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THE EFFECTS OF ORIENTATION BEHAVIOR AS A DETERMINANT OF GROUP PRODUCT

BY

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B.S., Oregon State University, 1971

THESIS

Submitted in partial fulfillment of the requirements for the degree of Master of Communication in the Graduate Studies Program of Florida Technological University

Orlando, Florida
1973
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Chapter 1

BACKGROUND

The function of small groups in societies cannot be overestimated. People live and work in groups, and societies are dependent upon efficient operation of them. Groups have varied purposes from casual socialization to major decision-making. They operate in all levels of government and industry. Their importance is extensive, as Irving Janis has proposed that lack of preparation before the Pearl Harbor bombing, the stalemate in the Korean War, the failure of the Bay of Pigs invasion, and the escalation of the Viet Nam War "are products of ineffective communication within small groups." ¹

Group dynamics is the study of small groups, and is considered as having its beginnings in the mid-1930's with empirical research. Sherif (1936) studied social norms; Newcomb (1939) examined social influence; Whyte (1943) reported results of observing behavior in Boston slums; and Lewin, Lippitt, and White (1939) investigated styles of leadership at the Iowa Child Welfare Research Station. ² After WWII more investigations were made based upon these early studies. Through an understanding of the operation of small groups, factors have been identified that can improve it.

In Communication and the Small Group, Gerald M. Phillips asserts that "achieving consensus is the essential purpose of interpersonal communication." ³ In recent years, a few studies have identified variables that promote the achievement of consensus in small group
discussions. The most significant is Knutson's. Relating orientation and consensus, he concluded:

The greater the total orientation behavior manifested in a group discussion on a question of policy, the greater the possibility of a group's reaching consensus.  

Orientation behavior is "facilitating achievement of a group's goal by using facts, making helpful suggestions, or trying to resolve conflict."

Through a high level of orientation behavior, it is reasonable to expect a group to reach agreement. But the group may still fail to serve its whole purpose.

Government and industry are dependent upon the decisions made in small groups. It is the function of groups to produce a decision that will most effectively solve the discussion problem. It is important that groups make the best possible decisions. Orientation behavior facilitates consensus, but how does it affect the quality of the group product? Previous research indicates a lack of relationship between orientation and quality of product. The purpose of this study is to manipulate orientation behavior and determine its effect upon quality of product.

Related Research

In measuring traits of the group decision-making process, Robert F. Bales developed an instrument known as the Interaction Process Analysis (IPA). Since 1950 when it was first proposed, the IPA has been used and adapted for several experiments to analyze leadership traits as well as the group interaction process. Several categories were included in the IPA, two of which were "gives orientation" and "asks for orientation." In the last few years the individual trait of orientation has been examined in several investigations. By identifying how orientation promotes group efficiency,
problems that arise in group discussion can be minimized.

Burke (1966) refined Bale's measures of problems in a group (communication, evaluation, control, and decision) by labelling them first-order (decision) and second-order (communication, evaluation, and control) problems. The first-order problems concerned establishing a leader, or an authority structure, to make the necessary decisions. The group must agree upon how decisions shall be made. Since Burke's purpose was to establish the relationship between leader discrepancy and disruptive behavior, the second-order problems were the main concern of the study. These problems involve deciding upon subgoals (communication), deciding what activity is relevant in order to achieve the goal (evaluation), and controlling activity to secure the goal (control). 7

Burke defined leader discrepancy as failure on the part of the leader to solve second-order problems. Disruptive behavior was measured by three categories: rate of antagonism, rate of tension expression, and absenteeism. The first two utilized Bales' IPA. Rate of antagonism was the average rate per minute of acts categorized as "disagrees" or "shows antagonism" from the IPA. The rate of tension expression was the average rate per minute of acts categorized as "shows tension" from the IPA. Absenteeism referred to unexcused absences. 8

The same leader was assigned to all groups. There were two leadership conditions. Directive leadership was an active role on the part of the leader. His activities could be defined as giving suggestions, opinions, and orientation. Non-directive leadership was failure on the part of the leader to participate in situation-
defining behaviors mentioned above. All subjects were male, and three
discussion meetings were held, with a different topic each time.  

Burke concluded that leader discrepancy was related to disrup-
tive behavior to a greater extent among non-directively led groups than
among directly led groups. It seemed that "expectations of behavior
of the group leader determines how group members will react to any
behavior which potentially could serve to reduce uncertainty."  

The study demonstrated that disruptive behavior can be lower in
a directly led group. In other words, Burke's study showed that
certain behaviors--gives suggestions, opinions, and orientation--less-
ened the disruptive behavior. It cannot be overlooked that other
behaviors could have been operating in conjunction with the leader
giving suggestions, opinions, and orientation. The leader was
responsible for making decisions, so when disruptions occurred the
leader may have imposed his authority as well.

Burke looked at disruptive behavior, but he did not make any
conclusions about group consensus. As Gouran declared: "Consensus...
has historically been recognized as the objective of decision-making
discussions, a fact to which any number of authorities attest ...."  

In the last few years, researchers have concentrated on variables that
aid group discussions in achieving consensus.  

Gouran (1969) tried to determine how statements of consensus
and non-consensus groups differ. He defined consensus as the unanimous
agreement of all members on the group decision. Small groups of six
subjects each were organized to discuss three questions of policy.
The groups consisted of males and females, with three subjects
endorsing the status quo on the topic and three endorsing the most
liberal alternative. Two groups out of ten per question were selected for analysis. Gouran's reasoning for this procedure is that:

One of each pair had reached consensus (unanimous agreement on a single policy) while the other showed no greater movement toward consensus than could reasonably be attributed to chance. Groups representing extremes in movement toward consensus were deliberately chosen to maximize the chances for detecting differences in their verbal behavior. 

Fifty statements per discussion were selected at random and were evaluated by graduate students on dependent measures of clarity, opinionatedness, interest, amount of information, provocativeness, orientation, and objectivity. Length of the statements was measured by the researcher.

The results revealed that of all of the variables measured, orientation was most consistently related to consensus. Statements from two of the consensus groups were significantly higher in orientation than their corresponding non-consensus groups. The remaining pair of groups did not show significant difference, but the consensus group rated higher. Gouran concluded:

The general consistency in the findings on orientation, perhaps, can best be explained in terms of Deutsch's notion of "promotive interdependence." If the members of a group are promotively interdependent, no one member can attain his goal unless the others do also. Selecting the one best solution to a problem makes a group promotively interdependent. It seems reasonable, therefore, that groups whose members reach consensus will have made more statements designed to reduce conflict and to provide direction for the discussion than groups whose members fail to reach consensus.

Perhaps the power in Gouran's study could have been increased through a redefinition of consensus. The groups under analysis were three consensus groups which had reached unanimous agreement, and three non-consensus groups. It was not explained how close or far from consensus the non-consensus groups were. There could be only one
dissenting member and still the group is nonconsensus.

If orienting statements are as important to consensus as Gouran's study indicates, then examination of high orientation statements should be of practical interest. Kline (1970) looked at the content of the statements in Gouran's experiment. He examined high orienting and high opinionated statements since they showed the most prominence in relation to consensus. He attempted to distinguish them from low orienting and low opinionated statements through various markers and to determine the predictability of statement content. To measure the predictability of statement content, Taylor's cloze procedure was used by eliminating every fifth word and then having judges identify the missing words. The markers used for high orienting statements were number of other directed words (you, your, yours), number of group words (we, us, our), number of questions, number of self-referent words, and metadiscussional verb markers (agree, disagree, decide, adopt, purpose, vote). High opinionated statements were distinguished from low opinionated statements through the following markers: number of self-referents, number of "indefinite antecedents," number of "allness" terms (no, never, always, everyone), and number of occurrences of "I (don't, really, etc.) think." 15

The low orientation and the high opinionated statements were found to be significantly more predictable than high orientation and low opinionated statements, respectively. As to the markers used, high orientation statements showed fewer self-referent words and more metadiscussional verb markers. The high opinionated statements contained more self-referents and "I (don't, really, etc.) think" markers. These results were significant at the five percent level. 16
Kline has taken the analysis of group discussion one step further. While Gouran has shown a relationship between high orientation and consensus, Kline analyzed high orientation behavior as exhibited through discussion content.

As mentioned earlier, perhaps a redefinition of consensus would be more realistic. Knutson (1970) took this factor into consideration when he examined orientation behavior and its effect on consensus. In his research Knutson measured the "distance from consensus" at the conclusion of a discussion. Distance from consensus was determined by the number of positions the subjects were away from complete agreement on a single policy alternative. Orientation was operationalized into three treatment conditions. High orientation was operationally defined as the attempts by a confederate to resolve conflict, reinforce agreement, and make helpful suggestions. The confederate remained silent unless spoken to in the no orientation condition. The low orientation condition required the confederate to withhold information, intensify conflict, and promote disagreement.

A question of policy was presented for groups of males to discuss. Each group had four subjects plus the confederate. Two of the subjects endorsed the status quo, and the other two endorsed the most liberal alternative. The results indicated that high orientation groups were significantly closer to consensus than either the no or the low orientation groups. There was not a significant difference between the no orientation and the low orientation groups on distance from consensus, although the results were in the predicted direction (no orientation closer to consensus). The manipulation of orientation behavior was successful, as evidenced by subject ratings of the
confederate on the orientation scale. The confederate in the high orientation condition was rated significantly higher on orientation than in the no or low orientation conditions. But the confederate in the low orientation behavior was perceived as possessing higher orientation behavior than in the no orientation condition. To explain this unexpected result, Knutson stated that:

... negative contributions in discussions of the type studied apparently serve a positive function in some circumstances. At least, other members of a group may perceive such behavior in a relatively positive light. 18

Knutson's study relied upon a confederate to manipulate orientation behavior. It would be wise for all group leaders to be aware of the fact that high orientation will help a group move toward consensus. But what about leaderless groups or groups where authority is evenly distributed? Are they able to utilize orientation behavior without a confederate or a leader?

Kline (1972) attempted to answer these questions by using methods established in Knutson's study. Discussions were held in small groups of six subjects each. High and low orientation groups were determined by the average orientation rating that each subject had received from classmates for previous discussions, and in each group three subjects endorsed the most liberal alternative and three the most conservative alternative on the question of policy. One month after the subjects were selected, the discussions were held. Immediately following the discussions each subject privately selected the policy he considered as the best solution from five alternatives. Each subject also rated himself and the others in the group on orientation. Consensus was measured by the total number of positions the subjects were away from the most agreed upon policy. 19
The high orientation groups were significantly closer to consensus. There was significant increase in the post-test orientation ratings over the pre-test ratings for the low orientation groups. The high orientation groups also showed an increase in orientation ratings although the results were not significant. The individuals rated themselves higher on orientation than other group members did.  

Kline's study supported the contention that a leaderless group can utilize orientation behavior to facilitate consensus. Also, there was no pressure applied to the group to reach consensus. The group was not asked to develop a policy, but each subject privately identified his position in relation to five alternatives. The major weakness in the experiment could have been the selection of high and low orientation groups. Assuming that once a subject is perceived as exhibiting high or low orientation behavior does not mean that he will be as effective in another discussion. When placed in another group, the orientation behavior of a subject may not be as high in relation to the new group members. But the results of the study showed that the orientation ratings increased, so apparently the measure was effective at least for Kline's experiment. Another possible problem is the accuracy of each subject's ratings of orientation behavior. It cannot be determined how accurate the subjects were in identifying orientation behavior. The ratings showed significant differences, but consider the low orientation groups' mean rating: it was 4.76. How low on orientation is the rating? It is significantly lower than the high orientation groups' mean rating of 6.38, but is that sufficient to make it "low" orientation behavior? To insure the presence of real difference, low orientation should be a rating of less than 3.00 on the seven-point
bi-polar scale of orientation. In relation to the experiment, though, the low orientation groups were significantly lower in orientation than the high orientation groups. So the measure was methodologically effective.

Achieving consensus may be the major concern of a group, but is that realistic? There is more to the operation of small groups than just reaching consensus. The real test of a group's decision is its applicability—how well it solves the problem and how well it can be used.

Leathers (1972) conducted an experiment relating quality of communication in a group to quality of product. Two confederates were used in the six-person groups. The confederates manipulated quality of communication in three treatment conditions. The disrupted communication condition had the confederates introduce twelve statements at five minute intervals to hinder the progress of the group. The statements were categorized as high-level abstraction, internally inconsistent, irrelevant, negative reinforcement, facetious interpolation, and withdrawal. The natural communication condition allowed the groups to evolve without the intervention of the confederates. The facilitated communication condition had the confederates organize the group into following certain procedures, such as keeping records of ideas presented, following a format, encouraging summaries of long contributions, and reinforcing clear ideas.

Discussion was broken into five minute segments for analysis. Trained judges selected a statement from each segment that was considered to be representative of the feedback. These statements were then rated on the Leathers' Feedback Rating Instrument (LFRI) which consists
of nine dimensions: deliberateness, relevancy, atomization, fidelity, tension, ideation, flexibility, digression, and involvement. Each are scored on a seven-point bipolar scale. To measure the quality of group product, Leathers adapted a scale developed by D. W. Taylor. The Productivity Rating Instrument (PRI) consists of five scales, effectiveness, feasibility, creativity, significance, and comprehensiveness, each measured on a seven-point bi-polar scale.

Seven of the nine scales on the LFRI showed significant differences between facilitated and disrupted communication conditions, facilitated groups with higher ratings. Four of these had significant differences between facilitated and natural communication conditions, facilitated again higher, and two had significance between natural and disrupted communication conditions, natural groups with the higher ratings. In measuring the quality of product, the PRI showed significant differences on all five scales between facilitated and disruptive communication conditions. The facilitated condition developed a product of higher quality.

Leathers hailed the study as the first to successfully relate quality of communication directly to quality of product in small group discussions. This is the first published experiment that used a device designed to measure quality on several scales. Up to this time quality of product has been measured more or less as quantity, such as counting a number of right or wrong answers. The major criticism of the study, though, is the device used to measure quality of communication, the LFRI. All of the scales did not show significance and it cannot be determined as accurately measuring quality of communication.
Statement of the Problem

Previous research demonstrated that orientation behavior lessened disruptions, facilitated group consensus, and contained distinct content markers. The present study seeks to expand this beginning by studying quality of product as produced by orientation behavior in small groups. The purpose of small groups is to produce effective decisions. Up to this time, studies have concentrated on factors that facilitate consensus. Now factors that facilitate effective consensus have to be identified. Societies rely upon the quality of the decisions of small groups, in government and industry. The methodology of Knutson's investigation relating orientation behavior to consensus will be followed, adapting Leather's PRI to determine the effect on quality of product.

It has not been demonstrated that high orientation behavior produces a higher quality of product than medium or low orientation behaviors. Society is dependent upon the efficient operation of small groups, since people affiliate in groups for many purposes, from casual socialization to major decision-making. High orientation behavior facilitates group consensus, but how does it affect the quality of product? This study will examine the relationship between the levels of orientation behavior and quality of product.

High orientation behavior promotes group discussion by lessening disruptions and facilitating group consensus. By definition, it is resolving conflict, making helpful suggestions, reinforcing agreement, and encouraging participation. Medium orientation incorporates high and low orientation behaviors. Low orientation behavior is the direct opposite of high orientation. Medium orientation would logically be
less facilitating than high orientation. The group interaction process should be hindered somewhat by the medium orientation behavior as a result of the low orientation contributions. This would prevent a complete discussion on the question of policy and would in the same way affect the group product. Therefore, hypothesis 1 states that groups containing an individual engaging in high orientation behavior will produce a higher quality of product after discussing a question of policy than groups containing an individual engaging in medium orientation behavior.

As mentioned above, high orientation and low orientation are direct opposites of one another. Low orientation is more disruptive and has a tendency to interrupt the discussion process preventing effective consensus. Hypothesis 2 states that groups containing an individual engaging in high orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual engaging in low orientation behavior.

Medium orientation has not been investigated in previous studies. Through its high orientation contributions it is expected to be more facilitative and less disruptive of the group discussions than low orientation behavior. Hypothesis 3 states that groups containing an individual engaging in medium orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual engaging in low orientation behavior.
References


5 Ibid., p. 88.


8 Ibid.

9 Ibid.

10 Ibid., p. 250.


13 Ibid., p. 389.

14 Ibid., p. 391.

16 Ibid., p. 285.

17 Knutson, op. cit.

18 Ibid., p. 78.


20 Ibid., p. 46.


22 Ibid., pp. 168-170.

23 Ibid., pp. 172-173.
Chapter 2

EXPERIMENTAL METHOD

The previous chapter summarized existing research in orientation, consensus, and quality of product. The relationship between orientation behavior and quality of group product, however, has not been determined. This chapter will present the variables of interest in the present study in operational terms, the preliminary research, and the procedures used in this experiment.

Experimental Variables

The independent variable, orientation behavior, was operationalized into three treatment conditions: high orientation, medium orientation, and low orientation. The dependent variable, quality of product, was measured by four scales adapted from the Productivity Rating Instrument (PRI).

Independent Variable. A confederate was used to manipulate orientation behavior through his statements. His statements were modelled after those used in previous studies. His number of contributions were approximately the same in each group.

In the high orientation condition, the confederate was instructed to base his participation upon certain statements, and he was not to make any decisions for the group. High orientation behavior was resolving conflict ("Now let's cooperate and come up with a solution we can present."), making helpful suggestions ("Maybe we should come at this problem from another angle," or "Let's try to adopt..."
something right now we think would be a good policy. What does everybody think about that?"), reinforcing agreement ("Are we in agreement, then, that we should adopt proposals three and seven?"), and encouraging participation ("Now let's stop and consider where we are. What are the issues anyway?" or "Does your source have anymore material on this question?").

Low orientation behavior limited the confederate to certain types of statements. This behavior was to intensify conflict ("That information is not only false, it's completely ridiculous;" or "If students wouldn't always act so extreme and could make responsible decisions, it might be all right;" or "Don't you think there will be some other possible solutions? I mean, do you hafta insist on just your idea?" or "I think you're wrong. No one could possibly believe that kind of argument."). insist no agreement can be reached ("We'll never reach agreement on this issue."), discourage participation ("I don't understand how you can say that;" or "I can't see where that will help anything;" or "Well, after all, what could it hurt if we decided to avoid the problem?"), concentrate on self-oriented needs ("Maybe we ought to talk about something we are really interested in;" or "Frankly, I'd like to be at my apartment right now, swimming in the pool;" or "I'd like to take a break and go over to the snack bar."), disrupt communication (by interrupting a speaker, talking to a neighbor, or tapping a pencil on the table), and withhold information.

High and low orientation behaviors were intended to be opposites of one another. A third treatment of orientation behavior was devised for this study. Medium orientation behavior combined statements of the high and low orientation treatments and was defined as behavior...
exhibited by a balanced number of high and low orientation statements. The confederate was restricted to using alternating statements of high and low orientation. In other words, the confederate kept track of his statements to be sure that neither high nor low orientation statements dominated his behavior. The following were statements used by the confederate in the medium orientation condition:

1. What steps do we take in order to reach agreement?
2. Maybe we should come at this problem from another angle.
3. Does your source have any additional information on this question?
4. Let's come up with a solution we can present.
5. We'll never reach agreement on this issue.
6. I don't understand how you can say that.
7. Can you offer any other solution?
8. I don't know. Maybe we should talk about something we are really interested in.
9. I can't see where that will help anything.

Orientation behavior of the confederate was measured on a seven-point bi-polar scale, high orientation being a rating of seven and low orientation being a one. At the conclusion of the discussion, each subject, including the confederate, was asked to rate the other subjects on the orientation scale. Appendix A contains the Discussion Test Booklet with the actual orientation rating form.

Dependent Variable. The major dependent variable measured was quality of product. Quality of product has been measured in various ways, but as Leathers asserted, most studies "emphasize quantity rather than quality of ideas." Leathers adapted a device which he calls the Productivity Rating Instrument (PRI), shown in Appendix B. The PRI consisted of five scales which have been modified for the present experiment. The preliminary investigation pointed out that the judges had difficulty understanding the Feasibility scale. Therefore, the Effectiveness scale was redefined to include the feasibility
measurement. The four modified scales shall collectively be referred to as the Quality of Product Scales (QPS), shown in Appendix C.

The four scales were Effectiveness, Creativity, Significance, and Comprehensiveness. Effectiveness was the degree to which ideas, which are part of the major decision or solution, are realistic and could be adapted to the present system. Creativity was the degree to which the major decision or solution reflects original ideas not previously applied to the problem under discussion. Significance was the degree to which the major decision or solution reflects relevant and significant information as opposed to non-relevant and insignificant information. Comprehensiveness was the degree to which the group's major decision or solution reflects a response to all the dimensions of the problem under consideration.

Three graduate students at Florida Technological University served as judges for the pilot study and the subsequent experiment. They were presented with the discussion question and asked to rate each product on the QPS. The instructions given to each judge are presented in Appendix D. The judges were not allowed to discuss the products among themselves.

Preliminary Research

A pilot study was conducted to locate any problems in methodology and to give the confederate practice manipulating orientation behavior in the treatment conditions. The issue selected for discussion was the grading system at Florida Technological University. Most students have a basic knowledge of the topic. It was chosen because it directly concerned each of the discussion participants. The subjects were volunteers from basic speech classes. Since consensus was not being
measured, subjects were not selected on the basis of their feelings on the discussion topic. The confederate was instructed on methods to vary his orientation behavior. Statements rated high or low on orientation in a previous study were used by the confederate to manipulate orientation behavior. Six groups were organized for the pilot discussions, two groups per treatment condition. The three treatment conditions in the pilot study were high orientation, no orientation, and low orientation (no orientation later replaced by medium orientation).

Statistical analyses were made to determine any trends. The results were not expected to be significant since little power was provided for an analysis of variables with only two discussion groups per treatment condition. The mean ratings for the quality of product showed a general trend in the expected direction. In all but one of the scales of the PRI, high orientation groups rated higher in quality of product over no and low orientation groups. Three of the five scales rated higher for the no orientation than the low orientation groups. The results of the judges' ratings in the pilot study are presented in Table 1.

An analysis of variance was made on each scale to determine significant differences across treatments. Effectiveness and Creativity revealed significance at the .05 level. Comprehensiveness indicated significant differences at the .10 level. No significant differences were determined on the Feasibility and Significance scales. A summary of this analysis of variance is presented in Table 2.
Table 1
Mean Ratings of Quality of Product in Groups Exposed to Three Types of Treatment: High, No and Low Orientation

<table>
<thead>
<tr>
<th>Solution Dimension Scale</th>
<th>High</th>
<th>No</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>5.00</td>
<td>3.17</td>
<td>2.83</td>
</tr>
<tr>
<td>Feasibility</td>
<td>4.00</td>
<td>2.83</td>
<td>4.00</td>
</tr>
<tr>
<td>Creativity</td>
<td>4.67</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Significance</td>
<td>4.17</td>
<td>3.67</td>
<td>3.17</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>4.67</td>
<td>3.17</td>
<td>1.83</td>
</tr>
</tbody>
</table>

Additional analyses were made on those scales where significant differences were determined. A "t" test was run for each scale to determine significant differences between treatment conditions. There were significant differences between the high and no orientation conditions on the Effectiveness scale at the .05 level and on the Creativity scale at the .025 level. The high and low orientation conditions were significantly different on the Effectiveness and Comprehensiveness scales at the .005 level and on the Creativity scale at the .025 level. No significant differences were determined between the no and low orientation conditions. All results were in the expected direction, high rating highest and low rating lowest, except on the Feasibility and Creativity scales. The low orientation condition showed higher quality of product on the Feasibility scale than the no
orientation condition. The high and low orientation conditions had the same ratings on Feasibility, as did the low and no orientation conditions on Creativity. These results are in Tables 3, 4, and 5.

Table 2
An Analysis of Variance of the Quality of Product Ratings in the Pilot Study

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>16.33</td>
<td>8.17</td>
<td>4.43</td>
<td>.05</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15</td>
<td>27.67</td>
<td>1.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feasibility:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>5.44</td>
<td>2.72</td>
<td>.61</td>
<td>NSD</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15</td>
<td>66.83</td>
<td>4.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>18.78</td>
<td>9.39</td>
<td>4.10</td>
<td>.05</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15</td>
<td>34.33</td>
<td>2.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>3.00</td>
<td>1.50</td>
<td>.36</td>
<td>NSD</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15</td>
<td>63.00</td>
<td>4.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensiveness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>24.11</td>
<td>12.06</td>
<td>3.55</td>
<td>.10</td>
</tr>
<tr>
<td>Within Groups</td>
<td>15</td>
<td>51.00</td>
<td>3.40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3

Comparison of Mean Differences for the Quality of Product Ratings on "Effectiveness" in the Pilot Study

<table>
<thead>
<tr>
<th>Comparison</th>
<th>( \bar{X} ) Difference</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. No</td>
<td>1.83</td>
<td>1.94</td>
<td>.05</td>
</tr>
<tr>
<td>High v. Low</td>
<td>2.17</td>
<td>3.99</td>
<td>.005</td>
</tr>
<tr>
<td>No v. Low</td>
<td>.33</td>
<td>.41</td>
<td>NSD</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .05 level is \( t = 1.81 \). The minimum value for significance at the .005 level is \( t = 3.17 \).

As a result of these findings and discussion with the judges, changes were made in the PRI to accommodate the later investigation. The Feasibility scale was combined with the Effectiveness scale through a redefinition of the Effectiveness scale. It had been difficult for the judges to understand the definition of Feasibility, the degree to which the major decision or solution reflects a picture of social reality which is consistent with relevant public attitudes. The original Effectiveness scale rated the practicality of the group's solution, while the Feasibility scale considered its theoretical value. The redefined Effectiveness scale combined these judgments so that the judges understood how to measure the products. The four scales were called the Quality of Product Scales (QPS) and are shown in Appendix C.
Table 4
Comparison of $\bar{X}$ Differences for the Quality of Product Ratings on "Creativity" in the Pilot Study

<table>
<thead>
<tr>
<th>Comparison</th>
<th>$\bar{X}$ Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. No</td>
<td>2.17</td>
<td>2.60</td>
<td>.025</td>
</tr>
<tr>
<td>High v. Low</td>
<td>2.17</td>
<td>2.60</td>
<td>.025</td>
</tr>
<tr>
<td>No v. Low</td>
<td>.00</td>
<td>.00</td>
<td>NSD</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .025 level is $t = 2.23$.

At the end of the pilot discussions, the participants were asked to rate each participant in terms of orientation behavior. The Discussion Test Booklet in Appendix A defined orientation as follows:

Statements are said to give orientation if they reflect an attempt on the part of the maker to resolve conflict, facilitate achievement of a group's goal, make helpful suggestions, or lessen tension.

Since there were four subjects and a confederate in each discussion group, there were four ratings per group of the confederate's orientation behavior. With six discussion groups and two groups per treatment condition, there were eight individual ratings of the confederate's orientation behavior in each treatment condition. These ratings enabled the experimenter to determine if the manipulation of the independent variable was successful. The mean scores of the confederate's ratings on orientation for each treatment condition are presented in Table 6.
Table 5
Comparison of $\bar{X}$ Differences for the Quality of Product Ratings on "Comprehensiveness" in the Pilot Study

<table>
<thead>
<tr>
<th>Comparison</th>
<th>$\bar{X}$ Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. No</td>
<td>1.50</td>
<td>1.23</td>
<td>NSD</td>
</tr>
<tr>
<td>High v. Low</td>
<td>2.83</td>
<td>3.46</td>
<td>.005</td>
</tr>
<tr>
<td>No v. Low</td>
<td>1.33</td>
<td>1.19</td>
<td>NSD</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .005 level is $t = 3.17$.

An analysis of variance was made on the confederate's orientation ratings to determine if the mean difference among the three treatment conditions were significant. The results are shown in Table 7.

Table 6
Mean Ratings of the Confederate's Orientation Behavior in Three Treatment Conditions in the Pilot Study

<table>
<thead>
<tr>
<th>High Orientation</th>
<th>No Orientation</th>
<th>Low Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 8</td>
<td>n = 8</td>
<td>n = 8</td>
</tr>
<tr>
<td>6.50</td>
<td>2.80</td>
<td>4.75</td>
</tr>
</tbody>
</table>
Table 7

An Analysis of Variance on the Subject Ratings of the Orientation Behavior of the Confederate

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>42.66</td>
<td>21.33</td>
<td>5.97</td>
<td>.025</td>
</tr>
<tr>
<td>Within Groups</td>
<td>21</td>
<td>64.30</td>
<td>3.57</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since the F-ratio was significant, "t" comparisons were made to determine the direction of the significance. The results are presented in Table 8. High orientation was rated significantly higher than no orientation at the .01 level, and was higher than the low orientation at the .05 level. The low orientation condition was rated higher than the no orientation condition at the .05 level.

The confederate had been perceived differently in each treatment condition. The confederate in the no orientation condition was perceived to exhibit less orientation behavior than in the low orientation condition. The intended position was for the behavior in the no orientation condition to be rated between the high and low orientation conditions. This is the same problem that Knutson had reported. He observed that:

... negative contributions in discussions of the type studied apparently serve a positive function in some circumstances. At least, other members of a group may perceive such behavior in a relatively positive light. 4

As a result, the no orientation condition was replaced with a medium orientation treatment in the later investigation. It was defined as behavior exhibited by a balanced number of high and low orientation statements.
Table 8
Comparison of Mean Differences of the Ratings of the Confederate's Orientation Behavior in the Three Treatment Conditions

<table>
<thead>
<tr>
<th>Comparison</th>
<th>X Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. No</td>
<td>3.70</td>
<td>3.03</td>
<td>.01</td>
</tr>
<tr>
<td>High v. Low</td>
<td>1.75</td>
<td>2.21</td>
<td>.05</td>
</tr>
<tr>
<td>Low v. No</td>
<td>1.95</td>
<td>2.30</td>
<td>.05</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .05 level is \( t = 1.90 \). The minimum value for significance at the .01 level is \( t = 3.00 \).

Procedure

Subjects for this experiment were drawn from the introductory speech and communication courses at Florida Technological University. Sixty male participants were randomly assigned to one of fifteen discussion groups. They were presented with the discussion question, "What should be the University's policy concerning a grading system?" Each discussion group consisted of five people: four subjects and a confederate. There were five discussion groups for each treatment condition: high orientation, medium orientation, and low orientation.

The confederate was the same in all investigations. He was a graduate student at Florida Technological University. The confederate had been trained in the discussion format and was aware of the statements he was to use in each condition. The confederate's success in manipulating the independent variable was determined by the subjects' ratings of the confederate's orientation behavior.
The same procedure was used for each discussion. As the subjects arrived for the discussions, they were seated around a table. Each subject was given a booklet (Appendix A) with a number from one to five on it to identify him for the ratings which were made after each discussion. In the middle of the table was a microphone and tape recorder which was used to record the discussions. The experimenter read the following instructions:

I am Ron Hemphill, a graduate student in the Master's Research Program. The Program has asked me to get a sample of considered student opinion on several questions in which the undergraduates at Florida Technological University have shown great interest. That is why I am asking you to discuss the question below. The results could have implications for future policy. Your objective in the discussion should be to reach a decision on what seems to be the most satisfactory answer to the question. This is not to say, of course, that you must reach complete agreement, but you should try. Be as open-minded as you can in coming to grips with the question. You have approximately thirty minutes for your discussion. Perhaps you can follow the agenda below. I am tape recording the discussion for later analysis of the issues that come to light. As part of the discussion, it is necessary that you provide a solution to the problem, as if you were the administration. When you have come to a solution, please write it down. I'll be outside in the hallway if you need anything. If you finish your discussion a few minutes early, please do not leave, but wait until I return. Your participation in this discussion will in no way influence your grade in class. Thank you.

The discussion question was read and the following agenda was suggested:

I. What if any disadvantages are there to the present policy? (ten minutes)
   II. What would be the advantages and disadvantages of the proposed changes? (ten minutes)
   III. Which of the alternatives or opinions shall we adopt? (ten minutes)

The tape recorder was then turned on and the experimenter left the room.

After thirty minutes, the discussion was stopped and the group was asked to prepare a written solution if it had not done so. The subjects then opened the test booklet and the following instructions were read:
Prior to the actual discussion, each participant was assigned a number. Please rate each of the participants in your discussion on the variables listed below. Do not rate yourself. Leave the scale rating you blank. If you think a particular participant was very effective in a variable, give him a rating of seven (7). If you think he was very ineffective, then give him a rating of one (1). Use the values two, three, four, five, and six to indicate degrees of effectiveness other than those specified above. Remember, do not rate yourself.

The variables rated were Interest, Orientation, Opinionatedness, Amount of Information, and the four factors of source credibility, Trustworthiness, Competence, Dynamism, and Objectivity. Only the Orientation scale was used for further analysis. Each variable was defined for the subjects, and orientation was defined as the following:

Statements are said to give orientation if they reflect an attempt on the part of the maker to resolve conflict, facilitate achievement of a group's goal, make helpful suggestions, or lessen tension.

This provided a check on the confederate's orientation behavior. The other variables were then used to disguise the intent of the experiment.

Each section was read aloud by the experimenter while the subjects read along silently. Time was allowed for each subject to finish a section before proceeding on to the other sections. The confederate was treated as any other subject, and no questions were asked regarding the confederate.

The three graduate students at Florida Technological University used in the preliminary study again served as judges. They were trained on the use of and rated each solution on the QPS. Each judge was presented with the same instructions (Appendix D). The solutions were not discussed among the judges.
Statistical Design

The statistical test employed to analyze the confederate's orientation ratings was a simple one-way analysis of variance. Several analyses were made. The first analysis of variance checked the confederate's manipulation of the orientation behavior. Next, an analysis of variance was made to check differences in quality of product of the three treatment conditions. This determined if the manipulation of orientation behavior had an effect on the quality of products. Finally, where significant F-ratios were determined, specific differences were determined by a series of "t" tests. In addition to the analyses of variance, the reliability of judges' ratings was established by Hoyt's test for interjudge reliability. \(^5\)
References


4. Ibid., p. 78.

Chapter 3

RESULTS

The previous chapter outlined the manipulation of orientation behavior and procedures used in this experiment. This chapter will present the results of the experimental manipulation.

Confederate Manipulation of Orientation

At the end of each discussion, each participant was asked to rate the other participants on several scales. The scale on orientation was the only one considered for analysis since it served as a check on the confederate's manipulation. The subjects were instructed to rate each participant on orientation, a rating of seven indicated high orientation and a rating of one indicated low orientation. It was the subjects' ratings of the confederate's orientation behavior which was tabulated.

The mean scores of the confederate's orientation behavior in the treatment conditions were as expected. High orientation behavior had the highest rating, followed by medium and low orientation behaviors, respectively. The confederate's orientation ratings are shown in Table 9.

An analysis of variance was made to determine significant differences among the three treatment means. The results in Table 10 show that the manipulation was successful at the .01 level.
Table 9

Mean Scores for the Confederate's Orientation Behavior in the Three Treatment Conditions: High, Medium, and Low Orientation

<table>
<thead>
<tr>
<th>Orientation</th>
<th>n</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Orientation</td>
<td>20</td>
<td>5.45</td>
</tr>
<tr>
<td>Medium Orientation</td>
<td>20</td>
<td>3.80</td>
</tr>
<tr>
<td>Low Orientation</td>
<td>20</td>
<td>2.10</td>
</tr>
</tbody>
</table>

Table 10

An Analysis of Variance of the Confederate's Orientation Ratings

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>112.23</td>
<td>56.12</td>
<td>32.66</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>57</td>
<td>97.95</td>
<td>1.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since the F-ratio was significant, "t" test comparisons were made to determine significant mean differences between treatment conditions. The results indicate that the confederate's orientation behavior was significantly different in each treatment condition. The results are shown in Table 11.

The manipulation of orientation was successful. The confederate was perceived as exhibiting a significantly higher orientation behavior in the high orientation condition than in the medium and low orientation conditions. He also received significantly higher ratings for medium orientation behavior than for low orientation behavior. With significant differences in the treatment conditions, it was possible to
proceed to the analyses of the quality of group products.

Table 11
An Analysis of Variance of the Confederate's Orientation Ratings Between Treatment Conditions

<table>
<thead>
<tr>
<th>Comparison</th>
<th>X Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Medium</td>
<td>1.65</td>
<td>3.51</td>
<td>.005</td>
</tr>
<tr>
<td>High v. Low</td>
<td>3.35</td>
<td>8.67</td>
<td>.001</td>
</tr>
<tr>
<td>Medium v. Low</td>
<td>1.70</td>
<td>4.47</td>
<td>.001</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .005 level is $t = 2.58$. The minimum value for significance at the .001 level is $t = 3.58$.

Results of the Quality of Product

The hypotheses were presented in Chapter 1. Hypothesis 1 stated that groups containing an individual engaging in high orientation behavior would produce a higher quality of product than groups containing an individual engaging in medium orientation behavior. Hypothesis 2 stated that groups containing an individual engaging in high orientation behavior would produce a higher quality of product than groups containing an individual engaging in low orientation behavior.

Three judges were presented the group products in a random order. These were rated on four dimensions: Effectiveness, Creativity, Significance, and Comprehensiveness. The mean ratings were not as high as expected for the high orientation condition. All of the ratings were in the expected direction, except in one instance: medium orientation solutions were rated higher on Effectiveness than high orientation solutions. The results are shown in Table 12.
Table 12
Mean Ratings of Quality of Product in Groups Exposed to Three Types of Treatment: High, Medium and Low Orientation

<table>
<thead>
<tr>
<th>Solution Dimension Scale</th>
<th>High X</th>
<th>Medium X</th>
<th>Low X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>3.40</td>
<td>3.47</td>
<td>1.33</td>
</tr>
<tr>
<td>Creativity</td>
<td>4.33</td>
<td>2.93</td>
<td>1.60</td>
</tr>
<tr>
<td>Significance</td>
<td>3.60</td>
<td>3.13</td>
<td>1.53</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>3.40</td>
<td>2.47</td>
<td>1.47</td>
</tr>
</tbody>
</table>

The highest rating possible was seven (7) and the lowest possible was one (1).

An analysis of variance was made to determine significant differences between the quality of products of the three treatment conditions. Significance at the .01 level resulted on all four scales, as shown in Table 13.

Table 13
An Analysis of Variance of Quality of Product in Groups Exposed to High, Medium, or Low Orientation

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effectiveness:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>44.13</td>
<td>22.07</td>
<td>12.75</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>42</td>
<td>72.67</td>
<td>1.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Creativity:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>56.04</td>
<td>28.02</td>
<td>15.12</td>
<td>.01</td>
</tr>
</tbody>
</table>
Table 13 (continued)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within Groups</td>
<td>42</td>
<td>77.87</td>
<td>1.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>35.24</td>
<td>17.62</td>
<td>12.12</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>42</td>
<td>61.07</td>
<td>1.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensiveness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>28.04</td>
<td>14.02</td>
<td>6.61</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>42</td>
<td>89.07</td>
<td>2.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional analyses were required to determine specific differences between groups. Analysis of the mean ratings of the four scales of the QPS are presented in Tables 14, 15, 16, and 17.

The high orientation groups failed to produce a higher quality of product than the medium orientation groups on all but the Creativity scale. High orientation behavior produced a higher quality of product than low orientation behavior. The results were significant at the .005 level. Similarly, the medium orientation condition produced a significantly higher quality of product than the low orientation condition on all four scales of the QPS. Effectiveness, Creativity, and Significance were significant at the .005 level, while Comprehensiveness was significant at the .025 level.
Table 14
Comparison of $\bar{X}$ Mean Differences of the Quality of Product Ratings on "Effectiveness"

<table>
<thead>
<tr>
<th>Comparison</th>
<th>$\bar{X}$ Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Medium</td>
<td>.07</td>
<td>.12</td>
<td>NSD</td>
</tr>
<tr>
<td>High v. Low</td>
<td>2.07</td>
<td>4.37</td>
<td>.005</td>
</tr>
<tr>
<td>Medium v. Low</td>
<td>2.14</td>
<td>5.22</td>
<td>.005</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .005 level is $t = 2.58$.

Additional analyses were necessary to explain the failure to achieve significance between the high and medium orientation conditions. First, a reliability of ratings analysis on the judges' ratings was used. Table 18 presents the estimates of the reliability of average ratings on each scale of the QPS. The reliability of the average of the judges' ratings may be explained in the following way: If the ratings were to be repeated with another random sample of three judges, but with the same solutions, the correlation between the mean ratings obtained from the two sets of data on the same solutions would be the same as the reliability of average ratings for each scale listed in Table 18. The values vary from a low of +.79 to a high of +.81. In other words, reliability of average ratings assures that the judges' ratings were reasonably accurate; and that if another group of three judges were to rate the same solutions on the QPS, the ratings would be essentially the same.
Table 15
Comparison of \( \bar{X} \) Mean Differences of the Quality of Product Ratings on "Creativity"

<table>
<thead>
<tr>
<th>Comparison</th>
<th>(\bar{X}) Difference</th>
<th>(t)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Medium</td>
<td>1.40</td>
<td>2.71</td>
<td>.01</td>
</tr>
<tr>
<td>High v. Low</td>
<td>2.73</td>
<td>5.45</td>
<td>.005</td>
</tr>
<tr>
<td>Medium v. Low</td>
<td>1.47</td>
<td>2.83</td>
<td>.005</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .01 level is \( t = 2.33 \). The minimum value for significance at the .005 level is \( t = 2.58 \).

Table 16
Comparison of \( \bar{X} \) Mean Differences of the Quality of Product Ratings on "Significance"

<table>
<thead>
<tr>
<th>Comparison</th>
<th>(\bar{X}) Difference</th>
<th>(t)</th>
<th>(p)</th>
<th>&lt;ref&gt;NSD&lt;/ref&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Medium</td>
<td>.47</td>
<td>1.00</td>
<td>NSD</td>
<td></td>
</tr>
<tr>
<td>High v. Low</td>
<td>2.07</td>
<td>4.66</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>Medium v. Low</td>
<td>1.94</td>
<td>3.89</td>
<td>.005</td>
<td></td>
</tr>
</tbody>
</table>

The minimum value for significance at the .005 level is \( t = 2.58 \).

Table 17
Comparison of \( \bar{X} \) Mean Differences of the Quality of Product Ratings on "Comprehensiveness"

<table>
<thead>
<tr>
<th>Comparison</th>
<th>(\bar{X}) Difference</th>
<th>(t)</th>
<th>(p)</th>
<th>&lt;ref&gt;NSD&lt;/ref&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Medium</td>
<td>.93</td>
<td>1.58</td>
<td>NSD</td>
<td></td>
</tr>
</tbody>
</table>
Table 17 (continued)

<table>
<thead>
<tr>
<th>Comparison</th>
<th>$\bar{X}$ Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Low</td>
<td>1.93</td>
<td>3.37</td>
<td>.005</td>
</tr>
<tr>
<td>Medium v. Low</td>
<td>1.00</td>
<td>2.43</td>
<td>.025</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .025 level is $t = 1.96$. The minimum value for significance at the .005 level is $t = 2.58$.

Table 18

Reliability of Judges' Ratings on the QPS

<table>
<thead>
<tr>
<th>Solution Dimension Scale</th>
<th>Reliability of Average Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>+.79</td>
</tr>
<tr>
<td>Creativity</td>
<td>+.81</td>
</tr>
<tr>
<td>Significance</td>
<td>+.79</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>+.80</td>
</tr>
</tbody>
</table>

The hypotheses were stated in terms of an individual's behavior manipulated in three different ways to influence groups into producing different quality of products. The Discussion Test Booklet asked for orientation ratings for all group members. It was decided to analyze this data to compute group orientation ratings.

Group ratings were first calculated, omitting the confederate's orientation ratings. Each subject had rated the other group participants in addition to the confederate. The confederate's orientation ratings from the subjects have already been analyzed. Excluding the
confederate's ratings, each subject rated three other group participants. These ratings were totaled for each subject, and then mean ratings for each of the treatment conditions were calculated. These ratings shall be referred to as Subjects' Ratings. The mean ratings were similar between treatment conditions. As can be noted in Table 19, high orientation Subjects' Ratings had the highest mean value and there was no difference between the mean ratings of the medium and low orientation conditions.

Table 19

Mean Values of the Subjects' Ratings in the Three Treatment Conditions: High, Medium and Low Orientation

<table>
<thead>
<tr>
<th></th>
<th>High Orientation</th>
<th>Medium Orientation</th>
<th>Low Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.75</td>
<td>14.45</td>
<td>14.45</td>
</tr>
</tbody>
</table>

An analysis of variance was made to see if the Subjects' Ratings were significantly different among the treatment conditions. There were no significant differences as shown in Table 20.

Table 20

An Analysis of Variance of the Mean Orientation Ratings of the Participants of Three Types of Treatment

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>22.53</td>
<td>11.27</td>
<td>1.73</td>
<td>NSD</td>
</tr>
<tr>
<td>Within Groups</td>
<td>57</td>
<td>371.65</td>
<td>6.52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Since no significant differences were determined at this point, it appeared that the group members in each of the three treatment conditions were perceived to exhibit the same level of orientation. Further analysis was conducted, including the orientation ratings of the confederate into the Subjects' Ratings. These ratings shall be referred to as the Group Ratings. The Group Ratings were in the expected direction, considering that the confederate's orientation ratings were significantly different in the three treatment conditions. The Group Ratings were highest in the high orientation condition, followed by the medium and low orientation conditions, respectively. The mean of each subject's four ratings were calculated and are presented in Table 21.

Table 21

Mean Values of the Group Ratings of Orientation in the Three Treatment Conditions:
High, Medium and Low Orientation

<table>
<thead>
<tr>
<th>High Orientation</th>
<th>Medium Orientation</th>
<th>Low Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \bar{X} )</td>
<td>( \bar{X} )</td>
<td>( \bar{X} )</td>
</tr>
<tr>
<td>21.20</td>
<td>18.25</td>
<td>16.55</td>
</tr>
</tbody>
</table>

To determine if the Group Ratings are significantly different, an analysis of variance was made. The results showed significant differences in the treatment conditions at the .01 level as presented in Table 22.
Table 22

An Analysis of Variance of the Group Mean Ratings of Orientation in Three Types of Treatment: High, Medium and Low Orientation

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>221.43</td>
<td>110.72</td>
<td>10.25</td>
<td>.01</td>
</tr>
<tr>
<td>Within Groups</td>
<td>57</td>
<td>615.90</td>
<td>10.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since the F-ratio was significant, "t" analyses were made to determine significant differences between conditions. When the confederate's orientation ratings are included, the results showed that there was a significant difference between the treatment conditions. High orientation groups had an overall higher level of orientation than either medium or low orientation groups, significant at the .005 level. The medium orientation groups possessed a higher level of orientation than the low orientation groups, significant at the .05 level. The results are in Table 23.

It appears to be evident that the confederate was the determining factor in raising the mean value of the group orientation. The findings of the mean ratings of the participants' orientation behavior, excluding the confederate, cannot be overlooked. The Subjects' Ratings for the high orientation condition showed a mean of 15.75 while the medium and low orientation conditions showed a mean of 14.45. There were no significant differences between conditions.

The purpose of the confederate in this study was to manipulate his behavior to influence the thoroughness of the groups' discussions of the question of policy. He was successful as shown in Table 9.
Table 23
Comparison of $\bar{X}$ Mean Differences of the Mean Values of the Group Ratings in Three Types of Treatment: High, Medium and Low Orientation

<table>
<thead>
<tr>
<th>Comparison</th>
<th>$\bar{X}$ Difference</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High v. Medium</td>
<td>2.95</td>
<td>2.58</td>
<td>0.005</td>
</tr>
<tr>
<td>High v. Low</td>
<td>4.65</td>
<td>4.79</td>
<td>0.005</td>
</tr>
<tr>
<td>Medium v. Low</td>
<td>1.70</td>
<td>1.70</td>
<td>0.05</td>
</tr>
</tbody>
</table>

The minimum value for significance at the .05 level is $t = 1.65$. The minimum value for significance at the .005 level is $t = 2.58$.

His behavior did not seem to significantly affect the quality of product differently between the high and medium orientation conditions (Tables 14, 15, 16, and 17).

The confederate had been instructed not to participate in the actual planning of the group solution to the question of policy, since he could have easily biased the solutions in any one of the groups. This could have been a drawback. An individual who possesses a high orientation would normally be a major force in the planning of the group product and would have definite ideas to be included. It is not possible to determine conclusively from this study if this is the case. Since the subjects formulating the group solution in each condition essentially exhibited the same level of orientation to the question of policy, the exclusion of the confederate in planning the solution could possibly be a factor accounting for the lack of significant difference in the quality of product between the high and medium orientation conditions.
In reference to the low orientation condition, this study confirmed the finding that low orientation behavior disrupts group discussions and demonstrated that it significantly produces a lower quality of product than high and medium orientation behaviors.

Chapter 4 contains a detailed discussion of these results and offers implications for future research.
References


Chapter 4

DISCUSSION AND SUMMARY

The purpose of this study was to explore the relationship between orientation behavior and quality of product. Previous research reviewed in Chapter 1 has indicated a relationship between orientation behavior and consensus in group discussions on a question of policy. Even though the intent of this study was not to measure consensus, it is significant to point out that low orientation behavior on the part of at least one group member is enough to disrupt the group and prevent the achievement of consensus. Three of the groups, in which the confederate was directed to exhibit low orientation behavior, were not able to reach consensus, and therefore decided that "no solution" was the only alternative that could be agreed upon. (Appendix F) This study attempted to develop a relationship between orientation behavior and quality of product. Chapter 3 presented the results of statistical analyses of the orientation ratings and the quality of product ratings. A detailed discussion of these results, implications for future research, and a summary of the research findings will follow.

Effectiveness of the Experimental Manipulations

The confederate was successful in the manipulation of orientation behavior. He was perceived differently in each of the treatment conditions. High orientation ratings were opposite in value to low orientation ratings, while the medium orientation ratings fell in
between the ratings of high and low orientation.

Knutson (1970) found that his confederates had a mean orientation rating of 6.625 in the high orientation condition, 4.250 in the low orientation condition, and 1.375 in the no orientation condition. This was contrary to the expected results. He stated:

Had the experimental treatments originally been conceived of as "high, moderate, and low orientation" with each having a verbal dimension, then low orientation would probably be the lowest of the three in rank order.

This study supported the assumption. The confederate's mean orientation ratings were significantly different and fell in the expected areas described above. The ratings are as follows: high orientation was 5.45, medium orientation was 3.80, and low orientation was 2.10.

Discussion of the Results on Hypothesis 1

Hypothesis 1 stated that groups containing an individual engaging in high orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual engaging in medium orientation. A comparison of the mean ratings on the QPS was not conclusive. The high orientation condition was rated higher on all of the scales, except Effectiveness. Only the Creativity scale showed a significant difference between the mean ratings of the high and medium orientation behaviors. There was a mean difference of 1.40 which was significant at the .01 level.

Comprehensiveness ratings showed a trend in the direction of high orientation behavior. The mean difference between the two conditions was .93 which was significant at the .10 level. The Significance and Effectiveness scales failed to result in significant differences.
Significance ratings showed a mean difference of only .47, and the Effectiveness scale had a mean difference of .07 with the medium orientation condition rating higher.

The high orientation groups concentrated more on improving the present system of grading. Two of the groups specifically outlined elimination of certain grades, "D" and "F" grades in one and "F" grades in the other, requiring a course be repeated for credit. One group felt changes were necessary, but a committee should be appointed to investigate the present system of grading. The two remaining groups emphasized a need for pass-fail options in grading. The medium orientation groups felt changes were needed in course objectives as opposed to grading. Three of the groups wanted a standardization of course material in multi-section courses. One group wanted individualization in teaching so that each student would be graded individually. The fifth group proposed pass-fail options for elective courses only.

The behavior of the confederate had a definite effect upon the discussions. High orientation behavior served the purpose of resolving conflict, making helpful suggestions, reinforcing agreement, and encouraging participation. Medium orientation behavior was a balance of high and low orientation statements in no particular order. The confederate was included in the group to manipulate discussion and not the solution. As the solutions show, he was capable of keeping the high orientation groups on a discussion of the grading system. In the medium orientation groups the discussions drifted to an examination of courses as opposed to grading. This could account for the significant difference on the Creativity scale.

All of the scales of the QPS are designed to measure a different
aspect of the solution. By definition, creativity was the degree to which the major decision or solution reflects original ideas not previously applied to the problem under discussion. Changes in the grading system would be more original than standardization of courses, since standardization of course material is one of the goals for multi-section courses at FTU.

Since the difference between the High and Medium Orientation conditions on the Comprehensiveness scale was at the .10 level, the result cannot be considered significant. Comprehensiveness was defined as the degree to which the group’s major decision or solution reflects a response to all the dimensions of the problem under consideration. Due to the fact that the High Orientation groups concentrated on changes in the present grading system, the solutions reflected more of an orientation to the question of policy and more comprehensive discussions.

The group products were not distinguishable on the Significance and Effectiveness scales. An explanation of these results shall be attempted through an examination of the experimental procedures. Significance was defined as the degree to which the major decision or solution reflects relevant and significant information as opposed to non-relevant and insignificant information. Effectiveness was the degree to which ideas, which are part of the major decision or solution, are realistic and could be adapted to the present system. The products in the high orientation condition were perceived as reflecting more significant information and as being slightly less effective than those in the Medium Orientation condition. There are several possible explanations for these results.

First, the power in the experiment could have been increased
through longer discussions. Knutson's study also had thirty-minute discussions, but he was only measuring consensus. The present experiment reinforces the idea that through a manipulation of orientation behavior, consensus can be achieved within the thirty-minute time limit. It is possible that enough time was not available to formulate a significant solution. In other words, the time limit restricted the actual preparation of the solution in enough detail to reflect significant information. Leathers utilized a similar device to measure quality of product for ninety-minute discussions. The subjects had been informed of the topic and that "they would have approximately two weeks to prepare for the ... discussions ... " The preparation for and length of the discussion would have a definite effect upon a group's discussion and formulation of a solution.

Secondly, the Subjects' Ratings on orientation need to be considered. Excluding the confederate, the groups were approximately at the same level of orientation. The subjects in the high orientation condition did not exhibit a significantly higher orientation behavior than the subjects in the medium orientation condition. Lack of significant difference in orientation to the question of policy could account for the lack of significant difference in the quality of product.

A third factor could have been the presence of the tape recorder. The brevity of all solutions could have been influenced by the fact that all points of the discussion were recorded, therefore, details were excluded from the solution. The subjects had been informed the solution must be self-explanatory, but apparently these instructions were overlooked.

Finally, the attitudes of the subjects toward the discussion
was not measured. Subjects were not selected on the basis of their interest in the topic. Most subjects were "captive volunteers" and were fulfilling a requirement of their courses. The first hypothesis was not confirmed.

Discussion of the Results on Hypothesis 2

Hypothesis 2 stated that groups containing an individual engaging in high orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual engaging in low orientation behavior. The quality of product between the two conditions was significantly different to the .005 level on all of the scales of the QPS. The mean differences on each scale are as follows: Effectiveness 2.07, Creativity 2.73, Significance 2.07, and Comprehensiveness 1.93. The High Orientation condition rated higher on all scales.

It was the effect of the confederate's orientation behavior in the low orientation condition that provided for the significant difference. The confederate intensified conflict, insisted no agreement can be reached, discouraged participation, concentrated on self-oriented needs, disrupted communication, and withheld information. In the small group discussions, one individual was capable of preventing the achievement of the group's goal, consensus. Three of the low orientation groups could not agree upon a solution to the question of policy, and presented "no solutions" as the group product. Even though consensus was not being measured, this is further substantiation that low orientation behavior prevents consensus.

The second hypothesis was confirmed.
Discussion of the Results on Hypothesis 3

Hypothesis 3, which stated that groups containing an individual engaging in medium orientation behavior will produce a higher quality of product after discussing a question of policy than groups containing an individual engaging in low orientation behavior, was confirmed. Differences in the quality of product were measured on the QPS and on three of the scales were significant to the .005 level, while the fourth, Comprehensiveness, was significant to the .025 level. Solutions in the medium orientation condition were rated higher on all scales. The mean differences between the two conditions were as follows: Effectiveness 2.14, Creativity 1.47, Significance 1.94, and Comprehensiveness 1.00. Again, it was the effect of the confederate's behavior in the low orientation condition that was the determining factor. Medium orientation behavior was not disruptive.

Implications For Future Research

Quality of product is affected to some extent by orientation behavior in a small group discussion on a question of policy. Recent research has defined a causal relationship between orientation behavior and group consensus. This study is the first to investigate a relationship between orientation behavior and quality of product. As a result there are related areas that need to be investigated.

Low orientation behavior needs to be examined in detail so that its disruptive effect can be lessened. Low orientation groups consistently produced the lowest quality of product. This is due to the fact that no solution was able to be agreed upon. The low orientation behavior of only one individual was enough to disrupt a group and prevent achievement of the group's goal. A possible method of exploring
this would be to plant two confederates in a group discussion. One confederate could engage in low orientation behavior and the other respond to the low orientation statements with high orientation statements. Consensus or quality of product could be measured as the dependent variable. The effect of low orientation behavior needs to be limited for successful discussions.

Another area that has not been investigated is the operation of medium orientation behavior in small groups. This is the first experiment to employ medium orientation behavior, and, clearly, it needs to be investigated further. The results indicated that high orientation behavior did not significantly affect the Subjects' Ratings of orientation more than medium orientation behavior. A simple experiment could be implemented through three treatment conditions of orientation: high orientation, medium orientation, and no orientation as a control. The dependent variable would be consensus as Knutson defined it.

Kline (1972) manipulated orientation behavior without a confederate. Group discussions were arranged to identify orientation behavior of participants. A second round of discussions were held, regrouping participants according to the orientation ratings from the first round. The same procedure could be duplicated to measure quality of product. All group members would participate in formulating the group product. Group participants within each treatment condition would have similar orientation ratings. For the experiment to be successful, significant differences in orientation behavior between treatment conditions are necessary. The differences in orientation behavior should produce a difference in quality of product.

Demographic variables could be manipulated to determine the effect of orientation behavior in groups of varied composition.
these variables are sex, race, and age. Most orientation experiments have utilized white, male, college-age subjects.

Summary

The purpose of this study was to investigate a relationship between orientation behavior and quality of product in small group discussions on a question of policy. The basis for this study was previous research conducted by Knutson. A relationship between orientation behavior and consensus had been substantiated in that research. Three treatment conditions had been manipulated through a confederate: high orientation, low orientation, and no orientation. Another investigation clarified the measurement of the dependent variable, quality of product. Leathers had proposed an instrument, the Productivity Rating Instrument (PRI), to measure quality of product in three treatment conditions: facilitated, disrupted, and natural communication. As a result of the two investigations, this study incorporated Knutson's methodology and utilized an amended form of Leathers' PRI, referred to as the Quality of Product Scales (QPS), to investigate the relationship between orientation behavior and quality of product. The three research hypotheses tested were as follows:

1. Groups containing an individual engaging in high orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual engaging in medium orientation behavior.

2. Groups containing an individual engaging in high orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual
engaging in low orientation behavior.

3. Groups containing an individual engaging in medium orientation behavior will produce a significantly higher quality of product after discussing a question of policy than groups containing an individual engaging in low orientation behavior.

The independent variable, orientation, was a behavior defined as contributions to the achievement of a group's goal. Three treatment conditions of orientation were manipulated by a confederate: high orientation, medium orientation, and low orientation. High orientation behavior was defined as resolving conflict, making helpful suggestions, reinforcing agreement, and encouraging participation by the confederate. Medium orientation behavior was behavior exhibited by the confederate through a balanced number of high and low orientation statements. Low orientation behavior of the confederate was defined as intensifying conflict, insisting no agreement can be reached, discouraging participation, concentrating on self-oriented needs, disrupting communication, and withholding information.

The dependent variable in this study was quality of product. The groups were instructed to formulate a solution to a question of policy. These solutions were then rated by trained judges on the QPS. The QPS consisted of four scales as follows:

1. Effectiveness was the degree to which ideas, which are part of the major decision or solution, are realistic and could be adapted to the present system.

2. Creativity was the degree to which the major decision or solution reflects original ideas not previously applied to the problem under discussion.
3. Significance was the degree to which the major decision or solution reflects relevant and significant information as opposed to non-relevant and insignificant information.

4. Comprehensiveness was the degree to which the major decision or solution reflects a response to all the dimensions of the problem under consideration.

The subjects were selected from introductory speech and communication courses at Florida Technological University. Fifteen groups were organized, five for each of the treatment conditions. There were five participants in each discussion group: four subjects and the confederate. The question of policy used for the discussion was "What should be the University's policy regarding a grading system?" At the end of each discussion, the participants rated each other on several scales, of which orientation was used for analysis. Orientation was rated on a seven-point scale. This served as a measurement of the confederate's and subjects' orientation behavior during the discussions. The solutions were in written form, and were presented to the experimenter at the conclusion of each discussion.

Several statistical analyses were made on the data. First the orientation ratings were tabulated, and analyses of variance were made to determine the success of the manipulation of orientation behavior. Next, analyses of variance were made on the judges' ratings on the QPS to determine the effect of orientation behavior on quality of product. Additional checks were made on the orientation ratings of the subjects alone and then with the confederate's ratings included to determine whether more orientation behavior was taking place in certain conditions. Finally, the reliability of the judges' ratings was determined.
The following tentative conclusions were made as a result of the analyses and the discussion of the results:

1. High orientation behavior in small group discussions on a question of policy will produce a higher quality of product than in groups of low orientation behavior. Low orientation behavior on the part of one individual disrupted the discussions and was effective in preventing consensus.

2. High orientation behavior in small group discussion on a question of policy will not necessarily produce a higher quality of product than groups of medium orientation behavior. The Subjects' Ratings of orientation were not significantly different between the two conditions. If the subjects had been more individually oriented to the question of policy in the high orientation behavior, then it would be anticipated that the quality of product would differ in the two conditions.

3. Medium orientation behavior in small group discussion on a question of policy will produce a higher quality of product than in groups of low orientation behavior. The effect of the low orientation behavior on the group discussions was the determining factor.

Since this was the first reported study between variables, a causal link cannot be conclusively drawn at this point. Further research will strengthen the findings of this study, as well as clarify the relationship between orientation behavior and quality of product.
References


2. Ibid., p. 70.

3. Ibid., p. 45.


Appendix A

DISCUSSION TEST BOOKLET
INSTRUCTIONS:

I am Ron Hemphill, a graduate student in the Master's Research Program. The Program has asked me to get a sample of considered student opinion on several questions in which the undergraduates at Florida Technological University have shown great interest. That is why I am asking you to discuss the question below. The results could have implications for future policy. Your objective in the discussion should be to reach a decision on what seems to be the most satisfactory answer to the question. This is not to say, of course, that you must reach complete agreement, but you should try. Be as open-minded as you can in coming to grips with the question. You have approximately thirty minutes for your discussion. Perhaps you can use the time most profitably and efficiently if you follow the agenda below. I am tape recording the discussion for later analysis of the issues that come to light. As part of the discussion, it is necessary that you provide a solution to the problem, as if you were the administration. When you have come to a solution, please record it. It is not necessary to have it in written form. I'll be outside in the hallway if you need anything. If you finish your discussion a few minutes early, please do not leave, but wait until I return. Your participation in this discussion will in no way influence your grade in class. Thank you.

WHAT SHOULD BE THE UNIVERSITY'S POLICY

CONCERNING A GRADING SYSTEM

DISCUSSION AGENDA:

I. What, if any, disadvantages are there to the present policy? (ten minutes)

II. What would be the advantages and disadvantages of the proposed changes? (ten minutes)

III. Which of the alternatives or options shall we adopt? (ten minutes)

Please go on to the next page and fill out the necessary information.
NAME: ___________________________ Age: __________
ADDRESS: ________________________ Sex: __________
Class Standing: ____________________ Phone: ________
Instructor: ________________________ Class: __________
Section: (Time) _____________________

Note: The results of this discussion and any statements you make will be kept in strictest confidence. Your identity will not be revealed to anyone.

STOP. DO NOT TURN THE PAGE.
Prior to the actual discussion, each participant was assigned a number. Please rate each of the participants in your discussion on the variables listed below. DO NOT RATE YOURSELF! LEAVE THE SCALE RATING YOU BLANK! If you think a particular participant was very effective in a variable, give him a rating of seven (7). If you think he was ineffective, then give him a rating of one (1). Use the values 2, 3, 4, 5, and 6 to indicate degrees of effectiveness other than those specified above. Remember, DO NOT RATE YOURSELF.

Variable Number One: INTEREST

Statements are said to reflect the interest of their maker if they contain some indication of concern or involvement with the issue. Rate each of the participants in the space provided below.

Participant Number One: _____
Participant Number Two: _____
Participant Number Three: _____
Participant Number Four: _____
Participant Number Five: _____

Variable Number Two: ORIENTATION

Statements are said to give orientation if they reflect an attempt on the part of the maker to resolve conflict, facilitate achievement of a group's goal, make helpful suggestions, or lessen tension. Rate each of the participants in the space provided below.

Participant Number One: _____
Participant Number Two: _____
Participant Number Three: _____
Participant Number Four: _____
Participant Number Five: _____
Variable Number Three: OPINIONATEDNESS

A statement is said to be opinionated if it expresses a feeling, belief, or opinion, the factual basis for which is not apparent in the statement itself. Rate each of the participants in the space provided below.

Participant Number One: 
Participant Number Two: 
Participant Number Three: 
Participant Number Four: 
Participant Number Five: 

Variable Number Four: AMOUNT OF INFORMATION

A statement is said to be informative when it contains facts, statistics, and opinions of qualified sources which bear directly on some aspects of the question being discussed. Rate each of the participants in the space provided below.

Participant Number One: 
Participant Number Two: 
Participant Number Three: 
Participant Number Four: 
Participant Number Five: 
Variable Number Five: CREDIBILITY

An individual is said to be highly credible if he is trustworthy, competent, dynamic, and objective.

A trustworthy person would be just, correct, and honest. Rate each of the participants on TRUSTWORTHINESS in the space provided below.

Participant Number One: 
Participant Number Two: 
Participant Number Three: 
Participant Number Four: 
Participant Number Five: 

An individual is said to be highly competent if he is experienced and has a professional manner. Rate each of the participants on COMPETENCE in the space provided below.

Participant Number One: 
Participant Number Two: 
Participant Number Three: 
Participant Number Four: 
Participant Number Five: 

An individual is said to be highly dynamic if he is energetic, alert, and active. Rate each of the participants on DYNAMISM in the space provided below.

Participant Number One: 
Participant Number Two: 
Participant Number Three: 
Participant Number Four: 
Participant Number Five: 
An individual is said to be highly objective if he is open-minded, unbiased, and willing to consider other points of view. Rate each of the participants on OBJECTIVITY in the space provided below.

Participant Number One: ______

Participant Number Two: ______

Participant Number Three: ______

Participant Number Four: ______

Participant Number Five: ______
Appendix B

PRODUCTIVITY RATING INSTRUMENT
USED IN PILOT STUDY
EFFECTIVENESS


EFFECTIVENESS = degree to which ideas, which are part of the major decision or solution, help the group achieve the objective of developing a realistic solution.

FEASIBILITY


FEASIBILITY = degree to which the major decision or solution reflects a picture of social reality which is consistent with relevant public attitudes.

CREATIVITY


CREATIVITY = degree to which the major decision or solution reflects original ideas not previously applied to the problem under discussion.

SIGNIFICANCE


SIGNIFICANCE = degree to which the major decision or solution is based on relevant and significant information as opposed to non-relevant and insignificant information.

COMPREHENSIVENESS


COMPREHENSIVE = degree to which the group's major decision or solution reflects a response to all the dimensions of the problem under consideration.
Appendix C

QUALITY OF PRODUCT SCALES USED IN EXPERIMENT
QUALITY OF PRODUCT SCALES

EFFECTIVENESS


EFFECTIVENESS = degree to which ideas, which are part of the major decision or solution, are realistic and could be adapted to the present system.

CREATIVITY


CREATIVITY = degree to which the major decision or solution reflects original ideas not previously applied to the problem under discussion.

SIGNIFICANCE


SIGNIFICANCE = degree to which the major decision or solution reflects relevant and significant information as opposed to non-relevant and insignificant information.

COMPREHENSIVENESS


COMPREHENSIVENESS = degree to which the group's major decision or solution reflects a response to all the dimensions of the problem under consideration.
Appendix D

JUDGE'S INSTRUCTIONS
The following are group solutions to the question, "What should be the University's policy concerning a grading system?" In reference to this question, rate each solution on the scales provided. Remember each solution is separate from the others and should be rated as such. You are to be as objective as you can in your ratings.

Each scale is designed to measure a different aspect. Effectiveness considers the applicability of the solution and how realistic it is. Creativity measures the originality of the ideas presented in the solution. Significance examines the relevancy and significance of the ideas in the solution in relation to the question. Comprehensive-ness measures the group's consideration of all aspects of the question of policy as reflected in the solution.

Rate each solution on each scale by marking, (X) or (✓), the appropriate space as shown.
Appendix E

GROUP PRODUCTS: PILOT STUDY
HIGH ORIENTATION

Product 1

A. For all non-required courses (electives) and the university required courses (such as environmental studies) that otherwise would not be required for a student's major field, there should be a pass-fail option for the student. He may elect to take the course for a grade, or on a non-graded, pass or fail, basis.

B. For all required courses in a student's major field, grades should be on a numerical system, on a scale from 70-100. Instead of a letter grade, a student would get total points to determine his relative standing in a class. In the present system, a B could be a B+, B, or B−, but the point system allows for the different levels.

Product 2

A. Standardization of the grading procedure is best possible through the use of some type of general, preset curve over the whole student body. This would be a percentage, such as—25% of a class receive A's, 55% receive C's, etc.

B. We are disappointed in the non-sensitivity of the ABCDF system. The best way to do it is to assign a numerical value to a percentile—e.g. use a five-point system instead of the present four-point system:

\[
\begin{align*}
100 &= 5.0 = A \\
80 &= 4.0 = B \\
60 &= 3.0 = C \\
40 &= 2.0 = D \\
20 &= 1.0 = F
\end{align*}
\]

C. We discard the pass-fail option as a basis for grading, due to its lack of incentive power and difficulty in transferring credits,
especially for graduate school. Competition of grades forces the student to work for a grade.

NO ORIENTATION

Product 1

A. Certain courses should be put on a percentage basis for grading. Instead of ABCDF there should be a 100-point scale.

Product 2

A. The university should adopt a twelve-point system over the four-point at the present. If a student had a score of 75 for a class, it would be a C+ under the twelve-point system as opposed to a C under the four-point system.

LOW ORIENTATION

Product 1

A. Grades should be put on a percentile basis to show a student's relative standing to the rest of the class.

Product 2

A. We realize that pass-fail grades are difficult to transfer between universities. Therefore, we propose an ABCX system to replace the ABCDF. In place of an F, which averages into the GPA, an X should be given. If the student wanted credit for the course, he would be required to take the course again. If the student preferred not to take the course again, the X would be on the transcript, but would not affect the GPA. If a student were getting a D in a course, he would be given the option of receiving the D or an X.
Appendix F

GROUP PRODUCTS: EXPERIMENT
HIGH ORIENTATION

Product 1

1. Pass-fail for electives only.
2. "F" doesn't count on the GPA—modify the ABCDF system to exclude the "F" grade as being part of the GPA—an "F" would require the student to automatically repeat the course for credit.
3. A student should be allowed to withdraw from a course anytime without penalty.
4. The student should be made aware of the possibility to appeal a grade.
5. A professor's grade book should be audited to ensure fairness for the student.

Product 2

1. The present system should be amended to exclude "D" and "F" grades from being computed into the GPA. An "ABC&(No grade)" system should replace it, with no penalty for failure other than no credit for a course. The only grades given would be A, B, or C and then a "no grade."
2. There should be a minimum of three grades in each course—a student would have his final grade given on the basis of three grades given in each course. There should also be an option for each student to write papers, etc. for extra credit.

Product 3

1. The present system should be adopted with the following changes:
   A. A committee should be formed to establish general guidelines for the whole university (grading, testing, etc.)
   B. It should be required that there be several grading
opportunities for each student in each course, such as tests, attendance, research papers, etc.

Product 4
1. We will agree to a pass-fail system of grading with a required test for graduate students only. This test (it is a comprehensive test) should also be made available to all students who wish to take it.

Product 5
1. Explore the possibilities of:
   A. Pass-fail grading for environmental studies requirement.
   B. There should also be an option of four other pass-fail hours per quarter.
   C. There should be a better teacher evaluation sheet made available to students before registration.
   D. Modify and restrict the use of a strict "bell-shaped" curve in assigning grades to students.

MEDIUM ORIENTATION
Product 1
1. Generally standardize courses as to material covered and the way it is taught. Testing by a standardized test to determine a student's ability.

Product 2
Alternative: Letter grades should stay the same (ABCDF), but:
1. Each course should have set objectives for all professors, so the same material will be stressed.
2. Each class--grades--would be determined by one section, in other words by lumping all students in a several section course (e.g. SPE 101) into one section and not by individual sections.
Product 3
Adopt the present system but:
1. There should be standardization of courses at the same level for the same course.
2. By comprehensive exam of all students in all sections of a course so the grading would be equal.

Product 4
2. Individual grading for classes.
3. Grading within the context of the class and/or major—difficulty factor should be made within the same subject area.

Product 5
1. The pass-fail option should be allowed for all courses not considered as the core courses. Any elective course may be taken pass-fail.

LOW ORIENTATION
Product 1
1. Student options whether he will receive a pass-fail grade or a letter grade. As far as school records go it will be by pass-fail.
2. Keep letter grading but work for standardization in course material and testing.

Product 2
We discussed both sides of using a letter grade and a numerical grade. We basically agree that either one will work just as well representing what a student has learned. But a separate section showing the effort put into a grade should be shown. Anyway, how well can we really measure how much we have learned?
Product 3
No solution is fair present or other--just being evaluated is subjective and therefore not impartial.

Product 4
No solution can be reached and agreed upon.

Product 5
No solution.
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