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PROCESS REDESIGN TEAM PARTICIPATION AND
COMMUNICATION CLIMATE:
A SMALL GROUP ORGANIZATIONAL COMMUNICATION STUDY

by

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DISSERTATION

Submitted to the Graduate School

of Wayne State University

Detroit, Michigan

in partial fulfillment of the requirements


for the degree of


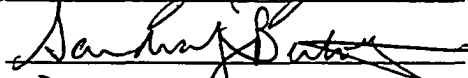

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DEDICATION

This dissertation is dedicated to my loving, supportive, understanding and patient wife, Ann Alicia Strubler and my three wonderful sons, Mark, Michael, and Matthew who made the sun shine on the sometimes cloudy days of graduate school. Soli Deo Gloria.

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CHAPTER I

Since the 1970's, when Japanese quality in industrial products was perceived to surpass that of U.S. products, Americans have been intrigued with the concepts of quality control and continuous improvement. Total quality approaches have also been transferred from Japanese industry to American industry to American higher education (Axland, 1992; Bonser, 1992; Keller, 1992; Mangan, 1992; Sherr & Teeter, 1991). Colleges and universities are suffering from funding crises, increasing customer demands, and public criticism (Dougherty, Kidwell, Knight, Hubbell, & Rush, 1994). In response to these and related challenges, higher education is beginning to embrace the concepts of quality and continuous improvement. These concepts require both cultural and structural changes in organizational design (Cornesky, McCool, Byrnes, & Weber, 1992; Imai, 1986; Seymour, 1993).

Central to the quality process in organizations is small group communication. Small groups, called quality groups or teams, quality circles, or process redesign teams, are used to identify "customer" needs and measures, describe and analyze organizational processes, and prescribe revisions and new measures of those processes. These groups are typically composed of employees who are involved in the processes being improved. In some cases, "customers" who receive the output of an organizational process also serve on these teams. The outcome of the group's work should be

improved service, time and cost reduction, and satisfied, empowered, and motivated employees (Cornesky, McCool, Byrnes, & Weber, 1992; Dougherty, Kidwell, Knight, Hubbell, & Rush, 1994; Seymour, 1993).

This study explores communication issues associated with organizational quality by replicating and extending one portion of research conducted by Stohl (1985, 1987) in which she examined the effects and effectiveness of small groups called quality circles. Building upon Stohl's study, this research examines the relationship between communication climate and the treatment of employee participation on process redesign teams. More specifically, the present study extends Stohl's research in two ways. First, the method of study (a 2 X 2 factorial design) is more rigorous than Stohl's one-shot design. Consequently, the effects of both group participation and time were considered. Secondly, the organizational context in the Stohl study is dramatically different from the context of the present study. Stohl examined quality circles in a New Zealand factory. This research involved cross-functional process redesign teams in an American university.

Literature Review

Several related but distinct bodies of literature are relevant to process redesign teams in organizations. They include the quality movement, total quality management in higher education (TQMHE), small group/organizational communication, communication climate and participation. The purpose of this review is to examine the multiple variables

which influence group perceptions and behavior in context. The review also provides a theoretical and empirical background for this study.

The Quality Movement

Ironically, quality and continuous improvement concepts were introduced to post-war Japan by W. Edwards Deming and several other Americans (1986). Many other quality advocates have also emerged including Philip Crosby (1979), Masaaki Imai (1986), and Joseph Juran (1988).

Unquestionably, Deming (1900-1993) is the best known of the quality gurus and has received widespread credit for the foundation of the popular quality movement in industry. Deming believed that people want to do a good job and he detested managers who blamed quality failures on people because, he estimated, 85% of organizational control is in the hands of managers (Walton, 1988). Even today, Deming's philosophy is at odds with the neo-Taylorism of modern western management (Delavigne & Robertson, 1994).

Deming built his philosophy around 14 points. Most of these he developed during the post-war years during which he helped the Japanese revolutionize the quality of their products and services. Based on the foundations of statistical quality control and team work, Deming's fourteen points include the following (Walton, 1988):

- 1) Create a constancy of purpose for improvement of product and service.
- 2) Adopt a new philosophy.
- 3) Cease dependence on mass inspection.
- 4) End the practice of rewarding business to suppliers on cost alone.
- 5) Improve constantly and forever the system of

- production and service.
- 6) Institute training.
 - 7) Institute leadership.
 - 8) Drive out fear.
 - 9) Break down barriers between staff areas.
 - 10) Eliminate slogans, exhortations, and targets for the work force.
 - 11) Eliminate numerical quotas.
 - 12) Remove barriers to pride in workmanship.
 - 13) Institute a vigorous program of education and retraining.
 - 14) Take action to accomplish transformation. (pp. 34-36)

Deming claimed that poor quality in American products and services could be turned around by using these points to change both organizational structure and culture. He consistently maintained that each organization has to determine their own way of implementing his fourteen points.

Deming argued that organizations which lack long range plans for staying in business and which had a passion for short-term profits eventually fail. Frequently, these organizations are plagued with performance appraisal systems which reward competition rather than teamwork, induce fear, and encourage mobility of management. He claimed that organizations that run on "visible figures alone" would miss the most important data for operating the business - - the unknowable multiplier effect, for example, of the happy customer (Walton, 1988, p. 36). He further accused U.S. companies of carrying excessive medical costs and costs of warranty. He blamed Americans for making excuses for poor quality and for relying on technology to solve these problems.

Deming learned statistical quality control methods from Walter Shewart at Bell Labs prior to World War II. Both

believed strongly in the use of the scientific method to improve quality by increasing knowledge about processes, thus reducing organizational entropy. Such organizational knowledge may cause some managers to be uneasy because it may disclose some failings. As Deming points out, "A better outlook is of course to embrace new knowledge because it might help us to do a better job" (Deming, 1986, p. 60).

Shewart proposed a cyclical (or spiral) rather than linear approach to the scientific method, one which emphasized continuous improvement through continual learning. Only through the recognition that all systems inherently contain variation could entropy be overcome. Shewart's cycle became the younger Deming's tool for helping the Japanese to reduce their organizational entropy (Deming, 1986; Delavigne & Robertson, 1994).

This cycle or spiral includes four steps: plan, do, study, act (PDSA). Organizations plan for improvement, implement the improvement, study or observe the improvement, and act to improve the process. Unlike Frederick Taylor's scientific management approach which advocated that processes be observed by experts, Deming argued that organizational leaders must observe and measure processes through statistical controls (Walton, 1988; Delavigne & Robertson, 1994).

Another quality guru who, like Deming, had been invited to Japan in the early 1950's to advise on quality management was Joseph M. Juran. Juran is best known for his quality trilogy of planning, control, and improvement (Juran, 1989).

Unlike Deming's approach which requires major cultural and structural transformation (especially in Western culture), Juran's approach is more consistent with boss-type management. It allows managers the comfort of having control (Cornesky, McCool, Byrnes, & Weber, 1991).

Quality planning, according to Juran, involves a variety of activities including identifying customers (internal and external), determining their needs, and establishing goals and creating a product that satisfies those needs at minimum cost. Quality is defined as "fitness for use" and customers are defined as "anyone who is affected by the product or process" (Juran, 1989, pp. 15, 26). Quality control involves collecting and analyzing data on the process itself so that the manager can determine whether goals have been met. Finally, in quality improvement, the emphasis is on achieving a new level of performance or what Juran calls a "breakthrough" (Juran, 1989, p. 28).

Juran asserts that there is a high cost to quality. He believes that poor quality may represent 25 to 30% of the cost of doing business. For institutions of higher learning that cost may be as high as 40% (Cornesky, McCool, Byrnes, and Weber, 1991). However, there are costs associated with quality in another sense. Juran estimates that an improvement worth \$100,000 may cost an organization \$15,000 (Juran, 1989). Both good and poor quality have high costs but good quality is less expensive (15%) and more profitable in the long run.

In his book, "Quality is Free," Philip B. Crosby clarifies Juran's notion about the cost of quality. Crosby explains that, compared to the cost of allowing non-conformance to customer requirements (his definition of quality), the cost of improving quality is relatively free (Gino Giocondi, personal communication, October, 1994; Cornesky, McCool, Byrnes, & Weber, 1992; Crosby, 1984).

Like Deming, Philip B. Crosby (1984, p. 119) outlines 14 steps for improving quality in an organization. These include:

- 1) Gaining management commitment.
- 2) Forming quality improvement teams.
- 3) Establishing measurements.
- 4) Determining the cost of quality.
- 5) Building quality awareness.
- 6) Taking corrective action.
- 7) Planning for zero defects.
- 8) Educating employees.
- 9) Having a zero defects day at which management announces its commitment to quality.
- 10) Setting improvement goals based on data.
- 11) Error-cause removal - asking employees to describe what is wrong with processes and systems.
- 12) Give recognition (not merit pay) to individuals and groups.
- 13) Establish quality councils within the organization.
- 14) Do steps 1-13 all over again for continuous improvement.

Crosby also accuses modern organizations of five "sins." First, there are deviations from the announced, published, or agreed-upon customer requirements in the product or service. Second, most organizations have highly developed systems of rework in order to satisfy customers rather than systems to do the right thing right the first time. Third, management fails to establish or communicate a clear standard of performance or definition of quality.

Fourth, employees do not know or understand the price of non-conformance to requirements. Consequently, they operate in ignorance about the actual costs of doing things the wrong way or doing the wrong things. Fifth, management is unwilling to take responsibility for problems and get the training they need to manage with quality (Crosby, 1984).

A fourth quality guru is Masaaki Imai whose focus is on gradual and continuous improvement of processes (P approach) rather than the results-oriented approach (R) of Frederick Taylor. The P approach is called "Kaizen" or continuous improvement. This people-oriented approach emphasizes the importance of low-cost (in terms of dollars) but vigilant efforts by management to continually manage groups toward undramatic but consistent process improvement.

Imai's (1986) list of Kaizen principles include:

- 1) Customer orientation
- 2) Total quality control
- 3) Robotics and automation
- 4) Quality circles
- 5) Suggestion systems
- 6) Discipline in the work place
- 7) Total productive maintenance (achieving zero breakdowns in equipment)
- 8) Kanban - a communication method to facilitate just-in-time inventory by placing a sign with a quantity of production parts on the assembly line. The sign is returned to its origin and becomes an order "form."
- 9) Quality improvement
- 10) Just-in-time inventory and production
- 11) Zero defects
- 12) Small group (team) activities
- 13) Cooperative labor-management relations
- 14) Productivity improvement
- 15) New-product development (p. 4).

Imai claims that this gradual improvement approach is the miracle behind Japan's manufacturing success. Japan is successful because they have become masters of flexible

manufacturing so that they can quickly respond to changing markets. He emphasizes "fixing" things that are not broken before the competition does. According to Imai, The P approach has given Japan a tremendous competitive edge (Imai, 1986).

Binding the four quality gurus together are seven elements that summarize the various total quality management principles discussed above (Cornesky, McCool, Byrnes, and Weber, 1992). These include "processes and systems, teams, customers and suppliers, quality by fact process and perception, management by fact, complexity, and variation" (p. 55).

Processes are all the integrated tasks or steps needed to reach a specific outcome. A system is a series of related processes (Cornesky, McCool, Byrnes, & Weber, 1992).

Teams and teamwork offer a better model for hierarchical organizations because process inputs tend to flow through a variety of divisions, departments or units, (creating a system) before the final output is achieved.

The third common principle among the quality gurus is the concept of customers and suppliers. Customers are often defined as the next person or unit in the process. Customers may be internal or external and are the receivers of a service or product. Suppliers are the provider of a particular unit's needs. Therefore, "one unit's needs are another unit's product" (Cornesky, McCool, Byrnes, & Weber, 1992). Customers are a part of the line of production. Units which control processes in the system are suppliers of

other customer units who, in turn, become suppliers of other units. Without the customer-supplier concept, teamwork and quality are not possible.

Fourth, quality must exist by fact, i.e., the product or service actually meets requirements. The process which produces the output must be designed to produce a quality product. Further, quality must exist by perception, i.e., customers must perceive the quality. Deming, Juran, Crosby, and Imai agree that quality must be both real and perceived.

Fifth and consistent throughout the quality literature is management by fact - the need for accurate, thorough and timely data with which to make major decisions. Quality gurus insist on the collection and dispersion of data. Free flowing information promotes morale and allows organizational members to offer reasonable advice for planning. When information is withheld from subordinates they in turn withhold and even distort information (Fulk & Mani, 1986).

Sixth, complexity is the "extra steps added to a process to deal with errors in the preceding process" or "to recover from errors in the current process" (Cornesky, McCool, Byrnes, & Weber, 1992). Four types of complexity include mistakes/defects, breakdowns/delays, inefficiencies, and those complexities related to excessive variation.

Seventh, variation is a consistent theme in the quality literature because all processes, and therefore systems inherently have variation. No two products or services will ever be exactly the same. Typically, the goal is to reduce

variation and to be able to predict variation in the future to improve quality (Deming, 1986).

Total quality management is in direct contrast to a more recent American adaptation of quality improvement called business process redesign (BPR) or re-engineering. Here the emphasis is on radical improvement or innovation. This radical approach is based on either a need for a short-term innovative response to a rapidly changing market or short-term need to "fix" a critical process which is badly broken or out-of-date. For example, the introduction of the Chrysler mini-van revolutionized the van market and was a giant innovative leap in customer-oriented improvement.

Both continuous quality improvement and process redesign require commitment from top management. However, process redesign requires management to have a more hands-on role in initiating and directing change since modifying organizational structure and job elimination are not uncommon. All of this change may require, for example, job redesign, training and retraining, and new technology. The organization is not constrained by past practices. Led by managers, it is looking for breakthrough innovations which replace former processes (Chang, 1994; Dougherty, Kidwell, Knight, Hubbell, & Rush, 1994).

Team member involvement is also more intense with re-engineering. To accomplish radical change requires team members to devote full-time or nearly full-time efforts to the innovation. Teams may be cross-functional or functional. However, because core processes frequently

involve many departments, process redesign teams tend to be cross-functional. With continuous improvement, teams may be functional or cross-functional but they tend to focus on more narrowly defined processes (Chang, 1994; Dougherty, Kidwell, Knight, Hubbell, & Rush, 1994).

Quality in Higher Education

Literature from the total quality management in higher education (TQMHE) genre is important to this study for the obvious reason that the research takes place in the university setting. Just as important, TQMHE is fast growing field of research that presently lacks a clear communication perspective. For team efforts to be successful at universities, research is needed to direct the behavior of these endeavors taking into account some of the unique characteristics of universities which differ from business and industry.

In spite of its many advocates, critics of quality groups abound and they offer two primary complaints. First, they argue that the socio-cultural transfer of quality as implemented in Japan is not appropriate for the U.S. (Dieter Neff, personal communication, April, 1994). Deming's principles worked in Japan, they argue, because the culture is collectivistic and is consistent with the group approach required by quality theory. Second, critics argue that quality is nothing more than a management fad. The assumption is that quality programs will die the same death as many other popular corporate crazes (Eskildson, 1994).

Similar questions are being raised as both faculty and administration consider adopting quality principles in higher education. Critics argue that the transfer of quality programs from Japanese to American industry to the culture of American higher education is too long a reach. For example, university business officer, Mark Beck, concludes simply that "the prefabricated Japanese model will not work in the U.S." (Beck, 1994). Still others (especially on the faculty side) maintain that education is a unique culture that cannot and should not be contaminated with the culture of business, i.e., universities are not profit-driven (Wallis May Andersen, personal communication, January, 1995). They argue that, at best, quality principles can be adapted, not adopted (Kohn, 1993).

Further, institutions and their members tend to resist change in varying degrees (Teeter & Lozier, 1993). Quality improvement constitutes, for some, an uncomfortable change that may threaten the continuation of work methods with which employees are familiar. For example, at the institution where the current study took place, six processes were being either redesigned or improved. In many of those cases, procedural changes were made to longstanding processes which required some employees (not serving on the process redesign team) to change their routine methods of working.

There was also concern, especially by union members that individual or departmental functions may even be eliminated. Even prior to the introduction of quality

management, the operation and services of many departments and services were being privatized and out-sourced. Former university employees were required to join a private out source company or leave their positions. Consequently, they were very wary of quality management which improves processes by eliminating redundant work, reducing rework, and, in the case of process redesign, could mean that some services would no longer be needed.

To offset this criticism, an abundance of literature in the field of total quality in higher education has emerged in the past few years. Cornesky, McCool, Byrnes, and Weber (1992) and Cornesky and McCool (1992) have published two works addressing the implementation of quality and continuous improvement approaches in higher education. The first work is a short reference manual for the university officer seeking to learn quickly the "how to" and "how not to" of implementing a quality approach. It includes an overview of basic quality principles, methods for determining an institution's quality index, and lists conditions which are necessary for successful implementation. The second volume is far more pragmatic and includes a complete training program for quality teams.

Less an implementation manual than a defense of total quality in higher education is Daniel Seymour's On Q: Causing Quality in Higher Education (1993). This work is clearly intended to be rhetorical, i.e., it's purpose is to convince the university audience of the need for a quality management approach. Seymour implores the reader to avoid

the tragedy of failing to embrace the unparalleled benefits of total quality. The following are examples of his arguments:

- If you don't empower people for quality, the organization becomes a collection of underachievers (p. 101).
- Quality does cost, it's true. But the cost of 'unquality' pales in comparison (p. 133).
- Causing quality in higher education involves the process of creating and maintaining an 'unshakably' prideful administration, faculty, and staff (p. 112).

Seymour argues that higher education needs to see itself for what it is - - part of a large competitive service industry in which customer demands are very high and much is at stake (1993).

Seymour advocates the team-process approach to work, and therefore the employment of functional and cross-functional groups. These groups are trained in general team building and special group techniques such as the nominal group process. This process is used to help groups identify and rank the importance of major problems while giving each person an equal voice in the process (Cornesky & McCool, 1994). Participants are trained in the use of problem solving techniques but with an emphasis on "understanding and continuously improving the processes that give rise to the problems" (Seymour, 1993, p. 75). As mentioned above, groups typically are trained to use various flow charts and diagrams to help map and measure a process (Seymour, 1993).

The first goal of training is to prepare the group to accurately describe, measure, analyze and revise current processes (Arnold & McClure, 1989). The purpose of this

critical analysis is to redesign processes to conform to customer requirements. These requirements are based on internal customer requirements and external benchmarks (what other similar institutions do). In redesigning the process, the team will eliminate redundancies and non-value added activity that do not conform to accepted internal and external benchmarks. One recent source of external benchmarks is the National Association of College and University Business Officers (1993). This association sponsored a study of 300 colleges and universities who provided detailed quantitative data on business processes. This study offers external benchmarks to participating institutions. These benchmarks are used to evaluate whether the new process is conforming to customer requirements in similar (cohort) institutions. The goal of the team is to discover and implement the "best practices" of other universities (National Association of College and University Business Officers, 1993).

A second goal of training is to change organizational culture (Cocheu, 1993). Presumably, universities can no longer respond adequately to the demands of the external environment mentioned earlier. According to advocates, this situation requires that institutions change their approach to education and administration (Seymour, 1993). They must now communicate a culture based on consumer responsiveness and efficiency in the use of resources including time, energy, materials, dollars, and people. While multiple methods of communicating cultural change from the top of the

organization are necessary, training is clearly a predominate and popular method.

Seymour's emphasis on trained teams rather than traditional committees is highlighted in the following example. A departmental leader, overwhelmed by a multitude of problems may create long-term plans for which resources can never be diverted from the ideal to the real. The faculty and staff (serving on a traditional committee) "who helped design the long-range plan become disenchanted as their proposed remedies are not implemented. Morale suffers, and the resulting inaction is viewed as 'business as usual'" (Cornesky & McCool, 1994, p. 1). Trained teams recognize the need to involve and receive input from all process owners and key players throughout the entire process. This consensus approach based on facts increases the likelihood of "buy-in" from significant players in the organization who can determine the failure or success of a team's recommendations.

Another typical approach at universities is to assign individuals or groups the responsibility to create quick fixes to complex problems. Cornesky and McCool cite the following example:

"... the top ranked problem of not having enough sections of general education courses would appear to lend itself to an immediate cure, namely, hiring additional faculty. Other possible instant cures might include adding sections of general education courses at the onset of the scheduling process. However, (after employing a quality team method) the root causes of the problem would not have been discovered if such simplistic "quick fix" approaches were taken" (Cornesky & McCool, 1992, p. 7).

Both process redesign and quality approaches are substantially different and better than traditional group methods because they are based on consensus building and careful analysis of facts (National Association of College and University Business Officers, 1994). Theoretically, the thoroughness (and in some cases, the cross-functionality) of improvement and redesign should produce better outcomes, i.e., improved communication climate and increased networking. For example, university committees which are functional (i.e., departmental) may fail to produce useful redesign outcomes because they fail to recognize the cross-functional nature of most university processes. In other words, they do not get the needed input or commitment from significant organizational members.

Small Group/Organizational Communication

Small group and organizational communication research is relevant to this study because of the emphasis on communication climate. A brief review of the general group literature is necessary to identify the important characteristics of groups. This review also includes an overview of the importance and effectiveness of groups in general, research on communication variables in naturalistic groups in organizational contexts, and communication climate. Each subject is examined in some detail.

Rice (1974) defines the group as having "more than one individual, and it must not contain more members than can sustain continuous and close personal relationships" (p. 14). Rice places the limit of small groups at about twelve

members. Shaw (1981) disagrees, moving the number to as many as twenty. He argues that a group is "defined as two or more persons who are interacting with one another in such a manner that each person influences and is influenced by one another" (Shaw, 1981, p. 8). For Shaw, the key to the reality of small groups is the mutual influence that members have achieved on one another through interaction. Without communication, no influence occurs and without mutual influence, the individuals do not constitute a group.

According to Bass (1974), groups are defined as "a collection of individuals whose existence as a collection is rewarding to the individuals" (p. 19). Rewards may include, for example, safety, avoidance of unpleasant circumstances, and material comfort (Bass, 1974). As Shaw (1981) observes, Bass defines group from a motivational perspective. Motivation may only explain why groups form rather than define their important characteristics.

The present study focuses on small groups in organization contexts. Still accepting Bass' criteria for motivation, Huse and Bowditch (1973) offer a useful definition for this study. They define groups as subsystems within an organization that help achieve organizational goals, expedite the flow of information, and serve certain personal needs. These groups have four characteristics: "common purpose, interaction, awareness of one another, and self-perception as a member" (Goldhaber, 1990, p. 238).

Process redesign or quality teams function as subsystems within an organization. Process redesign and

quality improvement are organizational goals which the group achieves. Information flows among functional and cross-functional group members and between those members and other organizational members with whom they interact. Stohl (1985) found that quality circle members often remain in the group because they enjoy the activity more so than the actual achievement of the group. In other words, the cohesion of the group was dependent upon whether personal needs of members were met. Because members are selected for particular attributes or their relationship to the process being redesigned, they perceive themselves and others as members. They perceive the group as real.

An important aspect of groups is that they are more effective than individuals doing

"tasks which require a variety of information,... and which require a number of steps that must be correctly completed in a definite order ... Groups perform better than individuals when the process is learning or problem solving" (Shaw, 1981, pp. 67-68).

This is so because groups contain a larger body of information, enhanced abilities to process information, and offer a greater number of approaches to a problem.

Participation in problem solving increases support for the decision made by the group.

"This ability to process large quantities of information is generally seen as the primary attribute of the small group. It also accounts for the tendency to use groups to make decisions and solve problems" (Matthew Seeger, personal communication, January, 1995).

In recent years, more empirical research has been conducted on the effectiveness of groups in organizational

contexts. Pinto, Pinto, and Prescott (1993) examined the effects of three variables on cross-functional group project outcomes. Through path analysis, they found that superordinate goals, physical proximity, and project team rules and procedures directly and indirectly affect project outcomes by influencing cross-functional cooperation. For example, superordinate goals, the most potent of these variables, were defined as those that are "urgent and compelling for all groups involved but whose attainment requires the resources and efforts of more than one group" (p. 1284). This concept is particularly important with regard to total quality management because the cooperation of all functional and cross-functional groups within the organization determines the quality of the processes and, therefore, the output. Without superordinate goals, organizations suffer from sub-optimization, the achievement of one group's goals at the expense of another's (Giocondi, personal communication, September, 1994). Interestingly, Sherif (1962) found that the introduction of a series of superordinate goals into a conflict situation reduces intergroup conflict and increases cooperation.

Ancona and Caldwell (1992) found that organizational teams develop distinct strategies toward their organizational environment outside their boundaries. More specifically, the type (more so than the amount) of communication in which teams engage determines the team's performance. Through a series of interviews with team managers in high-technology companies and examination of

team member communication logs, they identified several activities directed toward the environment. These include ambassadorial, task-coordinator, and scouting activities. Ambassadorial activities include buffering the group from outside pressure and persuading others (especially top management) to support the team. Task-coordinator activities are lateral communication behaviors involving negotiating/coordinating with outsiders, discussing design problems, and receiving feedback on product design. Scouting activities refer to scanning for ideas or information about competition, technology, and the market. Groups varied in their strategic use of these activities. This variance appears to be related to performance. The long-term high-success teams used a comprehensive strategy employing combinations of these external activities with internal activities as needed throughout the team's life span. For example, excessive scouting was found to be negatively correlated to performance. Again, this study strongly supports the notion that frequency of communication is less important than the type or pattern of communication (Ancona & Caldwell, 1992).

Cohen and Ledford (1994) found that self-managing teams in a telecommunications company were more effective than traditional work groups performing the same work. Self-managing teams are defined as "groups of interdependent individuals that can self-regulate their behavior on relatively whole tasks" (Cumming & Griggs, 1977; Goodman, Devadas, & Hughson, 1988). Specifically, members of self-

managing teams reported a higher level of quality of work life including job satisfaction, growth needs satisfaction, social needs satisfaction, and group satisfaction. No difference was found on objective measures of performance for customer service or health and safety. In general, performance ratings by members and high-level managers were higher for self-managing teams than traditionally- managed teams (Cohen & Ledford, 1994).

However, Martell and Willis (1993) found that pre-observation performance expectations influenced rater's performance of work groups. Subjects "led to believe that the group had performed well (versus poorly) attributed more effective and fewer ineffective behaviors to the group" (p. 91). This study may account for some of the concerns about managers' ratings in the Cohen and Ledford (1994) study; namely, that some "higher level managers were involved in the decision to establish self-managing teams, which may have influenced their performance evaluations of them" (p. 36).

One study examined the internal qualities of organizational work teams (Seers, 1989). Specifically, Seers studied team member exchange quality with blue collar industrial workers as subjects on internal dimensions of teams (Seers, 1989). Team member exchange quality (TMX) is a role-making construct which complements leader-member exchange quality. This construct assesses the reciprocity between the peer group and a member in regard to the member's perception to "assist other members, to share ideas

and feedback and in turn, how readily information, help, and recognition are received from other members" (p. 119).

Seers found that TMX did contribute significantly to predictions of job satisfaction (excluding variance explained by team member/leader exchange quality). Further, TMX variation within groups was related to job satisfaction.

The amount of variation between groups regarding TMX was related to the amount of autonomy allowed by management. Finally, TMX was significantly related to individual performance ratings by supervisors as moderated by peer motivation. In other words, even when TMX was low, an individual may be motivated to perform and be recognized for that performance (Seers, 1989).

The literature reveals that groups are particularly important with regard to decision making. Because members involved in the process make the decision, there is no need to translate or relay the decision. Comprehension of the decision is clear (Maier, 1967).

Groups use a variety of methods for reaching decisions.

Decisions may be reached through bypass (suggested ideas are bypassed until one is adopted), power (a powerful person makes or endorses a decision) or coalition (decision by a dominant minority). Majority vote, plurality (decision by the largest number of members but not a majority), and unanimity (agreement by all members) are additional methods of decision making. Consensus is normally considered the most ideal form of decision making because all members feel they have had an opportunity to influence the decision and

there is a choice that all members can accept (Schein, 1969). Consensus is normally the method of decision making in quality or process redesign groups.

While there are many advantages to groups, liabilities also exist. For example, individuals can dominate discussions and social pressure exists to conform to group norms. Often, winning can become more important than finding the best solution. Extreme disagreements can result in broken relationships or deadlocks (Maier, 1967).

In spite of these liabilities, quality improvement and process redesign are best accomplished by groups because they require and produce information from a variety of sources. This is especially true for processes crossing several functional areas. As already described, process redesign involves a series of very well-defined steps which must be executed in a particular order. Process redesign involves both learning (training) and problem solving. Process redesign teams, especially those that are cross-functional, contain a larger body of information about the process than an individual could contain. For the same reason, team members collectively offer more creative ideas for redesigning processes. Because quality/process redesign groups are often self-directed, it is important that, through the group process, they understand and are committed to the course of action they choose. Research generally supports the notion that complicated process redesign is best accomplished in small group contexts.

During the last 20 years, communication scholars have consistently called for research on task groups in context (Cragan & Wright, 1980; Cragan & Wright, 1990). Their criticism of small group communication research is particularly valid given the volumes of research that have been conducted in laboratories on zero-history 30 minute groups or simply collections of individuals (Bormann, 1980; Cragan & Wright, 1990; Fisher, 1971). According to Poole (1983), "A group should not be a zero-history group; there should be incentives for members to maintain solidarity; there should be pressure to finish the task; and the task should have some complexity (p. 333).

Mortensen (1970) argued that small group research needed to focus on communication variables. To accomplish this focus requires the development of communication-based theories of groups. Poole, (1990) while lamenting the paucity of such theories, asks an important question, "Does the theory address meaningful and important concerns" (p. 237). In other words, communication theories ought to test assumptions about communication that matter to everyday people working in task-oriented groups to produce definitive outcomes.

According to Cragan and Wright (1990), research in the 1980's led us to "two parallel, and potentially competing, explanations of small groups: one based on the study of autonomous groups, the other on the study of organizational groups" (p. 227). This present study focuses on the latter.

The assumption is that organizations and their groups

affect one another and these groups act differently than autonomous groups (Putnam, 1986).

It is precisely at this point, that small group and organizational inquiry meet. Small groups in organizations function differently than autonomous groups because organizations create a unique context. There are four important characteristics that distinguish organizational context (and therefore the field of organizational communication) from the independent context of autonomous groups and associated small group studies (Seeger, personal communication, April, 1992). First, organizations (and therefore, organizational communication research) inherently deal with all levels of communication from the interpersonal to interorganizational. Groups within organizations must also interact with those various levels of communication. For example, process redesign teams in organizations communicate with, influence, and are influenced by organizational members, groups, and individuals, groups, and organizations outside their own organization. Autonomous groups, while connected through their members to the external environment, do not experience such complexity of interaction.

Second, the large numbers of members in organizations create a unique context not found elsewhere (Seeger, personal communication, April, 1992). In organizations, large numbers of people are intimately involved with one another on an on-going, task-specific basis. For example, by being part of an organization, a quality/process redesign

team has immediate access to information and resources from the organization. This dynamic is not present for autonomous small groups.

Third, organizations are formal (Seeger, personal communication, April, 1992). They impose, by their nature, more control over individual members, groups, and those in the relevant information environment. This formality and control affects the content and process of communication that is different from autonomous small groups. For example, process owners (usually managers with functional responsibility for a process) have tremendous influence over the direction and final outcome of teams.

Finally, organizational communication has distinct consequences (Seeger, personal communication, April, 1992).

If an organizational member or group enacts the environment, s/he has done so for the whole organization. This will have a greater effect than if speaking for an autonomous small group or as an individual. Decisions communicated and implemented by quality/process redesign teams affect organizational members not serving on those teams. For example, a team redesigning the non-faculty hiring process will affect procedures used by personnel department employees and will have a direct impact on job applicants and new hires.

Groups, then, are defined for the present study from an integrated perspective:

"An organizational group is a collection of three or more organizational members who interact (more or less regularly) over time, are psychologically cognizant of

one another, perceive themselves as a group, and most important, are embedded within a network of interlocking tasks, roles and expectations" (Jablin & Sussman, 1983, p. 12).

Further, small groups functioning as teams across a system of processes within an organization make complex problem solving possible (Shaw, 1981). Teams working on organizational projects can effect change and keep morale high (Waterman, 1990; Levering, 1988).

Quality/process redesign teams (Q/PRTs) are ideal organizational groups for systematic examination. Q/PRTs are task groups embedded in the organizational network. There is pressure from management and other members to remain in the group and finish tasks. For example, in the current study, group members are selected by management primarily for their role in the administrative process being redesigned. At best, team members appreciate the opportunity to participate in and influence university processes. Ideally, they enjoy interaction with one another. In addition, Q/PRTs and their members get recognition in the house organ, in formal ceremonies and with peers. At the same time, they feel pressure from management, who selected them and paid for their training, to remain in the group and complete the process. In most cases, leaving the group would mean creating a large gap in collective knowledge. Since quality improvements and process redesigns are short term projects (three to 18 months), most team members consider this time frame manageable. In short, there are many incentives for team

members to remain in the group and disincentives to leave.

While the team approach should be ideal in an organization, the concept encounters considerable resistance for several reasons. First, communication in traditional organizations tends to be vertical rather than lateral or diagonal. Top down information flow dominates with subordinates implementing the plans of managers above them.

Fearing to criticize the ideas which flow downward, subordinates tend to feedback information which supervisors want to hear (Jablin, 1979). Teams, especially cross-functional teams, enhance and promote lateral and even diagonal communication which often violates political rules of traditional organizations.

Second, with an emphasis on vertical communication, tall organizations may be best suited for tasks which involve a minimal degree of complexity and only simple coordination (Hrebiniak, 1978, p. 137). However, many of the tasks of hierarchical organizations such as universities are anything but simple. The lateral movement of information through a system is complex and made difficult because it can only be accomplished formally at the top of the organization and fed down the columns of authority. As mentioned earlier, teams are best suited for solving these sorts of complex problems.

Small groups in organizations communicate in a unique context that is different than autonomous groups. There are many advantages and disadvantages to employ groups to perform work. For these reasons, research on communication

variables such as climate is necessary to determine how members' perceptions or patterns of communication change by participating in groups. Small groups such as quality circles or process redesign teams are of particular importance in climate studies because climate is the general state of communicative relations between coworkers and superiors and subordinates (Seeger, personal communication, January, 1995). Small groups affect and are affected by communication climate in organizations (Kreps, 1990).

Communication Climate and Related Research

Communication climate research attempts "to characterize, understand, and explain communication patterns in the organization" (Putnam & Cheney, 1990, p. 44).

Climate studies are concerned with the consequences of communication which may occur, for example, as a result of organization members participating on process redesign teams. Do communication patterns (or at least the perception of them) change significantly when organization members participate on purposive cross-functional teams?

Communication climate was selected as the variable for this study for several reasons. First, climate has been identified as one of four primary organizational communication traditions. The others include communication channels, network analysis, and superior-subordinate communication (Putnam & Cheney, 1990).

Second, each of these traditions is closely related. Network analysis refers to the examination of organizational members interconnected by patterned paths of communication

(Rogers & Agarwala-Rogers, 1976). Network analysis differs from climate because it concentrates on antecedents and determinants of communication. Jablin (1980), however, created an integrated network and climate research model to bring both the subjective and objective aspects of these two traditions together, i.e., they complement one another.

Similar to channel or network research and superior-subordinate communication, climate studies examine perceptions of vertical and, to some extent, horizontal communication relationships in the organization (Jablin, 1979). For example, channel research focuses on the upward, downward, and lateral communication flow in organizations. Superior-subordinate communication focuses on information flow (channel) between supervisors and those reporting to them. Dennis' (1974) instrument used in the present study, includes a superior/subordinate communication variable.

Third, climate has received considerable attention in both the theoretical and empirical literature. Literature reviews alone include Campbell, Dunette, Lawler, & Weick, 1970; Falcione & Kaplan, 1984; Falcione, Sussman, & Herden, 1987; Forehand & Gilmer, 1964; Hellriegel & Slocum, 1974; Jablin, 1980, James & Jones, 1974; Litwin & Stringer, 1968; Payne & Pugh, 1976; Poole, 1985; Poole & McPhee, 1983; Tagiuri & Litwin, 1968; Woodman & King, 1978. Climate has been the historical "explanation of choice" because it possesses an "intuitively logical explanatory power---it seems to make sense" (Falcione, Sussman, & Herden, 1987, p. 196).

Fourth, climate was selected in this present study partly because initial informal interviews with university faculty and staff revealed notable dissatisfaction with communication from top leadership. Complaints of low morale related to this issue were consistently commented on by faculty, staff, and even board members. At the same time, organizational members generally expressed satisfaction with supervisory communication.

Fifth, climate is a major variable examined in Stohl's work (1985, 1987) which the present study attempts to partially replicate. Stohl found significant differences in perception of climate between workers who participated on quality circles and those who did not. Further, she found that active members of circles had a significantly more positive perception of climate than did new members.

In fact, as noted earlier, Stohl observed that

"the results indicate that it is not simply that people who join circles have better attitudes, but rather that once workers are members, interaction in the quality circle broadens worker's perspectives and increases the quality of the information they give and receive" (Stohl, 1985, p. 523).

In other words, in addition to being selected and choosing to participate on teams, communication climate may improve because there are positive effects associated with participation on teams. Not surprisingly, members of quality circles were also significantly more satisfied with their jobs than were non-members (Stohl, 1985; Warr, Cook, & Wall, 1979).

There are many and varied definitions of communication

climate. Climate may be viewed objectively, subjectively or intersubjectively (combining objective and subjective). Some define the concept in terms of objective measurable behavior of organizational members such as the amount of upward communication. Others view climate subjectively as members' perceptions of warmth, intimacy, and openness (Albrecht, 1979). Dennis (1974) defines climate as "a subjectively experienced quality of the internal environment of an organization ... which embraces member's perceptions of messages and message-related events occurring in the organization" (in Goldhaber, 1990, p. 68).

Poole and McPhee (1983) defined climate intersubjectively, based on the beliefs, attitudes, values and interpretations of members. An intersubjective view suggests that climate is continually being "structured and restructured by organizational members as they interact with their environment" (Falcione, Sussman, & Herden, 1987).

This more recent view is in contrast to Taguiri's (1968) earlier definition that climate is a "relatively enduring quality of the internal environment of an organization..." (in Goldhaber, 1990, p. 65). Therefore, climate may also be defined in terms of relative organizational fluidity or stability.

This recent view is consistent with the present research and the concept that organizations are continually changing through the process of communicating and organizing (Weick, 1979). In this research, several variables are examined to determine whether and to what extent climate can

change. For example, in this study, a controversial president blamed for micromanaging the organization left suddenly (and without notice) approximately mid-way through the research project. An analysis is conducted to determine whether and to what extent this dramatic change accounts for variance in the climate of the university. Similarly, process redesign teams represent a major reorganizing effort for any organization. Their presence is predicted to influence communication climate in a positive direction. In other words, certain types of organizational variables may contribute to the notion that climate is a somewhat fluid concept.

For the purposes of this study, climate is assumed to change and to be subjectively perceived by organizational members. Climate is

"a subjectively experienced quality of the internal environment of an organization ... which embraces member's perceptions of messages and message-related events occurring in the organization" and which changes as significant cultural and structural modifications affect the organizing and communicating efforts of the system" (Dennis in Goldhaber, 1990, p. 68).

The climate construct does provide a "conceptual link between phenomena occurring at the organizational level and the individual level" (Falcione, Sussman, & Herden, 1978). Climate can be examined at multiple levels of analysis (individual, dyad, group or organizational). Psychological climate is a measure in which the researcher collects only individual members' perceptions of the organization. The dyadic level of interaction is often associated with superior-subordinate communication and involves dyadic-pair

interaction as the unit of analysis. Group and organizational climate are determined by checking for a high degree of consensus among individual scores on various climate indicators at the group or organizational level (Falcione, Sussman, & Herden, 1987).

It should be noted that several warnings in the literature appear about aggregating psychological (individual) climate data as indicators of organizational climate (Falcione, Sussman, & Herden, 1978; Putnam & Cheney, 1990). Aggregation of data to determine differences between groups can be appropriate if interperceiver reliability or agreement is high and there are homogeneous situational characteristics (e.g., similarity of context, structure, and job type).

Even if perceptions are consistent among organizational members (high interperceiver agreement), this is not to say that perceptions are accurate (Howe, 1977). However,

"... depending on the goals of the research, accuracy of perception may not be an issue, since what may be important is that these perceptions represent 'reality' for that group" (Falcione, Sussman, & Herden, 1978, p. 333).

An assumption of the present research is that "an individual's cognitive and affective perceptions of an organization influence that person's behavior in the organization" (Goldhaber, 1990, p. 213). It is not the intent of this study to determine objective measures of organizational climate, i.e., based on the structures or observable behaviors of the organization (James & Jones, 1974). The focal point of this research is to measure

change in perception for those participating on process redesign teams assuming that a change in perception may potentially lead to a change in behavior. According to Redding (1972), "The 'climate' of the organization is more crucial than are communication skills or techniques (taken by themselves) in creating an effective organization" (In Goldhaber, 1990, p. 213). In the present study, the level of analysis is at the individual level.

Because communication climate is a multiple-dimension concept, ("the degree of supportiveness, trust, confidence, openness, and candor present in an organization"), many instruments have been devised to measure it (Goldhaber, 1979). Typically, combinations of such dimensions have been used by researchers to define this concept. For example, Redding (1972) identified five components of the "Ideal Managerial Climate" including supportiveness, participative decision making, trust, openness, and emphasis on high performance goals. Roberts and O'Reilly (1974) measured 16 dimensions of communication including trust, influence, mobility, desire for interaction, directionality-upward, directionality-downward, directionality-lateral, accuracy, summarization, gatekeeping, overload, satisfaction, modality-written, modality-face-to-face, modality-telephone, and modality-other (Falcione, Sussman, & Herden, 1987).

The International Communication Association (ICA) Communication Audit is a measure of climate developed by members of the International Communication Association and includes measures of information sending and receiving,

communication sources, channels, follow-up, timeliness, accuracy, relationships, and outcomes (Falcione, Sussman, & Herden (1987). This instrument was also used by Stohl (1985) in her study of quality circles.

As previously mentioned, climate is measured in the present study with an instrument which focuses on

"1) Superior-Subordinate Communication, 2) Perceived Quality and Accuracy of Downward Communication, and 3) Opportunities and Degree of Influence of Upward Communication, 4) Superior Openness/Empathy, and 5) Reliability of Information" (Goldhaber, Dennis, Richetto, & Wiio, 1975).

Only the first three dimensions were measured in this study.

As in Stohl's study (1985), not enough superiors could be identified to measure their perceptions of communication relationships with subordinates. Consequently, Superior Openness/Empathy (4) and Reliability of Information (5), which are both dimensions of superior perceptions, were not measured. A summary of literature findings for each of the first three dimensions is discussed in the following paragraphs.

Superior-Subordinate Communication (SSC) (the first variable in Dennis' instrument) refers to how openly or supportively superiors are communicating with their subordinates as perceived by subordinates. SSC is important in climate studies because "superiors spend between one-third and two-thirds of their time communicating with subordinates" (Porter & Roberts, 1976). This important communication relationship can contribute significantly to individual perceptions of climate. Further, if a systematic

variable (e.g., a Theory X approach to management) influencing this relationship exists within the organization, organizational climate may also be influenced by superior-subordinate communication.

Nine categories of SSC research were identified by Jablin (1979). One particular dimension, "openness," is also a common dimension in communication climate research and refers to superior "openness in message sending and receiving with subordinates" (p. 1204). Dennis' (1974) includes 20 questions in his climate instrument to measure openness of superior communication. This dimension was also measured in the present study.

There are two sub-dimensions within the openness construct: openness in message-sending and message-receiving. Message-sending may be described as "candid disclosure of feelings or bad news and important company facts" (Redding, 1972, p. 330). Message-receiving involves "encouraging, or at least permitting, the frank expression of views divergent from one's own; the willingness to listen to bad news or discomfoting information" (p.330). Some of the questions from Dennis' instrument include, for example, "Your superior makes you feel free to talk with him/her" or "Your superior is frank and candid with you" (Goldhaber, Dennis, Richetto, & Wiio, 1975, p. 235).

According to Jablin (1979), studies on openness

"reveal that in an open communication relationship between superior and subordinate, both parties perceive the other interactant as a willing and receptive listener and refrain from responses that might be perceived as providing negative relational or

disconfirming feedback" (p. 1204).

Further, what determines the openness of a relationship is not the content of messages but rather the interactants' evaluations of the appropriateness of the communications. Finally, employees are more satisfied with their work when they have an open relationship with their supervisor (Jablin, 1979).

Quality of information, the second dimension of Dennis' instrument, refers to the perceived quality and accuracy of downward communication within an organization. Some questions from this dimension include "Top administration is providing you with the kinds of information you really want and need" and "You think that people in top management say what they mean and mean what they say" (p. 235).

Obviously, this dimension is broader than the notion of superior-subordinate communication. Here the perception is not limited to dyadic communication between the immediate supervisor and the subordinate. The concern is with organizational member perceptions of timeliness, usefulness, source appropriateness, comprehensiveness, clarity, accuracy, and freedom of communication within the organization as a whole.

This quality measurement is primarily a perception related to downward communication from top leadership. Albrecht (1979), found that "key communicators (active communicators who link large groups of people) were more satisfied with downward directed messages" (p. 343). However, Stohl (1985) found there was no significant difference between key

linkers and non-linkers ("those who have less involvement in the communication flow and encounter fewer messages to shape their perceptions") in regard to quality of downward communication (p. 523). Apparently, workers who are non-linkers do not feel a need to communicate directly with middle and upper management provided because they have sufficient contact with linkers/key communicators (Stohl, 1985).

The third dimension of Dennis' climate instrument measured in this study is the opportunity for upward communication. Two types of upward communication are noted in the literature: 1) the effect that a supervisor's influence within the organization has on relationships with subordinates and 2) the upward influence of subordinates to their superiors (Jablin, 1979). The latter of these types was tested in the current study.

While there have been many studies on upward influence of subordinates, two areas of research are related to the present study. They include feedback in the form of participative decision making and upward distortion. Upward feedback as it relates to participative decision-making is also an important dimension of upward influence. Of interest here is the perception of subordinates that they can freely give opinions about day-to-day work, are allowed to plan and set their own goals, and can influence the organization. In the present study, these aspects of upward influence were measured (Dennis, 1974). Examples of "upward communication" questions include "Your superior lets you

participate in the planning of your own work" and "You believe your views have real influence in your organization" (p. 236) (See Appendix A).

Upward distortion is the second type of upward communication important in this study. One type of upward distortion is seen when "individual A does not trust individual B, individual A will conceal his/her true feelings when communicating to B about a particular issue" (Jablin, 1979, p. 1204).

However, variables other than trust can influence upward distortion. Of particular interest here is the relationship between organizational climate and upward distortion.

"Specifically, results suggest that in organic as compared to mechanistic environments, subordinates perceive greater appropriateness, expect fewer harmful consequences, and evidence greater willingness to disclose important yet personally threatening information to superiors" (Jablin, 1979, p. 1205).

Therefore, subordinates in a mechanistic organization may distort information in a way that pleases the supervisor. They may tell superiors what they want to know, what they think superiors want to hear, or give superiors information that reflects favorably on themselves (Goldhaber, 1990).

Again, three dimensions of communication climate from Dennis's instrument including openness, quality of downward information and upward communication were used in this study. As mentioned earlier, superior-subordinate communication (SSC), channel and climate research are often associated with each other. Researchers find SSC to be

congruent with both communication channel and climate research (Dennis, 1974; Putnam & Cheney, 1990). Channel research refers to both vertical and lateral communication relationships. SSC focuses only on a particular type of vertical relationship or channel, i.e.,

"on those exchanges of information and influence between organizational members, at least one of whom has formal (as defined by official organizational sources) authority to direct and evaluate the activities of other organizational members" (Jablin, 1979, p. 1202).

Finally, research assumes that openness in these important vertical relationships is a major contributing factor to climate.

Group Climate

Although the present study is primarily concerned about the change in climate perception of individuals, the group level of analysis is worthy of discussion because teams were studied and are groups. Furthermore, such a discussion sheds light on the fact that groups are imbedded in organizations, influencing one another's perceptions of communication climate.

Group communication climate is defined as "those molar factors, objective and/or perceived, which affect the message sending and receiving process of members within a given organizational group" (Falcione, Sussman, & Herden, 1987, p. 205). In other words, the focus of this literature is the impact of the organization on the group and its members. A primary question in this research body is "what accounts for the difference in group communication

climates?" Payne and Pugh (1976) found, for example, that differences may be accounted for by personality and demographics, hierarchical level, or whether positions were line or staff.

The cross-functional nature of most quality/process redesign teams produce a field ripe with opportunity for future research in this area. Such characteristics as personality, demographics (age, gender, race, etc.), and hierarchical level (employee group) may be particularly interesting and useful independent variables when studying these highly diverse groups in future studies. The current study focuses on the effects of group participation and time as independent variables.

A secondary question in this field of study is "what are the communication phenomena (roles, relationships, processes) most clearly associated with the creation and perception of group climate?" (Falcione, Sussman, & Herden, 1987, p. 205). The focus of this research has been on leadership roles and relationships. According to Folger and Poole (1984), leadership is a dominant theme which affects a group's climate.

Group communication climate is important primarily because it points to the embeddedness of groups in organizations. This inseparability of groups from their organizational contexts makes research challenging. Groups and their members are continuously changing organizations while powerful organizations are simultaneously changing groups both objectively and subjectively.

Gibb (1961) also observes that communication climate is perceived as more supportive (positive) in groups where description versus evaluation and problem versus control orientation are exercised. During process redesign training, participants are taught to manage by fact and focus on problems rather than people. Managing by fact means systematically collecting and analyzing data. Managing by fact allows a group to be more descriptive than evaluative, thus potentially providing a more positive communication climate.

Quality/process redesign teams are also trained to focus on problem solving rather than blaming people. According to Gino Giocondi, former Vice President for Chrysler Corporation, the problem is the system not the people in it (personal communication, September, 1994). By identifying process problems and working cooperatively to resolve those problems, communication climate improves in the absence of personal blame. Fear is driven out of the organization and replaced by openness (Seymour, 1993).

Climate and networks

To explain why task-oriented organizational small groups should perceive a more positive communication climate requires some discussion of an important related variable: communication networks. In general, as networks increase in size and diversity (vertically, horizontally, and diagonally), the group becomes more embedded in the organizational context (Burt, 1983; Putnam, 1986; Stohl, 1985, 1987). Through the group, the individual becomes more

connected with, not only other members, but other groups (e.g., departments) represented by members of the task group. Vertically, participation in such groups "leads to more upward communication and better use of information, which in turn leads to novel, creative solutions to problems and enhanced performance" (Stohl, 1985, p. 513). More information is also exchanged horizontally and diagonally, thus organizational knowledge increases. In other words, "workers gain access to more and varied communication sources" which lead to better job/decision understanding (Stohl, 1985, p. 513).

Social network theorists assume that

"positions people occupy in organizations put constraints upon the content and form of social interaction that may both promote and hinder the development of positive organizational and individual outcomes" (Stohl, 1985, p. 512).

In the case of quality/process redesign teams, members are not as restricted by traditional downward communication. First, supervisors (who are often not team members) must rely on subordinate members or meeting minutes to gain information about group activities and decisions. More importantly, decisions are made in groups rather than by individual supervisors. Decision making power is pushed down the organization, empowering organizational members who serve on teams.

Second, supervisors who do participate in groups may only act as peer members during group meetings. Therefore, greater equality in group membership allows for a more supportive communication climate (Gibb, 1961, p. 147). A

1984 study by Hay Management Consultants showed that employees at egalitarian organizations (especially those that are fast growth) have a higher satisfaction with their jobs than those whose "structures reinforced authority and control while inhibiting productivity and growth" (Goldhaber, 1990, p. 67). Climate has been found to be consistently related to job satisfaction (Jablin, 1980, p. 331).

In addition, the supervisor releases some control over of his/her subordinates' work time in the department. By contrast, quality/process redesign teams are often led and facilitated by selected team members rather than managed through formal authority. This may represent a paradigm shift from management of functional groups to leadership of cross-functional process teams (Gino Giocondi, personal communication, September, 1994).

Further, teams are often composed of members from different departments and levels. Therefore, a secretary from Student Affairs may be serving and interacting with the Associate Provost from Academic Affairs. Such interaction through teams changes the organization's focus from functional to cross-functional communication. This type of communication breaks the paradigm of limiting information flow to the traditional hierarchical chain of command. The organization maintains traditional forms of vertical communication while simultaneously forming a matrix communication pattern. The focus is now on cross-functional process rather than departmental functions.

To the extent that the teams are cross-functional in structure or solve cross-functional problems, more information is exchanged and more relationships are established. This structure of redesign teams creates a matrix, rather than a strictly hierarchical organization. Stohl (1985) has suggested, teams form organizational structures which are parallel to the formal hierarchy of the organization.

Therefore, the network range and extended networks are increased and more linkages are expected to develop through the structural addition of the parallel organization. Network range is defined as "the extent to which the links connect the group with a diversity of other actors" (Burt, 1983 in Stohl, 1987, p. 422). Extended network is the extent to which "teams develop relations with persons with whom they would not normally come into contact during their work activity" (Stohl, 1987, p. 422). Linkages are formed by those members (linkers) who are connected to large numbers of people outside their work group and/or connect large groups of people within the organization (Stohl, 1985; Albrecht, 1979).

As a rule, perception of a positive communication climate increases as openness increases and networks expand in diversity (Wiio, 1977 in Goldhaber, 1990, p. 69). However, two exceptions to this rule have been cited. First, if employee expectations are too heightened by increased openness such that expectations cannot be met, perception of climate will ultimately decrease. Second,

supervisors may believe that employees being heavily networked is a negative distraction from their work (Marshall & Stohl, 1993). Therefore, even if workers perceive a more positive climate due to expanded networks, their supervisors may not.

Participation

Another concept which has received increasing attention is participation. This variable is of interest in the present study as it relates to communication climate. Marshall & Stohl (1993) define participation (an independent variable) in organizational groups from a network perspective. They argue that for satisfaction and performance to improve in a participative system, "the individual participants must be actively involved and influential within the organization and must recognize their own level of activity" (p. 140). Therefore, it is important to examine the activity of participants within a formal organizational structure and identify what participants actually do to have involvement and influence in the organization.

There are two network-related dimensions of participation: empowerment and involvement.

"Empowerment refers to recognizing and taking advantage of opportunities available within the system specifically geared to influence behaviors or decisions relevant to the individual or other individuals within the system" (Marshall & Stohl, 1993, p. 140).

The following characteristics more specifically define empowerment: 1) being connected to key decision makers (e.g., managers) make opportunities to influence available,

2) workers are granted power within the organization (Burke, 1986), 3) workers gain new skills which lead to more autonomy (Bennis & Nannus, 1985), and 4) the perception that one is empowered in the organization (Albrecht, 1988). Marshall and Stohl (1993), however, emphasize the importance of examining the "process of developing key relationships in the organization in order to gain greater control over one's own organizational life" (p. 141).

Marshall and Stohl (1993) argue that involvement is similar to but distinct from empowerment. Empowerment refers to strong connections with key decision makers whereas involvement includes both strong and weak links which provide access to a greater variety of information.

Summary of Literature Review

The quality movement, attributed to W. Edwards Deming, is a relatively new paradigm in organizational research. This movement addresses the issue of change from a mechanistic culture to a more organic culture regardless of the type of organization. At the same time, organizational context must be considered when studying this change. The primary contribution of the quality movement is the notion of horizontal communication achieved through participation and that participation is largely accomplished through small groups called quality/process redesign teams. Even from the beginning of this movement in the late 1970's to the present, a shift has occurred from functional groups in context (quality circles) to cross-functional teams. It is precisely at this point that horizontal communication is

accomplished as barriers between organizational units break down and suboptimization is diminished.

Some argue that communication climate is a relatively stable variable while others advocate that the variable is rather fluid. In either case, climate is an important measure of an organization's readiness for a change from a mechanistic to an organic quality-focused culture.

Problem Statement

The present study is concerned with the consequences of communication which occur as a result of organization members participating on process redesign teams at a mid-sized public research university. The central hypothesis of this research predicts that perceptions of communication patterns change significantly when organization members participate on purposive cross-functional teams.

Quality/process redesign teams are typically cross-functional groups of employees who meet regularly to review, identify, analyze, and revise organizational processes in order to increase efficiency, reduce costs, and continuously improve quality and customer service (Dougherty, Kidwell, Knight, Hubbell & Rush, 1994). Cross-functional groups are those composed of members from different units (Cornesky & McCool, 1994).

This research project is designed to quantitatively examine the relationship between quality improvement or process redesign as organizational participation and the perception of communication climate. While many studies have been conducted on the effectiveness of work teams, only

one study has examined communication variables. Stohl (1985, 1987) examined communication climate, communication problems, knowledge of the corporation, and communication networks in quality circles. Only communication climate will be examined in this study as a dependent variable.

This replication of portions of Stohl's study is important for two reasons. First, Stohl's work is an excellent example of research on bona fide groups. Her study is, to a large extent, the type of research called for by Cragan and Wright (1980, 1990), Poole (1990), Putnam and Stohl (1990), and Sykes (1990). These scholars called for studies of purposive groups about which everyday people have concern. The ideal group study would be conducted in the organizational context and over an extended time frame. Unlike many laboratory studies, Stohl conducted empirical field research taking into consideration the organizational context of the small group. She studied naturalistic groups (quality circles in industry) designed to address real needs and problems. Her research falls short of the expectation for a new form of group research, however, because she did not study the groups over extended periods of time. The present study addresses this deficiency to some extent by examining naturalistic groups during a pilot project over a four-month period.

Second, in order to increase external validity, replication on different types of groups in different contexts is needed. Stohl's research subjects were members of quality circles in a manufacturing facility in New

Zealand. The present study examines groups in a higher educational context in the United States. Therefore, differences between this and Stohl's study are organizational and cultural/national context (U.S. versus New Zealand, and university administration versus manufacturing).

The nature of the groups in these two studies also differ somewhat. Both are participative purposive work groups. However, Stohl's quality circle groups were ongoing and "from the same work area" rather than cross-functional groups as in the present study (Stohl, 1985, p. 511). They met weekly after-hours on a volunteer basis to identify ways to improve the quality of work. All circle members were non-supervisory and the groups were not management-directed.

By contrast, the university groups in this study usually meet weekly during regular work hours as a part of their jobs. These groups are cross-functional, meet only for a four month period, and their goal is relatively short-term innovation in the redesign of administrative processes.

They are selected for the specific purpose of saving time and money, improving customer service, developing human resources, and improving morale. Many members are supervisory and the groups are strongly influenced by management direction.

In addition to adding to the communication climate and small group literature, this study adds to the growing body of literature on total quality management in higher education. This researcher is the first to study quality

management in higher education specifically from a communication perspective. According to Gino Giocondi, former Vice President of Quality and Productivity at Chrysler corporation, communication is one of the most crucial variables determining the success of quality team efforts (personal communication, December, 1994). Further, the purpose of this study is to explore the notion that communication within organizations improves when members interact in cross-functional teams.

Hypotheses

One major hypothesis guides this research.

Participating on a quality/process redesign team (Q/PRT) is expected to significantly increase the perception of communication climate in a positive direction. From this hypothesis come two specific sub-hypotheses.

Hypothesis 1: Members of Q/PRTs perceive a more positive communication climate than employees who are not members of Q/PRTs (at T1 and T2 - significant difference)

Hypothesis 2: Members of Q/PRTs perceive a more positive communication climate after participating on a Q/PRT than before (T1 and T2, significant difference).

Hypothesis 1 was posited by Stohl (1985) for quality circle members. Hypothesis 2 is posited for this study and was included at Stohl's recommendation (July, 1994, personal communication). This hypothesis extends her research which examined non-member, new member, former member, and active

member perceptions at one point in time only. By conducting the pre-test on new team members and a post test on those same subjects after they have become active members, the effects of participation can be more directly observed and substantiated than in Stohl's study. Further, non-members can now be used as a control group which helps to account for variation not related to participation. Finally, the present study adds to the body of literature by testing communication climate in a drastically different context. Stohl's study occurred in a New Zealand factory examining climate perceptions of quality circle members near the beginning of the quality movement. The present study occurred ten years later in an American University examining cross-functional process redesign teams. These contextual differences must be taken into account when comparing studies and when making generalizations from those studies.

Outline of Chapters

Chapter II is a description of the research methodology including the study variables, population, data collection and statistical methods, and the research project. Chapter III presents the findings of this study. Chapter IV discusses conclusions of the study and recommendations for future research.

CHAPTER II

The purpose of this chapter is to first describe the research which includes definitions of the variables, population studied and data collection method. This methodology is followed by a description of the research project. Statistical procedures, issues of confidentiality and the pre-test are also described.

Research Methodology

This field study is based on a quasi-experimental non-equivalent control group design which includes a pretest and repeated measure post test survey (Frey, Botan, Friedman, & Kreps, 1991) (see Appendix). The responses of quality/process redesign teams (PRTs) were compared at two points in time. T1 was the beginning of the pilot project before training and T2 was about four months into the project, i.e., when the groups have completed training and are fully functioning as teams. A non-equivalent control group of administrators and clerical staff also received the pre-test and post test at T1 and T2. The pre-test and post test partly account for initial and final differences between the experimental and control groups, respectively. If variables other than the treatment of participating on teams influence the perception of communication climate, the repeated measures approach with a control group partially accounts for that variability.

As recommended by Putnam and Stohl (1990), the research groups are bona fide, i.e., they are naturalistic groups in a field setting examined in the context of their

environment. The composition, structure and process of the groups are primarily determined by the needs of the organization and the method of process redesign rather than the researcher.

Study Variables

The purpose of the study is to determine if there is significantly different perception of communication climate in the experimental group (team members) from the beginning (T1) to the end (T2) of the four-month research period. This research also sought to determine if there a significantly different perception between team and non-team members. This cross-panel approach was recommended by Stohl (personal communication, July, 1994).

The first independent variable, then, is "time" signified by T1 (before groups begin work) and T2 (as group members become active). The second independent variable is group treatment, team members (experimental group) versus non-team organizational members (control group).

Responses of the control group were measured over time to control for environmental variables (other than climate) that might account for differences in the experimental group at T1 and T2 (See discussion on statistical analysis, p. 69). This independent time measure is also consistent with Stohl's (1985) findings that there are differences in climate perceptions of active team members and new group members. In the present study, T1 was equated with the new group members and T2 represented active group members. In other words, at the beginning of the Q/PRT assignment all

members are new. All members still participating after four months are active members.

Unlike Stohl's groups, which were on-going and involved changing memberships, groups in the present research are limited to a particular time period and, consequently, generally do not change memberships. Only one person out of nearly 50, dropped team membership. Similar to Stohl's, this study will compare team and non-team organizational members.

The dependent variable for the study is communication climate. In 1974, Dennis developed a 45 question instrument (Appendix) to measure climate (Goldhaber, Dennis, Richetto & Wiio, 1979). This same instrument was used by Stohl (1985) and demonstrated high reliability (see Table 2, p. 76).

Three factors of communication climate include supportiveness of superior-subordinate communication (21 items), quality of information (12 items) and opportunity for upward communication (five items) (Goldhaber, Dennis, Richetto & Wiio, 1979). A five point scale ranging from "to a very little extent" (1) to "to a very great extent" (5) is used for each item (see Appendix).

Therefore, the four panels of this study include: team versus non-team at T1; team versus non-team at T2; team at T1 versus team at T2; and non-team at T1 versus non-team at T2. A difference between active team members and control group members is predicted at T2. A significant difference is predicted in communication climate perceptions between new team members (at T1) and the same active team members

(at T2).

Population, Sample and Sample Size

The sample includes primarily university administrative and clerical-technical staff. Only a few faculty and one service maintenance employee participated in the initial pilot project. There are approximately 500 organizational members in the administrative and clerical-technical group.

The size of the experimental group was 50. These members serve on one of six teams. Size of process redesign teams ranged between seven and ten members.

The control group was selected randomly from the university administrative and clerical employee data base. Selection was from an alphabetically-ordered list of all employees regardless of classification. A sample of 130 employees provides a reasonably large number of non-group members for comparison with the experimental group, assuming that not all of these were available or would voluntarily participate. In fact, 86 (66%) of the 130 chose to participate in the study.

This group was used as a control for extraneous variables of change which may occur in the university during the four month period. In this study, several variables were identified which could account for a positive increase in climate. First, team members attended varying degrees of quality training. The training itself may have an impact on perceptions.

Second, those chosen to serve on teams may have a strong propensity toward organizational participation prior

to their selection (otherwise they may not have been selected in the first place). Third, during the experimental period, a controversial university president who had been accused of micromanaging the organization left office suddenly. Communication climate may have been affected by such a change even though climate generally has "an air of permanence or at least some continuity over time" (Jablin, 1980, p. 329). The impact of these variables are discussed in Chapter IV.

Data Collection Method

To maintain a greater degree of control in this field study, questionnaires were distributed to all experimental participants in a classroom setting on the first day of training (T1). Time required for administration of the questionnaire was approximately 20 minutes. Each subject was given both written and oral instructions for completing the questionnaire by the researcher. All groups received team member training together in weekly meetings for one month (Phase II). At the end of the training, the teams began Phase III, process redesign. During Phase III, team leaders and facilitators received extensive training to further prepare them for their roles with the teams.

As the groups progressed (after approximately four months), they were asked to meet in a classroom to complete the climate survey again (T2). The researcher was present at both T1 and T2 to explain written instructions and to further clarify definitions of terms.

Control group members received the questionnaire in a similar manner. All control group members were mailed invitations to participate in the study by coming to a designated room on campus at their convenience during a period of one to two weeks at the beginning of the project, i.e., during the same period that the experimental group completed the questionnaire). As with the experimental group, the researcher was present to explain written instructions and clarify definitions of terms. Four months later, the control group was again invited to return for the completion of the post test questionnaire with the researcher present to give instructions.

Description of Research Project

In the summer of 1994, the researcher was hired as an outside consultant to coordinate a quality/process redesign pilot project. The university agreed to allow the researcher to collect data so long as the research remained independent of the quality improvement project.

A Process Redesign Advisory Group was assembled to identify processes requiring redesign, select team members, and provide overall leadership for the project. The ten advisory group members were selected primarily because of their previous training in quality processes.

This pilot project was composed of three phases: 1) process and team member selection, 2) training of team members and 3) the redesign period during which teams defined, analyzed, and improved processes. Important to the present study, Q/PRT members were selected based on four

criteria: 1) those directly involved in the process 2) those indirectly involved in the process 3) the "customers" of the process and 4) cross-functional membership by employee classification, level, and department where appropriate. On one hand, bias in this selection process created some research concerns. On the other hand, this type of selection process may be partly what defines a group in context.

Phase II focused on the initial training of team members in team building, process redesign concepts, and specific redesign skills (three and one-half days). The pre-test was distributed to team members at the beginning of training program before the teams worked together. Team leaders and facilitators also received intense extended training to prepare them for their roles of coordinating task and relationship behaviors, respectively.

During Phase III, the teams worked to redesign their assigned processes and continued to receive training as needed. Cross-functional teams met weekly for up to 18 months (long past the research time-frame for the present study) before disbanding.

This study ended with a post-test survey after the teams worked together for approximately four months. Eventually, once processes were improved, teams were to work with process owners to implement the new or changed process.

Also, teams were expected to formally present their redesign recommendations to the university community as a form of recognition for their work.

In regard to population and type of group examined, the differences between the study described above and Stohl's (1985) study have already been discussed. In spite of these differences, this study is largely a replication and extension of Stohl's work. Like Stohl's study, this research examines the perception of communication climate among those participating in organizational task teams striving to improve the quality of their work. Further, this study sought to compare the perceptions of active group members (post test team members) with new members (pre-test team members) and non-members (the control group).

Statistical Procedures for Data Analysis

Three statistical procedures were used to analyze the data. First, reliability of the instrument was determined through the use of Cronbach's Alpha. This test determines the extent to which there is consistency in the direction that subjects answered a group of questions representing a particular dependent variable (Frey, Botan, Friedman, & Kreps, 1991). Second, descriptive data were analyzed to initially examine differences based on the independent variables. Third, an analysis of variance procedure was conducted to determine whether significant difference existed between the experimental and control group and between T1 and T2 for the experimental group.

When Stohl (1985) used Dennis' communication climate instrument, she calculated reliability for three of the climate dimensions. The alphas for supportiveness of superior-subordinate communication, opportunity for upward

communication, and quality of information were .79, .73, and .69, respectively. This calculation was performed for both the pre-test and post test in the present study (see Table 2, p. 76).

For the present study, a significant difference was predicted between new team members (T1, pretest) and active team members (T2, post test). Difference was also predicted between active team and non-team organizational members at T1 and T2. Any initial differences between the new group and non-group members at T1 was partly accounted for through this analysis.

ANOVA is an inferential statistical procedure designed to allow the researcher to determine if there are interaction effects between or among independent variables with respect to a single dependent variable (Bernard, 1988).

It was selected for data analysis because it allows the researcher to 1) evaluate more than one independent variable at a time, 2) to assess interactive effects between and among variables and 3) to be efficient in time and effort (Runyon & Haber, 1991, p. 425). ANOVA is used to determine whether a significant difference exists between the teams at T1 and T2, taking into account changes in climate perception in the control group. By considering this interaction effect between the independent variables of time and group, ANOVA is useful in determining whether an increase in perception in the experimental group might have occurred due to factors other than the treatment (Runyon & Haber, 1991; Frey, Botan, Friedman, and Kreps, 1991).

Once again, the two treatment variables are time (T1 and T2) and team versus non-team membership. Therefore, this study constitutes a 2 X 2 factorial design as shown in Table 1 below, i.e., there are two levels of treatment (T1, T2 and member versus non-member) for each independent variable.

This method allowed the researcher to examine the effects of each independent variable (time and groupness) on the various dimensions of the dependent variable

Table 1

Treatment Combinations - 2 X 2 Factorial Design

A Variable	T1		T2	
	Team		Team	
B Variable	Member	Non-Member	Member	Non-member
Treatment	T1	T1	T2	T2
	Team		Team	
Combination	Member	Non-Member	Member	Non-member

(communication climate). It also accounted for any interaction effect between the independent variables as they impact the dependent variable. In other words, the combined effect of time and groupness may have a different effect on climate dimensions than either of the independent variables separately.

Confidentiality

Confidentiality of data in the original questionnaires was maintained. All of the original individual data remains in the possession of the researcher and will not be released to anyone in the university. Only selected processed aggregate data were provided to university management or those participating in the study. Therefore, no individual response is identifiable in the results presented to the university.

Testing of the Questionnaire before the Pre-test

Because no climate studies on university staff were found in the literature, the climate instrument was tested with approximately 10 staff (not participating in the study) to ensure that the questionnaire was readable and understandable. These individuals were asked to complete the questionnaire and record the period of time required for completion. Then they were asked to critique the questionnaire for clarity of language and instructions. No changes were recommended for the Dennis Climate portion of the questionnaire. Changes were made in the first section on demographic data.

Pre-test

A pre-test was conducted to establish a benchmark for the team's communication climate perceptions. Fifty process redesign team members and 86 control group members completed the questionnaire. Raw data were first examined and initial tests were conducted to ensure the reliability of the instrument with the university population. Analysis of

variance was used to determine whether a significant difference existed between the experimental and control group with respect to the three dimensions of communication climate.

Mean scores for all dimensions of communication climate are listed in Table 4, page 79, in Chapter III (Stohl appeared to have used a seven point rather than a five point scale as was used in this study. Further, as recommended by Goldhaber (1979), aggregate scores for each dependent variable were summed rather than calculating mean scores as Stohl did. Summation is preferable to averaging because averaging tends to reduce the amount of variability in the data. Therefore, Stohl's scores (Table 3, p. 77) cannot be compared directly with this research. As with Stohl's study, new process redesign team members (before training or working together) perceived a more positive communication climate than non-team members (control group) (See Table 4, p. 79).

Reliability (Cronbach's alpha) scores for each of the dimensions of climate in the pre-test were very acceptable (Table 2, p. 76). These alphas exceeded the reliability scores from Stohl's study (supportiveness, alpha = .97 versus .79; quality of information, alpha = .90 versus .69; and opportunity, alpha = .86 versus .73).

In Chapter III, pre-test scores for climate are analyzed and compared to post test scores to determine whether an overall significant difference exists for the

active team members at T2 (experimental group). The results of the reliability is also measured.

CHAPTER III

This chapter presents the results of the statistical analyses for a study on the effect of team participation on perceptions of communication climate in a mid-size university. Participants' perceptions of three dependent variables of communication climate (superior/subordinate supportiveness, quality of information, and upward communication opportunity) on one repeated measure at T1 and T2 furnished the data for this analysis. Descriptive statistics and analysis of variance (ANOVA) were generated by a computerized SPSS and BMDP programs. Tables are presented to summarize computations and to support conclusions. Also included for comparison is Stohl's (1985) table of mean scores on the three dependent variables.

Participants

Of the 180 instruments distributed to university staff members, 136 (76%) were returned at the time of the pre-test. Of the 136 questionnaires later distributed at the post test, 124 (92%) were returned. Of the 124 returned at the post-test, 114 (92%) questionnaires were useable. Some questionnaires were unusable because they could not be matched to pre-test questionnaires. Of the original questionnaires from 50 team members (experimental group) 42 (84%) were useable. Of the 86 original control group questionnaires returned, 72 (84%) were useable.

Descriptive Data/Statistical Tests

Data and tables of statistical results for the dependent measures of communication climate are presented in

this section including 1) overall communication climate (OCC) 2) superior/subordinate communication (SSC), 3) quality of information (QI), and 4) upward communication opportunity (UC). Reliability (Cronbach's Alpha) for each dimension of communication climate is recorded in Table 2

Table 2

Questionnaire Reliability - Communication Climate

Variable	Number of Questions	Cronbach's Alpha		Range
		Pre-Test	Post-Test	
Overall Com.				
Climate	38	.97	.96	38-190
Sup./Sub. Com.	21	.97	.97	21-105
Qual. Info.	12	.90	.89	12-60
Upward Com.	5	.86	.87	5-25

for both the pre-test and post-test. Also included are the number of questions for each dependent variable and the ranges of possible scores (lowest to highest) for each dimension. All alpha scores (both groups combined) were found to be acceptable ranging from a low of .8608 for the Upward Communication dimension (pre-test) and a high of .9717 for superior/subordinate communication (pre-test).

These reliability figures compare favorably with Stohl's work. In her study, Cronbach Alpha scores for superior-subordinate communication (.79), quality of information (.69), and upward opportunity for influence (.73) were considerably lower.

As noted earlier, Stohl's (1985) results cannot be directly compared to the results of this study (Stohl, 1985, p. 519). Stohl calculated mean scores for each climate dimension rather than summing the scores (see Table 3 below). Nonetheless, the results are useful for comparison, particularly with regard to significant difference. Once again, Stohl's "non-circle" members are equivalent to the Table 3

Mean Climate Scores of Stohl's Quality Circles

	Non-circle Members	Former Members	New Members	Active Members -
Supportive- ness	3.1	2.2**	3.8	5.4*a
-Quality of information	3.3	2.9**	4.0	5.7*
-Upward Communication	4.3	2.8**	4.9	5.8*

* $p < .001$

present study's control group. Her "new" members are equivalent to this study's experimental group at T1 and her "active members" are equivalent to this study's experimental group at T2. (There were no "former members" in the present study).

Stohl found that active members had a significantly more positive perception of climate on all three dimensions than the non-circle members and the new members. Further, the active circle members had a significantly more positive

perception of overall communication climate than did non-circle members ($F = 39.94$; $p < .001$) (Stohl, 1985, p. 523). Former members had the most negative perception (not measured in the present study). New members were more positive than former or non-members but not as positive as active members.

Hypothesis 1

The first hypothesis addressed in this research is that members of PRTs perceive a more positive communication climate than employees who are not members of PRTs. Means and standard deviations were calculated to examine Hypothesis 1 comparisons between the experimental and control group at both the pre-test and post-test. These are presented in Tables 4 and 5.

ANOVA was used to calculate whether significant differences existed between the groups at both trials. ANOVA figures are found in Tables 6 through 9. Table 6 presents univariate figures for overall communication climate (OCC) which consider differences between groups ("Between Subjects") and between repeated measures ("Within Subjects") when all three independent variables are combined. Tables 7 through 9 present differences between groups and between repeated measures for each of the three dependent variables (Superior-Subordinate Communication, Quality of Information, and Upward Communication Opportunity). Further, these tables record the interaction effect between the independent variables of time and group

Table 4

Means/Standard Deviations for Communication Climate
Experimental/Control Groups (Pre-Test)

Variables	Experimental Group		Control Group	
	Mean	SD	Mean	SD
Overall Com.				
Climate	122.24	26.39	117.39	29.91
Sup./Subord.	76.45	19.56	71.13	19.88
Qual. Info.	27.59	7.64	29.72	8.41
Upward Com.	18.19	4.32	16.54	4.54
	N = 42		N = 72	

Table 5

Means/Standard Deviations for Communication Climate -
Experimental/Control Groups (Post-Test)

Variables	Experimental Group		Control Group	
	Mean	SD	Mean	SD
Overall Com.				
Climate	124.74	27.48	121.58	23.81
Sup./Sub.	76.17	19.66	74.00	16.52
Qual. Info.	30.10	7.48	30.72	7.68
Upward Com.	18.48	4.35	16.86	3.90
	N = 42		N = 72	

("Time X Group"). For Hypothesis 1, this interaction determines whether a significant difference exists between the groups when taking into account perceptions of climate

at both measures (T1 and T2). The prediction in Hypothesis 1 is that those participating on teams will have significantly more positive perception of climate than the control over time.

Overall Communication Climate (OCC) - Hypothesis 1

With respect to OCC, the pre-test experimental group mean was 122.24 (N = 42, SD = 26.39) compared with the control group mean of 117.39 (N = 72, SD = 29.91) (Table 4).

The control group mean was less, as predicted. Even though there was slightly more variation (less agreement) among control group members, differences are not significant. No significant difference was found between the experimental and control groups in the pre-test condition with respect to overall communication climate (Table 6 below, $F = .65$; $df = 1$; $p < .42$).

The post-test also failed to reveal a significant difference between experimental and control groups. The experimental group mean (124.74, SD = 27.48) was indeed higher than the control group (121.58, SD = 23.81) as expected (Table 5). However, the difference in perception of overall communication climate was not found to be significant between the experimental and control groups on the first trial or repeated measure.

Superior-Subordinate Communication - Hypothesis 1

As predicted in Hypothesis 1, descriptive data indicate that variance existed between the experimental (76.45, N = 42, SD = 19.56) and control (71.12, N = 72, SD = 19.88) groups during the pre-test with regard to SSC (Table 4). In

the post-test, however, the experimental group mean was

Table 6

Univariate Summary Table for Communication Climate
(All Three Dimensions)

	SS	DF	MS	F	P
<u>Between Subjects</u>					
Group	849.68	1	3132039.82	.65	.42
Error	146494.46	112	1307.98		
<u>Within Subjects</u>					
Time	594.40	1	594.40	3.96	.05*
Time X Group	38.08	1	38.08	.25	.62
Error	16081.88	112	150.01		

* Significant difference

76.17 (SD = 19.66) and the control group score increased to 74.00 (SD = 16.51) (Table 5). When combining scores from both trials, no significant difference was found between the experimental and control groups (Table 7, $F = 1.11$; $df = 1$; $p < .29$). Again, lack of significance may be due to variables other

than team participation, influencing the outcome. These will be discussed in Chapter 4. Therefore, an increase in perception of superior-subordinate communication was not found to be significant between the experimental and control groups on the first trial or repeated measure.

Quality of Information (QI) - Hypothesis 1

Quality of Information (QI) did not yield

significant difference between the experimental and

Table 7

Univariate Summary Table for Communication Climate
(Superior/Subordinate Communication)

	SS	DF	MS	F	P
<u>Between Subjects</u>					
Group	744.86	1	744.87	1.11	.29
Error	72673.89	112	648.87		
<u>Within Subjects</u>					
Time	88.92	1	88.92	1.58	.21
Time X Group	132.50	1	132.50	2.35	.13
Error	6304.22	112	648.87		

Table 8

Univariate Summary Table for Communication Climate
(Quality of Information)

	SS	DF	MS	F	P
<u>Between Subjects</u>					
Group	100.59	1	100.59	1.02	.31
Error	11005.37	112	98.26		
<u>Within Subjects</u>					
Time	162.47	1	162.47	6.26	.01
Time X Group	29.84	1	29.84	1.15	.29
Error	2905.25	112	25.94		

control groups in the first or second measure. In fact, contrary to the prediction of Hypothesis 1, the experimental group actually scored lower (27.59, SD = 7.64) than the control group (29.72, SD = 8.42) in the pre-test (Table 4). In the post-test, the experimental group score of 30.09 (SD = 7.48) was similar to control group score of 30.72 (SD = 7.68) (Table 5). Combining scores for both trials yielded no significant difference between the groups (Table 8, $F = 1.02$; $df = 1.02$; $p < .31$). Therefore, data and statistical tests indicate that there is no significant difference between the experimental and control group with respect to quality of information (QI).

Upward Communication Opportunity (UC) - Hypothesis 1

In contrast to the other climate variables, UC produced a significant difference between the experimental and control groups on both trials. In the pre-test, the experimental group perception of UC (18.19, SD = 4.32) was greater than that of the control group (16.54, SD = 4.54) as predicted (Table 4). The post-test produced similar results with the experimental group at 18.48 (SD = 4.35) and the control group at 16.86 (SD = 3.90) (Table 5). The combined scores of both groups indicated a significant difference (Table 9, $F = 4.55$; $df = 1$; $p < .04$).

Therefore, with respect to upward communication opportunity, the average experimental group scores for both trials were significantly higher than the control group as predicted. Members of the experimental group held a stronger perception than most staff members that their views

and recommendations had influence at the university. They also perceived that they had more control over planning and goal setting in their own jobs.

Based on descriptive data, Hypothesis 1 initially appears to be supported by the higher experimental group mean scores for OCC, SSS, and UC. However, with further statistical analysis, only upward communication showed a significant difference between the experimental and control groups. Hypothesis 1 does not appear to be supported by the descriptive data with regard to Quality of Information

Table 9

Univariate Summary Table for Communication Climate
(Upward Communication Opportunity)

	SS	DF	MS	F	P
<u>Between Subjects</u>					
Group	141.29	1	141.29	4.55	.04*
Error	3478.32	112	31.05		
<u>Within Subjects</u>					
Time	4.86	1	4.86	.90	.35
Time X Group	.02	1	.02	.00	.96
Error	605.11	112	5.40		

* Significant difference

dimension in the pre-test or post-test since the control group scored higher on this dimension.

Hypothesis 2

Hypothesis 2 is stated as follows: Members of PRTs

perceive a more positive communication climate after participating on a PRT than before (T1 and T2, significant difference). This hypothesis was generally supported by the descriptive data for two of the dimensions: Overall Communication Climate (OCC) and Quality of Information (QI).

Overall Communication Climate (OCC) - Hypothesis 2

OCC mean scores increased from 122.24 to 124.74 for the experimental group (Tables 4 and 5). At the same time, OCC mean scores for the control group increased even more from 117.39 to 121.58 (Tables 4 and 5), indicating that change in overall climate perception was even greater for the control group than the experimental group. Further, the standard deviations for the control group's OCC means decreased from 29.91 to 23.81 (Tables 4 and 5), indicating a slightly stronger "agreement" among control group members for the post-test than the pre-test. The combined average scores of the experimental and control groups at the pre-test were significantly lower than at the post test (Table 6, $F = 3.96$; $df = 1$; $p < .05$). These results seem to indicate that both the experimental and control group were being acted upon by variables other than team participation during the four month period of the research project. These variables will be discussed in detail in Chapter Four.

However, when taking into account the interaction effect for both groups on repeated measures, the difference in OCC for the experimental group was not found to be significant (Table 6, $F = .25$; $df = 1.25$; $p < .62$). Therefore, Hypothesis 2 is not supported, i.e., there is no

significant difference between trials for the experimental group with respect to overall communication climate.

Superior-Subordinate Communication (SSC)- Hypothesis 2

With regard to the superior/subordinate communication (SSC), no change is apparent from the raw data (Tables 4 and 5). SSC decreased slightly from 76.45 to 76.17 with standard deviations varying only slightly (from 19.56 to 19.66) between the pre-test and post-test, respectively (Tables 4 and 5).

Once again, and surprisingly, the control group appears to have increased their perception of SSC rather dramatically on repeated measures. SSC increased from 71.13 to 74.00 with standard deviations of 19.88 and 16.52, respectively. However, the average combined scores of both the experimental and control groups at the first trial were not found to be significantly different from those average combined scores at the post-test ($F = 1.58$; $df = 1$; $p < .21$, Table 7).

Quality of Information (QI) - Hypothesis 2

Experimental group QI mean scores increased from 27.59 to 30.10 with little change in the standard deviation (7.64 to 7.48) (Tables 4 and 5). A smaller increase was noted in the control group (pre-test mean = 29.72, SD = 8.41; post-test mean = 30.72, SD = 7.68) (Tables 4 and 5). Therefore, the average combined scores of both groups increased significantly on repeated measures with regard to quality of information (Table 8, $F = 6.26$; $df = 1$; $p < .01$).

Once again, the interaction effect for both groups on repeated measures with regard to QI was not significant (Table 8, $F = 1.15$; $df = 1$; $p < .29$). Therefore, Hypothesis 2 was not supported with regard to quality of information, i.e., there was not a significant increase in quality of information for the experimental group that can be accounted for by their participation on process redesign teams.

Upward Communication Opportunity (UC) - Hypothesis 2

Upward communication perception did not increase for the experimental or control group on repeated measures. The experimental group pre-test mean score was 18.19 (SD = 4.32) (Table 4). The post-test score was similar at 18.28 (SD = 4.35) indicating no change (Table 5). Similarly, the control group did not change (from 16.54 to 16.86 with standard deviations of 4.54 to 3.90, respectively). Analysis of variance also reveals no significant difference between the combined mean scores of the groups on repeated measures for UC (Table 9, $F = .90$; $df = 1$; $p < .35$).

Again, the overall interaction effect with regard to UC was not significant (Table 9, $F = 0$, $df = 1$; $p = .96$). Therefore, Hypothesis 2 was not supported by the data, i.e., experimental group members did not significantly increase their perception of upward communication as a result of participating on teams.

Correlations with Perceptions of Change in Leadership

Because significant differences were found between T1 and T2 with regard to OCC and QI, the researcher sought to determine whether a relationship existed between the change

in leadership (the president's sudden departure) and these variables. Four questions regarding perceptions of "Leadership Change" were asked in the post test. These questions included: 1) "Recent changes in top university leadership are positive." 2) "Recent changes in top leadership will improve the overall communication from top management." 3) "Recent changes in top leadership will improve the overall communication with top management." 4) "Most people with whom I work are pleased with changes in top leadership." (See Appendix). Cronbach's alpha indicated a reliability of .79 for the experimental group and .93 for the control group with regard to these questions.

For the experimental and control groups and both groups combined, all correlations were positive, indicating a linear relationship between PCL and OCC/QI (Table 10). All of the relationships were significant at least at the .05 level with the exception of OCC for the experimental group ($p = .282$). The highest and most significant correlations were for the control group.

Further examination revealed that there were even higher correlations between QI and two of the PCL questions.

Both groups combined produced a significant correlation of .3829 ($p = 0$) for the statement "Recent changes in top leadership will improve the overall communication from top management." Likewise, a significant linear correlation was found for the control group (.3578; $p < .001$) and both groups combined (.3118; $p = 0$) with regard to QI (Table 10).

Further examination (beyond the Table 10 above) showed that a correlation of .4009 with a probability of "0" was found for the statement "Recent changes in top leadership will
Table 10

Relationship between Perceptions of Change in Leadership (PCL) and Overall Communication Climate (OCC) and Quality of Information (QI)

	PCL	PCL	PCL
	Experimental	Control	Both Groups
OCC	.0895; p=.282	.2120; p=.033	.1848; p=.021
QI	.2466; p=.053	.3578; p=.001	.3118; p=.000

improve the overall communication with top management." (See Appendix).

Only four of the twelve QI questions related directly to top management (see Appendix). The other questions may have been answered with or without consideration for the influence of top management, thereby weakening the correlations.

Summary

In this chapter, reliability data (Cronbach's Alpha), summaries of descriptive data and ANOVAs for testing the two hypotheses were presented. The first hypothesis predicted that those participating on quality/process design teams would have a significantly more positive perception of communication climate than members of a control group. Climate was measured as overall communication climate (OCC), superior-subordinate communication (SSC), quality of

information (QI) and upward opportunity for influence (UI).

The second hypothesis predicted that members of quality/process redesign teams would have a significantly more positive perception of communication climate after serving on the team for a period of time (four months).

Supporting Hypothesis 1, a statistically significant difference was found between the experimental group (the teams) and the control group with regard to upward opportunity for influence (not taking into account the independent variable of time, i.e., the repeated measure). However, neither this dependent variable nor any other of the variables produced statistically significant differences between the groups when taking into account the interaction effect between the two independent variables of time (T1 and T2) and group (experimental versus control).

Supporting Hypothesis 2, statistically significant differences were found on repeated measures (over time) of overall communication climate (OCC) and quality of information (QI) for both groups. In other words, both groups combined demonstrated a significant positive increase in perception of climate for OCC and QI. When taking into account the interaction effect between the two independent variables (time and group), none of the differences on repeated measures were found to be significantly different.

Further, positive and significant correlations were found between attitudes about the recent change in leadership and OCC and QI. These results are discussed in Chapter Four.

CHAPTER IV

This study was conducted to examine differences in perceived communication climate between quality/process redesign team (Q/PRT) members and non-members. This research also sought to determine whether differences in perception occurred before and after organizational members participated on Q/PRT teams. One major hypothesis guided this research. Participating on a quality/process redesign team (Q/PRT) was expected to significantly increase the perception of communication climate in a positive direction.

From this general hypothesis came two specific sub-hypotheses. First, members of Q/PRTs perceive a more positive communication climate than employees who are not members of Q/PRTs. Second, members of Q/PRTs perceive a more positive communication climate after participating on a Q/PRT than before.

To facilitate this inquiry, a repeated measure quasi-experiment involving an experimental group of six university quality/process redesign teams and a control group was conducted. Participants were asked to report their perceptions at the beginning of the project (before team work began) and again after working together for four months. Modeled after Stohl's (1985) study on quality circles in a manufacturing setting, the present study attempted to add to the body of research on the effect of bona fide teamwork in the organizational context on perception of communication patterns. A review of the literature revealed the importance of team work to improve

quality, implement innovation, and increase communication and job satisfaction in modern organizations. This study sought to determine whether team work would increase the perception of communication climate in a positive direction.

Questionnaires were distributed to 180 university staff members (primarily non-faculty). Questionnaires measured four dimensions of communication climate including overall communication climate, supportiveness of superior-subordinate communication, quality of information, and opportunity for upward communication. Of the questionnaires distributed at the pre-test, 136 were returned (50 experimental group, 86 control group). At the post-test, 124 (46 experimental group, 78 control group). Overall, 114 questionnaires from the pre-test and post-test could be matched (42 experimental group, 72 control group).

Data analysis utilized computerized SPSS and DBMP programs to calculate reliability (Cronbach's Alpha), means, and standard deviations. Analysis of variance (ANOVA) was also computed to test two hypotheses. The conclusions that follow are based on the results reported in Chapter III.

Only one study specifically examined the impact of organizational teams on communication perception. Stohl (1985) found that new quality circle members had a significantly more positive perception of communication climate than non-members. She also found that experienced members had a significantly more positive perception of climate (on all three dimensions) than new members. Findings of the present study generally point in the same

direction, but without such clear and decisive conclusions, i.e, while climate perceptions increased for teams, those changes were not significant. On the other hand, important organizational variables such as context and leadership were found to important factors which influenced climate perceptions. In this chapter, the reason for the differences between Stohl's conclusion and those of the present study are discussed.

Hypothesis 1 - Discussion

Hypothesis 1 predicted that members of process redesign teams would more positively perceive communication climate than non-members. Mean scores for all of the communication climate dimensions, other than quality of information (QI), supported the hypothesis. On only one dimension, upward communication opportunity, was there a significant difference between the experimental and control groups.

Overall Communication Climate (OCC) - Hypothesis 1

Overall communication climate (OCC) is defined as "a subjectively experienced quality of the internal environment of an organization ... which embraces member's perceptions of messages and message-related events occurring in the organization" and which changes as significant cultural and structural modifications affect the organizing and communicating efforts of the system (Dennis in Goldhaber, 1990, p. 68). In the present study, OCC was more positively perceived by team members than control group members and scores for both groups were within the normal range. For

example, the experimental and control groups scored 122.24 and 117.39, respectively, in the pre-test with a range of possible scores between 38 and 190.

However, the difference between the groups was not significant ($F = .65$; $df = 1$; $p < .42$) at either the pre- or post test. At the risk of committing the fallacy of composition, it is possible that this total dimension of climate showed no significant difference because most of the subdimensions (e.g., superior-subordinate communication) also failed to show significance. Therefore, Hypothesis 1 was not supported.

Beyond this explanation, the failure to achieve significant difference as was found in Stohl's (1985) study was likely the result of two interacting factors: organizational and group characteristics. Generally, industrial operations such as the organization studied in Stohl's research (especially in the early 1980's), allowed few opportunities for factory workers to network formally and to participate in quality improvement. Not surprisingly, Stohl found a significant difference in climate perception between the non-members and the active members. By contrast, committees through which members give and receive information are generally common at universities. University staff, especially administrative staff who comprised a large portion of the team members in this study, complained of being overburdened with cross-functional committee service and information. Quality circle participation in Stohl's study was likely seen as a

new opportunity to give and receive information by industrial workers who may have previously been excluded from the formal communication network. This was probably not the case with the teams in this study.

University team members, while optimistic, expressed some doubts about the new management initiative (quality/process redesign) in informal interviews and training meetings. As indicated in the literature review, some were wary about so-called faddish approaches to solving long-standing problems. Some also questioned whether executive support would be sufficient to accomplish this much needed initiative. Still others questioned whether such business practices were appropriate for the university.

These factors combined may account for the lack of difference between active team members and non-team members.

While overall communication climate scores were higher for team members as predicted, the difference was not significant. Therefore, Hypothesis 1 was not supported by the data on overall communication climate.

Superior-Subordinate Communication (SSC)- Hypothesis 1

Superior-subordinate communication refers to the perceived openness of message sending and receiving between superior and subordinate. Stohl (1985) found a significant difference between members and non-members with regard to this dimension. She found a significant difference between linkers (those who have a high number and strength of links with supervisors, middle managers, and upper managers) and non-linkers serving on quality circles with regard to this

dimension.

Consistent with overall communication climate, mean scores for SSC in the present study were above the midpoint (63) of the range (21-105) for both the team and non-team members. While mean scores were higher for the experimental than the control group as predicted (76.45 versus 71.13 in the pre-test and 76.17 versus 74.00 in the post-test), no significant difference was found, contrary to Stohl's study (1985).

In addition to the reasons discussed above for lack of significance in the OCC dimension, a paradoxical effect may have taken place with regard to SSC and service on cross-functional teams. Marshall and Stohl (1993) found that functional supervisors often resent the absence of their employees created by such service. Especially true in traditional hierarchical organizations, supervisors frequently protect their "turf" and will advance their own departmental operation at the expense of other departments with which they process work (Giocondi, personal communication, December, 1995). This suboptimizing effect may counter any benefits derived from having highly integrated subordinates who can accomplish departmental objectives through the power of networking and who gain an appreciation for a management perspective through participation in decision-making.

Subordinates completing the questionnaires also reported (in informal interviews and during team meetings) that some concern was expressed by their departments

regarding their absence. This pressure may have impeded the predicted more positive perception of SSC by those serving on teams.

One concern in this study was systematic bias in the selection of team members by the lead team (Process Redesign Advisory Group). Specifically, the concern was that the lead team would select members with whom they were already networked. Since most of the lead team members were supervisors, middle managers, and upper managers, this network effect may bias the selection toward linkers.

Stohl (1985) found that there was a significant difference between the perception of linkers and non-linkers with regard to SSC. Linkers had a more positive perception of SSC than non-linkers. However, if this were true and there were more linkers on teams than the control group in the present study, then there should have been a significant difference between team and control group members with regard to SSC. It is not possible to conclude from the present study that more linkers were selected by the lead team to serve on the pilot teams. However, while SSC scores were higher for team members as predicted, the difference was not significant. Hypothesis 1, therefore, is not supported by the data on SSC.

Quality of Information (QI) - Hypothesis 1

Quality of information (QI) refers to the perceived quality and accuracy of downward communication within an organization. Of particular importance here are the perceptions that top leadership communicates abundantly,

accurately, relevantly, and with integrity and that people get the information they need.

QI mean scores were slightly higher for the control group than the experimental group but the difference was not significant ($F = 1.02$; $df = 1$; $p > .31$). This finding does not support Hypothesis 1 regarding team members' perception of QI.

By contrast, Stohl (1985) found a significant difference between active members and non-members or new members with regard to QI. Active members were more likely to agree that they were kept better informed than any other group ($F = 18.08$; $p < .001$).

At the early stages of the present research, informal interviews and team meetings revealed a very negative perception regarding quality of information. As mentioned earlier, these continually negative reports were part of the reason for selecting communication climate as a dependent variable for study.

One explanation for this perception was likely linked to perceptions of the university president. Organizational members reported that the president micromanaged the university. This perception was also reported in local newspapers. Some of the metaphors used by organizational members to describe the communication environment were militaristic and included, for example, "we're flying under the radar" and "walking through the land mines." These metaphors suggested that communication from the president was perceived as intimidating, creating an environment of

fear. These particular metaphors were used in regard to the introduction of the quality/process redesign project.

Throughout the project, lead team members and administrators expressed concern that the president would block the project without cause or warning.

Further, many faculty and staff complained that the president would say one thing and do another. For example, one complainant asserted that matching funds for a research grant were promised but not made available.

These perceptions were also reflected in the QI scores for both the experimental and control groups. The mean scores in the pre-test were 27.60 and 29.72, respectively. The midpoint of the range for this variable was 36. These below midpoint scores indicate dissatisfaction with regard to QI for both groups.

Among the lowest mean scores in the pre-test was a QI question "People in this organization are encouraged to be really open and candid with each other." On a scale of 1 to 5 (1 = low, 5 = high), the average score on this question was 2.04 for the control group and 2.2 for the experimental group. There was a similar response to the question "People in top management say what they mean and mean what they say." These scores were 2.14 and 2.28 for the control and experimental groups, respectively. Responses to these questions point to an environment of perceived intimidation, a finding which was generally supported by informal interviews and discussions in team meetings. This conclusion may ultimately suggest that climate is a

necessary condition of effective quality of information rather than an outcome.

While the difference between the groups in QI mean scores was not significant, the findings indicate the profound impact of top leadership on the perception of quality of information in an organization. Apparently, team members and non-team members were relatively equally affected by the leadership factor.

According to Edwards Deming, organizations seeking to continuously improve quality must "drive out fear" (Walton, 1988, 34-36). Quality in an organization and in its product or service is impeded by fear. Managers and employees may experience the "fear of reprisal, fear of failure, fear of the unknown, fear of relinquishing control, and fear of change" (Evans & Lindsay, 1996, p. 78).

This observation is particularly relevant in the present study. The intent of the process redesign project was to systematically improve quality organization-wide. At the same time, fear and mistrust were pervasive. Therefore, the opportunity for improving quality may have been dramatically diminished by the negative QI climate.

Interestingly, the president left the position approximately ten weeks into the study. The impact of the president leaving will be discussed further as it relates to Hypothesis 2.

QI scores were lower for team members than non-team members. Therefore, Hypothesis 1 is not supported by the data on QI.

Upward Communication Opportunity (UC) - Hypothesis 1

In this study, upward communication opportunity (UC) refers to the perception that employees have the opportunity to influence the organization with respect to their particular organizational role and relationship with their supervisor. UC questions included employee perceptions of their influence on job-related goal planning and decisions, their influence on the organization itself, and the perception that their recommendations would be seriously considered.

A significant difference between the experimental and control groups was found with respect to UC ($F = 4.55$; $df = 1$; $p < .04$). This finding, however, does not take into account the independent variable of time. The F ratio was calculated by combining experimental group scores at both the pre- and post test and comparing this mean with the mean of the combined control group scores at the both the pre- and post test. This finding supports Hypothesis 1 and Stohl's (1985) results that team members more positively perceive the opportunity for upward communication in the organization than non-team members. Many factors may have affected this outcome including a positive Hawthorne Effect, training, team participation, and the selection process of team members. This multiplicity of variables is the great challenge in research on bona fide groups in context. Nonetheless, the Hypothesis 1 is supported by this finding.

The fact that people were selected to participate in this pilot project, that the project was being studied

(i.e., they were subjects in the study and were aware of this), and that team members were given recognition for their roles may have influenced team member perception of UC (Hawthorne Effect). "The workers under study felt as though they were special because they were chosen to be observed" (Kreps, 1990, p. 80). This special feeling of being selected and observed may have influenced their perception to communicate upwardly within the organization and have influence. The reasoning is that if a person were selected by a high level committee to participate on a decision-making team, and his/her participation was approved by his/her supervisor and those above his/her supervisor, and that participation is worthy of university-wide recognition, the team member's views must be respected and, therefore, influential. The influence of recognition on this variable will be covered in the discussion on Hypothesis II.

Training may have also had an impact on team member's UC perception. Team members were taught how to use resources within the organization and give management presentations. These skills were designed to empower teams and their members so that team recommendations would be accepted by management. "Workers gain new skills which lead to more autonomy" (Bennis & Nannus, 1985).

Team participation, i.e., serving on a small group, may also have affected UI perception. Shaw (1981) points out that the reality of small groups is found in the mutual influence that members have on one another through interaction. Without such influence, a group does not

exist.

Further, bona fide groups in context have influence on and are influenced by the organization. This is especially so in cross-functional groups such as those in this study. Information and, therefore, influence flows among the group members and other organizational members with whom they interact.

As mentioned earlier (p. 29), organizational groups are subsystems within an organization that expedite organizational goals and help achieve the flow of information. These groups are embedded in organizations. This embeddedness increases as networks are created and expanded (Burt, 1983; Putnam, 1986; Stohl, 1985, 1987). Through the group, the individual becomes more connected, not only within the group, but with other groups and individuals in the organization. Stohl (1985) points out that participation in such groups "leads to more upward communication and better use of information..." (p. 513).

Marshall and Stohl (1993) define participation based on two variables: empowerment and involvement. Empowerment is closely related to UC. "Empowerment refers to recognizing and taking advantage of opportunities available within the system specifically geared to influence behaviors or decisions relevant to the individual or other individuals within the system" (Marshall & Stohl, p. 140). University team members could be expected to perceive a higher level of upward communication opportunity because they were empowered by the group.

Finally, the selection process for the teams may be considered a potential factor in participants' perception of UI. During the four month study, control group and other organizational members complained that they had been excluded from the process redesign pilot project. In several informal interviews, non-team members asked, "Why are the same people always picked for assignment?" Ironically, even lead team members complained that they were "always selected for everything" and would like to have more time to concentrate on their jobs. This dilemma seems to be consistent with the old maxim that a few people do most of the work. The lead team discussed a goal to have as many people involved in the quality improvement/process redesign effort as possible. However, no process to expand involvement was in place at the time team members were selected.

Stohl (1985) found, however, that there was no significant difference in perceptions of UC between linkers and non-linkers ($F = 2.29$; $p = n.s.$) (p. 523). She concluded that perceptions of upward communication opportunity are not directly related to integration into the organizational network. "Direct contact with linkers is ... sufficient to provide workers with a positive sense of opportunity to communicate" (p. 523). In a purely theoretical study, team members might have been randomly selected from pools of qualified candidates rather than being hand-picked by a lead team. This approach might allow for more non-linkers to participate on teams and encourage

organization-wide involvement.

Hypothesis 2 - Discussion

Hypothesis 2 predicted that members of process redesign teams would more positively perceive communication climate after participation on process redesign teams than before participation. On only two dimensions, overall communication climate and quality of information, was there a significant difference between the repeated measures for both groups combined. When taking into account the interaction between groups and repeated measures, no significant difference was found.

Overall Communication Climate (OCC) - Hypothesis 2

There was a significant difference between the mean scores for the experimental group and control groups combined at the pretest compared to the combined mean scores of both groups at the post test ($F = 3.96$; $df = 1$; $p < .05$). In other words, not taking into account the effect of team membership, OCC perception increased significantly for all university employees during the four month study.

The conclusion regarding the high correlation is important because it raises both old and new questions for research and application. First, is communication climate a "relatively enduring quality of the internal environment of an organization" as suggested by Taguiri (in Goldhaber, 1990, p. 65)? Or is climate continually being structured and restructured by members of the organization interacting with their environment (Falcione, Sussman, & Herden, 1987)?

Second, if climate is changeable, what organizational

factors are associated with such a change? These questions are important because they have both theoretical and applied implications for research in the future. These implications will be discussed in the "Summary, Conclusion, and Recommendations" Section of this chapter.

Of course, communication climate may indeed be a "relatively enduring quality" but, in the present study, have been acted upon by such (a) powerful variable(s) as to restructure the climate perception. While no additional empirical data can be provided, the only significant variable that could be identified was the environment of mistrust presumably fostered by the president's micromanaging. Her subsequent resignation during the study was the most likely event which could be expected to precipitate this change.

This leadership variable is widely supported by the literature as a major factor in creating a positive environment for quality improvement. "Most quality experts agree that strong leadership, especially from senior management in the organization, is absolutely necessary to develop and sustain a quality-based culture" (Evans & Lindsay, 1996). As mentioned earlier, Deming admonishes leaders to drive fear out of the organization (Walton, 1988). He argues further that 85% of all systems in an organization are under the control of leadership processes.

Therefore, communication systems and processes are largely under the control of management.

Climate is largely based on trust and openness. Both Redding (1972) and Roberts and O'Reilly (1974) identified trust and openness as major variables in fostering a positive communication climate. For example, "Unless the sender perceives the receiver as trustworthy, he is unlikely to pass information (upward) unfavorable to himself..." (Roberts & O'Reilly, 1974, p. 262). Stohl (1985) also observed that increased trust and a sense of control lead to an important performance improvement factor - "less resistance to change" (p. 513).

In an environment of fear in which leadership is not trusted, overall climate perceptions, especially with regard to trust and openness are predictably low. On one hand, the initial and sudden change in leadership at the university introduced uncertainty about the future and not enough time (6 weeks) had passed for the new administration to have a major impact on climate perceptions. On the other hand, as one university administrator observed, there may have been an initial sense of relief which produced an overall change in the climate.

Superior-Subordinate Communication (SSC)- Hypothesis 2

No significant difference was found between the pre-test and post-test with regard to SSC. This is not particularly surprising since the SSC scores actually diminished slightly for the experimental group. While not significant, this decrease may be the result of supervisors resenting the absence of their subordinates created by the

program (Marshall & Stohl, 1993). The subordinates actually perceived a slightly less positive SSC in the post-test. As mentioned earlier, some team members reported complaints from supervisors and co-workers about the amount of time they were absent from the office.

Many team members in this study were themselves supervisors or at least non-supervisory administrators. They may have had a more positive and consistent view of supervision in the first place than Stohl's (1985) factory workers in New Zealand. Stohl argued that by serving on circles, employees would gain "access to more and varied communication sources" which, in turn, gave them a "better understanding of the job and of the decisions" (p. 513). The factory workers, empowered perhaps for the first time through quality circles, were likely to have perceived a more dramatic change in their relationships with supervisors than university employees. As a result of participating in quality circles, workers may have better understood why decisions were made by supervisors. Therefore, their perception of climate increased significantly.

Also, quality circles met after work hours so that supervisors were not required to give up subordinate work time. The factory employees became better networked, informed, and quality improved. Further, their participation in circles did not take time away from their work. Supervisors received the benefits of subordinate participation without the perceived negative effects (Sims & Dean, 1985).

In the present university study, team members were out of their offices two hours per week for team meetings in addition to carrying heavy workloads. In the 18 months, before this study, a hiring freeze dramatically reduced staff, increasing pressure on employees to perform the same work with fewer people.

Finally, four months was probably not enough time to significantly change perceptions of SSC. Both supervisors and subordinates need time to see the benefits of serving on teams. At the time of Stohl's study, the quality circle program had been operating for approximately 18 months.

The SSC change, although in a positive direction in the university population, was not significant. This may also suggest that the type of organization influences the extent to which climate changes. Organizations which are already highly networked through cross-functional committees may experience less change in SSC when quality/process redesign teams are introduced. Further, this finding suggests that SSC is a relatively stable phenomenon.

Quality of Information (QI) - Hypothesis 2

Differences between the QI mean scores in the pre- and post-test were significant for both groups ($F = 6.26$; $df = 1$; $p < .01$). This difference is important because only a major organizational factor that influenced both groups could account for this change. In informal interviews and team meetings, employees often acknowledged that workloads had increased during the president's tenure due to attrition. However, there was no indication that workloads

decreased with the president's departure. The only major identifiable change in the organization which could have positively influenced QI was the president's departure. Even in the face of uncertainty about the future, employees across the organization reported a significant increase in Quality of Information. This conclusion also has face validity because QI relates primarily to perceptions of top leadership rather than superior-subordinate relationships.

Even though the time between the president's departure and the post-test was short (approximately six weeks), the new acting president (appointed from within the university) may have slightly influenced this change. For example, the acting president gave recognition (by name) to all process redesign team members before the Board of Directors in a public meeting during that period. In addition, the new president was known and his style of communication could be inferred, to some extent, from past practice.

High positive correlations between QI and Leadership Change questions indicate that of the climate variables, QI is most affected by leadership (Table 9). More specifically, communication from and with top leadership was positively and significantly correlated with climate perceptions. Apparently, organizational members perceive a strong relationship between effective leadership and two-way communication. In other words, from the employee's point of view, a leader cannot be effective unless s/he communicates effectively and "effective" is defined as two-way communication.

Upward Communication Opportunity (UC) - Hypothesis 2

Similar to SSC, this variable pertains less directly to perceptions of top leadership than QI. There was essentially no change in UC for the experimental or control groups. As mentioned earlier, other variables may have been the short four-month research period, that the university employees already perceived that they had upward influence, that many were already serving on cross-functional committees, and that many were in administrative positions where they had influence.

Summary and Conclusions

No significant difference in overall communication climate (OCC) was found between quality/process redesign team members and control group members when taking into account the independent variable of time. Moreover, no significant difference in OCC was found after organizational members participated on teams for a four month period. Hypotheses 1 and 2, are therefore not supported by the data.

Team participation, however, was found to have a significant effect on upward communication opportunity (without taking into account the repeated measures). Team participation appears to be a factor in employees' perceptions of their ability to influence their work and the organization itself.

Overall communication climate, and more specifically, quality of information, was significantly increased over time. Surprisingly, this difference applied to both the experimental and control groups. While the Hawthorne Effect

may be a factor for both groups, the greatest organizational variable appears to be the sudden departure of a leader under whom employee perceptions of climate probably were low. This conclusion is important in its suggestion that the effect of leadership on the perceived quality of information in the organization is significant.

By contrast, Stohl (1985) found significant differences in overall climate, superior-subordinate communication, quality of information, and upward communication opportunity. There are four primary factors in the present study which may account for this difference in outcome. First, Stohl did not conduct a repeated measure study. Therefore, the interaction effect between time and group was not considered. Second, the organizations studied were very different. Most notably, the differences were found in areas of service versus production, non-profit versus profit and perhaps, public versus private. Workers were also different in the following aspects: cultural affiliation, cross-functional professional workers versus functional hourly workers, and hierarchically-diverse workers versus hierarchically-similar workers. As mentioned earlier, university culture has traditionally fostered the presence of cross-functional groups which increase organizational networks. This observation has important implications for future research on groups in organizational contexts. Researchers (and especially literature reviewers) must be cautious about making generalizations about organizational variables. Diverse organizations from multiple studies help

us to understand differences as much as similarities among various types of organizations. Third, Stohl's study took place in the 1980's rather than the 1990's. Since the 1980's, leaders, managers, and workers have been influenced by the quality movement and participative management through the media, education and training programs. The university response was different than the factory response partly because time had passed and organizations learn. Fourth, the types of teams were also different. "Quality circles are groups of workers who belong to the same department or perform similar work and have volunteered for membership" (Sims & Dean, 1985, p. 25). They also meet after work hours to continually improve processes in their day-to-day work. Self-managing teams, by contrast, have a higher degree of autonomy and decision-making and take on higher-level tasks than quality circles. They meet during normal work hours and may be involved in completely redesigning a core organizational process.

These four factors may account for the differences in these results in comparison to conclusions reach by Stohl. Future studies should also emphasize repeated measures on bona fide groups in context to determine the longitudinal effects of teams on organizations. However, more time should be allowed before administering the post-test questionnaire. Teams must have time to progress through normal stages of development and to have success or failure on their process redesigns. A recommended period of study would be between six and 18 months. The present study

suggests that 4 months or less is inadequate to experience team effect.

More study should be devoted also to the effects of top leadership and, more specifically, leadership communication on both the perception and reality (frequency, quality, direction, and networks) of communication in the organization. Leadership is a primary determinant of successful implementation of quality approaches in organizations (Deming in Walton, 1988; Evans & Lindsay, 1996; Giocondi, personal communication, December, 1995).

Limitations

Results of the present study should be interpreted within a series of limitations. First, a university represents only one of many different types and sizes of organizations possible. For example, universities only constitute about one sixth of all the higher education institutions in the U.S. Higher education institutions (just over 3000) are small in number compared to industrial and business organizations. In fact, the present study suggests that process may have some unique characteristics in this setting. Therefore, generalizability of this study is limited.

Second, generalizability is further limited by the fact that only one organization (regardless of type or size) is being studied. This study, however, will add to the body of knowledge about purposive groups in organizational context.

Hopefully, as more researchers study the climate of organizational groups in context, the body of data will grow

to point where generalization is possible.

Third, the type of purposive groups, and therefore the nature of participation, may also limit generalizability. As already discussed, there are differences between process redesign teams, quality circles, and other types of purposive groups in context. For example, typical university committees, which are often cross-functional and task oriented, may not produce members with improved perceptions of communication climate.

Fourth, volunteerism and purposive selection place a limitation on the study in several ways. The organization recommends members to serve on process redesign teams because of particular characteristics they exhibit. These characteristics are related primarily to the role that the volunteer plays in the process being redesigned or the member's relationship with those on the advisory group (a network effect). In addition, the advisory group attempts to ensure the representation of the groups in regard to race, gender, and employee group. For example, the Process Redesign Advisory Group itself is composed of 10 members, of whom two are African American and five are women (only one is clerical-technical with all other members being administrators). The members of this group were also selected because most had previous training in quality methods or benchmarking. The selection of group members by the university was highly purposive. This selection is somewhat complicated by the fact that while all members were selected, they also agreed to voluntarily serve on the

advisory group. Process redesign teams are selected in much the same way. On the other hand, this scenario is probably typical of the selection of most organizational groups and, therefore, accurately represents the bona fide groups in context.

Further, the selection of these teams by the researcher was intentional. Teams were selected non-randomly from all university groups or committees on campus. It is assumed that these groups (especially after treatment which includes training) may not behave in ways that are typical of most university groups.

In regard to the randomly selected control group, some limitations also arise. Potentially, only those who are interested in the project or who have the general characteristics of volunteers will respond to the request for participation. There are some limitations on the usefulness of comparing the team and control group of the organization since they are not equivalent.

There is also some concern about sensitization caused by the pre-test. Although the climate instrument is not a test of knowledge, the pre-test may cue participants to what is considered important in this study. Wanting his/her group to "score well," the team member may inflate or deflate communication climate.

Finally, the researcher's involvement in the project creates some limitations on data objectivity and interpretation which may influence group outcomes. The researcher is not in control of which processes are selected

for redesign or who is selected for participation. Nor does the researcher conduct the training of group members. The researcher does facilitate the Process Redesign and Training Advisory Group. Researcher-influence exists regarding the project schedule and communication. Based on the literature, the researcher informed the advisory group of (and encouraged them to use) criteria for selecting processes and team members. In addition, the presence and influence of the researcher on the advisory group liaisons may have some indirect effect on team behavior and perceptions.

Future Research Recommendations

If climate is constantly changing, is it then a fickle and, perhaps, useless measure? Or is it a valuable tool for monitoring organizations as they face constantly changing internal and external environments? From the present study, this researcher concludes that climate is relatively stable and useful precisely because it does change only when significant organizational factors influence it. Therefore, climate is a valuable tool in measuring important organizational changes.

While still playing an important role in western organizations, the long-standing research on superior-subordinate communication (SSC) should be diminished or refocused on the transition from formal supervisory relationships to cross-functional empowerment and involvement - a movement now slowly taking place in the American work force. The great challenge for American

organizations is to carefully, but deliberately, make this transition. Traditional hierarchical structures by their functional nature inhibit the empowerment and involvement of employees. For example, the superior-subordinate relationship may actually prevent employees from "being connected to key decision makers" who may be outside of their vertical reporting line (Burke, 1986). For empowerment to take place, more power must be given to cross-functional work groups (Burke, 1986). As mentioned earlier, supervisors who view employees as their own (rather than organizational) resources may also prevent employee involvement in the organization outside their own areas (Marshall & Stohl, 1993).

Superior-subordinate relationships may then be the barrier to organizational participation. Employees attempting to participate in cross-functional teams (which involve and empower them) may be discouraged by supervisors who resent them spending time away from their departmental functions (Marshall & Stohl, 1993). In short, while positive superior-subordinate relationships are helpful, they may also prevent organizational participation. Organizational participation requires cross-functional empowerment and involvement.

The focus for climate studies in the future should be on quality of information (QI) and upward communication (UC) combined with measures of participation, i.e., empowerment and involvement. Unlike SSC, QI and UC transcend the confines of traditional hierarchy because neither variable

is wholly or even largely dependent upon the superior-subordinate relationship. This independence makes it possible to measure shifts in perceptions after empowering/involving efforts have been attempted.

The present study suggests that a positive QI and UC are necessary to shift the organization toward cross-functional team empowerment and involvement. Modern organizations are shifting from traditional hierarchies to flexible, flat, highly networked, global, and diverse organizations (Ancona, Kochan, Scully, Van Maanen & Westney, 1996). The role of the traditional hierarchical supervisor is slowly being replaced by cross-functional leadership. This new type of leadership at all levels of the organization requires a greater emphasis on interpersonal and team communication skills. Informal leaders will be required to influence team members rather than supervise through formal lines of authority. The decision-making responsibilities of teams at all levels of the organization will replace the decision-making of formal leaders.

Communication climate, as a reliable research measure of quality of information and upward communication, needs to be combined with empowerment and involvement. Two interesting hypotheses for future research are "QI and UC will increase as a function of empowerment and involvement" and "as QI and UC increase as a function of empowerment and involvement, SSC will decrease."

Communication climate and group participation have also been tied directly to the concept of networks. As noted

earlier, Marshall and Stohl (1993) define participation from a network perspective. Group members increase the size of their network through participation on teams. Climate and network research have been linked formally (Jablin, 1980). As networks increase in size and diversity (vertically, horizontally, and diagonally), the groups and their members become more embedded in the organizational context (Burt, 1983; Putnam, 1984; Stohl, 1985, 1987). Through the group, the individual becomes more connected with, not only other members, but other groups (e.g., departments) represented by members of the task group. Climate perceptions improve because interaction in the quality circle increases workers' connections and increases the quality of the information they give and receive (Stohl, 1985).

Networks may be the tie that binds climate and participation for future research. For example, is there a correlation between network size measured objectively and the perception of quality of information or upward communication opportunity? Are the number and type of connections in workers' networks positively correlated to perceptions of empowerment and involvement?

The results of this study also suggest that leadership can have a dramatic effect on QI and a general climate of trust (as opposed to fear) in an organization. This research also supports the literature asserting that positive leadership is necessary for implementing a quality approach. Again, climate (QI and UC) was effective in measuring the impact of change in leadership. Communication

climate research is an effective means for determining the readiness of an organization's environment for a quality initiative because it reveals perceptions of top leadership.

Leadership has only been seriously studied during last fifty years (Evans & Lindsay, 1996). Now as changing environments place new demands on organizations, more theoretical and applied research needs to be devoted to effective leadership communication. Quality organizing efforts, whether in education, business or government are dependent on the ability of leaders to engage in effective two-way communication with followers.

Organizational communication research in context has never been so necessary. Organizational needs dominate our society (Seeger, personal communication, 1992). Communication has become the primary issue for organizations. As Weick (1979) argues, communicating and organizing are essentially the same dynamic concept. Flexible organizing/communicating efforts rather than static organizations are required to respond effectively to changing external environments and simultaneously maintain internal equilibrium. A major focus of research ought to be on the communication variables that influence and are influenced by organizational members who participate on teams in context. One of the most effective ways to measure their impact is through climate and networks.

APPENDIX
RESEARCH INSTRUMENT

COMMUNICATION CLIMATE AND PROCESS REDESIGN TEAMS:
A SMALL GROUP ORGANIZATIONAL COMMUNICATION STUDY

INFORMED CONSENT

By signing this form, you are agreeing to participate in a scholarly study of small group communication conducted by principal investigator, Dave Strubler. Mr. Strubler is a Ph.D. student at Wayne State University and a Project Consultant for University. Formerly, he served as University's Manager of Employment and Staff Development.

This study begins today with the completion of this questionnaire and will end in approximately four months when you will be asked to complete this questionnaire again. This research will help University evaluate a new approach to work called process redesign. Process redesign attempts to improve services, save money, and develop human resources by redesigning administrative processes through the work of cross-functional teams.

All information on this form is confidential. None of the specific identifiable information on this form will be released to the university or other individuals or groups. Your responses will remain in the possession of Dave Strubler who is not a university employee. At the end of this project, University will receive a report which will contain aggregate data only. No individual responses will be identifiable to the university. In short, there are no foreseeable risks nor proven benefits by participating in the study.

If you have questions about the research or your role as a participant in this research, call Dave Strubler at (810) 656-0118. Because this research is being conducted under the auspices of Wayne State University, you may call Dr. Matthew Seeger, Advisor, Department of Communication, Wayne State University (313) 577-2959 or Dr. Peter Lichtenberg, Chair, Behavioral Investigation Committee at WSU (313) 577-1628 if you have further questions.

Please understand that your participation in this research is voluntary and appreciated by Mr. Strubler and University.

If you choose not to participate or withdraw at any time, you will incur no penalty or loss of benefits or services to which you are normally entitled. It is understood that in case you leave employment at University or for some reason terminate your participation in a Process Redesign Team (if you are serving on one) during the four month study period, that you would no longer be eligible to participate in this research.

Your signature below indicates that you have read and understood the above statements and are willing to complete both questionnaires (now and four months from now). You will be provided with a signed copy of this consent form.

Name of Participant (please print) _____
 Signature of Participant _____ Date _____
 Signature of Researcher _____ Date _____

PROCESS REDESIGN QUESTIONNAIRE

Instructions: Please do not enter your name on the scantron form. Indicate birth date (year only) and sex in the space provided. Also indicate the highest education level (grade) as follows:

1 = high school grad, 2 = some college, no degree 3 = associate degree, 4 = bachelor's degree, 5 = some graduate work, 6 = master's degree, and 7 = post-master's, 8 = Ph.D, Ed.D, M.D. or J.D.

For numbers 1 - 3, use the codes indicated below.

1. **Division:**
- | | |
|----------------------|---------------------------|
| 1 = President | 4 = Finance & Admin. |
| 2 = Academic Affairs | 5 = Developmental Affairs |
| 3 = Student Affairs | 6 = Govt./Legal Affairs |

2. **Classification:**

1 = Executive	6 = AP 12 - 17
2 = Academic Admin.	7 = AP 18 - 22
3 = Faculty	8 = CT 1-5
4 = AP 1-6	9 = CT 6 and above
5 = AP 7 - 11	10 = Service-Maint.

3. **Length of full-time service at Oakland University in years**

1 = less than 1 year	4 = 8 - 12 years
2 = 1-3 years	5 = 13 - 20 years
3 = 4-7 years	6 = more than 20 years

Questions 4-6 for Process Redesign Team (PRT) Participants Only

4. Name of PRT on which you serve: (select one)

1. Hiring Process	5. Software
2. Training Process	6. Student Placement Testing
3. Student Billing	
4. Minority Recruitment	

5. When asked, I willingly volunteered to serve on this PRT:

Yes = 1 No = 2

6. As a member of this PRT, I primarily represent (select one):

1. Myself	6. My race/ethnic background
2. My role in this process	7. My employee classification
3. My department or unit	8. Employee advocate groups (union, association, assembly, etc.)
4. My division	9. The University as a whole
5. My gender	10. Other

Please continue on the next page.....

All study participants should complete this section of the questionnaire.

Please rate the extent to which you agree with these statements:

1	2	3	4	5
To a very small extent	To a small extent	To some extent	To a large extent	To a very very large extent

7. Your superior makes you feel free to talk with him/her.
8. Your superior really understands your job problems.
9. Your superior encourages you to let him/her know when things are going wrong on the job.
10. Your superior makes it easy for you to do your best work.
11. Your superior expresses his/her confidence with your ability to perform the job.
12. Your superior encourages you to bring new information to his/her attention, even when that new information may be bad news.
13. Your superior makes you feel that things you tell him/her are really important.
14. Your superior is willing to tolerate arguments and to give a fair hearing to all points of view.
15. Your superior has your best interests in mind when he/she talks to his/her bosses.
16. Your superior is a really competent, expert manager.
17. Your superior listens to you when you tell him/her about things that are bothering you.
18. It is safe to say what you are really thinking to your superior.
19. Your superior is frank and candid with you.
20. You can "sound off" about job frustrations to your superior.
21. You can tell your superior about the way you feel he/she manages your work group.
22. You are free to tell your superior that you disagree with him/her.

Please continue on the next page.....

1	2	3	4	5
To a very small extent	To a small extent	To some extent	To a large extent	To a very very large extent

23. You think you are safe in communicating bad news to your superior without fear of any retaliation on his/her part.
24. You think that your superior believes that he/she really understands you.
25. You believe that your superior thinks you understand him/her.
26. Your superior really understands you.
27. You really understand your superior.
28. You think that people in this University say what they mean and mean what they say.
29. People in top management say what they mean and mean what they say.
30. People in this University are encouraged to be really open and candid with each other.
31. People in this University freely exchange information and opinions.
32. You are kept informed about how well organizational goals or objectives are being met.
33. Your university succeeds in rewarding and praising good performance.
34. Top administration is providing you with the kinds of information you really want and need.
35. You are receiving information from those sources (for example, from superiors, department meetings, coworkers, newsletters) that you prefer.
36. You are pleased with administration's efforts to keep employees up-to-date on recent developments that relate to the University's welfare - e.g., success in enrollment and retention, grant/funding acquisition, future growth plans.
37. You are notified in advance of changes that affect your job.
38. You are satisfied with explanations you get from the top administration about why things are done as they are.

Please continue on the next page....

1	2	3	4	5
To a very small extent	To a small extent	To some extent	To a large extent	To a very large extent

39. Your job requirements are specified in clear language.
40. Your opinions make a difference in the day-to-day decisions that affect your job.
41. Your superior lets you participate in the planning of your own work.
42. Members of your work group are able to establish their own goals and objectives.
43. You believe your views have real influence in your organization.
44. You can expect that recommendations you make will be heard and seriously considered.

Please complete questions 45 - 51 only if you have supervisory responsibility. (Use the same scale as above).

45. You believe your subordinates are really frank and candid with you.
46. You believe your colleagues (co-workers) are really frank and candid with you.
47. You think your subordinates feel free to "sound off" to you about things that bother them.
48. You believe that you really understand your subordinates' problems.
49. You believe that your subordinates think you really understand their problems.
50. You think that information received from your subordinates is really reliable.
51. You think that information received from your colleagues (coworkers) is reliable.

To be completed by all respondents (Use same scale as above)

52. You recognize and take advantage of opportunities available within Oakland University to communicate with other employees (peers) outside your own department.

Please continue on the next page.....

- | 1 | 2 | 3 | 4 | 5 |
|------------------------------|---|-------------------|-------------------------|-----------------------------------|
| To a
very small
extent | To a
small
extent | To some
extent | To a
large
extent | To a very
very large
extent |
| 53. | You recognize and take advantage of opportunities available within the University to influence decisions and behaviors of people outside your department but which affect you/your work. | | | |
| 54. | You recognize and take advantage of opportunities available within the University to communicate with individuals who have decision making roles (e.g., deans, chairs, directors, managers, supervisors, etc.) throughout the organization. | | | |
| 55. | You recognize and take advantage of opportunities available within the University to develop and advance new skills. | | | |
| 56. | You believe that you can influence people and events in the university. | | | |
| 57. | You believe that your relationships with others at Oakland University have made you visible at the University. | | | |
| 58. | You gather valuable information from a variety of sources within the University. | | | |
| 59. | You participate in a variety of activities available at the University. | | | |
| 60. | Through your activities at the University, you interact with many individuals throughout the University. | | | |
| 61. | Through your activities at the University, you feel confident in your ability to access valuable information. | | | |

On a scale of 1 to 5, are you dissatisfied or satisfied with the following aspects of your job? (1 = dissatisfied, 5 = satisfied)

- | | | | | | |
|--|---|---|---|---|---|
| 62. Supervision of your work by your supervisor? | 1 | 2 | 3 | 4 | 5 |
| 63. Chances for promotion or advancement? | 1 | 2 | 3 | 4 | 5 |
| 64. Wages or salary? | 1 | 2 | 3 | 4 | 5 |
| 65. Benefits? | 1 | 2 | 3 | 4 | 5 |
| 66. Your work at the university? | 1 | 2 | 3 | 4 | 5 |
| 67. Participation, your possibilities to influence matters concerning your work? | 1 | 2 | 3 | 4 | 5 |

Please continue on the next page....

Think about the people with whom you have work-related contact and the departments or units from which they come. Please list the departments or units at Oakland University with which you have at least weekly contact (on average) with one or more persons. The first department or unit you list should be your own.

On the scantron form, please indicate on a scale of 1 to 5 how important your contact with this department is:

1 = not at all important 4 = very important
 2 = somewhat important 5 = extremely important
 3 = fairly important

68. My Department/Unit _____

Importance of contact 1 2 3 4 5

69. Other Department/Unit _____

Importance of contact 1 2 3 4 5

70. Other Department/Unit _____

Importance of contact 1 2 3 4 5

71. Other Department/Unit _____

Importance of contact 1 2 3 4 5

72. Other Department/Unit _____

Importance of contact 1 2 3 4 5

73. Other Department/Unit _____

Importance of contact 1 2 3 4 5

74. Other Department/Unit _____

Importance of contact 1 2 3 4 5

75. Other Department/Unit _____

Importance of contact 1 2 3 4 5

76. Other Department/Unit _____

Importance of contact 1 2 3 4 5

77. Other Department/Unit _____

Importance of contact 1 2 3 4 5

Please continue on the next page....

78. Other Department/Unit
Importance of contact 1 2 3 4 5
79. Other Department/Unit
Importance of contact 1 2 3 4 5
80. Other Department/Unit
Importance of contact 1 2 3 4 5
81. Other Department/Unit
Importance of contact 1 2 3 4 5
82. Other Department/Unit
Importance of contact 1 2 3 4 5
83. Other Department/Unit
Importance of contact 1 2 3 4 5
84. Other Department/Unit
Importance of contact 1 2 3 4 5
85. Other Department/Unit
Importance of contact 1 2 3 4 5
86. Other Department/Unit
Importance of contact 1 2 3 4 5
87. Other Department/Unit
Importance of contact 1 2 3 4 5
88. Other Department/Unit
Importance of contact 1 2 3 4 5
89. Other Department/Unit
Importance of contact 1 2 3 4 5
90. Other Department/Unit
Importance of contact 1 2 3 4 5

Please continue on the next page....

- 91. Other Department/Unit
 Importance of contact 1 2 3 4 5
- 92. Other Department/Unit
 Importance of contact 1 2 3 4 5
- 93. Other Department/Unit
 Importance of contact 1 2 3 4 5

List all formal cross-functional Oakland University groups on which you have served in the past year as a member or leader. Formal cross-functional groups are those that 1) exist to serve some University purpose, 2) meet face-to-face on a regular basis for period of time or on an on-going basis, and 3) are composed of members from different units, departments, or divisions. These may include process redesign teams, AP Assembly committees, task forces, school or college committees, ad hoc committees, and official union roles (e.g., negotiating) where group meetings are involved. If you have not served on cross-functional groups, leave this section blank and do not fill in the scantron form.

On the scantron form, please indicate how satisfied you are (were), overall, participating in the group. Be sure to write your current process redesign team (if you are a member) in question 94. If you are not a process redesign team member, write the name of any cross-functional group in question 94. Use a scale of 1 to 5, 1 being "very dissatisfied" and 5 being "very satisfied." If your score is a "1" or a "5" please indicate the reason for the score.

	<u>Name/ Description</u>	<u>Satisfaction</u>	<u>Comments/Reason for Score if "1" or "5"</u>
94.	_____	1 2 3 4 5	_____
95.	_____	1 2 3 4 5	_____
96.	_____	1 2 3 4 5	_____
97.	_____	1 2 3 4 5	_____
98.	_____	1 2 3 4 5	_____
99.	_____	1 2 3 4 5	_____

Please continue on the next page...

100. _____ 1 2 3 4 5 _____

101. _____ 1 2 3 4 5 _____

102. _____ 1 2 3 4 5 _____

103. _____ 1 2 3 4 5 _____

104. _____ 1 2 3 4 5 _____

105. _____ 1 2 3 4 5 _____

Please rate the extent to which you agree with these statements using the scale below.

1	2	3	4	5
To a very small extent	To a small extent	To some extent	To a large extent	To a very very large extent

106. Recent changes in top university leadership are positive.
107. Recent changes in top leadership will improve the overall communication from top management.
108. Recent changes in leadership will improve the overall communication with top management.
109. Most people with whom I work are pleased with recent changes in top leadership.

QUESTIONS 111-117 FOR PROCESS REDESIGN TEAM MEMBERS ONLY. Please select one answer which most closely describes your situation or opinion.

110. The last or most recent process redesign training program in which I participated with the University of Michigan at Oakland University was (indicate only one):

1. Team Building
2. Concepts and Practices
3. Continuous Improvement in Work Practices (CIWP)
4. Team Leader Training
5. Facilitator Training

111. What is your overall rating of all the training you attended with the University of Michigan?

1. Poor
2. Fair
3. Average
4. Good
5. Excellent

112. How did the training program(s) match your expectations?

1. Fell below them
2. Met them somewhat
3. Met them
4. Exceeded them
5. Far exceeded them

113. What is your overall rating of the trainer(s)?

1. Poor
2. Fair
3. Average
4. Good
5. Excellent

114. What is your rating of the audiovisual materials?

1. Poor
2. Fair
3. Average
4. Good
5. Excellent

115. How well organized was the material presented?

1. Poor
2. Fair
3. Average
4. Good
5. Excellent

116. How useful will this training program be to you in working with your process redesign team?

1. Poor
2. Fair
3. Average
4. Good
5. Excellent

117. Has the training changed your approach to problem solving at work?

1. No, not all
2. To a small extent
3. To some extent
4. To a large extent
5. To a very large extent

118. Has the training changed how you analyze problems at work?

1. No, not all
2. To a small extent
3. To some extent
4. To a large extent
5. To a very large extent

119. Has the training effected the way you work on committees, teams, or in your department?

1. No, not all
2. To a small extent
3. To some extent
4. To a large extent
5. To a very large extent

Thank you. Please return the questionnaire and scantron form to Dave Strubler when you are finished.

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ABSTRACT

PROCESS REDESIGN TEAM PARTICIPATION AND COMMUNICATION
CLIMATE: A SMALL GROUP ORGANIZATIONAL COMMUNICATION STUDY

by

DAVID C. STRUBLER

May 1996

Adviser: Matthew Seeger, Ph.D.

Major: Communication

Degree: Doctor of Philosophy

In a review of the literature, only one study was found which examined the perceptions of bona fide work groups in organizational context (quality circles) as measured by communication climate (Stohl, 1985). In an effort to replicate part of Stohl's study, the present research sought to determine whether participation on quality/process redesign teams improves team member perceptions of communication climate. A 2 X 2 factorial quasi-experiment design with one repeated measure was used to determine the effects of team participation on perceptions. Forty two team members and 72 control group members responded to both the pre- and post test written survey. Analysis of variance was used to test two hypotheses: 1) that team members would have a more positive communication climate perception than control group members and 2) that team members perceptions would improve after participating on teams. Discussion includes implications and conclusions of the results. Hypotheses predicting that a significant change in

communication climate is associated with team membership were not supported. However, leadership style and organizational context appear to play a major role in perceptions of climate as related to quality/process redesign teamwork. Recommendations are made for future research to assess groups in context with climate measures.

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Communications/Training Supervisor
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