has the best overall leadership qualities?

Operational descriptors:

Paul did a good job controlling the efforts of the group. He was not only interested in us knowing what he thought, but also interested enough in the group that he made sure everyone voiced an opinion.

He listened as much as he gave out information.

He communicated alot and was receptive to the ideas of the group. He was more receptive in that he listened to the ideas presented by others.

He tended to listen to what people were saying before he started to get involved in the group.

He wasn't hesitant as far as expressing his ideas on adding what he thought was critical. Nor was he critical of what other people were saying.

He was first to speak up.

He would wait for his time to talk and not interrupt.

He wouldn't dominate too much. He wouldn't cut people off.

He was first because he put out ideas but was also receptive to other peoples ideas. He wasn't trying to sell any particular thing. In general, he listened to other people and had good ideas of his own. To be an effective leader people have to want to follow you.

He used a good human approach of reinforcing what someone said as opposed to attacking it.

Dave was the opposite, he was aggressive, opinionated and subjective. He was so aggressive because he constantly interrupted. He would be a poor leader.

Rich was very personable in that he never seemed to become emotional. He complimented people and he didn't show any aggressiveness at all. A leader has to earn respect of the people with him. He can't be aggressive to the point of totalitarianism.

He was the most assertive. He took command and led us. He told us what we were looking for, kept the discussion moving from one section to the next, and asked us for responses.

He got us all set up. He brought out the question, the scope of the problem. He analyzed it, said how we were going to attack it. Then he decided it was time to get everyone involved and he pointed out each one to take a certain point and submit their ideas.

He was able to manage and organize the other people. He got us working as a team. He was able to get other people doing things.

The role of a leader is to get each person working for him rather than do the job himself. Ted was last because he tried to do the job too much himself.

He brought us back when we started to stray from the beaten path.

He'd summarize and jotted things down.

He'd be a good man to consolodate things.

He was a leader who participated with the group. You have the authoritarian versus the team player type leader.

He was subjective in that he viewed the whole problem as opposed to one aspect of the problem.

He seemed best at influencing people.

From his ability to organize the group, he came across as having the inherent ability to influence people.

Nonoperational descriptors:

He kept pushing different things.

He didn't talk for the sake of hearing himself speak.

He was a strong leader. He has the ability to get and maintain your attention and cause you to want to support what he's fostering.

He's a nice guy in his personality.

He's a capable individual with leadership.

He comes across as having the best control over people.

He had a good deal of thought behind the statements he made. He came across very precise in his arguments.

He's organized in his own mind and thinks out the statements he's going to make.

He takes initiative but is considerate of other people's talents.

He was number one based on his appearance. He seemed very calm and sure of himself.