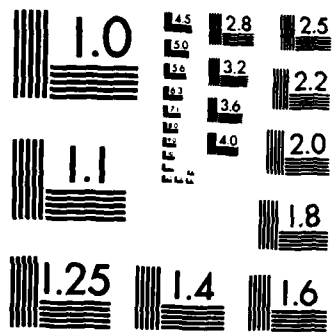


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COHESION: A NEW PERSPECTIVE

by

Daniel G. Braun

June 1983

Thesis Advisor:

Reuben T. Harris

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A128 047	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Cohesion: A New Perspective		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis June 1983
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Daniel G. Braun		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		12. REPORT DATE June 1983
		13. NUMBER OF PAGES 141
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report)
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release, distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES This thesis was submitted in partial fulfillment of the requirements for the degree of Master of Science in Management from the Organizational Development Curriculum of the Administrative Science Department of the Naval Postgraduate School.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Cohesion, Cohesiveness, Teamwork, Teambuilding, Solidarity, Management, Leadership, Organizational Development, Organizational Effectiveness		
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Cohesion: A New Perspective

by

Daniel G. Braun
Captain, United States Army
B.S., United States Military Academy, 1973

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

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I. INTRODUCTION

Recent Studies have indicated that the development of cohesion in military units has potential for increasing the productivity of that unit. By increasing the productivity of units the effectiveness and readiness of the entire force may be increased. Recognizing this the Chief of Staff of the Army has instituted policies and established programs in efforts to increase the cohesion in units. The principle element of these programs has been the establishment of continuity of personnel in units.

For various reasons continuity of personnel is not possible or practical in all units. Also, if the personnel assignment and replacement policies of recent wars are indicative of policies to be followed in future wars, continuity of personnel in units may not exist at all. For these reasons a critical evaluation of the development of cohesion, and the elements contributing to its facilitation was necessary. This evaluation had to go beyond the scope of the current literature so that the challenges of developing cohesion under unusual conditions could be met with some degree of certainty. It is argued that if unit productivity, effectiveness, and readiness could then be insured under these conditions, it could be insured anywhere.

This research sought to identify variables which were indicative of methods to be employed in enhancing cohesion in military units under conditions of less than optimal continuity of personnel and homogeneity of members in the work group.

II. PURPOSE OF THIS RESEARCH

The United States Army has recently realized the potential benefits of cohesion in its unit's and has instituted a program to test its benefits (COHORT-Cohesion, Operational Readiness, and Training) and to implement it on an Army wide basis in Table of Organization and Equipment (TO and E) combat arms units (the Regimental System). These programs, designed to build cohesion in units, seek to derive cohesion primarily from the continuity of personnel within the unit. Rather than making individual replacements to a unit, individuals would be retained in the unit and unit rotations would become the common method of changing duty stations.

Interpersonal working relationships would be more stable under these programs which would result in a heightened sense of teamwork within the unit. This concept has been rationally developed and is practical for the types of units toward which it is being directed. The fact that TO and E units have similar missions, structures, manning levels, and equipment make them interchangeable and unit rotations seem to be a particularly viable approach to developing and maintaining cohesion in these units.

Unfortunately, TO and E units are in the minority in the Army. The unique missions of Table of Distribution and

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Allowance (TDA) units require correspondingly unique structures, manning and equipment. The consequence of this is an impracticality of unit rotations and hence a limitation on the Army's approach to building unit cohesion in TDA units. Individual replacements will continue to be the standard method of personnel rotation in TDA units. It is therefore apparent that, if TDA units are to benefit from the potential advantages of unit cohesion, other methods of building cohesion must be identified and applied. The purpose of this research is to identify potential variables which can be systematically managed in TDA units so that the benefits of increased cohesion can be realized in these units.

III. WHAT IS COHESION?

Any investigation into cohesion must begin with a definition of the term. Cartwright and Zander [Ref. 1] identified three different common meanings of the term; (a) attraction to the group, including resistance to leaving it; (b) morale, or the level of the members to attack their tasks with zeal; and (c) coordination of the efforts of members. As an indication of the concept of "groupness" they concluded that a more inclusive definition was that "cohesion is the resultant of all forces acting on the members to remain in the group, including both driving forces toward the group and restraining forces against leaving the group." Following such a definition cohesion can be described as a process taking place between individuals and groups. Most researchers have accepted this definition and have devised various sociometric instruments to measure the forces involved in the cohesion process.

In common language cohesion involves group pride, group solidarity, group loyalty, team spirit, and teamwork. Some of the instruments as described by Seashore [Ref. 2] have been designed to measure include: the relative frequency of "we" versus "I" references in conversation; the relative frequency of friendship choices within and outside the group; the degree to which norms are shared; the strength

of desire to continue relations as a group; and the perception of the group as being better than others in various respects. Eisman [Ref. 3] has pointed out the problems of the use of the different definitions of cohesion in research. The use of different definitions has resulted in the wide variety of instruments designed for its measure which have no significant correlational relationships to each other when administered to the same sample of groups. For this reason it is imperative that the definition which is most appropriate to the intent of the research be accepted. For the purposes of this research Cartwright and Zander's "resultant of forces" definition has been accepted. This definition was accepted because the purpose of this research was to identify variables which could be managed to create cohesion. The other definitions were viewed as being more closely related to the results of cohesion rather than its causes.

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Man by his nature as a social being is born into a family, makes friends during his entire lifetime, earns his living through his association in work groups, is associated with school, civic, religious, and other groups, and usually marries and has a family of his own. A significant portion of man's existence is realized through his association with groups. Of the several individual motivations for seeking membership in groups some of the more significant are believed to be:

1. Sociological attraction to a member (or members) of the group.
2. Belief that association with the group can provide status to the individual.
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with the norms of the group becomes a requirement of continued credible group membership.

Norms are defined as the expectations and guidelines of behavior as required by the group. Over time group members jointly, either consciously or unconsciously, define what is fair and what is appropriate behavior. Typically members not following these standards suffer some sort of social censure from the other members of the group. Norms facilitate the attainment of group objectives, protect the group from external pressures, promote group stability and act as a control on member behavior.

Subgroups often develop when some members share different norms than the group itself. This serves to fracture the group and can seriously hinder the effectiveness of the group leader in controlling behavior within the group. As noted by Andre de la Porte [Ref. 5], when formal group norms, as defined by the group leader, coexist with the informal norms of subgroups, the informal norms frequently transcend the formal. Group norms do not necessarily exist for all possible contingencies which the group may encounter but will generally exist for encounters to which the group is exposed on a regular basis.

The individual motivations and development of group norms are thus of great significance in studying the group itself. Tuckman [Ref. 6] found a sequential series of steps

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to be indicative of a small initially unstructured group's development. These steps are:

1. Forming: the development of role structure and interpersonal dependencies.
2. Storming: competition for position, emotional tension, group drive.
3. Norming: the development of group norms and cohesion; pressures toward conformity.
4. Performing: productive task activity.

Recognizing this aspect of group development, Hersey and Blanchard [Ref. 7] developed a prescriptive theory of the most effective leadership focus depending upon the level of group maturity. Basically this "Life Cycle Theory" states that a mature group will require only a low task and a low relationships orientation of its leader to be effective because of the normative influence the group has on individual member's behavior which is the manifestation of individual motivations. It is evident, then, that a leader who can speed up the steps of group development or increase the speed of going through the life cycle of the group to maturity, can expect that cohesion will develop faster in the group and that group performance with minimal intervention from the leader will follow in a shorter timeframe.

Understanding that the cohesion process necessarily takes into account individual motivations and group norms, the practitioner of organizational studies will ask "what are the consequences?" Several observations and findings

of desire to continue relations as a group; and the perception of the group as being better than others in various respects. Eisman [Ref. 3] has pointed out the problems of the use of the different definitions of cohesion in research. The use of different definitions has resulted in the wide variety of instruments designed for its measure which have no significant correlational relationships to each other when administered to the same sample of groups. For this reason it is imperative that the definition which is most appropriate to the intent of the research be accepted. For the purposes of this research Cartwright and Zander's "resultant of forces" definition has been accepted. This definition was accepted because the purpose of this research was to identify variables which could be managed to create cohesion. The other definitions were viewed as being more closely related to the results of cohesion rather than its causes.

relative to cohesion have identified potential advantages and disadvantages of it.

Seashore [Ref. 8] has found that highly cohesive groups exhibit less anxiety among its members than do low cohesive groups. General Meyer [Ref. 9] has intonated that this difference in the cohesion of divisions in combat during the Korean Conflict may explain the variance in stress casualties under varying levels of unit combat severity. Goodacre [Ref. 10] found that there were positive correlations between cohesiveness and the problem-solving scores of combat units in field exercises. Hemphill and Sechrest [Ref. 11] found positive correlations between the cohesiveness of bomber crews and their bombing accuracy scores. Cohen, Whitmyre, and Funk [Ref. 12] found cohesion to be positively related to productivity in generation of unique ideas (creativity). Stogdill [Ref. 13] concluded from his survey that productivity and cohesiveness tend to be positively related under conditions of high group drive.

Seashore [Ref. 14] and several others have observed that highly cohesive groups have less variation in member productivity than low cohesive groups. Howell and Dorfman [Ref. 15] concluded from their survey that high group cohesion can be a weak substitute for organizational leadership. Bare [Ref. 16] concluded from his experiment on productivity that 41 percent of the variance in leader perceptions of group performance can be explained by three variables and

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that group cohesion is the strongest of these three. Nelson and Berry [Ref. 17] concluded that Marine Corps Recruit Platoons that were more cohesive had a better attitude toward the Marine Corps. Stouffer, et al. [Ref. 18] concluded that unit cohesion supported and sustained the combat soldier of World War II through periods of stress he would otherwise not have been able to withstand.

Janowitz and Shils [Ref. 19] observed that the German soldier in World War II would continue to fight in combat as long as he received affection from the other members of his squad and platoon. S.L.A. Marshall [Ref. 20] concluded that an infantry soldier would keep going during World War II based on the presence or presumed presence of a comrade. General Meyer [Ref. 21] also noted that recent research in US field units in Europe has shown a high correlation between soldier attitudes and the general level of performance on Skill Qualification Tests, Physical Training, Army Training and Evaluation Programs, reenlistments, and Annual General Inspections.

With this multitude of evidence that cohesion and concern for the welfare of the group has positive effects, what possible adverse consequences could there be? Seashore [Ref. 22] identified this in his experiment and noted that some highly cohesive groups performed at significantly lower levels than low cohesion groups. Stogdill [Ref. 23] reports that Grace, Fiedler, Likert, Roby, and Palmer and Myers have

4. Belief that the group can provide access to resources to which the individual would otherwise not have access.
5. Belief that the group can provide stability to an otherwise unstable situation.

Of the many functions which groups perform, an important one is that of providing psychological support (reinforcement) to the values of the individual members of the group.

Groups which provide primary, direct support to an individual are commonly referred to as constituting that individual's support system. Generally an individual's family is among the groups in his support system. Work groups are capable of being among the groups in an individual's support system. Loyalty to one's support system groups is generally quite strong. Loyalty to a group in general may be awarded by the individual contingent upon the group's continuing ability to fulfill the objects of the individual's motivations.

This is the essence of Vroom's [Ref. 4] expectancy theory of motivation. These motivations can vary in intensity and even change in relative proportion over time as the individual initially seeks membership, is accepted, becomes an active member, and seeks to maintain membership in the group. Once an individual is a member of a group, whether membership was voluntary or involuntary, continued membership may be self imposed for fear of arousing the adverse sentiments of other group members. Thus compliance

all found in separate studies that high cohesiveness is associated with low productivity. Janis [Ref. 24] identifies the problem that in highly cohesive groups, the tendency of individuals to agree with the group in order to maintain favorable membership in it interferes with critical decision making. He terms this problem "Group Think." Harvey [Ref. 25] carries this problem one step further in his "Abilene Paradox" by posing the conditions under which the group will take actions which are contrary to the true (unexpressed) desires of all members in the group.

Surely, it would seem that the conclusions of these studies are inconsistent. In spite of the scientific application of accepted research procedures in these studies the inconsistency of the results cannot be ignored. Any model developed to explain the effects of cohesion must account for the inconsistency of these results and explain how and why they could occur.

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Norms are defined as the expectations and guidelines of behavior as required by the group. Over time group members jointly, either consciously or unconsciously, define what is fair and what is appropriate behavior. Typically members not following these standards suffer some sort of social censure from the other members of the group. Norms facilitate the attainment of group objectives, protect the group from external pressures, promote group stability and act as a control on member behavior.

Subgroups often develop when some members share different norms than the group itself. This serves to fracture the group and can seriously hinder the effectiveness of the group leader in controlling behavior within the group. As noted by Andre de la Porte [Ref. 5], when formal group norms, as defined by the group leader, coexist with the informal norms of subgroups, the informal norms frequently transcend the formal. Group norms do not necessarily exist for all possible contingencies which the group may encounter but will generally exist for encounters to which the group is exposed on a regular basis.

The individual motivations and development of group norms are thus of great significance in studying the group itself. Tuckman [Ref. 6] found a sequential series of steps

V. HOW DOES COHESION WORK?

This question is most pertinent to acquiring an understanding of cohesion and to developing a model which explains its phenomena from its inputs to its outputs. An understanding of the psychological underpinnings of the concept of cohesion is relevant. Two conceptual frameworks will be developed which are based on explaining human behavior through the application of psychology.

The first conceptual framework involves a modified version of "force field analysis" as developed by Lewin [Ref. 26]. In this framework only two forces will be considered as acting upon an individual. These forces (individual motivations and group norms) are considered to be the strongest psychological forces acting on an individual and can be conceptualized as vectors in an additive sense. They can be in congruence (in the same direction) with each other or in opposition to each other as shown in Figure 1. The resultant of this vector addition is the psychological drive manifested in the individual. This psychological drive is outwardly manifested by the individual in behavior. In evaluating the effects of these forces on the individual it should be noted that each member of a group has his own individual motivations and each group has a single group norm concerning each subject area which the group normally

to be indicative of a small initially unstructured group's development. These steps are:

1. Forming: the development of role structure and interpersonal dependencies.
2. Storming: competition for position, emotional tension, group drive.
3. Norming: the development of group norms and cohesion; pressures toward conformity.
4. Performing: productive task activity.

Recognizing this aspect of group development, Hersey and Blanchard [Ref. 7] developed a prescriptive theory of the most effective leadership focus depending upon the level of group maturity. Basically this "Life Cycle Theory" states that a mature group will require only a low task and a low relationships orientation of its leader to be effective because of the normative influence the group has on individual member's behavior which is the manifestation of individual motivations. It is evident, then, that a leader who can speed up the steps of group development or increase the speed of going through the life cycle of the group to maturity, can expect that cohesion will develop faster in the group and that group performance with minimal intervention from the leader will follow in a shorter timeframe.

Understanding that the cohesion process necessarily takes into account individual motivations and group norms, the practitioner of organizational studies will ask "what are the consequences?" Several observations and findings

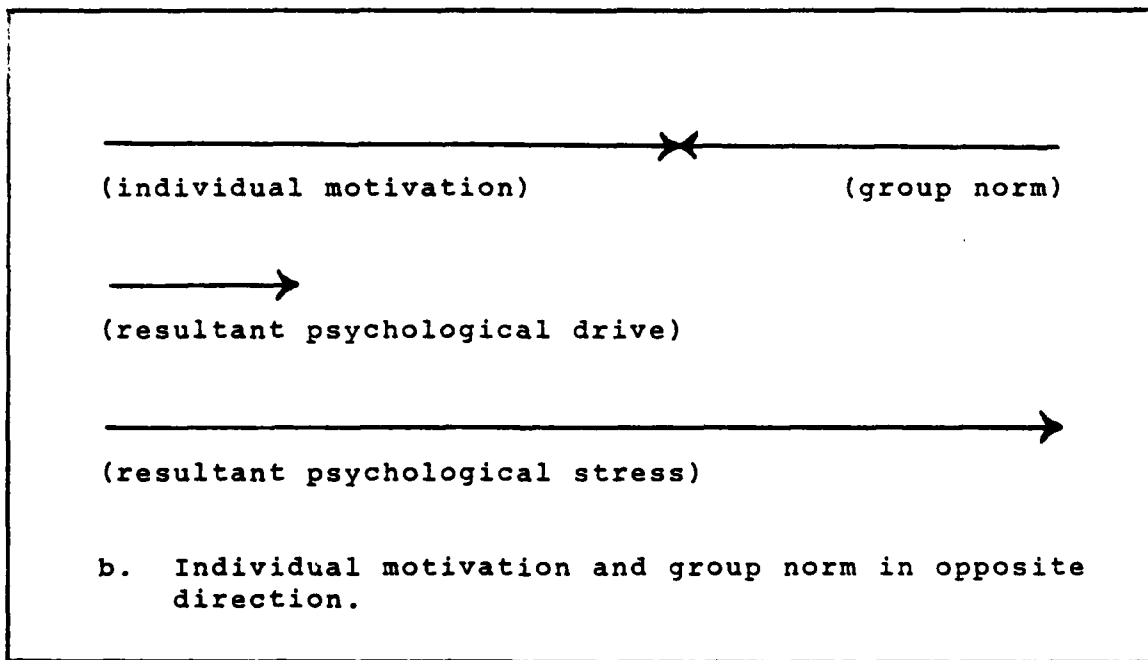
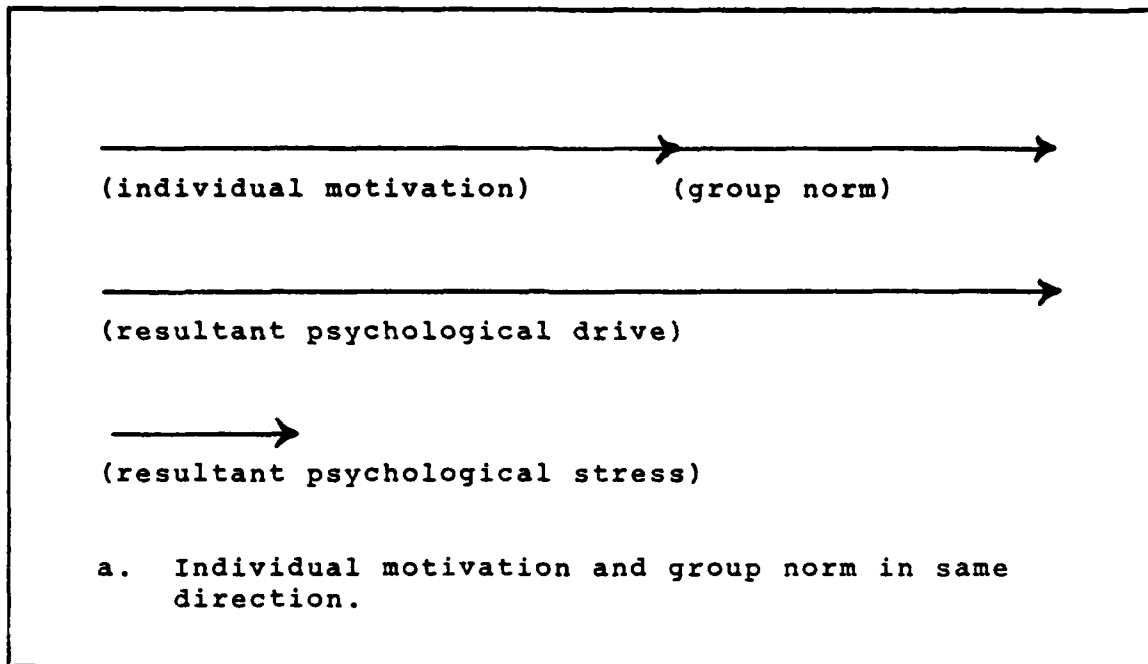


Figure 1. Psychological Forces Acting on Individuals

encounters in its environment. The strengths of these two forces will vary depending on the strength of a member's convictions regarding his individual motivations and the strengths of the group norms. While it can be argued that individuals will be influenced differently to a single group's norms depending upon his susceptibility to social pressures from others, it still provides a useful framework for analysis.

In applying this framework to the concept of cohesion one must consider the psychological stress on the individual and realize that individuals seek to reduce psychological stress as much as possible. When an individual's motivations are not congruent (in the same direction) with the group's norms, stress develops and the resultant psychological drive from the forces which would be manifested in beha-

that group cohesion is the strongest of these three. Nelson and Berry [Ref. 17] concluded that Marine Corps Recruit Platoons that were more cohesive had a better attitude toward the Marine Corps. Stouffer, et al. [Ref. 18] concluded that unit cohesion supported and sustained the combat soldier of World War II through periods of stress he would otherwise not have been able to withstand.

Janowitz and Shils [Ref. 19] observed that the German soldier in World War II would continue to fight in combat as long as he received affection from the other members of his squad and platoon. S.L.A. Marshall [Ref. 20] concluded that an infantry soldier would keep going during World War II based on the presence or presumed presence of a comrade. General Meyer [Ref. 21] also noted that recent research in US field units in Europe has shown a high correlation between soldier attitudes and the general level of performance on Skill Qualification Tests, Physical Training, Army Training and Evaluation Programs, reenlistments, and Annual General Inspections.

With this multitude of evidence that cohesion and concern for the welfare of the group has positive effects, what possible adverse consequences could there be? Seashore [Ref. 22] identified this in his experiment and noted that some highly cohesive groups performed at significantly lower levels than low cohesion groups. Stogdill [Ref. 23] reports that Grace, Fiedler, Likert, Roby, and Palmer and Myers have

greater will be the group's cohesion. The effect of the increased cohesion in the group will have a multiplicative reinforcing effect on the group's norms which will further increase the psychological drive on its members.

The second framework to conceptualize cohesion involves an understanding of Freudian psychology. Freud [Ref. 27] has identified the characteristics required to meet what he defines as a "primary group." The first requirement is an identification with an object by an individual. This object could be another person, a physical object, or an abstract concept such as a value system. The second requirement is an introjection of the object into the individual's ego. The final requirement of the "primary group" is a perception either consciously or unconsciously of common objects being held in the egos of members of the group. The result of this is that members of a "primary group" identify themselves with each other in their egos. If the common objects are of a nature such that they are shared in the ego ideals of the group members attempts are made to emulate the object in one's own personality. According to Freud, objects are resident in the ego ideal under conditions of love while under conditions of fascination or infatuation the objects are resident in the ego. A common example of a "primary group" is the family. Freud uses examples of an Army and the Church as "primary groups" whose objects are the Commander and God respectively.

Freud's psychological theories can provide us much insight into the process of cohesion. It is apparent that the requirements for Freud's "primary groups" are necessary for the development of cohesion. If the object of an individual's identification such as a value system has been introjected into the ego ideal and is perceived to be shared with other members of the group an identification in the ego ideal between group members occurs and a strong bond between members characteristic of the "primary group" has developed. This strongly bound group exemplifies a cohesive group.

The strong norms of a cohesive group can be viewed as equivalent to the objects which are mutually perceived as being in the ego of the other group members. The ego, which is developed through contact with the external world, is indicative of the individual motivations which the individual develops. Attempts to emulate the ego ideal in one's personality corresponds to the psychological drive discussed earlier which is manifest in behavior. Clearly the greater the proportion of members in a group which identify with each other in their ego ideals, the more cohesive the group. If members do not identify with each other in their ego ideals the group will be less cohesive. Levinson [Ref. 28] has observed that group leaders are expected to offer themselves as identification models for the group and that if the model the leader portrays does not fit the ego ideal of the members further identification will not result between the group and the organization.

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The understanding of these psychological frameworks concerning group cohesion provide the basis for the interpretation of the apparent inconsistencies of the results of cohesion reported in the studies of section IV.

What Seashore [Ref. 29] observed regarding less variation in member productivity is the result of a strong group norm's effect on the psychological drive of members in a highly cohesive group. He also observes [Ref. 30] that there will be lower anxiety (psychological stress) of members of a cohesive work group. The explanation of the apparent inconsistencies of the study results lies in a comparison between the directions of the psychological drives of a cohesive group as compared to the desired psychological drive as intended by the goals of the organization. A highly cohesive group, whose members identify with each other in their ego ideal with individual motivations and group norms congruent resulting in little psychological stress to the members can have the psychological drives of its members in the opposite direction of the goals of the organization. Clearly then in order to be beneficial to the organization individual's motivations, group norms, and organizational goals must be congruent.

Cohesion, finally, cannot be viewed as a panacea but clearly it can be employed as a very powerful tool. Providing that leadership can cultivate group norms and individual motivations so that they are consistent with

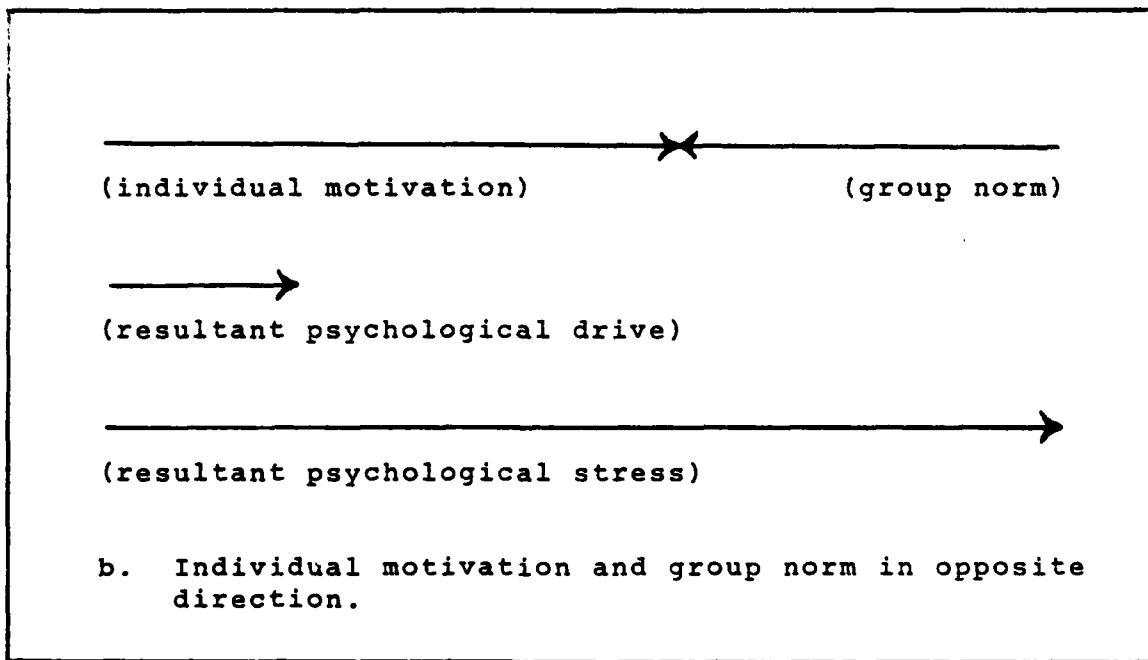
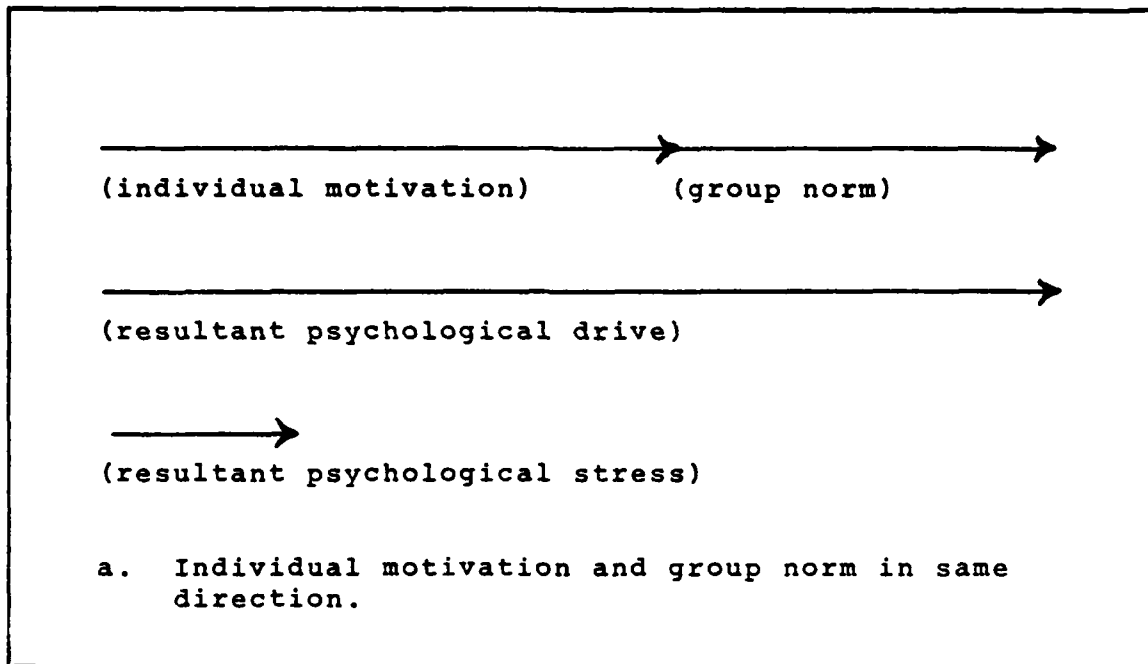


Figure 1. Psychological Forces Acting on Individuals

organizational goals and can guard against the situations where "Group Think" and the "Abilene Paradox" may prevail, group cohesion can be very beneficial to the organization. In a military context cohesion in units can potentially increase performance, effectiveness of training, readiness, job satisfaction, teamwork and retention, among many other advantages. The existence of group norms toward greater effectiveness in cohesive units can decrease the resistance to changes made to increase that effectiveness. This reduces the need for supervisors and leaders to enforce minimum standards of performance. This reduced need can be viewed as providing the officers and non-commissioned officers of the unit with more time to properly plan and exercise beneficial training, etc. and hopefully eliminate the use of "crisis management" in response to situations which have been improperly conceived or planned.

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In applying this framework to the concept of cohesion one must consider the psychological stress on the individual and realize that individuals seek to reduce psychological stress as much as possible. When an individual's motivations are not congruent (in the same direction) with the group's norms, stress develops and the resultant psychological drive from the forces which would be manifested in behavior is greatly reduced from what it would have been if the forces had been congruent. If the forces are congruent the psychological stress on the individual is minimized and the psychological drive is greatly increased from what it would have been if only the individual's motivations had been considered.

In this framework cohesion is characterized by a minimization of psychological stress on the individual (i.e., congruence of the forces). The greater the proportion of members in the group who experience a minimization of stress as a result of association with the group, the

VI. CONSTRUCT OF A COHESION MODEL

To meet the purpose of this research one must first identify some of the key variables which contribute to the cohesion of military units. These variables could then be managed by military units to enhance cohesion. This research is not intended to be a "how to" approach to building cohesion. However, by management of the variables found to be significant in its development it should follow that cohesion would be enhanced and resulting potentials for performance and readiness increased. In conducting indepth research on cohesion it is necessary to identify the causes and effects of its existence. It would then be necessary to measure the causes as inputs to cohesion and the effects as outputs in order to assess the benefits of the cohesion process. This is an exceedingly difficult undertaking since the cohesion process itself is a very complex one which acts, by virtue of the group norms involved, as a multiplier of most inputs to the process.

For example, if a high level of interpersonal communication is a cause of cohesion in a unit and familiarity between the members of the unit facilitates the building of cohesion the effect of cohesion in the unit may also be an increased level of interpersonal communications between the unit's members. If interpersonal communications in the unit

were measured it would then be impossible to distinguish its causal relationship to cohesion from its effect. Farris [Ref. 31] has identified this problem in much of the social research which is currently theorized and ascribed to. The distinction between cause and effect is often unclear. He explains the apparent inconsistencies of research by theorizing productivity feedback loops in which productivity is the effect of a variable and also its cause.

Cycles spiralling upward or downward are the result of these feedback loops. The determination of causes and effects of cohesion could then not be appropriately identified in other than a very closely controlled experiment in which contamination from other variables affecting the variables being measured can either be eliminated or controlled. The requirements of such an experiment are probably not practical in any typical military unit having an operational mission. For this reason it may be more advantageous to measure variables thought to be relevant to the cohesion process in units or elements of a unit which are identified as possessing high or low cohesion and to critically analyze the differences to tell us more about the cohesion process and then to draw conclusions about possible causes and effects. The approach necessary for such an undertaking would be a survey which would not positively identify causes or effects but which should be indicative of key variables to the cohesion process. This is not the

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Given the survey approach to learning more about cohesion, it is necessary to identify those variables which are related to the process and to measure them. In measuring these variables it is next necessary to identify from what level they can be measured (i.e., individual, group, or organizational). In measuring individual variables it is appropriate to administer tests or surveys to the individual being measured. Achievement tests would be appropriate in measuring the acquired abilities of the individual in order to assess his performance on the job. But a measure of ability will tell us very little about the motivation of the individual to actually perform.

Since cohesion necessarily involves the motivation of the individual to behave in a certain way, an attitude survey administered to the individual is more appropriate. Group variables, defined here as the measure of the variables concerning the unit whose cohesion process is being assessed (i.e., Platoon, Company, Battalion, etc.), can also be measured as a compilation of the individual variables within the group as expressed on individual attitude surveys. Group variables which may be obtained from other sources may not be accurate in terms of the individual

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perceptions of members of the group. The individual perceptions of members of a group are real to that individual and are thus better indicators of motivation for behavior than those gathered from other sources.

This would explain why some units with high AWOL rates, DWI rates, etc., may exhibit a high degree of unit cohesion. These variables, which have been used as proxy indicators of group cohesiveness by some commanders, are not true indicators of cohesion at all because they are greatly influenced by other aspects of the group's situation and membership. This is because the wrong variables are being measured. Organizational variables, defined here as the variables attributed to units higher in the chain of command than the unit whose cohesion process is being assessed, can also be measured from a compilation of the individual variables within that organization following the same argument. The individual attitude survey is then the key instrument necessary for measuring the variables related to cohesion.

Two variables have been demonstrated to be related to cohesion by both experiment and survey. It has been demonstrated in the civilian and the military sectors that these two variables have positive correlations with cohesion. The first of these variables is continuity of personnel in the group. It has been demonstrated that individuals that are assigned together as a stable group for a longer period of time will facilitate the establishment of group norms to

organizational goals and can guard against the situations where "Group Think" and the "Abilene Paradox" may prevail, group cohesion can be very beneficial to the organization. In a military context cohesion in units can potentially increase performance, effectiveness of training, readiness, job satisfaction, teamwork and retention, among many other advantages. The existence of group norms toward greater effectiveness in cohesive units can decrease the resistance to changes made to increase that effectiveness. This reduces the need for supervisors and leaders to enforce minimum standards of performance. This reduced need can be viewed as providing the officers and non-commissioned officers of the unit with more time to properly plan and exercise beneficial training, etc. and hopefully eliminate the use of "crisis management" in response to situations which have been improperly conceived or planned.

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The second of these variables is the homogeneity of the group members. The more similar the individuals in a group are in terms of age, geographic origin, education, culture, experiences, etc., the more likely strong group norms will develop. There is also some evidence that group norms will develop more rapidly in homogeneous groups. In systematically trying to increase homogeneity of the group members to achieve cohesion it should be cautioned, however, that such an approach may result in complaints related to equal opportunity, etc., which could conceivably result in law suits.

National Guard and Reserve units, because of the geographic nature of their existence, may well benefit from the impact of this variable on unit cohesion. The existence of these two variables and their relevance to cohesion are quite well documented in the surveys and experiments referenced in the "Why Study Cohesion" section. Since the purpose of this research is not to rehash what is already known, but to identify new variables which will tell us more about the process of cohesion, it is necessary to identify

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other variables which may facilitate the cohesion process, measure the existence of these variables in groups identified as possessing high or low cohesion, contrast the differences in the variables for high and low cohesion, and arrive at conclusions pertinent to the cohesion process.

A. HYPOTHESIS 1

The quality of intragroup communications positively correlates with group cohesion.

Rationale: The greater the quality of communications within the group the greater the probability that a group member will be aware of the group norms. The higher the quality of communications, the more likely the value systems of the individuals will be discussed and a discovery of shared objects in the ego ideal will take place.

Assuming that the member is motivated to remain a member of the group and will behave according to the group norms, member awareness of the norms should be directly related to the level of cohesion of the group. Similarly awareness of the attitudes and values of other group members, whether acquired through training about coworker cultures or through direct interpersonal contact, would positively effect cohesion. Consequently, units stationed overseas having foreign coworkers in the work group could expect greater cohesion if cultural training is given to U.S. service members and/or a common language is used. Also, the greater the amount of

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Cycles spiralling upward or downward are the result of these feedback loops. The determination of causes and effects of cohesion could then not be appropriately identified in other than a very closely controlled experiment in which contamination from other variables affecting the variables being measured can either be eliminated or controlled. The requirements of such an experiment are probably not practical in any typical military unit having an operational mission. For this reason it may be more advantageous to measure variables thought to be relevant to the cohesion process in units or elements of a unit which are identified as possessing high or low cohesion and to critically analyze the differences to tell us more about the cohesion process and then to draw conclusions about possible causes and effects. The approach necessary for such an undertaking would be a survey which would not positively identify causes or effects but which should be indicative of key variables to the cohesion process. This is not the

voluntary extraordinary contact (defined as contact experienced off of the job such as unit picnics, happy hours, athletic sports activities, etc.) the higher will be the probability that attitudes and values which represent the group norms will be exchanged.

B. HYPOTHESIS 2

Knowledge of group performance positively correlates with group cohesion, especially if group performance is higher than the expected standard.

Rationale: In only some instances of work group performance in military groups is the level of group performance readily self evident. In an athletic team the performance of the team is readily self evident when the team wins or loses a game. Knowledge of this performance seems to bind the team together toward a common goal of winning. Positive performance knowledge (winning a game) is especially advantageous to the esprit of the team and is often exhibited by behavior displaying jubilation and even euphoria. The individual motivation toward achieving status through association with the group is key to this argument. If the status is unknown then the motivation may be low. Thus in military units knowledge by the group of inspection results, test results, and other performance standards should be beneficial to group cohesion. Performance feedback loops on cohesion of the group are thus viewed as

optimal approach to empirical research. But in view of the anticipated difficulties required of a controlled experiment, it was the logical approach given the current understanding of cohesion as a process.

Given the survey approach to learning more about cohesion, it is necessary to identify those variables which are related to the process and to measure them. In measuring these variables it is next necessary to identify from what level they can be measured (i.e., individual, group, or organizational). In measuring individual variables it is appropriate to administer tests or surveys to the individual being measured. Achievement tests would be appropriate in measuring the acquired abilities of the individual in order to assess his performance on the job. But a measure of ability will tell us very little about the motivation of the individual to actually perform.

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beneficial to cohesion in upward spirals and may be detrimental in downward spirals.

C. HYPOTHESIS 3

A commonly perceived environmental demand by the members of the group positively correlates with group cohesion.

Rationale: Individual motivations for seeking membership in the group to achieve security is key to this argument. If an environmental demand such as pressure from organizational leaders or the threat of survival in combat is perceived by all members of the group, then group norms should be developed within the group to counter the stress on the individual members of the group. If the survival of this stress is an object collectively held in the ego ideal of the group members, the norm will develop. Since the existence of the norm serves to offer security to the members of the group the individual motivation to conform to the group will be strong and the cohesion of the group should be increased.

D. HYPOTHESIS 4

All other factors being equal, the size of the group negatively correlates with the level of group cohesion.

Rationale: For a norm to be developed it is necessary that member attitudes and values correspond to the extent that the expected behavior is within the zone of indifference of the behavior of all members. This zone of

perceptions of members of the group. The individual perceptions of members of a group are real to that individual and are thus better indicators of motivation for behavior than those gathered from other sources.

This would explain why some units with high AWOL rates, DWI rates, etc., may exhibit a high degree of unit cohesion. These variables, which have been used as proxy indicators of group cohesiveness by some commanders, are not true indicators of cohesion at all because they are greatly influenced by other aspects of the group's situation and membership. This is because the wrong variables are being measured. Organizational variables, defined here as the variables attributed to units higher in the chain of command than the unit whose cohesion process is being assessed, can also be measured from a compilation of the individual variables within that organization following the same argument. The individual attitude survey is then the key instrument necessary for measuring the variables related to cohesion.

Two variables have been demonstrated to be related to cohesion by both experiment and survey. It has been demonstrated in the civilian and the military sectors that these two variables have positive correlations with cohesion. The first of these variables is continuity of personnel in the group. It has been demonstrated that individuals that are assigned together as a stable group for a longer period of time will facilitate the establishment of group norms to

indifference is defined as the realm of behavior which an individual would freely engage in. Each individual's zone is therefore somewhat differently defined. As the size of the group increases, it should become more difficult for norms to develop resulting in lower group cohesion because there are more inconsistencies between the zones of indifference of group members. Discovery, through communication, of shared objects between all members of a group in their ego ideals becomes more difficult as more contacts must be made. Also as the size of the group increases awareness of norms, which are the shared attitudes and values of all members, will become more difficult. Fragmentation of the group into subgroups will also become more probable as the size of the group increases.

E. HYPOTHESIS 5

Supervisor credibility as perceived by the group positively correlates with group cohesiveness. Credibility is defined as the similarity between the group's perceived actual supervisor characteristics (technical expertise, use of authority, democratic vs. autocratic style, and task vs. people focus) as compared with the group's perceived appropriate supervisor characteristics under the group's operational conditions.

Rationale: Supervisors, due to their position, have the greatest potential for influence of the group norms. This

which the individual will respond. Also, over time, the social pressures on the individual to conform to the group norm rather than being a deviant, who is ostracized by the group, increases. This has been realized by the Army and has resulted in such programs as COHORT and the Regimental System.

The second of these variables is the homogeneity of the group members. The more similar the individuals in a group are in terms of age, geographic origin, education, culture, experiences, etc., the more likely strong group norms will develop. There is also some evidence that group norms will develop more rapidly in homogeneous groups. In systematically trying to increase homogeneity of the group members to achieve cohesion it should be cautioned, however, that such an approach may result in complaints related to equal opportunity, etc., which could conceivably result in law suits.

National Guard and Reserve units, because of the geographic nature of their existence, may well benefit from the impact of this variable on unit cohesion. The existence of these two variables and their relevance to cohesion are quite well documented in the surveys and experiments referenced in the "Why Study Cohesion" section. Since the purpose of this research is not to rehash what is already known, but to identify new variables which will tell us more about the process of cohesion, it is necessary to identify

potential will only be realized if he (she) is credible and identified with by the group members. Military units operate with designated supervisors by virtue of the rank of the senior person assigned to the group. This is different than groups whose leader is popularly elected or who emerges over time as the strongest, most credible member of the group. As a result the credibility of the supervisor in a military unit is essential to maintain the cohesion of the group.

If the supervisor holds the same object in his ego ideal as the remainder of the group's members, he will be identified with as a legitimate member of the group. By virtue of his (her) rank and the hierarchical order in the ego ideal of the military professional, he will also be the legitimate supervisor. If the designated supervisor is not credible an informal leader may emerge which is identified with the informal norms of the group. As discussed earlier informal norms frequently transcend formal norms which serves to fracture the group into subgroups adhering to differing norms.

F. HYPOTHESIS 6

Group awareness of organizational goals positively correlates with group cohesion.

Rationale: Individual motivations to associate with the group for the purpose of achieving status is important to this argument. If an individual is not aware of the

other variables which may facilitate the cohesion process, measure the existence of these variables in groups identified as possessing high or low cohesion, contrast the differences in the variables for high and low cohesion, and arrive at conclusions pertinent to the cohesion process.

A. HYPOTHESIS 1

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Assuming that the member is motivated to remain a member of the group and will behave according to the group norms, member awareness of the norms should be directly related to the level of cohesion of the group. Similarly awareness of the attitudes and values of other group members, whether acquired through training about coworker cultures or through direct interpersonal contact, would positively effect cohesion. Consequently, units stationed overseas having foreign coworkers in the work group could expect greater cohesion if cultural training is given to U.S. service members and/or a common language is used. Also, the greater the amount of

organization's goals he is unaware of the proper behavior which will gain him status. If members of the group are unaware of the behavior which will gain them status a group norm which is consistent with gaining status cannot develop. If a norm does not exist which will gain status for the group's members individual motivations for association with the group and group cohesion will suffer. Conversely, knowledge of the organization's goals gives credence to group member's confidence in the organization's planning process, defines the necessary behavior to acquire status, supports the generation of norms to acquire status, and aids in group cohesion.

G. HYPOTHESIS 7

Perceived equity (of pay, evaluation and reward systems, working conditions, and living conditions [if provided] between members) will be positively correlated with group cohesion.

Rationale: Perceived equity of these elements prevents unnecessary interpersonal conflicts between members of the group. The existence of inequities creates conflict between group members and the underdog's individual motivation for continued association with the group will suffer and may even be of sufficient intensity to motivate him to disassociate with the group. It is apparent how the existence of such conditions can adversely affect group cohesion. On

voluntary extraordinary contact (defined as contact experienced off of the job such as unit picnics, happy hours, athletic sports activities, etc.) the higher will be the probability that attitudes and values which represent the group norms will be exchanged.

B. HYPOTHESIS 2

Knowledge of group performance positively correlates with group cohesion, especially if group performance is higher than the expected standard.

Rationale: In only some instances of work group performance in military groups is the level of group performance readily self evident. In an athletic team the performance of the team is readily self evident when the team wins or loses a game. Knowledge of this performance seems to bind the team together toward a common goal of winning. Positive performance knowledge (winning a game) is especially advantageous to the esprit of the team and is often exhibited by behavior displaying jubilation and even euphoria. The individual motivation toward achieving status through association with the group is key to this argument. If the status is unknown then the motivation may be low. Thus in military units knowledge by the group of inspection results, test results, and other performance standards should be beneficial to group cohesion. Performance feedback loops on cohesion of the group are thus viewed as

the other hand the existence of equitable conditions can be argued to be supportive of cohesion.

The model thus generated by the evidence of research and the hypotheses herein stated is shown at Figure 2. This model indicates that weaknesses in one variable can be compensated for by the other variables and that cohesion is a linear combination of these variables.

beneficial to cohesion in upward spirals and may be detrimental in downward spirals.

C. HYPOTHESIS 3

A commonly perceived environmental demand by the members of the group positively correlates with group cohesion.

Rationale: Individual motivations for seeking membership in the group to achieve security is key to this argument. If an environmental demand such as pressure from organizational leaders or the threat of survival in combat is perceived by all members of the group, then group norms should be developed within the group to counter the stress on the individual members of the group. If the survival of this stress is an object collectively held in the ego ideal of the group members, the norm will develop. Since the existence of the norm serves to offer security to the members of the group the individual motivation to conform to the group will be strong and the cohesion of the group should be increased.

D. HYPOTHESIS 4

All other factors being equal, the size of the group negatively correlates with the level of group cohesion.

Rationale: For a norm to be developed it is necessary that member attitudes and values correspond to the extent that the expected behavior is within the zone of indifference of the behavior of all members. This zone of

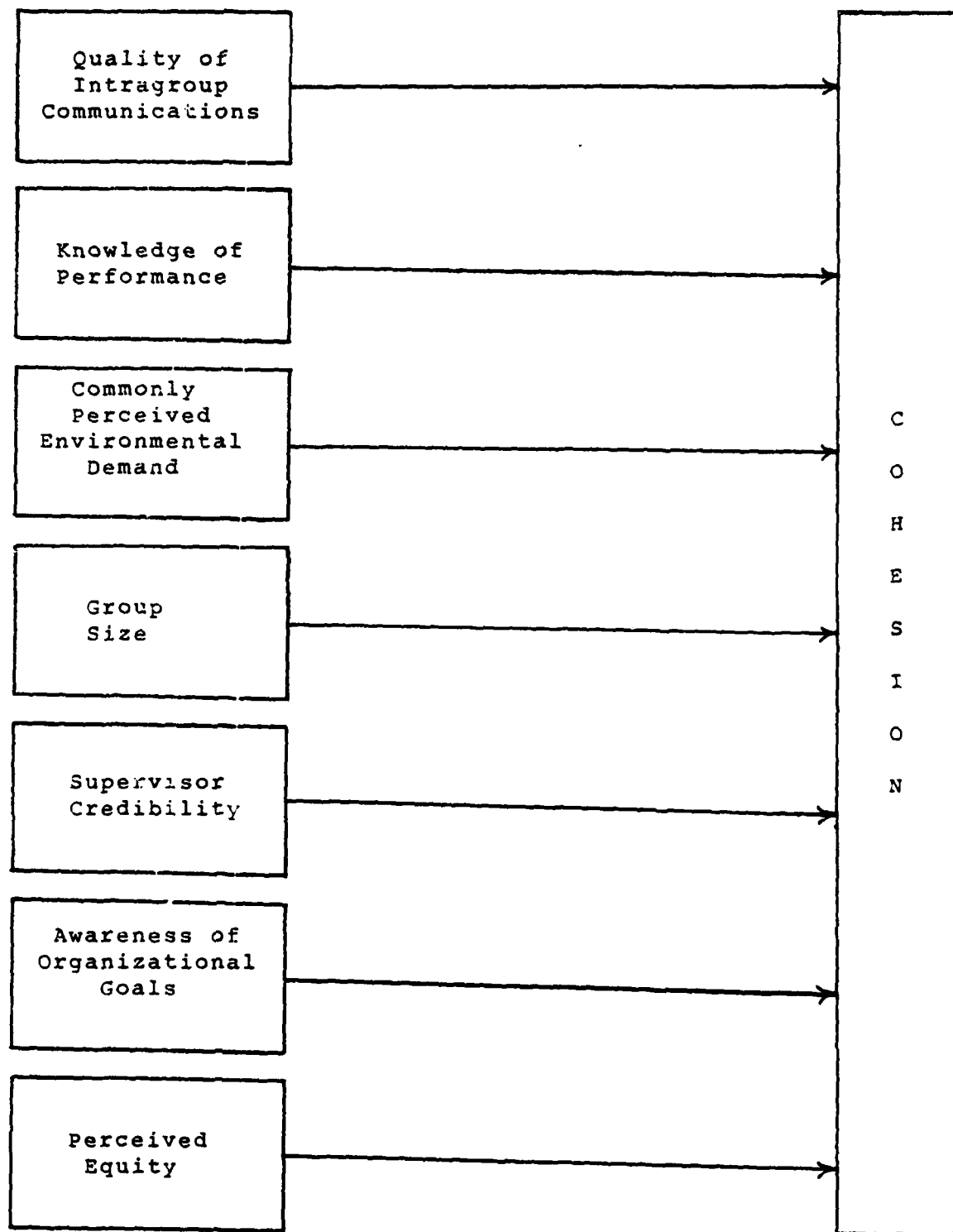


Figure 2. The Cohesion Model

indifference is defined as the realm of behavior which an individual would freely engage in. Each individual's zone is therefore somewhat differently defined. As the size of the group increases, it should become more difficult for norms to develop resulting in lower group cohesion because there are more inconsistencies between the zones of indifference of group members. Discovery, through communication, of shared objects between all members of a group in their ego ideals becomes more difficult as more contacts must be made. Also as the size of the group increases awareness of norms, which are the shared attitudes and values of all members, will become more difficult. Fragmentation of the group into subgroups will also become more probable as the size of the group increases.

E. HYPOTHESIS 5

Supervisor credibility as perceived by the group positively correlates with group cohesiveness. Credibility is defined as the similarity between the group's perceived actual supervisor characteristics (technical expertise, use of authority, democratic vs. autocratic style, and task vs. people focus) as compared with the group's perceived appropriate supervisor characteristics under the group's operational conditions.

Rationale: Supervisors, due to their position, have the greatest potential for influence of the group norms. This

VII. METHOD

The cohesion model as developed was tested through the statistical analysis of data collected by attitude surveys of members assigned to identified work groups. Each hypothesis was statistically analyzed in order to ascertain its relevance to cohesion. The net effect of all combined hypotheses was also statistically analyzed to test the entire model.

Table of Distribution and Allowance (TO&E) Companies were considered as the organizations to be studied for this research. The companies characterized a high rate of personnel turnover and heterogeneity of members of the work group were selected for study so as to offset as much as possible the effects of continuity of personnel and homogeneity of members of the work groups on the desired measure of cohesion. In applying these criteria for the selection of suitable companies for the research, it was determined that U.S. Army TO&E companies stationed in the Republic of Korea would be most suitable. Six TO&E companies were subsequently selected for the research from those stationed in the Republic of Korea. The companies were comprised of members of the U.S. Army, U.S. civilian General Service (GS) employees, Korean Augmentees to the U.S. Army (KATUSAs) attached for duty, Korean Direct Hire employees, and foreign

contractors as members of the work groups. U.S. Army personnel were generally rotated within a one year period. Company Commanders were asked to identify according to their own evaluation (Appendix A) the most and least cohesive subordinate work groups of their unit and rate their performance. These two work groups in each company were the targets of subsequent data collection efforts. This selection technique was used in order to insure a sufficient variation of cohesion in a minimal number of sample groups so as to minimize the cost and time necessary for data collection. It was recognized that, by only studying these extreme groups in a group comparison technique having so few data samples (twelve groups), reliable statistics on behavior might not be achieved. Research on a much larger scale would be required to make reliable statistical inference on behavior. Data collection was conducted using three different techniques: an attitude survey of assigned work group personnel; an interview of key work group members; and direct observation of the behavior of work group members.

The members of the work groups identified by the Company Commanders were administered a survey (Appendix B) designed to measure the variables necessary to test the hypotheses. Individual and unit anonymity were guaranteed in order to increase data validity. Several questions felt to be indicative of each of the variables to be measured were employed in the survey. These questions were formulated so

as to measure the individual's psychological drives which are the resultant combination of his individual motivations and his work group's norms.

The survey employed a Likert scale for ease of administration and for increased reliability of the variable measured. A modified version of Seashore's [Ref. 32] cohesion measuring instrument was incorporated into the survey to measure the level of cohesion in the work group because of its documented reliability and validity. A self report of group performance was also incorporated. The survey was

the other hand the existence of equitable conditions can be argued to be supportive of cohesion.

The model thus generated by the evidence of research and the hypotheses herein stated is shown at Figure 2. This

model indicates that weaknesses in one variable can be com

work group's characteristics. This approach is felt by the researcher to be more valid than using supervisory evaluations which may be influenced by their limited perspective or biased by their own self interests. Partial correlations were made using the group variable scores with cohesion as the criterion and the partials of the variables as the predictors. Multiple regression was also conducted to determine the total variance of cohesion explained by all of the other variables combined. Pearson's correlations coefficients were computed for each predictor variable of cohesion and T-test significance test were made. All data reduction was accomplished employing the Statistical Package for the Social Sciences [Ref. 34].

Key members of each work group were interviewed by the researcher on the same day that the attitude survey was administered. The personnel defined as being key were the most senior personnel available representing each of the work group factions: members of the U.S. Army, U.S. civilian General Service employees, KATUSAs attached for duty, Korean Direct Hire employees, and contractors. These personnel were selected for interview because of their positions of power (influence) and authority, their experience, and their maturity. The interview employed a moderately scheduled technique as per Gorden [Ref. 35] which employed a general structure of open ended questions providing opportunity for additional probes. Individual and group

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anonymity were again guaranteed in order to increase data validity. Questions were neutrally worded and presented in order to encourage complete and more valid responses. This was especially necessary due to the differences in rank between the interviewer and interviewees. Handwritten notes were taken at the time of the interview. The results of these interviews were used for substantiation and interpretation of the reduced survey data during data analysis.

Direct observations of behavior were also made by the researcher during the course of his visit to the work groups. The relevance of these behaviors to cohesion and the other desired variables was immediately interpreted by the researcher and documented in handwritten notes for future use. During data analysis of the survey data, the interpretations of these observations were used for substantiation and interpretation of the survey data.

contractors as members of the work groups. U.S. Army personnel were generally rotated within a one year period. Company Commanders were asked to identify according to their own evaluation (Appendix A) the most and least cohesive subordinate work groups of their unit and rate their performance. These two work groups in each company were the targets of subsequent data collection efforts. This selection technique was used in order to insure a sufficient variation of cohesion in a minimal number of sample groups so as to minimize the cost and time necessary for data collection. It was recognized that, by only studying these extreme groups in a group comparison technique having so few data samples (twelve groups), reliable statistics on behavior might not be achieved. Research on a much larger scale would be required to make reliable statistical inference on behavior. Data collection was conducted using three different techniques: an attitude survey of assigned work group personnel; an interview of key work group members; and direct observation of the behavior of work group members.

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VIII. RESULTS

The results of the Company Commander's Survey (Appendix A) which selected the work groups to be surveyed and provided other pertinent information about the work groups are shown at Appendix C. The design of the survey questionnaire (Appendix B) was intended to measure work group cohesion, work group productivity as perceived by the members of the group, and the variables associated with each of the seven hypotheses. The questions intended to measure each of the variables are shown in Table 1. It should be emphasized that the measure of these variables by the questions indicated was intended by the questionnaire design which took place before its administration or any manipulation of the collected data. The results of the attitude survey were numerically coded for computer entry (Appendix D).

The factor analysis of this data resulted in the identification of eight factors. These factors were identified by applying the selection criterion discussed in the previous section that the responses to the questions of the survey must have a projection of at least .6 on the identified factor axis. The factors identified meeting this criterion are shown in Table 2. The results of the factor analysis are shown in Appendix E. The implications of this factor analysis is that the responses to the questions are conceptually

as to measure the individual's psychological drives which are the resultant combination of his individual motivations and his work group's norms.

The survey employed a Likert scale for ease of administration and for increased reliability of the variable measured. A modified version of Seashore's [Ref. 32] cohesion measuring instrument was incorporated into the survey to measure the level of cohesion in the work group because of its documented reliability and validity. A self report of group performance was also incorporated. The survey was translated into Korean and a review of the survey was conducted with Korean officer students of the Naval Postgraduate School. This was accomplished to verify the translation. An informal interview with these officers established the predicted relevance of the questions to the desired variables and served as a pre-test of the survey.

The survey was then administered by the researcher on location to each of the selected work groups. Not all personnel assigned to the work groups were available for the administration of the survey. However, supervisory personnel informed the researcher that they considered the sample available to be representative of the respective work groups. No attempt to collect data from those personnel not immediately available was made, in order to eliminate the potential data bias this may have created due to the inevitable effects of subsequent discussions of the survey by co-workers.

Table 1
QUESTIONNAIRE DESIGN OF QUESTIONS INTENDED TO MEASURE VARIABLES

<u>Variable</u>	<u>Hypothesis</u>	<u>Questions</u>
Cohesion	All	1, 2, 3A, 3B, 3C
Productivity	--	3D
Intragroup (Interpersonal) Communications	1	4, 5, 6, 7, 8, 9, 13, 14
Knowledge of Performance	2	10, 11, 12
Environmental Demand	3	15, 16, 17
Size	4	*
Supervisor Credibility	5	18, 19, 20, 21, 22, 23, 24
Organizational Awareness	6	25, 26, 27
Equity	7	28, 29, 30, 31

*determined by Company Commander Survey (Appendix A) response and verified during interview at time of administration of survey by the researcher.

Although the survey employed an ordinal Likert scale it was assumed that a sufficient approximation of an interval scale was achieved for statistical use. Responses to each of the questions were factor analyzed using a variable maximizing axis rotation in order to verify the relevance of each of the questions to the desired variables. Pairwise deletion of missing data elements was employed in generating the correlation matrices for use in the factor analysis. Element projections greater than .6 on the factor axis were considered relevant to the factor. Irrelevant questions to the desired variables were discarded. The average of the relevant question scores produced relevant variable scores for each individual. Since individuals self weight their responses according to the significance of the question to the variable, this is the proper technique for obtaining individual variable scores according to Ewen [Ref. 33].

Relevant questions not responded to by individuals resulted in discarding of the related variable for that individual by listwise deletion. Cohesion and the predictor variables which had been hypothesized were considered to be work group characteristics. Work group scores for each of these variables were obtained by finding the average individual score of all individual respondents from each work group.

The implication of this approach is that each respondent within a work group has an equally valid perception of the

Table 2
RELATIONSHIP BETWEEN FACTORS AND HYPOTHESIZED VARIABLES

<u>Factor</u>	<u>Variable Name Assigned</u>	<u>Questions</u>	<u>Hypothesis</u>
1	Supervisor Credibility	18,19,20,21,22,23,24	5
2	Cohesion/Productivity	3A,3B,3C,3D	All
3	Knowledge of Performance	10,11,12	2
4	Organizational Awareness	26,27	6
5	Equity	28,29	7
6	Sociability	6,7	1
7	Interpersonal Relations with Koreans	8,13	1
8	Environmental Demand	16,17	3

Note: The variable "size" for hypothesis 4 was acquired from another source.

work group's characteristics. This approach is felt by the researcher to be more valid than using supervisory evaluations which may be influenced by their limited perspective or biased by their own self interests. Partial correlations were made using the group variable scores with cohesion as the criterion and the partials of the variables as the predictors. Multiple regression was also conducted to determine the total variance of cohesion explained by all of the other variables combined. Pearson's correlations coefficients were computed for each predictor variable of cohesion and T-test significance test were made. All data reduction was accomplished employing the Statistical Package for the Social Sciences [Ref. 34].

Key members of each work group were interviewed by the researcher on the same day that the attitude survey was administered. The personnel defined as being key were the most senior personnel available representing each of the work group factions: members of the U.S. Army, U.S. civilian General Service employees, KATUSAs attached for duty, Korean Direct Hire employees, and contractors. These personnel were selected for interview because of their positions of power (influence) and authority, their experience, and their maturity. The interview employed a moderately scheduled technique as per Gorden [Ref. 35] which employed a general structure of open ended questions providing opportunity for additional probes. Individual and group

linked in the mind of the respondent. It must be emphasized that this is a mathematical technique which must be interpreted prior to acceptance for an application in the behavioral sciences. Factor analysis is incapable of distinguishing between separate variables that are closely dependent upon each other but are rationally very different variables. Using demographic data from the survey, factor analysis was also conducted by category of the respondents. This confirmed the heterogeneity of the sampled population as intended by the research design. Categories resulting in significantly diverse factors are included in the results of Appendix E.

In comparing the questions intended to measure variables by the survey design (Table 1) with the implied measure of the questions as a result of the factor analysis (Table 2), it is apparent that interpretation of the factor analysis was warranted before proceeding further. In factor 2 actual productivity as referred to in question 3D is rationally much different than the way workers get along together, stick together, and help each other on the job as referred to in questions 3A, 3B, and 3C. In the judgement of the researcher these concepts representing productivity and cohesion are rationally distinct and should be separated.

It is the opinion of the researcher that in the data sample productivity and cohesion were so closely dependent upon each other that factor analysis was incapable of

anonymity were again guaranteed in order to increase data validity. Questions were neutrally worded and presented in order to encourage complete and more valid responses. This was especially necessary due to the differences in rank between the interviewer and interviewees. Handwritten notes were taken at the time of the interview. The results of these interviews were used for substantiation and interpretation of the reduced survey data during data analysis.

Direct observations of behavior were also made by the researcher during the course of his visit to the work groups. The relevance of these behaviors to cohesion and the other desired variables was immediately interpreted by the researcher and documented in handwritten notes for future use. During data analysis of the survey data, the interpretations of these observations were used for substantiation and interpretation of the survey data.

distinguishing them. In interpreting which factor was a suitable proxy for the hypothesized variable of Intragroup (Interpersonal) Communications (Table 1), it was necessary to consider factors 6 and 7. Factor 6, which is associated with questions 6 and 7, deals with American and Korean social function. Factor 7, which is associated with question 8 and 13 deal exclusively with interpersonal relations with Koreans. It is the opinion of the researcher that the characteristics of factor 6 (Sociability) most closely approximates the hypothesized variable (Intragroup (Interpersonal) Communications). It was therefore accepted and used in this research. The scores of the questions relevant to each variable were added together for each case (individual respondent to the questionnaire) and divided by the number of questions associated with that variable. If an individual did not respond to all questions relevant to a factor, an individual score for that variable was not computed and that case was eliminated from further statistical computations involving that variable. This had the effect of keeping the scores of all variables in the range of the original Likert scale of the survey (1 to 5). These individual scores were then subjected to further statistical manipulation.

Individual scores for each variable were then sorted according to the work group the respondent was assigned to. The mean variable score of the individuals assigned to each

VIII. RESULTS

The results of the Company Commander's Survey (Appendix A) which selected the work groups to be surveyed and provided other pertinent information about the work groups are shown at Appendix C. The design of the survey questionnaire (Appendix B) was intended to measure work group cohesion, work group productivity as perceived by the members of the group, and the variables associated with each of the seven hypotheses. The questions intended to measure each of the variables are shown in Table 1. It should be emphasized that the measure of these variables by the questions indicated was intended by the questionnaire design which took place before its administration or any manipulation of the collected data. The results of the attitude survey were numerically coded for computer entry (Appendix D).

The factor analysis of this data resulted in the identification of eight factors. These factors were identified by applying the selection criterion discussed in the previous section that the responses to the questions of the survey must have a projection of at least .6 on the identified factor axis. The factors identified meeting this criterion are shown in Table 2. The results of the factor analysis are shown in Appendix E. The implications of this factor analysis is that the responses to the questions are conceptually

of the work groups for each of the variables was computed and is shown in Appendix F. A ranking of work groups according to their Group Cohesion Score is provided in Table 3 for the purpose of distinguishing more cohesive work groups from less cohesive work groups in future conversations. As discussed earlier, the implication of this approach is, that each individual's response to a given question, about a characteristic of the work group to which he (she) is assigned, is equally valid. The variances of the variable scores for each of the work groups are also shown.

The mean individual scores of the individuals assigned to each work group for each variable were taken as the group score for that variable. For example in company 1, work group 1 the mean score of the individual levels of cohesiveness felt was 4.429 and was accepted as that group's score for the group level of cohesion. Partial correlation and statistical significance tests employing a T test were conducted using cohesion as the dependent variable and the hypothesized variables as the independent variables. Results of these computations are shown in Table 4.

Of added interest to the researcher were the relationships between cohesion and the group perception of productivity and between cohesion and the Company Commander's perception of group productivity. Partial correlations and statistical significance tests were conducted employing group

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Size	4	*
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Organizational Awareness	6	25, 26, 27
Equity	7	28, 29, 30, 31

*determined by Company Commander Survey (Appendix A) response and verified during interview at time of administration of survey by the researcher.

Table 3

RANKING OF WORK GROUPS BY GROUP COHESION SCORE

<u>Company Designation</u>	<u>Company Commander's Prediction of Work Group Cohesion (Work Group Designation)</u>	<u>Group Cohesion Score</u>
1	Highest (1)	4.429
4	Highest (1)	4.212
5	Highest (1)	4.200
2	Highest (1)	4.167
6	Highest (1)	4.152
2	Lowest (2)	4.012
1	Lowest (2)	3.889
4	Lowest (2)	3.846
5	Lowest (2)	3.729
3	Lowest (2)	3.630
6	Lowest (2)	3.568
3	Highest (1)	3.458

Table 2
RELATIONSHIP BETWEEN FACTORS AND HYPOTHESIZED VARIABLES

<u>Factor</u>	<u>Variable Name Assigned</u>	<u>Questions</u>	<u>Hypothesis</u>
1	Supervisor Credibility	18,19,20,21,22,23,24	5
2	Cohesion/Productivity	3A,3B,3C,3D	All
3	Knowledge of Performance	10,11,12	2
4	Organizational Awareness	26,27	6
5	Equity	28,29	7
6	Sociability	6,7	1
7	Interpersonal Relations with Koreans	8,13	1
8	Environmental Demand	16,17	3

Note: The variable "size" for hypothesis 4 was acquired from another source.

Table 4

RELATIONSHIPS BETWEEN HYPOTHESIZED VARIABLES AND COHESION

Hypothesized Variable	Partial Correlation		Multiple Correlation		Significance
	b	Simple r	Simple r ²	Multiple R	
Environmental Demand	-.0128	-.1680	.0282	-.1680	.308
Sociability	.6649	.3749	.1406	.4048	.128
Knowledge of Performance	.5575	.4213	.1775	.5147	.085
Size	.0016	.3621	.1311	.5226	.109
Supervisor Credibility	.5252	.5414	.2931	.6753	.033
Organizational Awareness	-.9136	-.1197	.0143	-.8680	.472
Equity	-.4943	-.2705	.0732	-.8951	.142

(a=2.3348)

distinguishing them. In interpreting which factor was a suitable proxy for the hypothesized variable of Intragroup (Interpersonal) Communications (Table 1), it was necessary to consider factors 6 and 7. Factor 6, which is associated with questions 6 and 7, deals with American and Korean social function. Factor 7, which is associated with question 8 and 13 deal exclusively with interpersonal relations with Koreans. It is the opinion of the researcher that the characteristics of factor 6 (Sociability) most closely approximates the hypothesized variable (Intragroup (Interpersonal) Communications). It was therefore accepted and used in this research. The scores of the questions relevant to each variable were added together for each case (individual respondent to the questionnaire) and divided by the number of questions associated with that variable. If an individual did not respond to all questions relevant to a factor, an individual score for that variable was not computed and that case was eliminated from further statistical computations involving that variable. This had the effect of keeping the scores of all variables in the range of the original Likert scale of the survey (1 to 5). These individual scores were then subjected to further statistical manipulation.

Individual scores for each variable were then sorted according to the work group the respondent was assigned to. The mean variable score of the individuals assigned to each

Table 5

RELATIONSHIP BETWEEN COHESION AND GROUP PERCEPTION OF PRODUCTIVITY

<u>Independent Variable</u>	Partial Correlation		Significance <u>T test (P)</u>
	<u>b</u>	<u>Simple r</u> <u>Simple r²</u>	
Cohesion	.4482	.4791 .2295	.058

(a=2.4845)

Table 3

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<u>Company Designation</u>	<u>Company Commander's Prediction of Work Group Cohesion (Work Group Designation)</u>	<u>Group Cohesion Score</u>
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(a=2.3348)

IX. ANALYSIS

In analysing the results of this research a heavy reliance on inference as a result of statistics was made. For the benefit of the reader a short review of the meaning of statistical terminology is provided.

change in the dependent variable which is explained by the use of the data points of the independent variables.

In significance testing employing a T test a normal distribution of values of the dependent variable is assumed for each value of the independent variable. Determination of the confidence level of this distribution is limited by the number of known data points (in the case of this research, 12 groups). An approximation of the assumed normal distribution is constructed and a probability (P) is determined which is the probability that the data points are the results of chance events. An alternative interpretation is that P is the risk of accepting that the dependent and independent variables are not actually related according to the calculated parameters (b, Simple r, and Multiple R).

The analysis was made within the context of the assumptions made in the research design. Briefly these assumptions included:

1. That an attitude survey is an appropriate indication of reality and is more valid in measuring work group characteristics than other measures currently in use.
2. That the Likert Scale employed in the attitude survey is a close enough approximation to an interval scale for statistical purposes.
3. That the sample of data collected from each work group is representative of the population of that work group.
4. That the responses of each individual in a work group is equally valid although from different perspectives. This resulted in

Table 6

RELATIONSHIP BETWEEN COHESION AND COMMANDER'S EVALUATION OF PRODUCTIVITY

<u>Independent Variable</u>	<u>b</u>	<u>Partial Correlation</u>		<u>Significance</u> T test (P)
		<u>Simple r</u>	<u>Simple r²</u>	
Cohesion	1.223	.5688	.3236	.071

(a=-.3716)

the mean of the individual scores regarding a variable being representative of the group as a whole.

Accepting these assumptions an analysis of the hypotheses then becomes possible.

A. HYPOTHESIS 1

Quality of intragroup communications positively correlates with group cohesion.

Analysis: As a result of factor analysis it was found that the questions of the attitude survey which were intended to measure this variable did not cluster into a single factor. The interpretation of this is that in the minds of the respondents the questions were not conceptually closely related. The two factors which emerged from the factor analysis related to the questions intended to measure this variable were factors 6 and 7 (See Tables 1 and 2). Factor 6 was related to questions 6 and 7 and was considered to be indicative of the level of group sociability. Factor 7 was related to questions 8 and 13 and were considered to be indicative of the level of interpersonal relations with Koreans. Since factor 7 dealt only with interpersonal relations with Koreans rather than with both Koreans and Americans, factor 6 was selected as the best proxy of the desired variable. As a consequence of this selection and the wording of the relevant questions (6 and 7), the frequency of exposure to social functions in which

IX. ANALYSIS

In analysing the results of this research a heavy reliance on inference as a result of statistics was made. For the benefit of the reader a short review of the meaning of statistical terminology is provided.

In partial correlation b is the slope of the line best fitting the data points with the dependent variable plotted on the vertical axis and the independent variable plotted on the horizontal axis. The Pearson correlation coefficient (Simple r) is a measure of the strength of the relationship between the dependent variable and the independent variable. The square of the Pearson correlation coefficient (Simple r^2) defines the proportion of the change in the dependent variable which is explained by the data points of the independent variable.

In multiple correlation the multiple correlation coefficient (Multiple R) is a measure of the strength of the relationship between the dependent variable and the cumulative effects of the independent variables. This includes the effects of the independent variables individually and the interaction of the independent variables with each other. The square of the multiple correlation coefficient (Multiple R^2) defines the cumulative proportion of the

intragroup (interpersonal) communications could take place was measured rather than the quality of intragroup communications. While sociability was an unintended variable, its b value was .6649. This means that for the sample of twelve work groups an increase of .6649 in cohesion was associated with each increase of one unit in sociability. The Simple r^2 of .1406 indicates that 14.06% of the variation in cohesion is associated with changes in sociability. The probability that these relationships were the result of chance was .128 based on the data from the twelve work groups.

During the interviews of the work groups it was noted that the more cohesive work groups gave indications of conducting more social functions (picnics, parties, happy hours, hails and farewells, etc.) than the less cohesive work groups. From the data it is impossible to conclude if cohesion causes sociability in a work group or sociability causes cohesion in a work group. Intuitively it seems to the researcher that the number of social functions conducted by a work group is largely controlled by the work group leader's desires with a lesser influence by the work group's desires. Although it is likely that work group cohesion has a limited effect on sociability, it seems evident that sociability is a predictor of cohesion.

While the survey resulted in the tangential measure of the hypothesized variable, it is felt that the interviews

change in the dependent variable which is explained by the use of the data points of the independent variables.

In significance testing employing a T test a normal distribution of values of the dependent variable is assumed for each value of the independent variable. Determination of the confidence level of this distribution is limited by the number of known data points (in the case of this research, 12 groups). An approximation of the assumed normal distribution is constructed and a probability (P) is determined which is the probability that the data points are the results of chance events. An alternative interpretation is that P is the risk of accepting that the dependent and independent variables are not actually related according to the calculated parameters (b, Simple r, and Multiple R).

The analysis was made within the context of the assumptions made in the research design. Briefly these assumptions included:

1. That an attitude survey is an appropriate indication of reality and is more valid in measuring work group characteristics than other measures currently in use.
2. That the Likert Scale employed in the attitude survey is a close enough approximation to an interval scale for statistical purposes.
3. That the sample of data collected from each work group is representative of the population of that work group.
4. That the responses of each individual in a work group is equally valid although from different perspectives. This resulted in

resulted in the collection of more pertinent data. More cohesive work groups reported frequent interpersonal communications involving such subjects as religion, politics, economics, philosophy, etc. These heavily value-laden subjects undoubtedly resulted in a sharing of value systems among the communicants. The quality of communications in these groups was thus evaluated to be quite high. These groups also reported that when differences in value systems among individuals became evident there was a mutual respect for the right of the other to retain his beliefs and interpersonal conflicts were generally avoided. In less cohesive groups the frequency of such communications was reported to be much lower. When such communications were reported, interpersonal conflicts were frequently reported as the result. The results of the interviews indicate that the intent of the original hypothesis was substantiated.

B. HYPOTHESIS 2

Knowledge of group performance positively correlates with group cohesion, especially if group performance is higher than the expected standard.

Analysis: As a result of factor analysis factor 3 (Questions 10,11, and 12 of the survey) were found to be indicative of the desired variable. The b value of this variable was found to be .5575 indicating that an increase of .5575 in cohesion was associated with each increase of

the mean of the individual scores regarding a variable being representative of the group as a whole.

Accepting these assumptions an analysis of the hypotheses then becomes possible.

A. HYPOTHESIS 1

Quality of intragroup communications positively correlates with group cohesion.

Analysis: As a result of factor analysis it was found that the questions of the attitude survey which were intended to measure this variable did not cluster into a single factor. The interpretation of this is that in the minds of the respondents the questions were not conceptually closely related. The two factors which emerged from the factor analysis related to the questions intended to measure this variable were factors 6 and 7 (See Tables 1 and 2). Factor 6 was related to questions 6 and 7 and was considered to be indicative of the level of group sociability. Factor 7 was related to questions 8 and 13 and were considered to be indicative of the level of interpersonal relations with Koreans. Since factor 7 dealt only with interpersonal relations with Koreans rather than with both Koreans and Americans, factor 6 was selected as the best proxy of the desired variable. As a consequence of this selection and the wording of the relevant questions (6 and 7), the frequency of exposure to social functions in which

one unit in knowledge of group performance. The Simple r^2 of .1775 indicates that 17.75% of the variation in cohesion is associated with changes in knowledge of group performance. The probability of .085 that these relationships was the result of chance was obtained

Knowledge of group performance is an indication of the amount of feedback the members of a work group receive from their organization regarding productivity. This knowledge is acquired by the work group members either directly from organizational representatives or through other work group members who communicate knowledge which originated from organizational representatives. During the interviews it was evident in most cases of a more cohesive group that greater concern was exhibited to insure that all members of the work group received feedback regarding work activities and productivity evaluations. This was strikingly exemplified by an E-2 who during the interview stated, "We're good and we know we're good!" It seems intuitively obvious to the researcher that organizational feedback to members of the work group resulting in their knowledge of productivity as assessed by the organization causes cohesion in the work group. This seems obvious since to assume that work group cohesion causes the organization to provide feedback regarding group productivity would be irrational.

intragroup (interpersonal) communications could take place was measured rather than the quality of intragroup communications. While sociability was an unintended variable, its b value was .6649. This means that for the sample of twelve work groups an increase of .6649 in cohesion was associated with each increase of one unit in sociability. The Simple r^2 of .1406 indicates that 14.06% of the variation in cohesion is associated with changes in sociability. The probability that these relationships were the result of chance was .128 based on the data from the twelve work groups.

During the interviews of the work groups it was noted that the more cohesive work groups gave indications of conducting more social functions (picnics, parties, happy hours, hails and farewells, etc.) than the less cohesive work groups. From the data it is impossible to conclude if cohesion causes sociability in a work group or sociability causes cohesion in a work group. Intuitively it seems to the researcher that the number of social functions conducted by a work group is largely controlled by the work group leader's desires with a lesser influence by the work group's desires. Although it is likely that work group cohesion has a limited effect on sociability, it seems evident that sociability is a predictor of cohesion.

While the survey resulted in the tangential measure of the hypothesized variable, it is felt that the interviews

C. HYPOTHESIS 3

A commonly perceived environmental demand by the members of the group positively correlates with group cohesion.

Analysis: As a result of factor analysis, factor 8 (question 16 and 17) was identified as the factor representing the variable environmental demand. The b value of environmental demand was calculated as $-.0128$ which indicated a decrease of $.0128$ in cohesion level was associated with an increase of one unit in environmental demand. The Simple r^2 of $.0282$ indicates that environmental demand accounts for 2.82% of the variance in cohesion. The significance test showed a probability of $.308$ that the relationships between environmental demand and cohesion are the result of chance.

During the interview sessions less cohesive work groups commonly reported that conflicts with the chain-of-command were either ignored or accepted without resolution. This approach to conflict management commonly created more stress on the individual members of the work group. This led to more mental pressure being felt and an increased sense of pressure from the organization. The concept of one (or more) organizational leader being unapproachable concerning conflict resolution between the organization and work group was commonly reported. Generally, in more cohesive work groups, conflicts with the organization and the chain-of-command were resolved through rational discussions with

organizational leaders. They also reported fewer conflicts with the chain-of-command.

D. HYPOTHESIS 4

All other factors being equal, the size of the group negatively correlates with the level of cohesion.

defined as the similarity between the group's perceived supervisor characteristics (technical expertise, use of authority, democratic vs. autocratic style, and task vs. people focus) as compared with the group's perceived appropriate supervisor characteristics under the given circumstances.

in expectations of permanent employment. It was also determined that the loss of one's position has increased significance in the Korean culture when compared to an American employee. The Korean culture is characterized by very strong norms concerning social strata. This concept is deeply rooted in the Confucian religion, which has had a very strong influence on the Korean culture. A position of employment with the American government is viewed as having a higher status in the social strata than a similar position of employment with any other organization. The result of this is that the loss of employment with the American government is not only interpreted by a Korean as breaking of a psychological contract but also results in the loss of social status. The loss of social status is equivalent to a loss of pride, honor, self respect, and the respect of others which is disgraceful to one's family and ancestry.

The Confucian religion stresses the importance of friendships which results in interpersonal relationships between Koreans which are much stronger than those typically experienced by Americans. These friendships generally develop within a social strata such as between classmates at a school and coworkers at a job. The workers remaining in the work group where the reduction in force had occurred displayed a great deal of empathy for their former coworkers and attributed the cause of the job actions to their immediate American supervisors. In more cohesive work groups

the interviews disclosed that conflicts between work group members and supervisors were generally dealt with directly. No observations of belligerent behavior were made in more cohesive work groups.

Observations by the researcher during the administration of the survey and interviews indicated that some of the supervisors, which were subsequently found to be most credible by the survey results, were subjectively judged to be autocratic in their leadership style.

In view of the high correlation between supervisor credibility and group cohesion, this flies in the face of much of the current leadership theory. The explanation of this can be found from a perspective known as situational leadership. Simply stated this perspective theorizes that appropriate leadership behavior by a supervisor as perceived by subordinates is tempered by the situation in which the group uniquely perceives itself in its environment. Identification of the key variables to this situation is the subject of much research by leadership theorists. Although it was beyond the scope of this research it was found to exist.

F. HYPOTHESIS 6

Group awareness of organizational goals positively correlates with group cohesion.

Analysis: Factor analysis revealed the existence of factor 4 (questions 26 and 27) which is the factor associated

organizational leaders. They also reported fewer conflicts with the chain-of-command.

D. HYPOTHESIS 4

All other factors being equal, the size of the group negatively correlates with the level of cohesion.

Analysis: The b value of the variable size was calculated as .0016 indicating an increase of .0016 in cohesion was associated with each additional members increase in the size of the work group. The Simple r^2 of .1311 indicates that 13.11% of the variance in cohesion is associated with changes in the size of the work group. A 10.9% probability was found that these characteristics were arrived at as a result of chance. It was observed during the administration of the survey that as the size of the work group increased, the rank and experience of the supervisors also increased. This is typical of the managerial practice of hierarchical organizations and was expected by the researcher. It was observed that managers had more interactions with their larger work groups than with smaller ones. This resulted in more participative organizational planning and a perception of greater attention to the allocation of resources for larger work groups.

E. HYPOTHESIS 5

Supervisor credibility as perceived by the group positively correlates with group cohesiveness. Credibility is

with the variable Organizational Awareness. The calculated b value of $-.9136$ indicates that a decrease of $.9136$ in cohesion is associated with each increase of a unit in organizational awareness. The Simple r^2 value of $.0143$ indicates that 1.43% of the variance in cohesion is explained by changes in organizational awareness. The probability of these characteristics being the result of chance was determined as $.472$. This high probability of chance indicates that, at least as far as this research data is concerned, group awareness of organizational goals and cohesion are not related. During interviews it was determined that some of the more cohesive groups were more autonomous than less cohesive groups. Apparently organizational leaders perceived that more cohesive groups exhibited more competence and were capable of more autonomous operation with less supervision and guidance. A lesser awareness of organizational plans and goals was the result. These results are consistent with management by exception. This form of management is used when the manager concentrates attention on problem areas. Improvements in areas demonstrating acceptable standards are often forgone by this approach to management.

G. HYPOTHESIS 7

Perceived equity (of pay, evaluation and reward systems, working conditions, and living conditions (if provided)

defined as the similarity between the group's perceived supervisor characteristics (technical expertise, use of authority, democratic vs. autocratic style, and task vs. people focus) as compared with the group's perceived appro-

dignity and self respect. These norms are encompassed within a Korean proverb which translates to "A righteous man never gets rich" [Ref. 36]. The result of these conditions is the existence of cohesive elements within work groups who perceive inequities but tolerate them. The impact of these culturally based occurrences on the data applying to this hypothesis is undeniable.

The cumulative results of the incorporation of the seven hypothesized variables was computed as having a Multiple R^2 of .8013. This means that the seven hypothesized variables combined (including their interactions with each other) associates 80.13% of the variance in cohesion with changes in the hypothesized variables.

In determining the relationships between cohesion and the group perception of productivity a b of .4482 was computed indicating a .4482 change in the group perception of productivity is associated with a change of each unit in cohesion. A Simple r^2 of .2295 indicates that 22.95% of the variance in group perception of productivity is associated with changes in cohesion. A probability of .058 was determined that these relationships were the results of chance.

The relationships between cohesion and Company Commander's perception of group productivity were calculated with a b value of 1.223 indicating a 1.223 change in perceived productivity is associated with each unit change in cohesion. A Simple r^2 of .3236 indicates that 32.36% of the

in expectations of permanent employment. It was also determined that the loss of one's position has increased significance in the Korean culture when compared to an American employee. The Korean culture is characterized by very strong norms concerning social strata. This concept is deeply rooted in the Confucian religion, which has had a very strong influence on the Korean culture. A position of employment with the American government is viewed as having a higher status in the social strata than a similar position of employment with any other organization. The result of this is that the loss of employment with the American government is not only interpreted by a Korean as breaking of a psychological contract but also results in the loss of social status. The loss of social status is equivalent to a loss of pride, honor, self respect, and the respect of others which is disgraceful to one's family and ancestry.

The Confucian religion stresses the importance of friendships which results in interpersonal relationships between Koreans which are much stronger than those typically experienced by Americans. These friendships generally develop within a social strata such as between classmates at a school and coworkers at a job. The workers remaining in the work group where the reduction in force had occurred displayed a great deal of empathy for their former coworkers and attributed the cause of the job actions to their immediate American supervisors. In more cohesive work groups

variance in the Company Commander's perception of work group productivity is associated with changes in cohesion. There was a probability of .071 that these relationships were the result of chance.

An additional point of interest concerns the demonstrated existence of group norms. This is evidenced in a review of the variances in the individual variable scores in Appendix E. The stronger group norms concerning a specific variable is evidenced by a smaller variance (variation in the responses of individual members of the work group). For example, in comparing the two work groups in company 1 regarding the variable "Individual Level of Cohesiveness Felt," work group 1 has a variance of .175 indicating a stronger norm toward the questions associated with that variable than work group 2, which had a variance of .391. Generally the stronger norms appear to be present in the more cohesive groups but there is not a method of determining the direction of the norm or its actual effect on individual behavior. For this reason it was not incorporated into the statistical formulae for determination of the relationships between cohesion and the hypothesized variables.

the interviews disclosed that conflicts between work group members and supervisors were generally dealt with directly. No observations of belligerent behavior were made in more cohesive work groups.

Observations by the researcher during the administration of the survey and interviews indicated that some of the supervisors, which were subsequently found to be most credible by the survey results, were subjectively judged to be autocratic in their leadership style.

In view of the high correlation between supervisor credibility and group cohesion, this flies in the face of much of the current leadership theory. The explanation of this can be found from a perspective known as situational leadership. Simply stated this perspective theorizes that appropriate leadership behavior by a supervisor as perceived by subordinates is tempered by the situation in which the group uniquely perceives itself in its environment. Identification of the key variables to this situation is the subject of much research by leadership theorists. Although it was beyond the scope of this research it was found to exist.

F. HYPOTHESIS 6

Group awareness of organizational goals positively correlates with group cohesion.

Analysis: Factor analysis revealed the existence of factor 4 (questions 26 and 27) which is the factor associated

X. CONCLUSIONS AND RECOMMENDATIONS

Hypotheses were evaluated using as a criterion the sign of the calculated Simple r by Partial Correlation of the independent variables.

Hypothesis 1 involving the "quality of intragroup communications," (which was subsequently redesignated "sociability" as a result of factor analysis) was found to be positively correlated with group cohesion as predicted.

Hypothesis 2 which involved the group's knowledge of their evaluated performance by organizational leaders in the form of performance feedback was found to be positively correlated with group performance as predicted.

Hypothesis 3 predicted that when group members had a common perception of environmental demand manifested in the form of mental pressure from sources outside the group there would be a positive correlation with group cohesion. This was not substantiated by the data and hypothesis 3 can not be accepted as a result of this study.

Hypothesis 4 predicted that the size of the group would correlate negatively with group cohesion if all other factors were equal. Again this was not substantiated by the data from this study and can not be accepted.

Hypothesis 5 involving the credibility of group supervisors as perceived by group members was found to be

with the variable Organizational Awareness. The calculated b value of $-.9136$ indicates that a decrease of $.9136$ in cohesion is associated with each increase of a unit in organizational awareness. The Simple r^2 value of $.0143$ indicates that 1.43% of the variance in cohesion is explained by changes in organizational awareness. The probability of these characteristics being the result of chance was determined as $.472$. This high probability of chance indicates that, at least as far as this research data is concerned, group awareness of organizational goals and cohesion are not related. During interviews it was determined that some of the more cohesive groups were more autonomous than less cohesive groups. Apparently organizational leaders perceived that more cohesive groups exhibited more competence and were capable of more autonomous operation with less supervision and guidance. A lesser awareness of organizational plans and goals was the result. These results are consistent with management by exception. This form of management is used when the manager concentrates attention on problem areas. Improvements in areas demonstrating acceptable standards are often forgone by this approach to management.

G. HYPOTHESIS 7

Perceived equity (of pay, evaluation and reward systems, working conditions, and living conditions (if provided)

positively correlated with group cohesion as predicted and was accepted.

Hypothesis 6 predicted that awareness by the group of organizational goals would be positively correlated with the group's level of cohesiveness. The research data did not substantiate this prediction and hypothesis 6 can not be accepted based on this research.

Hypothesis 7 predicted that group member perceptions of equity involving pay, evaluation and reward systems, etc., in the treatment of other group members would be positively correlated with group cohesion. This was not substantiated by the data of this research.

Table 7 summarizes the status of the hypotheses resulting from this research.

While the analysis indicates that results were often contradictory to those hypothesized and expected by the researcher, it must be pointed out that the risk (T-test probability that the relationships were due to chance) was relatively high in relationships between cohesion and the independent variables. It is felt that these low indicators of significance are primarily the result of the research design in that the number of work groups in the sample (twelve) was not large enough to gain higher statistical significance.

The original objective was to identify those variables which are closely related to cohesion. This objective has

between members) will be positively correlated with group cohesion.

Analysis: The factor analysis revealed the existence of factor 5 (questions 28 and 29) as being related to the variable equity. A b value of $-.4943$ was calculated meaning that a decrease in cohesion of $.4943$ was associated with each unit increase in equity. The Simple r^2 of $.0732$ means that 7.32% of the variance in cohesion is associated with changes in equity. A probability of $.142$ was computed that these relationships were the result of chance. During the interviews and through observations the existence of strong friendships among the Korean National Employees was evident. The dedication to the maintenance of such friendships in the Korean culture is very great. The result of these friendships is generally a very cohesive element of Korean National employees within a work group. Considerable concern was expressed during interviews by Korean National employees regarding the perceived equity of promotions and the potentials for career development. Not to tolerate these perceived inequities would result in the loss of employment with the American government which would reduce association with close friends and the concomitant loss of social status as discussed earlier.

A cultural norm of being unassuming and tolerant of those in positions of power is very strong in the Korean culture. Another norm involves maintaining one's own

Table 7

RESULTANT STATUS OF HYPOTHESES

<u>Hypothesis</u>	<u>Independent Variable</u>	<u>Status</u>
1	Intragroup (Interpersonal) Communications*	Accepted
2	Knowledge of Performance (Performance Feedback)	Accepted
3	Environmental Demand (Mental Pressure from Outside the Group)	Not Accepted
4	Size	Not Accepted
5	Supervisor Credibility	Accepted
6	Awareness of Organizational Goals	Not Accepted
7	Equity	Not Accepted

*As a result of factor analysis this variable was redesignated "Sociability"

dignity and self respect. These norms are encompassed within a Korean proverb which translates to "A righteous man never gets rich" [Ref. 36]. The result of these conditions is the existence of cohesive elements within work groups who perceive inequities but tolerate them. The impact of these culturally based occurrences on the data applying to this hypothesis is undeniable.

The cumulative results of the incorporation of the seven hypothesized variables was computed as having a Multiple R^2 of .8013. This means that the seven hypothesized variables combined (including their interactions with each other) associates 80.13% of the variance in cohesion with changes in the hypothesized variables.

In determining the relationships between cohesion and the group perception of productivity a b of .4482 was computed indicating a .4482 change in the group perception of productivity is associated with a change of each unit in cohesion. A Simple r^2 of .2295 indicates that 22.95% of the variance in group perception of productivity is associated with changes in cohesion. A probability of .058 was determined that these relationships were the results of chance.

The relationships between cohesion and Company Commander's perception of group productivity were calculated with a b value of 1.223 indicating a 1.223 change in perceived productivity is associated with each unit change in cohesion. A Simple r^2 of .3236 indicates that 32.36% of the

been attained. The question which remains is "OK, now what do we do with that information?" The author sees four primary alternatives to be considered for implementation in view of the outcomes of this research.

A. ALTERNATIVE 1

The first alternative is to do nothing. To do nothing would be appropriate if the cohesion model developed and used in this study is deemed to be inappropriate and the results and analysis of the research are deemed to be biased to the extent that they are not credible. It is the author's opinion that this alternative would ignore significant findings and condemn the U.S. Army to continued lack of understanding regarding the cohesion process. The relevance of group cohesiveness to the group perception of productivity and the unit commander's evaluation of productivity, when the group norm is in the same direction as the organization's goals, has been demonstrated by this study. If the research referenced earlier had been interpreted from this perspective, the researcher suspects that it would have been more consistent in its conclusions regarding the advantages of cohesion. The perspective which this research provides should not be ignored and the alternative of "do nothing" should be rejected.

variance in the Company Commander's perception of work group productivity is associated with changes in cohesion. There was a probability of .071 that these relationships were the result of chance.

An additional point of interest concerns the demonstrated existence of group norms. This is evidenced in a review of the variances in the individual variable scores in Appendix E. The stronger group norms concerning a specific variable is evidenced by a smaller variance (variation in the responses of individual members of the work group). For example, in comparing the two work groups in company 1 regarding the variable "Individual Level of Cohesiveness Felt," work group 1 has a variance of .175 indicating a stronger norm toward the questions associated with that variable than work group 2, which had a variance of .391. Generally the stronger norms appear to be present in the more cohesive groups but there is not a method of determining the direction of the norm or its actual effect on individual behavior. For this reason it was not incorporated into the statistical formulae for determination of the relationships between cohesion and the hypothesized variables.

B. ALTERNATIVE 2

A second alternative regarding the results of this research would be to study the model of cohesion further. This would be the most conservative approach which is seen as potentially acceptable to the U.S. Army. It involves the least risk to the Army and requires the least commitment of resources relevant to the independent variables to which this research addressed itself. By accepting this approach it could be determined if similar results utilizing the same cohesion model are obtained in other TDA units throughout the world. If the cultural uniqueness of the Korean situation influenced the validation of the model in this research, this could also be discovered. Ideally this alternative would involve commissioning research of sufficient scope to validate the cohesion model with samples of all Table of Distribution and Allowance U.S. Army units assigned worldwide. The major disadvantage of this alternative is that the potential advantages of cohesion in TDA units will be forgone while the model is being studied.

C. ALTERNATIVE 3

A third alternative would be to implement limited programs based upon the cohesion model while continuing to study and refine it further for future implementation on a wider scale. This alternative would also ideally be of sufficient scope to validate the cohesion model on a wider

X. CONCLUSIONS AND RECOMMENDATIONS

Hypotheses were evaluated using as a criterion the sign of the calculated Simple r by Partial Correlation of the independent variables.

Hypothesis 1 involving the "quality of intragroup communications," (which was subsequently redesignated "sociability" as a result of factor analysis) was found to be positively correlated with group cohesion as predicted.

Hypothesis 2 which involved the group's knowledge of their evaluated performance by organizational leaders in the form of performance feedback was found to be positively correlated with group performance as predicted.

Hypothesis 3 predicted that when group members had a common perception of environmental demand manifested in the form of mental pressure from sources outside the group there would be a positive correlation with group cohesion. This was not substantiated by the data and hypothesis 3 can not be accepted as a result of this study.

Hypothesis 4 predicted that the size of the group would correlate negatively with group cohesion if all other fac-

Army in terms of increasing cohesion. It would also be the most risky alternative and the most costly if the model is found to be uniquely applicable only under certain conditions. This alternative would involve teaching of the cohesion model by the Leadership Departments of all Training and Doctrine Command Schools to all Officer Basic and Advanced Courses and all Non-Commissioned Officer Education System Courses. In order to accept this alternative, it would be necessary that the model be received as being completely valid under all situations.

In view of the results of this research and the fact that some of the results of the data collected in Korea was inconsistent with the predictions of the model it would not be appropriate at this time to accept the model for an Army-wide system of programs. The last alternative is therefore rejected. As discussed earlier it was felt that the Korean situation under which this research was conducted was a worst case situation in terms of building work group cohesion.

It is felt that the high personnel turnover rate and heterogeneity of work group members creates an especially challenging environment for creating cohesion. The fact that, in spite of the failure of parts of the cohesion model to predict effects on cohesion in the Korean situation, it was able to account for a total of 80.13% of the variance in cohesion is of considerable credit to the model.

positively correlated with group cohesion as predicted and was accepted.

Hypothesis 6 predicted that awareness by the group of organizational goals would be positively correlated with the group's level of cohesiveness. The research data did not substantiate this prediction and hypothesis 6 can not be accepted based on this research.

Hypothesis 7 predicted that group member perceptions of equity involving pay, evaluation and reward systems, etc., in the treatment of other group members would be positively correlated with group cohesion. This was not substantiated by the data of this research.

Table 7 summarizes the status of the hypotheses resulting from this research.

While the analysis indicates that results were often contradictory to those hypothesized and expected by the researcher, it must be pointed out that the risk (T-test probability that the relationships were due to chance) was relatively high in relationships between cohesion and the independent variables. It is felt that these low indicators of significance are primarily the result of the research design in that the number of work groups in the sample (twelve) was not large enough to gain higher statistical significance.

The original objective was to identify those variables which are closely related to cohesion. This objective has

The situational uniqueness of the Korean environment may be such that if the cohesion model were applied in other situations it may be completely valid. In view of the correlations in this and other research between productivity and cohesion when the group norms are in the direction of productivity the first alternative is rejected.

If the second alternative is accepted the necessary verification of the model in other than the Korean environment would take place. The benefits of increased cohesion in selected units would not be realized, however. For this reason the second alternative is rejected.

The third alternative requires a limited acceptance of the cohesion model and should produce beneficial cohesion for those units selected while verifying the model in a variety of situations. For this reason acceptance of the third alternative is recommended. Units to be selected should be picked for their diversity of situation. This will assist in validating the applicability of the model to various situational characteristics. Measures of cohesion and the independent variables should be made within each work group of the selected units. Organizational Effectiveness Staff Officers could then conduct a series of interventions in these units which are designed to improve the characteristics of the independent variables. After the unit's personnel have had sufficient time to respond to the interventions a second measure of cohesion and the

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5	Supervisor Credibility	Accepted
6	Awareness of Organizational Goals	Not Accepted
7	Equity	Not Accepted

*As a result of factor analysis this variable was redesignated "Sociability"

independent variables should be made. A comparison between the first and second measurements should verify the utility of trying to systematically manage the independent variables of the model in an effort to increase cohesion.

The author, as a result of this research, has become more expert in predicting the effects of variables on the cohesiveness of work groups. As a result of the learning process which occurred in conducting this research, he recommends that a minor but significant modification of his cohesion model be employed in any future studies which utilize his model. He recommends that the variable "supervisor credibility," which is the composite of the group member's perceptions of the appropriateness of their supervisor's leadership style, focus, etc., be considered as a moderating or intervening variable. This would have the effect of making supervisor credibility a prerequisite to the achievement of group cohesion and would negate the impact of all other variables if it is not present. This recommendation is made because of the extremely high significance which this research found it to have on group cohesiveness.

The U.S. Army has also recently reported [Ref. 37] in field research that unit cohesion is dependent on "good leadership" when enhancements in cohesion are attempted through increasing the continuity of personnel in the unit. The lack of supervisor credibility in the form of "good leadership" is attributed to lower unit cohesion than

been attained. The question which remains is "OK, now what do we do with that information?" The author sees four primary alternatives to be considered for implementation in view of the outcomes of this research.

A. ALTERNATIVE 1

The first alternative is to do nothing. To do nothing would be appropriate if the cohesion model developed and used in this study is deemed to be inappropriate and the results and analysis of the research are deemed to be biased to the extent that they are not credible. It is the author's opinion that this alternative would ignore significant findings and condemn the U.S. Army to continued lack of understanding regarding the cohesion process. The relevance of group cohesiveness to the group perception of productivity and the unit commander's evaluation of productivity, when the group norm is in the same direction as the organization's goals, has been demonstrated by this study. If the research referenced earlier had been interpreted from this perspective, the researcher suspects that it would have been more consistent in its conclusions regarding the advantages of cohesion. The perspective which this research provides should not be ignored and the alternative of "do nothing" should be rejected.

B. ALTERNATIVE 2

A second alternative regarding the results of this research would be to study the model of cohesion further. This would be the most conservative approach which is seen as potentially acceptable to the U.S. Army. It involves the least risk to the Army and requires the least commitment of resources relevant to the independent variables to which this research addressed itself. By accepting this approach it could be determined if similar results utilizing the same cohesion model are obtained in other TDA units throughout

APPENDIX A

COMPANY COMMANDER'S SURVEY

1. Which of your work groups do you designate as having the lowest cohesion of all the work groups in your organization?
-

2. How would you rate the mission performance of the group designated in 1 above compared to the other work groups in your organization?

lowest 20% 21-40% 41-60% 61-80% top 20%

3. Please indicate the currently assigned personnel strength of the group designated in 1 above.

U.S. military _____

U.S. civilian _____

KATUSA _____

Korean civilian (Direct Hire) _____

Korean contractor _____

4. Which of your work groups do you designate as having the highest cohesion of all the work groups in your organization?
-

basis than the present research. This would assume a moderate amount of risk and resources. To implement this alternative would require that a variety of TDA units be identified preferably which are distributed throughout the world. These units would then be subjected to special treatment through the implementation of management programs which are consistent with the cohesion model developed in this research. For example, supervisors could be trained by Organizational Effectiveness Staff Officers on the implications of their perceived credibility as it applies to cohesiveness of their work groups as well as the impact that cultural differences and other heterogenous characteristics of group members may have on these perceptions. Data on cohesiveness, productivity, and the variables inherent in the cohesion model would be collected. This alternative would provide an opportunity for some units to benefit from the expected increase in cohesion while the model is being refined and validated on a wider scope than the current research. The applicability of the model to other than the Korean situation would also be determined prior to implementation of an Army-wide program under this alternative.

D. ALTERNATIVE 4

A final alternative would involve implementation of an Army-wide system of programs consistent with the cohesion model. This alternative could be the most responsive to the

5. How would you rate the mission performance of the group designated in 4 above compared to the other work groups in your organization?

lowest 20%	21-40%	41-60%	61-80%	top 20%
_____	_____	_____	_____	_____

6. Please indicate the currently assigned personnel strength of the group designated in 4 above.

U.S. military _____

U.S. civilians _____

KATUSA _____

Korean civilian (Direct Hire) _____

Korean contractor _____

Army in terms of increasing cohesion. It would also be the most risky alternative and the most costly if the model is found to be uniquely applicable only under certain conditions. This alternative would involve teaching of the cohesion model by the Leadership Departments of all Training and Doctrine Command Schools to all Officer Basic and Advanced Courses and all Non-Commissioned Officer Education System Courses. In order to accept this alternative, it would be necessary that the model be received as being completely valid under all situations.

In view of the results of this research and the fact that some of the results of the data collected in Korea was inconsistent with the predictions of the model it would not be appropriate at this time to accept the model for an Army-wide system of programs. The last alternative is therefore rejected. As discussed earlier it was felt that the Korean situation under which this research was conducted was a worst case situation in terms of building work group cohesion.

It is felt that the high personnel turnover rate and heterogeneity of work group members creates an especially challenging environment for creating cohesion. The fact that, in spite of the failure of parts of the cohesion model to predict effects on cohesion in the Korean situation, it was able to account for a total of 80.13% of the variance in cohesion is of considerable credit to the model.

APPENDIX B
INDIVIDUAL SURVEY QUESTIONNAIRE
PART I

Place an "X" in the space corresponding to your opinion.

1. Do you feel that you are really a part of your work group?
 - Really part of my work group
 - Included in most ways
 - Included in some ways, but not in others
 - Don't feel I really belong

2. If you had a chance to do the same kind of work for the same pay, in another work group, how would you feel about moving?
 - Would want very much to move
 - Would rather move than stay where I am
 - Would make no difference to me
 - Would rather stay where I am than move
 - Would want very much to stay where I am

3. How does your work group compare with other work groups in your organization on each of the following points?
 - a. The way workers get along together?
 - Much better than most
 - Better than most
 - About the same as most
 - Not as good as most
 - Much worse than most

The situational uniqueness of the Korean environment may be such that if the cohesion model were applied in other situations it may be completely valid. In view of the correlations in this and other research between productivity and cohesion when the group norms are in the direction of productivity the first alternative is rejected.

If the second alternative is accepted the necessary verification of the model in other than the Korean environment would take place. The benefits of increased cohesion in selected units would not be realized, however. For this reason the second alternative is rejected.

The third alternative requires a limited acceptance of the cohesion model and should produce beneficial cohesion for those units selected while verifying the model in a variety of situations. For this reason acceptance of the third alternative is recommended. Units to be selected should be picked for their diversity of situation. This will assist in validating the applicability of the model to various situational characteristics. Measures of cohesion and the independent variables should be made within each work group of the selected units. Organizational Effectiveness Staff Officers could then conduct a series of interventions in these units which are designed to improve the characteristics of the independent variables. After the unit's personnel have had sufficient time to respond to the interventions a second measure of cohesion and the

b. The way workers stick together?

Much better than most

Better than most

About the same as most

Not as good as most

Much worse than most

c. The way the workers help each other on the job?

Much better than most

Better than most

About the same as most

Not as good as most

Much worse than most

d. Mission performance?

Much better than most

Better than most

About the same as most

Not as good as most

Much worse than most

independent variables should be made. A comparison between the first and second measurements should verify the utility of trying to systematically manage the independent variables of the model in an effort to increase cohesion.

The author, as a result of this research, has become more expert in predicting the effects of variables on the cohesiveness of work groups. As a result of the learning process which occurred in conducting this research, he recommends that a minor but significant modification of his cohesion model be employed in any future studies which utilize his model. He recommends that the variable "supervisor credibility," which is the composite of the group member's perceptions of the appropriateness of their supervisor's leadership style, focus, etc., be considered as a moderating or intervening variable. This would have the effect of making supervisor credibility a prerequisite to the achievement of group cohesion and would negate the impact of all other variables if it is not present. This recommendation is made because of the extremely high significance which this research found it to have on group cohesiveness.

The U.S. Army has also recently reported [Ref. 37] in field research that unit cohesion is dependent on "good leadership" when enhancements in cohesion are attempted through increasing the continuity of personnel in the unit. The lack of supervisor credibility in the form of "good leadership" is attributed to lower unit cohesion than

PART II

Using the following key place a number in the space provided for each question:

1-Never 2-Seldom 3-Sometimes 4-Often 5-Always

- ___ 4. How frequently do you participate with your Korean coworkers in competition (i.e., card games, pool games, athletic events, etc.)?
- ___ 5. How frequently do you participate with your American coworkers in competition (i.e., card games, pool games, athletic events, etc.)?
- ___ 6. How frequently do you voluntarily participate in work group social functions (i.e., picnics, parties, happy hours, hails and farewells, etc.) with your Korean coworkers?
- ___ 7. How frequently do you voluntarily participate in work group social functions (i.e., picnics, parties, happy hours, hails and farewells, etc.) with your American coworkers?
- ___ 8. How frequently do you talk to your Korean coworkers about your personal life?
- ___ 9. How frequently do you talk to your American coworkers about your personal life?
- ___ 10. How frequently are you made aware of the results of inspections of your work group?

anticipated as well as lower productivity resulting in the need for additional training and expenditure of resources [Ref. 38]. A modified version of the cohesion model as recommended by the researcher is offered in Figure 3. It includes the other primary variables discussed in this thesis which are related to the cohesion development process.

As a potentially beneficial characteristic of work groups and units leading to higher productivity, cohesion should continue to be studied for systematic application in all U.S. Army units. A generalized model of cohesion, such as has been developed in this study, should prove itself as beneficial to continued research and application in Table of Distribution and Allowance units as well as Table of Organization and Equipment units.

- ___ 11. How frequently are you made aware of the results of your work group's performance on readiness exercises and tests?
- ___ 12. How frequently are you made aware of the results of your work group's performance as compared to other organizational performance standards (i.e., commander's expectations, etc.)?

PART III

Using the following key place a number in the space provided for each statement:

1-strongly disagree 2-disagree 3-neutral 4-agree
5-strongly agree

- ___ 13. My Korean coworkers are sociable toward me.
- ___ 14. My American coworkers are sociable toward me.
- ___ 15. The imminent threat of hostilities against my work group is very great.
- ___ 16. I feel a great deal of mental pressure on my job.
- ___ 17. The superiors of my organization exert a great deal of pressure on my work group.
- ___ 18. My immediate supervisor is technically qualified for his position.
- ___ 19. My immediate supervisor is properly concerned about his people.
- ___ 20. My immediate supervisor is properly concerned about the tasks the work group is responsible for.
- ___ 21. My immediate supervisor leads by example.
- ___ 22. My immediate supervisor uses his/her authority appropriately.
- ___ 23. My immediate supervisor would not require me to do anything he/she would not do.
- ___ 24. My immediate supervisor makes decisions after getting information from those who do the job.

APPENDIX A

COMPANY COMMANDER'S SURVEY

1. Which of your work groups do you designate as having the lowest cohesion of all the work groups in your organization?
-

2. How would you rate the mission performance of the group designated in 1 above compared to the other work groups in your organization?

lowest 20% 21-40% 41-60% 61-80% top 20%

3. Please indicate the currently assigned personnel strength of the group designated in 1 above.

U.S. military _____

U.S. civilian _____

KATUSA _____

Korean civilian (Direct Hire) _____

Korean contractor _____

4. Which of your work groups do you designate as having the highest cohesion of all the work groups in your organization?
-

1-strongly disagree 2-disagree 3-neutral 4-agree
5-strongly agree

- ___ 25. I am aware of what my organization expects of me.
- ___ 26. I am aware of my organization's plans for my work group.
- ___ 27. I am aware of my organization's goals for my work group.
- ___ 28. Promotions are fairly made in my organization.
- ___ 29. Evaluation systems (OER'S, EER'S, performance appraisals, etc.) are fair in my organization.
- ___ 30. Reward systems (medals, certificates, superior performance awards, etc.) are fair in my organization.
- ___ 31. Assignments of additional duties (i.e., cleaning work areas, maintenance of vehicles, kitchen helper, etc.) are fairly made in my organization.

5. How would you rate the mission performance of the group designated in 4 above compared to the other work groups in your organization?

lowest 20%	21-40%	41-60%	61-80%	top 20%
_____	_____	_____	_____	_____

6. Please indicate the currently assigned personnel strength of the group designated in 4 above.

U.S. military _____

U.S. civilians _____

KATUSA _____

Korean civilian (Direct Hire) _____

Korean contractor _____

PART IV

32. What is your Company designation? _____

33. What is your work group designation? _____

Place an "X" in the appropriate space.

34. Do you speak both English and Hongul (Korean)?

Yes No
_____ _____

35. Do you live in barracks or quarters with your coworkers?

Yes No
_____ _____

36. How long have you worked in a combined American and Korean environment?

0-6 months 6-12 months 1-2 years more than 2 years
_____ _____ _____ _____

37. In what culture did you grow up?

Korean White American Hispanic American Black American
_____ _____ _____ _____
Asiatic American Native American Other
_____ _____ _____

38. What is your civilian education level?

less than high school graduate high school graduate
_____ _____
some college college graduate
_____ _____

APPENDIX B
INDIVIDUAL SURVEY QUESTIONNAIRE

PART I

Place an "X" in the space corresponding to your opinion.

1. Do you feel that you are really a part of your work group?

____ Really part of my work group

44. (KATUSA and Korean personnel only answer this question)

Have you received formal training in the American culture?

Yes

No

45. In what year were you born?

1942 or earlier

1943-1952

1953-1958

1959-1962

1963 or later

b. The way workers stick together?

Much better than most

Better than most

About the same as most

Not as good as most

Much worse than most

c. The way the workers help each other on the job?

Much better than most

Better than most

About the same as most

Not as good as most

Much worse than most

d. Mission performance?

Much better than most

Better than most

About the same as most

Not as good as most

Much worse than most

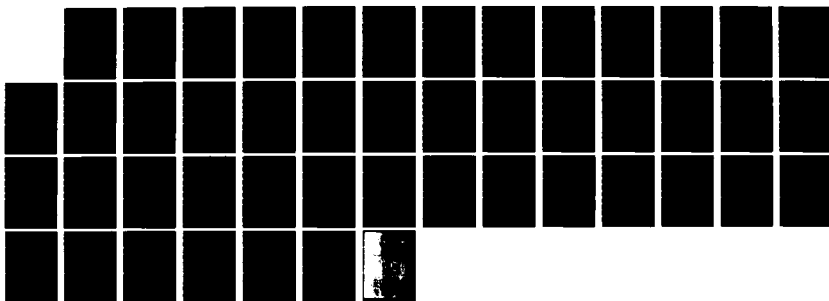
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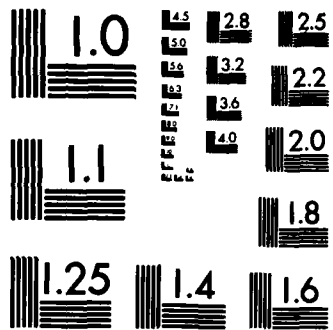
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

PART II

Using the following key place a number in the space provided for each question:

1-Never 2-Seldom 3-Sometimes 4-Often 5-Always

- ___ 4. How frequently do you participate with your Korean coworkers in competition (i.e., card games, pool games, athletic events, etc.)?
- ___ 5. How frequently do you participate with your American coworkers in competition (i.e., card games, pool games, athletic events, etc.)?
- ___ 6. How frequently do you voluntarily participate in work group social functions (i.e., picnics, parties, happy hours, hails and farewells, etc.) with your Korean coworkers?
- ___ 7. How frequently do you voluntarily participate in work group social functions (i.e., picnics, parties, happy hours, hails and farewells, etc.) with your American coworkers?
- ___ 8. How frequently do you talk to your Korean coworkers about your personal life?
- ___ 9. How frequently do you talk to your American coworkers about your personal life?
- ___ 10. How frequently are you made aware of the results of inspections of your work group?

APPENDIX C

RESULTS OF COMPANY COMMANDER SURVEY

<u>Company Designation</u>	<u>Work Group Designation</u>	<u>Size</u>	<u>Cdr. Eval. of Prod.</u>	<u>Cdr. Perception of Cohesion</u>
1	1	14	top 20%	Higher
1	2	30	61-80%	Lower
2	1	21	*	Higher
2	2	84	*	Lower
3	1	15	top 20%	Higher
3	2	41	61-80%	Lower
4	1	16	*	Higher
4	2	21	*	Lower
5	1	8	top 20%	Higher
5	2	34	61-80%	Lower
6	1	33	top 20%	Higher
6	2	95	41-60%	Lower

*Not provided

- ___ 11. How frequently are you made aware of the results of your work group's performance on readiness exercises and tests?
- ___ 12. How frequently are you made aware of the results of your work group's performance as compared to other organizational performance standards (i.e., commander's expectations, etc.)?

PART III

Using the following key place a number in the space provided for each statement:

1-strongly disagree 2-disagree 3-neutral 4-agree

5-strongly agree

___13. My Korean coworkers are sociable toward me.

1-strongly disagree 2-disagree 3-neutral 4-agree
5-strongly agree

- ___ 25. I am aware of what my organization expects of me.
- ___ 26. I am aware of my organization's plans for my work group.
- ___ 27. I am aware of my organization's goals for my work group.
- ___ 28. Promotions are fairly made in my organization.
- ___ 29. Evaluation systems (OER'S, EER'S, performance appraisals, etc.) are fair in my organization.
- ___ 30. Reward systems (medals, certificates, superior performance awards, etc.) are fair in my organization.
- ___ 31. Assignments of additional duties (i.e., cleaning work areas, maintenance of vehicles, kitchen helper, etc.) are fairly made in my organization.

PART IV

32. What is your Company designation? _____

33. What is your work group designation? _____

Place an "X" in the appropriate space.

34. Do you speak both English and Hongul (Korean)?

Yes No
_____ _____

35. Do you live in barracks or quarters with your coworkers?

Yes No
_____ _____

36. How long have you worked in a combined American and Korean environment?

0-6 months 6-12 months 1-2 years more than 2 years
_____ _____ _____ _____

37. In what culture did you grow up?

Korean White American Hispanic American Black American
_____ _____ _____ _____
Asiatic American Native American Other
_____ _____ _____

38. What is your civilian education level?

less than high school graduate high school graduate
_____ _____
some college college graduate
_____ _____

39. What is your sex?

male female

40. What is your work group location type?

isolated not isolated

41. What is your rank?

US officer US E7-E9 US E5-E6 US E1-E4

US GS-9 or above US GS-8 or below

KATUSA KGS-9 or above KGS-8 or below

KWB-7 or above KWB-6 or below Contractor

42. What is your time in service (military personnel) or
how long have you worked for the US government
(civilian personnel)?

less than 3 years 3-6 years more than 6 years

43. (U.S. personnel only answer this question) Have you
received formal training in the Korean culture?

Yes No

4 1 4 5 4 4 5 4 3 4 5 5 3 4 3 3 2 3 2 1
03 2 1 0 3 4 4 1 4 5 4 2 5 2 4 2 2 1 1 1 1
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04 1 2 0 3 3 0 1 2 2 5 5 5 2 2 2 2 3 2 3
03 3 2 0 2 4 4 2 2 2 4 4 4 4 4 4 4 4 4 5
03 3 2 0 2 1 4 4 5 1 1 4 1 2 4 4 5 5 5 1 5
02 3 1 0 2 5 5 4 4 5 5 5 4 4 3 4 4 3 3 3 3
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04 1 2 0 4 2 4 4 3 2 4 4 4 4 2 3 4 3 4 4 4
04 1 1 0 4 4 4 3 4 4 4 4 0 4 4 3 3 3 3 4
5 4 3 5 4 4 4 4 4 4 4 4 4 4 4 4 4 3 3 4
02 3 2 0 2 2 5 5 3 4 5 5 5 5 5 4 3 3 4 1 5
03 2 2 0 4 4 4 3 5 4 4 4 4 4 4 4 4 4 4 4
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07 1 0 1 4 4 3 2 5 2 5 5 5 4 5 4 3 3 4 4 4
03 1 2 4 4 4 3 5 2 5 5 5 5 5 5 5 5 5 5 5 5 4 4
5 3 3 5 5 3 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5 4 4
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09 4 3 5 5 3 3 2 2 1 5 5 5 5 5 5 5 5 5 5 5 5 5
09 0 0 0 1 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

44. (KATUSA and Korean personnel only answer this question)

Have you received formal training in the American culture?

Yes

No

45. In what year were you born?

1942 or earlier

1943-1952

1953-1958

1959-1962

1963 or later

APPENDIX C

RESULTS OF COMPANY COMMANDER SURVEY

<u>Company Designation</u>	<u>Work Group Designation</u>	<u>Size</u>	<u>Cdr. Eval. of Prod.</u>	<u>Cdr. Perception of Cohesion</u>
1	1	14	top 20%	Higher
1	2	30	61-80%	Lower
2	1	21	*	Higher
2	2	84	*	Lower
3	1	15	top 20%	Higher
3	2	41	61-80%	Lower
4	1	16	*	Higher
4	2	21	*	Lower
5	1	8	top 20%	Higher
5	2	34	61-80%	Lower
6	1	33	top 20%	Higher
6	2	95	41-60%	Lower

*Not provided

APPENDIX D

RESULTS OF INDIVIDUAL SURVEY

4 4 5 4 3 5 5 3 3 2 2 4 5 1 3 2 3 4 3 3 3 1 4 3
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09 3 3 0 1 1 3 4 4 2 2 1 5 5 5 5 5 5 5 5 4 4 2 5 5
09 4 3 5 5 5 3 3 2 2 1 5 5 5 5 5 5 5 5 4 4 5 0 1 4 3 3

VARIAN ROLAND FACTOR MATRIX OF SUPERVISORS (US OFFICERS, US PS OR ABOVE, U.S. GS-8 OR ABOVE, KGS-9 OR ABOVE, KPR-1 OR ABOVE)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
01	0.1105	0.26177	0.3727	0.15112	0.15112	0.15112	0.0409	0.9627	0.2276	0.6492
02	0.14579	0.00839	0.24056	0.03321	0.03321	0.03321	0.0042	0.2225	0.4386	0.47407
03	0.12335	0.00861	0.14799	0.03828	0.03828	0.03828	0.0044	0.1926	0.3755	0.37487
04	0.17801	0.00765	0.13707	0.03948	0.03948	0.03948	0.0045	0.0927	0.5163	0.12117
05	0.04677	0.00251	0.20027	0.05991	0.05991	0.05991	0.0019	0.0000	0.0250	0.05477
06	0.14298	0.00536	0.13266	0.07069	0.07069	0.07069	0.0025	0.0000	0.4779	0.00368
07	0.22086	0.00297	0.13709	0.05217	0.05217	0.05217	0.0019	0.0000	0.3392	0.00351
08	0.13378	0.00474	0.13110	0.06621	0.06621	0.06621	0.0025	0.0000	0.3970	0.00368
09	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
10	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
11	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
12	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
13	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
14	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
15	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
16	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
17	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
18	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
19	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
20	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
21	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
22	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
23	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
24	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
25	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
26	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
27	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
28	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
29	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
30	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359
31	0.22923	0.00415	0.13160	0.08654	0.08654	0.08654	0.0022	0.0000	0.0150	0.00359

APPENDIX E. RESULTS OF FACTOR ANALYSIS
 VARIMAX ROTATED FACTOR MATRIX OF ALL RESPONDENTS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
1	0.1150	0.4954	0.2148	0.0243	0.0379	0.1273	0.1139	0.1426	0.1593
2	0.1334	0.1279	0.0335	0.0274	0.0045	0.1100	0.0925	0.1178	0.0459
3	0.0374	0.8163	0.0385	0.0170	0.0045	0.0700	0.0825	0.0215	0.0103
4	0.0056	0.7966	0.0163	0.0053	0.0054	0.0548	0.0242	0.0378	0.0483
5	0.0097	0.3176	0.0199	0.0051	0.0037	0.0682	0.0367	0.0159	0.0126
6	0.0068	0.1296	0.0385	0.0801	0.0159	0.5013	0.0976	0.0585	0.0877
7	0.0022	0.2083	0.0454	0.0091	0.0149	0.7632	0.0140	0.0367	0.0697
8	0.0067	0.0049	0.0199	0.0339	0.0184	0.1733	0.0122	0.0471	0.1654
9	0.0000	0.0299	0.0202	0.0359	0.0477	0.0170	0.0540	0.0549	0.0549
10	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
11	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
12	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
13	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
14	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
15	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
16	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
17	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
18	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
19	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
20	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
21	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
22	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
23	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
24	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
25	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
26	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
27	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
28	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
29	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
30	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
31	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
32	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
33	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
34	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
35	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
36	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
37	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
38	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
39	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
40	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
41	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
42	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
43	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
44	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
45	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
46	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
47	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
48	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
49	0.0000	0.0499	0.0187	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233
50	0.0000	0.0199	0.0235	0.0359	0.0228	0.0254	0.0186	0.0233	0.0233

VARIATION POTENTIAL MATRIX OF NON-SUPERVISORS (US E1-14, US GS-8 OR BELOW, KAPUSA, KGS-6 OR BELOW)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
01	0.15710	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
02	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
03	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
04	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
05	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
06	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
07	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
08	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
09	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
10	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
11	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
12	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
13	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
14	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
15	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
16	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
17	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
18	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
19	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
20	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
21	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
22	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
23	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
24	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
25	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
26	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
27	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
28	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
29	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
30	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206
31	0.18070	0.48152	0.08001	0.03808	0.28696	0.05171	0.06125	0.23719	0.06214	0.48206

VARINAL ROTATED FOR THE MATRIX OF NON-CAREER PERSONNEL (TIME IN SERVICE ROTATED FOR US GOVT LESS THAN 3 YEARS)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
01	167296	10696	52714	321881	015716	02196	3945	01667	06226
02	147202	12408	52982	14866	17423	02332	3908	26477	24977
03	228997	02408	00339	20813	26163	00525	1908	16772	33527
04	173116	00223	00085	00535	16817	00229	1591	05397	13291
05	05398	00099	00605	00315	09927	00020	0000	04449	06077
06	15208	00099	00186	00521	25724	00119	0000	05541	05915
07	15208	00099	00186	00521	25724	00119	0000	05541	05915
08	00733	00000	00000	00000	00000	00000	0000	00733	00000
09	00733	00000	00000	00000	00000	00000	0000	00733	00000
10	00733	00000	00000	00000	00000	00000	0000	00733	00000
11	00733	00000	00000	00000	00000	00000	0000	00733	00000
12	00733	00000	00000	00000	00000	00000	0000	00733	00000
13	00733	00000	00000	00000	00000	00000	0000	00733	00000
14	00733	00000	00000	00000	00000	00000	0000	00733	00000
15	00733	00000	00000	00000	00000	00000	0000	00733	00000
16	00733	00000	00000	00000	00000	00000	0000	00733	00000
17	00733	00000	00000	00000	00000	00000	0000	00733	00000
18	00733	00000	00000	00000	00000	00000	0000	00733	00000
19	00733	00000	00000	00000	00000	00000	0000	00733	00000
20	00733	00000	00000	00000	00000	00000	0000	00733	00000
21	00733	00000	00000	00000	00000	00000	0000	00733	00000
22	00733	00000	00000	00000	00000	00000	0000	00733	00000
23	00733	00000	00000	00000	00000	00000	0000	00733	00000
24	00733	00000	00000	00000	00000	00000	0000	00733	00000
25	00733	00000	00000	00000	00000	00000	0000	00733	00000
26	00733	00000	00000	00000	00000	00000	0000	00733	00000
27	00733	00000	00000	00000	00000	00000	0000	00733	00000
28	00733	00000	00000	00000	00000	00000	0000	00733	00000
29	00733	00000	00000	00000	00000	00000	0000	00733	00000
30	00733	00000	00000	00000	00000	00000	0000	00733	00000
31	00733	00000	00000	00000	00000	00000	0000	00733	00000

VARIABLE ROTATED FACTOR MATRIX OF CAREER PERSONNEL (TIME IN SERVICE/
 WORKED FOR US GOVT GREATER THAN 6 YEARS)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
1	0.0576	0.0000	0.0000	0.0176	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0168	0.0000	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0253	0.0000	0.0000	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

VARIABLE ROTATED FACTOR MATRIX OF PERSONNEL ASSIGNED TO WORK GROUPS AT ISOLATED LOCATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
01	0.408294	0.45491	-0.05896	-0.05915	0.27683	-0.09454	-0.03975	0.11816	0.137692	0.11064
02	0.21655	-0.07476	0.27622	-0.02076	0.17434	-0.00972	-0.01395	0.12618	0.02625	0.022601
03	0.02179	0.03359	0.02020	0.21082	0.00034	0.00470	0.01500	0.02499	0.00807	0.012465
03A	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
04	0.01511	0.00000	0.00000	-0.00710	0.12182	0.00000	0.00000	0.01249	0.00835	0.01433
05	0.00464	0.00000	0.00000	0.00715	0.15359	0.00000	0.00000	0.02355	0.01050	0.014070
06	0.02133	0.00000	0.00000	0.02155	0.25310	0.00000	0.00000	0.02237	0.01365	0.008955
07	0.01825	0.00000	0.00000	0.00663	0.00960	0.00000	0.00000	0.01157	0.01336	0.00255
08	0.02403	0.00000	0.00000	0.00000	0.12268	0.00000	0.00000	0.00749	0.01091	0.00325
09	0.00447	0.00000	0.00000	0.00000	0.02483	0.00000	0.00000	0.00493	0.01332	0.00354
10	0.00766	0.00000	0.00000	0.00000	0.04826	0.00000	0.00000	0.00759	0.01139	0.00242
11	0.03987	0.00000	0.00000	0.00000	0.24659	0.00000	0.00000	0.02088	0.00378	0.01190
12	0.00764	0.00000	0.00000	0.00000	0.01535	0.00000	0.00000	0.01155	0.00368	0.00195
13	0.00494	0.00000	0.00000	0.00000	0.02718	0.00000	0.00000	0.00684	0.00345	0.00195
14	0.07963	0.00000	0.00000	0.00000	0.13908	0.00000	0.00000	0.02255	0.00198	0.00165
15	0.00494	0.00000	0.00000	0.00000	0.04126	0.00000	0.00000	0.00555	0.00191	0.00137
16	0.00705	0.00000	0.00000	0.00000	0.09322	0.00000	0.00000	0.00991	0.00191	0.00137
17	0.00324	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.00465	0.00191	0.00137
18	0.00544	0.00000	0.00000	0.00000	0.12771	0.00000	0.00000	0.00890	0.00191	0.00137
19	0.00274	0.00000	0.00000	0.00000	0.08091	0.00000	0.00000	0.00590	0.00191	0.00137
20	0.00202	0.00000	0.00000	0.00000	0.09036	0.00000	0.00000	0.00725	0.00191	0.00137
21	0.00332	0.00000	0.00000	0.00000	0.34497	0.00000	0.00000	0.00909	0.00191	0.00137
22	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
23	0.00401	0.00000	0.00000	0.00000	0.60315	0.00000	0.00000	0.00493	0.00191	0.00137
24	0.00221	0.00000	0.00000	0.00000	0.39845	0.00000	0.00000	0.00493	0.00191	0.00137
25	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
26	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
27	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
28	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
29	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
30	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137
31	0.00271	0.00000	0.00000	0.00000	0.54455	0.00000	0.00000	0.00493	0.00191	0.00137

APPENDIX F. AGGRIGATED SCORES

COMPANY DESIGNATION=1 WCRK GROUP DESIGNATION=1

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 4.429 VARIANCE 0.175

VALID CASES 7 MISSING CASES 0

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 3.583 VARIANCE 0.842

VALID CASES 6 MISSING CASES 1

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 4.381 VARIANCE 0.349

VALID CASES 7 MISSING CASES 0

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 2.286 VARIANCE 1.155

VALID CASES 7 MISSING CASES 0

LORCRED PEPC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 4.143 VARIANCE 0.639

VALID CASES 7 MISSING CASES 0

ORGWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 3.643 VARIANCE 0.976

VALID CASES 7 MISSING CASES 0

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.357 VARIANCE 0.893

VALID CASES 7 MISSING CASES 0

Q3D IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.429 VARIANCE 0.286

VALID CASES 7 MISSING CASES 0

VARIAN ROLAND FACTOR MATRIX OF SUPERVISORS (US OFFICERS, US PS OR ABOVE, U.S. GS-8 OR ABOVE, KGS-9 OR ABOVE, KPR-1 OR ABOVE)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
01	0.1105	0.26177	0.3727	0.15112	0.15112	0.15112	0.15112	0.15112	0.15112	0.15112
02	0.14579	0.20990	0.24056	0.07800	0.07800	0.07800	0.07800	0.07800	0.07800	0.07800
03	0.12335	0.00542	0.04799	0.03322	0.03322	0.03322	0.03322	0.03322	0.03322	0.03322
04	0.17801	0.00425	0.03707	0.00582	0.00582	0.00582	0.00582	0.00582	0.00582	0.00582
05	0.04677	0.00210	0.02077	0.00494	0.00494	0.00494	0.00494	0.00494	0.00494	0.00494
06	0.14983	0.00172	0.01626	0.00591	0.00591	0.00591	0.00591	0.00591	0.00591	0.00591
07	0.22087	0.00367	0.03597	0.01669	0.01669	0.01669	0.01669	0.01669	0.01669	0.01669
08	0.13378	0.00170	0.01697	0.05217	0.05217	0.05217	0.05217	0.05217	0.05217	0.05217
09	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
10	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
11	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
12	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
13	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
14	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
15	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
16	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
17	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
18	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
19	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
20	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
21	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
22	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
23	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
24	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
25	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
26	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
27	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
28	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
29	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
30	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661
31	0.22923	0.00410	0.04158	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661	0.08661

COMPANY DESIGNATION=1 WORK GROUP DESIGNATION=2

INDCCHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	3.889	VARIANCE	0.391
VALID CASES	12	MISSING CASES	2
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.583	VARIANCE	0.447
VALID CASES	12	MISSING CASES	2
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.513	VARIANCE	1.085
VALID CASES	13	MISSING CASES	1
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	3.042	VARIANCE	0.657
VALID CASES	12	MISSING CASES	2
LORCRED	PERC'D LEVEL IND SUPEP'S CREDIBILITY		
MEAN	3.631	VARIANCE	0.362
VALID CASES	12	MISSING CASES	2
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.692	VARIANCE	0.814
VALID CASES	13	MISSING CASES	1
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	3.208	VARIANCE	0.794
VALID CASES	12	MISSING CASES	2
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.417	VARIANCE	0.265
VALID CASES	12	MISSING CASES	2

9	FACTOR 13
14	0.48206
14	0.47526
14	0.47622
14	0.09166
14	0.09420
14	-0.04543
14	-0.04444
14	-0.03337
14	0.13402
14	0.09785
14	0.02274
14	0.13700
14	0.21907
14	-0.05152
14	0.25336
14	0.06727
14	-0.04031
14	0.09432
14	0.16426
14	-0.07266
14	0.07792
14	0.06700
14	-0.01465
14	0.02089
14	0.05079
14	0.09262
14	0.03063
14	-0.03063
14	-0.05495

COMPANY DESIGNATION=2 WORK GROUP DESIGNATION=2

INDCOHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	4.012	VARIANCE	0.799
VALID CASES	27	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	2.690	VARIANCE	1.137
VALID CASES	21	MISSING CASES	6
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.321	VARIANCE	1.295
VALID CASES	27	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	3.365	VARIANCE	0.991
VALID CASES	26	MISSING CASES	1
LDRCREP	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	4.011	VARIANCE	0.757
VALID CASES	26	MISSING CASES	1
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	2.865	VARIANCE	1.391
VALID CASES	26	MISSING CASES	1
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.962	VARIANCE	0.658
VALID CASES	26	MISSING CASES	1
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.111	VARIANCE	0.872
VALID CASES	27	MISSING CASES	0

VARINAL ROTATED FOR THE MATRIX OF NON-CAREER PERSONNEL (TIME IN SERVICE ROTATED FOR US GOVT LESS THAN 3 YEARS)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
01	167296	10696	52114	321881	015716	02196	3945	01667	06226
02	147202	12408	52982	14866	17423	02332	3908	26477	24977
03	228997	02408	00339	20813	26163	00552	1908	16772	33527
04	173116	00223	00085	05325	16817	00229	1591	05392	13291
05	05398	00099	00605	03307	09224	00002	0000	04449	02778
06	15208	00099	01860	05115	25724	00002	0000	05541	05915
07	15263	00000	00307	04567	11548	00000	0000	00737	00960
08	00169	00000	00608	04206	07278	00000	0000	00737	00960
09	16254	00000	00280	04268	07389	00000	0000	00088	02820
10	13050	00000	00351	00716	08666	00000	0000	00522	02758
11	12315	00000	00353	07110	08380	00000	0000	00426	02940
12	15137	00000	00353	07110	08380	00000	0000	00426	02940
13	09374	00000	00000	03117	06945	00000	0000	00751	00902
14	09374	00000	00000	03117	06945	00000	0000	00751	00902
15	09374	00000	00000	03117	06945	00000	0000	00751	00902
16	09374	00000	00000	03117	06945	00000	0000	00751	00902
17	09374	00000	00000	03117	06945	00000	0000	00751	00902
18	09374	00000	00000	03117	06945	00000	0000	00751	00902
19	09374	00000	00000	03117	06945	00000	0000	00751	00902
20	09374	00000	00000	03117	06945	00000	0000	00751	00902
21	09374	00000	00000	03117	06945	00000	0000	00751	00902
22	09374	00000	00000	03117	06945	00000	0000	00751	00902
23	09374	00000	00000	03117	06945	00000	0000	00751	00902
24	09374	00000	00000	03117	06945	00000	0000	00751	00902
25	09374	00000	00000	03117	06945	00000	0000	00751	00902
26	09374	00000	00000	03117	06945	00000	0000	00751	00902
27	09374	00000	00000	03117	06945	00000	0000	00751	00902
28	09374	00000	00000	03117	06945	00000	0000	00751	00902
29	09374	00000	00000	03117	06945	00000	0000	00751	00902
30	09374	00000	00000	03117	06945	00000	0000	00751	00902
31	09374	00000	00000	03117	06945	00000	0000	00751	00902

COMPANY DESIGNATION=3 WORK GROUP DESIGNATION=1

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.458 VARIANCE 0.696

VALID CASES 8 MISSING CASES 0

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 2.714 VARIANCE 0.655

VALID CASES 7 MISSING CASES 1

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 3.750 VARIANCE 0.817

VALID CASES 8 MISSING CASES 0

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 2.500 VARIANCE 0.571

VALID CASES 8 MISSING CASES 0

LDRCRED PERC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 3.980 VARIANCE 0.445

VALID CASES 7 MISSING CASES 1

ORGAWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 3.429 VARIANCE 0.286

VALID CASES 7 MISSING CASES 1

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.125 VARIANCE 0.554

VALID CASES 8 MISSING CASES 0

Q3D IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.125 VARIANCE 0.696

VALID CASES 8 MISSING CASES 0

COMPANY DESIGNATION=3 WORK GROUP DESIGNATION=2

INDCOHFS	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	3.630	VARIANCE	1.476
VALID CASES	18	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.346	VARIANCE	1.724
VALID CASES	13	MISSING CASES	5
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	2.944	VARIANCE	0.709
VALID CASES	18	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	2.917	VARIANCE	1.037
VALID CASES	18	MISSING CASES	0
LDRCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	3.683	VARIANCE	0.594
VALID CASES	18	MISSING CASES	0
ORGAWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.324	VARIANCE	1.186
VALID CASES	17	MISSING CASES	1
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.912	VARIANCE	1.539
VALID CASES	17	MISSING CASES	1
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.000	VARIANCE	0.706
VALID CASES	18	MISSING CASES	0

COMPANY DESIGNATION=4 WORK GROUP DESIGNATION=1

INDCOHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	4.212	VARIANCE	0.428
VALID CASES	11	MISSING CASES	0

SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.955	VARIANCE	1.123
VALID CASES	11	MISSING CASES	0

KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.818	VARIANCE	1.053
VALID CASES	11	MISSING CASES	0

ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	3.500	VARIANCE	1.222
VALID CASES	10	MISSING CASES	1

COMPANY DESIGNATION=4 WORK GROUP DESIGNATION=2

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.846 VARIANCE 0.548

VALID CASES 13 MISSING CASES 1

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 3.650 VARIANCE 0.558

VALID CASES 10 MISSING CASES 4

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 4.364 VARIANCE 0.277

VALID CASES 11 MISSING CASES 3

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 2.654 VARIANCE 2.058

VALID CASES 13 MISSING CASES 1

LDRCRED PERC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 4.341 VARIANCE 0.488

VALID CASES 13 MISSING CASES 1

ORGAWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 4.250 VARIANCE 0.568

VALID CASES 12 MISSING CASES 2

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.154 VARIANCE 1.308

VALID CASES 13 MISSING CASES 1

Q30 IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.308 VARIANCE 0.564

VALID CASES 13 MISSING CASES 1

VARIABLE ROTATED FACTOR MATRIX OF PERSONNEL ASSIGNED TO WORK GROUPS AT ISOLATED LOCATIONS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
01	0.408294	0.45491	-0.05896	-0.05915	0.22683	-0.09454	-0.03975	0.11816	0.137692	0.11064
02	0.21655	-0.07476	0.27622	-0.08376	0.17637	-0.00972	-0.01395	0.12652	0.07625	0.02260
03	0.02179	0.03359	0.02020	0.21027	0.00034	0.00479	0.01500	0.02499	0.00807	0.01296
04	0.01519	0.00000	0.00658	-0.00770	0.12182	0.00000	0.00000	0.02499	0.00807	0.01296
05	0.00464	0.00000	0.00000	0.00000	0.14165	0.00000	0.00000	0.02499	0.00807	0.01296
06	0.00436	0.00000	0.00000	0.00000	0.15334	0.00000	0.00000	0.02499	0.00807	0.01296
07	0.02138	0.00000	0.00000	0.00000	0.18310	0.00000	0.00000	0.02499	0.00807	0.01296
08	0.01825	0.00000	0.00000	0.00000	0.00960	0.00000	0.00000	0.02499	0.00807	0.01296
09	0.02403	0.00000	0.00000	0.00000	0.12683	0.00000	0.00000	0.02499	0.00807	0.01296
10	0.00446	0.00000	0.00000	0.00000	0.02268	0.00000	0.00000	0.02499	0.00807	0.01296
11	0.00446	0.00000	0.00000	0.00000	0.04893	0.00000	0.00000	0.02499	0.00807	0.01296
12	0.00766	0.00000	0.00000	0.00000	0.13264	0.00000	0.00000	0.02499	0.00807	0.01296
13	0.00446	0.00000	0.00000	0.00000	0.24719	0.00000	0.00000	0.02499	0.00807	0.01296
14	0.00766	0.00000	0.00000	0.00000	0.00718	0.00000	0.00000	0.02499	0.00807	0.01296
15	0.00446	0.00000	0.00000	0.00000	0.13908	0.00000	0.00000	0.02499	0.00807	0.01296
16	0.00446	0.00000	0.00000	0.00000	0.04126	0.00000	0.00000	0.02499	0.00807	0.01296
17	0.00446	0.00000	0.00000	0.00000	0.09932	0.00000	0.00000	0.02499	0.00807	0.01296
18	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
19	0.00446	0.00000	0.00000	0.00000	0.09322	0.00000	0.00000	0.02499	0.00807	0.01296
20	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
21	0.00446	0.00000	0.00000	0.00000	0.12771	0.00000	0.00000	0.02499	0.00807	0.01296
22	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
23	0.00446	0.00000	0.00000	0.00000	0.12771	0.00000	0.00000	0.02499	0.00807	0.01296
24	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
25	0.00446	0.00000	0.00000	0.00000	0.09036	0.00000	0.00000	0.02499	0.00807	0.01296
26	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
27	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
28	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
29	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296
30	0.00446	0.00000	0.00000	0.00000	0.04479	0.00000	0.00000	0.02499	0.00807	0.01296

COMPANY DESIGNATION=5 WORK GROUP DESIGNATION=1

INDOCCHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	4.200	VARIANCE	0.367
VALID CASES	5	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.667	VARIANCE	2.333
VALID CASES	3	MISSING CASES	2
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.400	VARIANCE	0.856
VALID CASES	5	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	2.300	VARIANCE	0.200
VALID CASES	5	MISSING CASES	0
LORCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	4.429	VARIANCE	0.449
VALID CASES	5	MISSING CASES	0
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.300	VARIANCE	0.700
VALID CASES	5	MISSING CASES	0
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	3.600	VARIANCE	0.675
VALID CASES	5	MISSING CASES	0
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.800	VARIANCE	0.200
VALID CASES	5	MISSING CASES	0

APPENDIX F. AGGRIGATED SCORES

COMPANY DESIGNATION=1 WCRK GROUP DESIGNATION=1

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 4.429 VARIANCE 0.175

VALID CASES 7 MISSING CASES 0

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 3.583 VARIANCE 0.842

VALID CASES 6 MISSING CASES 1

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 4.381 VARIANCE 0.349

VALID CASES 7 MISSING CASES 0

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 2.286 VARIANCE 1.155

VALID CASES 7 MISSING CASES 0

LORCRED PEPC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 4.143 VARIANCE 0.639

VALID CASES 7 MISSING CASES 0

ORGWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 3.643 VARIANCE 0.976

VALID CASES 7 MISSING CASES 0

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.357 VARIANCE 0.893

VALID CASES 7 MISSING CASES 0

Q3D IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.429 VARIANCE 0.286

VALID CASES 7 MISSING CASES 0

COMPANY DESIGNATION=5 WORK GROUP DESIGNATION=2

INDCOHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	3.729	VARIANCE	1.307
VALID CASES	16	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.100	VARIANCE	1.400
VALID CASES	15	MISSING CASES	1
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.250	VARIANCE	1.252
VALID CASES	16	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	3.188	VARIANCE	1.696
VALID CASES	16	MISSING CASES	0
LDRCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	3.205	VARIANCE	1.170
VALID CASES	16	MISSING CASES	0
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.063	VARIANCE	1.196
VALID CASES	16	MISSING CASES	0
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.656	VARIANCE	1.357
VALID CASES	16	MISSING CASES	0
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	3.875	VARIANCE	0.917
VALID CASES	16	MISSING CASES	0

COMPANY DESIGNATION=1 WORK GROUP DESIGNATION=2

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.889 VARIANCE 0.391

VALID CASES 12 MISSING CASES 2

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 3.583 VARIANCE 0.447

VALID CASES 12 MISSING CASES 2

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 3.513 VARIANCE 1.085

VALID CASES 13 MISSING CASES 1

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 3.042 VARIANCE 0.657

VALID CASES 12 MISSING CASES 2

LORCRED PERC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 3.631 VARIANCE 0.362

COMPANY DESIGNATION=6 WORK GROUP DESIGNATION=2

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.568 VARIANCE 0.964

VALID CASES 27 MISSING CASES 1

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 2.771 VARIANCE 0.913

VALID CASES 24 MISSING CASES 4

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 3.583 VARIANCE 1.278

VALID CASES 24 MISSING CASES 4

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 3.036 VARIANCE 1.388

VALID CASES 28 MISSING CASES 0

LDRCRED PEPC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 3.714 VARIANCE 0.806

VALID CASES 28 MISSING CASES 0

ORGAWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 3.482 VARIANCE 1.120

VALID CASES 28 MISSING CASES 0

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.074 VARIANCE 0.937

VALID CASES 27 MISSING CASES 1

Q3D IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.148 VARIANCE 0.593

VALID CASES 27 MISSING CASES 1

COMPANY DESIGNATION=2 WORK GROUP DESIGNATION=2

INDCOHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	4.012	VARIANCE	0.799
VALID CASES	27	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	2.690	VARIANCE	1.137
VALID CASES	21	MISSING CASES	6
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.321	VARIANCE	1.295
VALID CASES	27	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	3.365	VARIANCE	0.991
VALID CASES	26	MISSING CASES	1
LDRCREP	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	4.011	VARIANCE	0.757
VALID CASES	26	MISSING CASES	1
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	2.865	VARIANCE	1.391
VALID CASES	26	MISSING CASES	1
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.962	VARIANCE	0.658
VALID CASES	26	MISSING CASES	1
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.111	VARIANCE	0.872
VALID CASES	27	MISSING CASES	0

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COMPANY DESIGNATION=3 WORK GROUP DESIGNATION=1

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.458 VARIANCE 0.696

VALID CASES 8 MISSING CASES 0

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 2.714 VARIANCE 0.655

VALID CASES 7 MISSING CASES 1

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 3.750 VARIANCE 0.817

VALID CASES 8 MISSING CASES 0

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 2.500 VARIANCE 0.571

VALID CASES 8 MISSING CASES 0

LDRCRED PERC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 3.980 VARIANCE 0.445

VALID CASES 7 MISSING CASES 1

ORGAWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 3.429 VARIANCE 0.286

VALID CASES 7 MISSING CASES 1

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.125 VARIANCE 0.554

VALID CASES 8 MISSING CASES 0

Q3D IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.125 VARIANCE 0.696

VALID CASES 8 MISSING CASES 0

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COMPANY DESIGNATION=3 WORK GROUP DESIGNATION=2

INDCOHFS	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	3.630	VARIANCE	1.476
VALID CASES	18	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.346	VARIANCE	1.724
VALID CASES	13	MISSING CASES	5
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	2.944	VARIANCE	0.709
VALID CASES	18	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	2.917	VARIANCE	1.037
VALID CASES	18	MISSING CASES	0
LDRCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	3.683	VARIANCE	0.594
VALID CASES	18	MISSING CASES	0
ORGAWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.324	VARIANCE	1.186
VALID CASES	17	MISSING CASES	1
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.912	VARIANCE	1.539
VALID CASES	17	MISSING CASES	1
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.000	VARIANCE	0.706
VALID CASES	18	MISSING CASES	0

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COMPANY DESIGNATION=4 WORK GROUP DESIGNATION=2

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.846 VARIANCE 0.548

VALID CASES 13 MISSING CASES 1

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 3.650 VARIANCE 0.558

VALID CASES 10 MISSING CASES 4

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 4.364 VARIANCE 0.277

VALID CASES 11 MISSING CASES 3

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 2.654 VARIANCE 2.058

VALID CASES 13 MISSING CASES 1

LDRCRED PERC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 4.341 VARIANCE 0.488

VALID CASES 13 MISSING CASES 1

ORGAWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 4.250 VARIANCE 0.568

VALID CASES 12 MISSING CASES 2

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.154 VARIANCE 1.308

VALID CASES 13 MISSING CASES 1

Q30 IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.308 VARIANCE 0.564

VALID CASES 13 MISSING CASES 1

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COMPANY DESIGNATION=5 WORK GROUP DESIGNATION=1

INDOCCHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	4.200	VARIANCE	0.367
VALID CASES	5	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.667	VARIANCE	2.333
VALID CASES	3	MISSING CASES	2
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.400	VARIANCE	0.856
VALID CASES	5	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	2.300	VARIANCE	0.200
VALID CASES	5	MISSING CASES	0
LORCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	4.429	VARIANCE	0.449
VALID CASES	5	MISSING CASES	0
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.300	VARIANCE	0.700
VALID CASES	5	MISSING CASES	0
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	3.600	VARIANCE	0.675
VALID CASES	5	MISSING CASES	0
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.800	VARIANCE	0.200
VALID CASES	5	MISSING CASES	0

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COMPANY DESIGNATION=5 WORK GROUP DESIGNATION=2

INDCOHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	3.729	VARIANCE	1.307
VALID CASES	16	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	3.100	VARIANCE	1.400
VALID CASES	15	MISSING CASES	1
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.250	VARIANCE	1.252
VALID CASES	16	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	3.188	VARIANCE	1.696
VALID CASES	16	MISSING CASES	0
LDRCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	3.205	VARIANCE	1.170
VALID CASES	16	MISSING CASES	0
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.063	VARIANCE	1.196
VALID CASES	16	MISSING CASES	0
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.656	VARIANCE	1.357
VALID CASES	16	MISSING CASES	0
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	3.875	VARIANCE	0.917
VALID CASES	16	MISSING CASES	0

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COMPANY DESIGNATION=6 WORK GROUP DESIGNATION=1

INDCCHES	INDIVIDUAL LEVEL OF COHESIVENESS FELT		
MEAN	4.152	VARIANCE	0.408
VALID CASES	11	MISSING CASES	0
SOCIAL	INDIVIDUAL LEVEL OF SOCIABILITY		
MEAN	2.333	VARIANCE	0.375
VALID CASES	9	MISSING CASES	2
KOP	INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY		
MEAN	3.848	VARIANCE	0.519
VALID CASES	11	MISSING CASES	0
ED	INDIVIDUAL ENVIRONMENTAL DEMAND FELT		
MEAN	2.727	VARIANCE	1.918
VALID CASES	11	MISSING CASES	0
LDRCRED	PERC'D LEVEL IND SUPER'S CREDIBILITY		
MEAN	4.403	VARIANCE	0.448
VALID CASES	11	MISSING CASES	0
ORGWARE	IND LEVEL OF ORGANIZATIONAL AWARENESS		
MEAN	3.409	VARIANCE	0.641
VALID CASES	11	MISSING CASES	0
EQUITY	EQUITY AS PERCEIVED BY INDIVIDUAL		
MEAN	2.591	VARIANCE	0.341
VALID CASES	11	MISSING CASES	0
Q3D	IND PERCEPTION OF GRP PRODUCTIVITY		
MEAN	4.636	VARIANCE	0.255
VALID CASES	11	MISSING CASES	0

COMPANY DESIGNATION=6 WORK GROUP DESIGNATION=2

INDCOHES INDIVIDUAL LEVEL OF COHESIVENESS FELT

MEAN 3.568 VARIANCE 0.964

VALID CASES 27 MISSING CASES 1

SOCIAL INDIVIDUAL LEVEL OF SOCIABILITY

MEAN 2.771 VARIANCE 0.913

VALID CASES 24 MISSING CASES 4

KOP INDIVIDUAL KNOWLEDGE OF PRODUCTIVITY

MEAN 3.583 VARIANCE 1.278

VALID CASES 24 MISSING CASES 4

ED INDIVIDUAL ENVIRONMENTAL DEMAND FELT

MEAN 3.036 VARIANCE 1.388

VALID CASES 28 MISSING CASES 0

LDRCRED PEPC'D LEVEL IND SUPER'S CREDIBILITY

MEAN 3.714 VARIANCE 0.806

VALID CASES 28 MISSING CASES 0

ORGWARE IND LEVEL OF ORGANIZATIONAL AWARENESS

MEAN 3.482 VARIANCE 1.120

VALID CASES 28 MISSING CASES 0

EQUITY EQUITY AS PERCEIVED BY INDIVIDUAL

MEAN 3.074 VARIANCE 0.937

VALID CASES 27 MISSING CASES 1

Q3D IND PERCEPTION OF GRP PRODUCTIVITY

MEAN 4.148 VARIANCE 0.593

VALID CASES 27 MISSING CASES 1

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