THE RELATIONSHIP BETWEEN SENIOR MANAGERS' QUALITY MANAGEMENT
BEHAVIORS AND SUBORDINATE MANAGERS' COMMITMENT TO QUALITY

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the
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* * * * *

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To my husband, Tom, without whose love and support this would not have been possible
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CHAPTER I

INTRODUCTION

Most observers agree that organizations now operate in competitive markets much different from those of the past. To be successful, today's organizations must face several major challenges, including a shortage of resources, demand for better quality products and customer service, and increased competition from a global marketplace. Responses to these challenges have varied depending on the nature of the industry and the degree of competition. One response by organizational researchers has been to examine the relationship of commitment to an organization's ability to meet its goals.

Commitment is a construct which cannot be observed directly, though it is assumed to exist as an antecedent to certain behaviors that have an intent to accomplish something. Thus, the literature has most often defined commitment as the process which binds individuals to certain goal-directed behaviors (Egan, 1990; Kiesler & Sakumura, 1966; Kouzes & Posner, 1987). Behaviors associated with commitment can be as diverse as spending the long hours
required to become an Olympic champion or undertaking the research required to complete a dissertation. It is assumed that without commitment, the behaviors required to reach goals would not appear. It follows, therefore, that commitment is important in organizations and that committed individuals in organizations would work towards common goals. Indeed, Locke and Latham (1990) have shown that a strong relationship exists between commitment to a specific organizational goal and performance.

Frequently, commitment has been studied in the context of other organizational constructs, such as roles. Roles define the pattern of individuals' behaviors in groups and are influenced by the relative status of individuals (Bertrand, 1972). Status theories presume that individuals of higher ranking have social power in groups which enables them to influence individuals of lower ranking. This has been shown in numerous studies (Hersey & Blanchard, 1982; Boss & Boss, 1985; Bandura, 1977; Paulus, 1983; Bertrand, 1972; Peabody, 1962). Traditionally, status, as defined in formal organizations, is represented by positions on organizational charts or by compensation levels. If status theory applies, managers having higher ranking or status would influence the attitudes and behaviors of managers in subordinate positions. Of growing importance among organizational researchers is the influence that individuals of higher status have over the commitment of individuals of lower status to a variety of

An emerging context for commitment has been the various quality improvement efforts now being undertaken in organizations. Quality is a system of continuous product and service improvement which focuses on the needs of the customer. Quality management experts have strongly recommended that organizations study and adopt quality management techniques such as error prevention, statistical process control, lateral management, and worker involvement to remain competitive in today's global market (Deming, 1982; Crosby, 1990; Juran, 1988; Feigenbaum, 1983).

Garvin (1986) has studied the relationship between commitment and quality. In a study of Japanese and American manufacturers, he found that "...high levels of quality were associated with strong commitments to that goal..." (p.666), and that senior managers, alone, could instill a commitment to quality in their subordinates (Garvin, 1988). In addition, Garvin found that while senior managers' commitment to quality was essential to the success of quality improvement programs, little empirical work had been done on how specific behaviors from senior managers relate to their subordinates' commitment to quality.
Statement of the Problem

The prevailing position in the literature is that individuals having higher status, such as senior managers, can influence their subordinates' levels of commitment towards important organizational goals. However, recent research has suggested that little is known about the specific behaviors of senior managers which would instill greater commitment to specific kinds of organizational goals, such as commitment to quality goals, in their subordinates. If achieving quality goals is important for organizational success, and if managers are important for engendering commitment to those goals among their subordinates, then more must be known about how senior managers influence their subordinates. Therefore, the purpose of this study is to investigate the relationship between senior managers' quality management behaviors and subordinate managers' commitment to quality.

Research Questions

The research questions for this study are:

1. What is senior managers' level of commitment to quality?
2. What is the relationship between senior managers' commitment to quality and their perception of their quality management behaviors?

3. What is the relationship between senior managers' perception of their quality management behaviors and their subordinate managers' perception of those behaviors?

4. What is the relationship between subordinate managers' perception of their senior managers' quality management behaviors and their own commitment to quality?

Significance of the Study

The significance of the study can be found in at least four areas: commitment, quality, role theory, and human resource development (HRD). It has long been recognized that commitment is related to performance and that senior managers' behaviors influence subordinates' commitment. However, there has been little research whose primary purpose was to make more explicit the behaviors of senior managers which relate to subordinates' commitment to specific organizational goals. In addition, research which integrates commitment and quality has been lacking.

The quality literature demonstrates a need for additional research on topics related to quality management. For example, in their recent review of the literature, Flynn,
Schroeder, and Sakakibara (1990) determined that many of the studies on quality management have been only anecdotal in nature. Researchers have not empirically investigated the influence of senior managers' behaviors on subordinate managers' commitment to quality.

Role theory investigates the different kinds of behaviors people assume in groups. One aspect of role theory examines the influence that individuals of higher status in groups have over individuals of lower status in groups. This study drew on role theory to understand better the influence of senior managers' quality management behaviors on their subordinates' commitment to quality as a means to reaffirm the influence of roles in organizations.

HRD is an interdisciplinary field which is concerned with improving human performance in organizations. It has been defined as "the process of increasing the capacity of the human resource through development. It is the process of adding value to individuals, teams, or an organization as a human system" (McClagan, 1989, p.52). HRD assumes that performance problems are caused by something that is deficient either in the employee or in the organizational system in which she is working. Most often, performance deficiencies can be attributed to insufficient or inappropriate data, incentive systems, knowledge, skill, attitudes, feedback systems, instruments or tools (Jacobs, 1988; Gilbert, 1978; Rummier & Brache, 1988; Herem, 1979;
Harless, 1970). HRD specialists analyze the cause of performance problems in organizations and recommend the appropriate interventions to remediate those problems. While often reactive in its approach to performance problems, researchers believe that a more proactive approach to performance improvement is called for (Jacobs, 1989). Therefore, HRD provides the appropriate framework to explore the variables which influence subordinate managers' commitment to quality in organizations, and to recommend the appropriate interventions to ensure that commitment occurs.

Research such as this study enhances the commitment and role theory literatures by demonstrating the relationship between senior managers' behaviors and subordinates' commitment to a specific organizational goal. In addition, a new instrument for measuring commitment to quality and for measuring quality management behaviors results from this study. Empirically-derived guidelines are established for senior managers who wish to instill a commitment to quality in their subordinates. In addition, the relationships that emerged as significant in this study suggest a new way of using senior managers as an HRD intervention to facilitate commitment to quality in subordinates. A new model of organizational performance is also suggested.
Definition of Terms

The terms for this study have been operationally defined as follows:

Commitment

The intent to actively contribute to a goal.

Quality

A system of continuous product and service improvement focusing on the requirements of the customer.

Commitment to Quality

The intent to contribute to the goals of a system of continuous product and service improvement focusing on the requirements of the customer.

Employees

All of the individuals, including senior managers, their subordinate managers, and non-managers who are employed by an organization.
Senior Managers

Senior managers are those managers whose organizational levels are no more than two steps beneath the president, chief executive officer, or head of the organization.

Senior Managers' Quality Management Behaviors

What a senior manager says and does that relates to quality in an organizational context.

Subordinate Managers

Managers who report directly to senior managers.

Human Resource Development

"The process of increasing the capacity of the human resource through development" (McClagan, 1989, p.52).

Role

A pattern of individuals' behaviors in groups.

Status

The rank, position, or prestige of an individual.
Limitations of the Study

Since the study was exploratory in nature, testing hypotheses and making inferences about cause and effect was not intended. In addition, generalizability was limited since the study was conducted at only two organizations. Also, the reactive effects resulting from the respondents' desire to provide socially acceptable responses raises some concerns about internal validity and measurement error.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter is divided into five sections. The first section reviews the topic of commitment as it has been operationalized and studied in the management and organizational behavior literatures. The second section reviews the quality literature with a particular focus on the dimensions of quality management. The third section reviews the role theory literature focusing on the construct of status. The fourth section reviews the human resource development (HRD) literature which provides the framework for this study. The final section provides a synthesis relevant to this study.

Commitment

This section is divided into four parts. The first discusses the importance of goal and organizational commitment, the second reviews the definition, antecedents, and outcomes of goal commitment, the third reviews the definitions, antecedents, and outcomes of organizational commitment, and the fourth reviews senior managers' behaviors.
and commitment.

**Importance of Goal and Organizational Commitment**

The management and organizational behavior literatures have mostly examined commitment from the perspective of such referents as goals, organizations, professions, and careers. The commitment referents relevant to this study are goals and organizations.

The constructs of goal and organizational commitment have been empirically studied for over thirty years because it was believed that commitment is essential to organizational success. Locke, Latham, and Erez (1988) stated that understanding goal commitment was important both to the practitioner and to the theoretician. Ivancevich and McMahon (1977) said "The importance of goal setting processes in enhancing our understanding of performance...is being investigated in field settings at a rapidly increasing rate. The theory of goal setting suggests that an individual's conscious intentions regulate his or her work related activities" (p.83). Locke and Latham (1990) also suggested that the changes in today's competitive environment increase the urgency of both theoreticians and practitioners understanding the factors which facilitate goal commitment in employees.
Darden, Hampton, and Howell (1989) stated that employees' commitment to their organizations is important in understanding organizational behavior, and Chatman (1989) said that better understanding the "fit" between employees and their organizations was vital to organization behavior research. Goman (1989) suggested that employees' loyalty to their organizations would be the key management issue of the nineties.

Both the goal commitment literature and the organizational commitment literatures suggest the importance of commitment in organizational settings, and both literatures highlight the importance of senior managers' behaviors as antecedent to commitment in subordinates.

While the difference between goal acceptance and goal commitment in the literature had been unclear in the past, goal acceptance is currently believed to be a subtype of goal commitment when goals are assigned (Locke, Saari, Shaw, & Latham, 1981), and goal commitment can be defined as follows: "Commitment...refers to one's attachment to or determination to reach a goal, regardless of where the goal came from" (Locke & Latham, 1990, p.125).

The goal commitment literature suggests that senior managers' legitimacy is an important factor in instilling commitment to goals in subordinates. For example, French and Raven (1959) suggested that senior managers were important determinants of subordinates' commitment and that employees'
goal commitment reflected compliance with legitimate power or authority. Kouzes and Posner (1987) suggested that senior managers were responsible for developing and communicating their organization's goals to subordinates using words, symbols, and actions. Locke and Latham (1990) also supported the importance of legitimacy in goal commitment stating that subordinates tend to try to comply with the goals set by authority figures.

The results of Ronan, Latham and Kinne's (1973) study of goal setting and supervision implied that the physical presence of supervisors positively impacted goal commitment. Anderson and O'Reilly (1981) unexpectedly found that senior management's support of their organization's performance system related to high levels of performance in employees. Podsakoff and Farh (1989) found that trustworthy feedback had a more positive effect on goal setting and performance than feedback that was considered untrustworthy. Oldham (1975) learned that trust influenced workers' intent to reach assigned goals. Hayes, Rosenfarb, Wulfert, Munt, Korn, and Zettle (1985) suggested that public goal setting was more effective than private goal setting.

Using expectancy theory categories, Hollenbeck and Klein (1987) determined that both the attractiveness of goal attainment and the expectancy of goal attainment were antecedent to goal commitment, and that both attractiveness and expectancy were influenced by situational and personal
factors. Further, they determined that the situational factors influencing attractiveness are publicness, volition, explicitness, reward structures, and competition. The personal factors influencing attractiveness were need for achievement, endurance, Type A personality, organizational commitment, and job involvement. The situational factors influencing expectancy were social influence (others' goals, goal commitment, or performance), task complexity, performance, and supervisor supportiveness. The personal factors influencing expectancy were ability, past success, self-esteem, and locus of control.

Locke and Latham (1990) suggested that goal commitment was positively influenced by the following:

- The authority figure's communication of legitimacy
- The authority figure's rewards and punishments
- The authority figure's communication of self-efficacy information
- The authority figure's communication of normative information
- The authority figure's fostering a sense of achievement
- The authority figure's implying opportunities for self-development
- The authority figure's challenge to prove self
- The authority figure's physical presence
- The authority figure's support
• The authority figure's trustworthiness
• The authority figure's providing rationale
• The authority figure's exerting pressure
• The authority figure's knowledge and likeability
• The peer group's exerting pressure
• The peer group's providing role modeling
• The peer group's presenting competition
• Publicness
• Self-rewards
• Valence and Instrumentality
• Ego Involvement
• Conflict
• Satisfaction
• Personality
• Goal Intensity
• Expectancy, Self-Efficacy, Task Difficulty

Goal commitment researchers have focused on performance as the primary outcome variable of goal commitment (see Earley, 1985; Earley & Kanfer, 1985; Erez & Arad, 1986; Erez, Earley, & Hulin, 1985; Frost & Mahoney, 1976; Hollenbeck, O'Leary, Klein, & Wright, P. M., 1989; Hollenbeck & Williams, 1987; Huber & Neale, 1986; Ivancevich & McMahon, 1982, 1977; Kolb, Winter, & Berlew, 1968; Koslowsky, Caspy, & Lazar, 1990; Locke, 1982; Locke, Frederick, Lee, & Bobko, 1984; London & Oldham, 1976; McCaul, Hinz, & McCaul, 1987; Mento,

Locke (1982) suggested the following:

While performance cannot be a catch-all measure of commitment, since performance can be caused by other factors such as ability, judicious use of inference from performance seems both theoretically and empirically justified...Empirically, commitment inferences from performance levels can be justified if performance goal level, ability, and so forth, were or can be assumed to have been controlled or randomized. (p.24)

Locke and Latham (1990) believed that those studies which failed to demonstrate the relationship between goal commitment and performance had also failed to take steps "to deliberately increase variability" (p.128), and suggested that where such steps had been taken significant relationships between commitment and performance were found.

With respect to performance, it has been shown repeatedly that level of goal difficulty significantly influences goal commitment or performance and that goal level must be measured or controlled in goal commitment research (see Erez & Zidon, 1984; Locke, 1982; Mento, Cartledge, & Locke, 1980; Yukl & Latham, 1978).
Locke and Latham (1990) stated: "In summary, theory as well as empirical research suggest that there is indeed a relationship between goal commitment and performance" (p.132).

**Definitions, Antecedents, and Outcomes of Organizational Commitment**

The definitions of organizational commitment fall into two broad categories. The first has been referred to as affective (Meyer & Allen, 1984), or psychological (Stevens, Beyer, & Trice, 1978). The second definition of organizational commitment has most often been called continuance (Meyer & Allen, 1984), side-bet (Becker, 1960), an exchange relationship (Homans, 1958), or an investment model (Farrell & Rusbult, 1981). The first type of organizational commitment refers to an attitudinal attachment to an organization which results in favorable behaviors toward the organization, or which results from prior volitional, explicit, and irrevocable behaviors. Psychological commitment is most often described in terms of the following factors identified by Porter, Steers, Mowday, and Boulian (1974):

1. a strong belief in and acceptance of the organization's values;
2. a willingness to exert considerable effort on behalf of the organization;
3. a definite desire to maintain organizational membership. (p.604)

Mowday, Steers, and Porter (1979) stated that this type of attitudinal commitment "represents something beyond mere loyalty to an organization. It involves an active relationship such that individuals are willing to give something of themselves to contribute to the organization's well being" (p.226). They continued by saying that an employee's actions can be an accurate indication of that employee's commitment attitude. Recognizing that Locke and Latham (1990) believe that performance (action) is the outcome of goal commitment, their definition of goal commitment closely approximates Mowday et al's (1979) above-mentioned definition of organizational commitment. In addition, these goal commitment and organizational commitment definitions are fully consistent with Kiesler and Sakumura (1966), Kouzes and Posner (1987), and Egan's (1990) definition of commitment.

Porter et al (1974) developed a fifteen-item questionnaire called the Organizational Commitment Questionnaire (OCQ) to measure the construct of organizational commitment. The OCQ has been used the most frequently to measure organizational commitment and is
considered the standard global commitment measurement instrument by many (Reichers, 1985). In addition to Porter et al., themselves, the following additional researchers have used the OCQ in their studies of commitment: Morris and Sherman (1981), Angle and Perry (1986), Bateman and Strasser (1984), Shore, Newton, and Thornton (1990), Reichers (1986), Meyer and Allen (1984), Stumpf and Hartman (1984), Welsch and LaVan (1981), Porter, Crampon, and Smith (1976), Curry, Wakefield, Price, and Mueller (1986), Bartol (1979), Hom, Katerberg, and Hulin (1979). Werbel and Gould (1984) used a similar measure of psychological commitment in their study of turnover. Chatman (1989) supported the importance of congruence between employee and organizational goals as follows: "Higher levels of person-organization fit exist when there is congruence between the norms and values of organizations and the values of persons" (p.334). In addition, she continued to say that if the degree of person-organization fit is known, predictions can be made about resultant behaviors.

In their study of organizational commitment in the U. S. Forest Service, Hall, Schneider, and Nygren (1970) operationalized commitment by asking their subjects about attitudinal identification with their organization. In his study of business and government managers, Buchanan (1974) defined organizational commitment as a combination of organizational identification, job involvement, and
organizational loyalty. Lee (1971) defined organizational commitment as "...some degree of belongingness, loyalty, or shared characteristics" (p.214). Meyer and Allen (1984) and Meyer, Allen, and Gellatly (1990) define one form of commitment as "affective" which characterizes employees who choose to remain with their organizations because they want to. In sum, psychological commitment represents both an attitude and a behavior which support the organization's goals and values.

The second broad category of organizational commitment refers to a kind of bartering between the employee and the organization during which the employee exchanges work for perceived organizational rewards. Eisenberger, Huntington, Hutchinson, and Sowa (1986) suggested a social-exchange relationship between employees and their organizations where employees assessed the support the organization provided them and modified their behavior towards the organization based on their perceived value of that support. Meyer and Allen (1984) and Meyer, Allen, and Gellatly (1990) refer to this kind of commitment as "continuance commitment". They suggest that employees who respond to this type of commitment remain with their organizations, not because they want to, but rather, because they feel they need to. Most often when the literature refers to this second form of commitment an economic rationale is given and the side bets or investments leading to employee commitment are described as benefits such
as nonportable pension plans and length of service (Stevens, Beyer, & Trice, 1978; Reichers, 1985). The results of Hrebiniaik and Alutto's (1972) research on teachers and nurses indicated that "commitment in utilitarian organizations is partially an exchange and partially a structural phenomenon. That is, commitment depends in part on perceptions of inducements-contributions balances or, similarly, the ratio of rewards received from the organization in relation to the costs incurred to receive those rewards" (p.569-570). Grusky (1966) used the exchange definition of organizational commitment as the backdrop for his study on organizational commitment and career movement.

Sheldon (1971) defined commitment as investments, and stated: "Investments refer to participation in an organization to an extent that possible participation in another organization is decreased" (p.144). Fukami and Larson (1984) developed their own investment questionnaire.

While there appear to be two discrete definitions of organizational commitment in the literature, there seems to be much definitional overlap, ambiguity, and inconsistency between the two. In two studies on common scales used to test investment commitment Meyer and Allen (1984) demonstrated some of the difficulties in defining and measuring commitment. They used the Ritzer-Trice and Hrebiniaik-Alutto (R-T & H-A) scales to test the investment model and they discovered that the measures correlated significantly with
the Porter et al OCQ, which is recognized for measuring psychological commitment, but not with with the authors' own measure of continuance commitment. Therefore, Meyer and Allen (1984) questioned the validity of the R-T and H-A measure for the following reasons:

Respondents are asked whether they would change organizations given various inducements (e.g. pay, status) that by their very nature might eliminate or reduce the threat of losing valued investments and provide a viable alternative to their current job and organization. Why would employees remain under these conditions? One explanation is that they are affectively committed. Second, it is argued that age and tenure are not particularly good indexes of accumulated investments. Even if investments do increase with age and tenure (and one can think of various examples where the relationship might be reversed), they are certainly confounded with other age-related variables. (p.374)

Meyer and Allen (1984) illustrated the difficulties in defining the complex construct of organizational commitment in discrete, independent terms. Meyer, Allen, and Gellatly (1990) agreed that two forms of commitment were discernable, and that employees could respond concurrently to both forms of commitment. Subsequently, Allen and Meyer (1990) suggested
that organizational commitment had three components: affective, continuance, and normative. Further, they determined that "employees with strong affective commitment remain because they want to, those with strong continuance commitment remain because they need to, and those with strong normative commitment because they feel they ought to do so" (p.3). The Porter et al (1974) questionnaire is consistent with Allen and Meyer's (1990) definition of affective commitment (J. P. Meyer, personal communication, August, 1991). Stevens, Beyer, and Trice (1978) shared the following concerns about commitment definitions:

Neither the psychological or side-bet approaches has developed an integrated consideration of the full range of relevant factors that may determine the attachment of the individual to the organization or the leaving or staying behavior of organizational members. (p.381-382)

Stevens, Beyer, and Trice (1978) explained commitment "as the result of multiple forces including both psychological and structural (exchange) determinants" (p.382). Morrow (1983) studied concept redundancy in work commitment and found that all of the measures she assessed with facet analysis demonstrated redundancy.

In sum, the organizational commitment literature indicates that commitment is either solely affective in nature or is a combination of affective elements and side bets. Since 1966, over three times as many studies have
defined commitment as a psychological construct than have
defines it as a side-bet or investment construct. This
suggests a greater acceptance of commitment as
psychologically-oriented rather than as side-bet-oriented.

The literature is "characterized by a 'laundry list' of
significant antecedent or correlate variables" (Reichers,
1985, p.467), ranging in difference from feedback (Ivancevich
& McMahon, 1982) to personal characteristics (Morris &
Sherman, 1981) and professionalism (Bartol, 1979).

The majority of research on organizational commitment
has shown a negative relationship between organizational
commitment and actual or intended turnover (Hom, Katerberg, &
Hulin, 1979; O'Reilly & Chatman, 1986; Porter, Crampton, &
Smith, 1976; Porter, Steers, Mowday, & Boulian, 1974; Shore,
Newton, & Thornton, 1990; Steers, 1977). Less frequently, job
satisfaction, absenteeism, and performance have shown a
negative correlation with organizational commitment (Bateman
& Strasser, 1984; Lee, 1971; Shore, Newton, & Thornton, 1990;
Steers, 1977).

Senior Managers' Behaviors and Commitment

There has been little doubt in the literature about
managers' ability to influence their subordinates. Levinson
(1965) suggested that organizational managers often
represented the personification of the organization to their
subordinates and, more recently, Bandura (1977) and Staw
(1981) stated that individuals often model their behavior after others whom they see as successful.

In his discussion of corporations, culture, and commitment O'Reilly (1989) said "We often tend to underestimate the degree to which situations and the expectations of others can constrain and shape behavior. Strong situations -- ones in which there are very clear incentives and expectations about what constitutes appropriate attitudes and behavior -- can be very powerful" (p.19).

The commitment literature specifically supports the importance of senior managers' behaviors in facilitating commitment in subordinates. This support is more explicit in the goal commitment literature than in the organizational commitment literature. The first thirteen items on the list adapted from Locke and Latham (1990) focus directly on the importance of an authority figure's influence in goal commitment. The authority figure can also positively impact how public or private an individual's goals are, and can determine the level of difficulty, or intensity, of the assigned goals.

While Locke and Latham (1990) stated that most of the goal commitment studies have focused on goal commitment at the individual level, they also indicated that senior management support was essential for change at the organizational level to occur." While goal commitment has
most often been studied at the level of the individual, nearly all organizational change consultants claim that top management support is needed if organizationwide change programs are to succeed" (p.150). In addition, Anderson and O'Reilly's (1981) conclusion that top management support for the appraisal system in their organization related significantly to high levels of performance implied that senior management support for many organizational goals and policies would facilitate subordinates' compliance with those policies or goals. In his longitudinal study of MBO programs in two manufacturing organizations, Ivancevich (1972) suggested that the MBO programs' effect may have been short-lived because senior managers' commitment was weak or absent.

Instilling commitment in subordinates has frequently been defined as a primary management responsibility. For example, Welsch and LaVan (1981) believed that "Management is concerned with identifying those variables that are related to organizational commitment in order that they may design organizational strategies to maximize commitment levels" (p.1079). Schwenk (1986) stated that one of the essential tasks of a manager was to create commitment to courses of action in subordinates. Bateman and Strasser (1984) suggested that research which would integrate organizational commitment and management practices was justified because prior empirical studies suggested the importance of managers' behaviors in influencing their subordinates' commitment to
their organizations. Morris and Sherman (1981) also believed that managers' behaviors "remained an important and underresearched component in the commitment process" (p. 519).

In sum, the goal commitment literature and the organizational commitment literature define at least one component of commitment as the intent to reach goals in an organizational setting. Both also support the importance of employees' commitment to goals in organizations, and the importance of senior managers' in instilling commitment to goals in their subordinates.

Quality

This section is divided into three parts. The first part discusses the importance of quality and the characteristics of quality organizations. The second part reviews the dimensions of quality management. The third part discusses the relationship between senior managers' behaviors and commitment to quality.

Importance of Quality

It is a widely-held belief that organizations will not survive in today's multinational competitive markets unless they change their way of thinking and their way of operating (Beer, 1988; Imai, 1986). Clark (1987) suggested that only
those companies that invest in quality will succeed. In a fifteen-year study of different companies, the Massachusetts-based Strategic Planning Institute found that companies committed to quality had better financial results than their counterparts who were not committed to quality (cited in Hansen, Hill, & Bishop, 1988). Quality management experts have strongly recommended that organizations study and adopt the quality management techniques which have led to the overwhelming successes of Japanese industry since World War II (Deming, 1982; Crosby, 1990; Juran, 1988).

The concept of quality is closely related to the Japanese concept of kaizen, which means improvement. When used in an organizational setting, kaizen means continuous improvement which involves all levels of employees of the organization (Imai, 1986). Using the Japanese concept of kaizen, and drawing from the research and writing of Deming (1986), Juran (1988), and Crosby (1990), the following common definition of quality emerges: Quality is a system of continuous product and service improvement focusing on the requirements of customers.

Quality requires a process-orientation to business rather than a results-only way of thinking and operating. Imai (1986) stated that kaizen focuses on employees and their efforts. In a quality-oriented organization, the effort, or the process, is considered to be at least as important as the result (Imai, 1986; Rummler & Brache, 1990). Sharp (1990) and
Imai (1986) contrasted the focus of many Western organizations on short-term profits with the focus on continuous improvement of most Eastern organizations. Garvin (1986) defined the differences in U.S. and Japanese manufacturing goals as follows: "In the United States it is meeting a production schedule; in Japan, it is producing defect-free products" (p.664).

In June of 1990, Management Services printed the results of a productivity and quality survey of British managers. Not unlike their U.S. counterparts, over seventy-three percent of the respondents reported that their organizations were more interested in short-term profits than in productivity and quality. In addition, Joiner and Scholtes (1986) found that U.S. organizations are prone to implementing a system of "management by control" which requires a internal focus, rather than an external customer focus. Researchers and managers alike seem to agree on the differences between quality and non-quality organizations, and agree that organizations must change their focus from short-term gain to long-term improvement to remain competitive.

Dimensions of Quality Management

Organizations must be managed differently if they are to remain competitive in today's market. For quality efforts to succeed in organizations certain management strategies must
be put in place. For example, information on both the design and the behavior of work flow processes must be collected (Hansen, Hill, & Bishop, 1988; Joiner & Scholtes, 1986; Flynn et al, 1990). Data should be collected on processes using statistical techniques such as Pareto analysis and statistical process control. Appropriate performance evaluation and reward systems in addition to training and development efforts should be mounted to enhance commitment to customer satisfaction, a major quality objective (Kiess-Moser, 1989). Requirements for every project and task should be communicated, resources should be allocated, and goal progress should be monitored and evaluated (Saarinen & Hobel, 1990).

Deming (1986) strongly recommended that managers adopt his fourteen "points" in order to implement and maintain a successful quality program:

1. Create a constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
3. Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.

5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.

6. Institute training on the job.

7. Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.

8. Drive out fear, so that everyone may work effectively for the company.

9. Break down barriers between departments. People in research, design, sales, and production must work together as a team, to foresee problems of production and in use that may be encountered with the product or service.

10. Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.
11a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.

b. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.

12a. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.

b. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolition of the annual or merit rating and of management by objective.

13. Institute a vigorous program of education and self-improvement.

14. Put every body in the company to work to accomplish the transformation. The transformation is everybody's job. (p.23-24).

Garvin (1986) developed a supervisors' questionnaire to study quality in the room air conditioning industry in Japan and the U.S. One question, in particular, is relevant to this study's focus on senior managers' commitment to quality and to their related behaviors. On a seven point Likert scale from relatively unimportant (1) to extremely important (7) supervisors were asked to rate company managers on how they
acted with respect to the following quality dimensions: low-cost production, meeting the production schedule, producing high-quality (defect-free) products, and improving worker productivity. Garvin (1986) found the following:

The weight that management attaches to producing defect-free products averaged 6.2 at the best U.S. plants, 6.1 at the better U.S. plants, 5.7 at the fair U.S. plants, and 5.4 at the poorest U.S. plants...Moreover, the Japanese plants, which showed levels of quality exceeding those of the best U.S. plants received the very highest scores...In the realm of management priorities and workers' attention, a quality spectrum does appear to exist. (p.665-666)

Garvin's (1986) results indicate that there is a relationship between senior managers' attitudes about quality and their behaviors. In addition, there is preliminary evidence that certain behaviors, such as attending to defect-free products, relate to subordinates' quality performance.

In organizations with superior quality performance, Garvin (1988) found:

- Senior managers' attendance at meetings addressing quality issues.
- Senior managers' insistence on quantitative measures relating to quality performance including goal-setting.
• Quality information systems were detailed and reported to high levels within the company.
• Organizations seemed to focus on a single concept.

While Garvin (1988) stated that the following are among the practices of organizations whose quality performance is superior: reliability engineering, statistical sampling, careful monitoring of vendors, precise information systems, internally developed equipment, long production runs, the order of assembly operations, narrow product lines, he, nevertheless, concluded his research with the following remarks "Given its long history, surprisingly little is known about quality management. Academic research on the subject is in its infancy" (p.222).

Flynn et al (1990) identified the following eight core dimensions of quality management:

• Top management support for quality
• Quality information
• Process management
• Product design
• Work force management
• Supplier involvement
• Customer involvement
• Rewards for quality
Flynn et al (1990) developed a unique instrument to measure performance on the eight core dimensions of quality management. The instrument was tested with 712 Japanese and U.S. workers and was found to be reliable and to have content, construct, and criterion validity. Of particular interest for this study are the following five items which fall under the "top management support" dimension. They are:

- All major department heads within our plant accept their responsibility for quality.
- Plant management provides personal leadership for quality products and quality improvement.
- The top priority in evaluating plant management is quality performance.
- All major department heads within our plant work towards encouraging participation.
- Our top management encourages employee involvement in the production process.

Jacobs and Jones (1989) determined that work groups in quality-oriented organizations required the following features to achieve their goals:

- employe [sic] involvement
- employe [sic] development
- standardized work practices
• quality at the source
• focused business units
• planned maintenance
• material flow reduction
• inventory management
• synchronized production
• supplier/customer relations
• teamwork (p. 7)

In a study of the dimensions of leadership required for the implementation of a successful quality strategy, the Forum Corporation found that senior managers in quality-focused companies consistently behaved in the following ways:

• They modeled the appropriate quality behaviors
• They were the spokespeople for quality.
• They involved their employees in decision-making, direction-setting, and problem-solving.
• They promoted continuous learning.
• They put their customers first.
• They facilitated cross-functional team communication.
• They accepted that quality was a long-term improvement process.

The 1991 United States General Accounting Office Report to the United States House of Representatives listed the
following six features which contribute to improving quality:

• Corporate attention was focused on meeting customer quality requirements.
• Management led the way in disseminating TQM values throughout the organization.
• Employees were asked and empowered to continuously improve all key business processes.
• Management nurtured a flexible and responsive corporate culture.
• Management systems supported fact-based decision-making.
• Partnerships with suppliers improved product or service quality. (p.29)

Finally, the coveted Malcolm Baldrige Award (1991) for quality performance is based on the following ten concepts:

• Quality is defined by the customer.
• The senior leadership of businesses needs to create clear quality values and build the values into the way the company operates.
• Quality excellence derives from well-designed and well-executed systems and processes.
• Continuous improvement must be part of the management of all systems and processes.
Companies need to develop goals, as well as strategic and operational plans to achieve quality leadership. Shortening the response time of all operations and processes of the company needs to be part of the quality improvement effort. Operations and decisions of the company need to be based on facts and data. All employees must be suitably trained and developed and involved in quality activities. Design quality and defect and error prevention should be major elements of the quality system. Companies need to communicate quality requirements to suppliers and work to elevate supplier quality performance. (p.2)

Considering the literature as presented, the following conclusions can be drawn about the behaviors of senior managers' which may be required to facilitate commitment to quality in their subordinates:

- They must understand and focus on process management, including interdepartmental interfaces.
- They must set and communicate clear goals.
- They must encourage in-process prevention, rather than end of the line inspection.
• They must monitor product and service performance and operationalize congruent evaluation and reward systems.
• They must understand the resources required to produce a defect-free product or service. They must allocate the appropriate resources.
• They must understand the statistical techniques used to measure quality performance.
• They must personally receive and review quantitative reports on product and service performance.
• They must require attendance at training classes on quality and quality measurement techniques.
• They must involve customers and suppliers in determining product specifications.
• They must personally attend, and frequently lead, meetings on the subject of quality.

Senior Managers' Behaviors and Commitment to Quality

This study's definition of commitment to quality as the intent to contribute to the goals of a system of continuous product and service improvement focusing on the customer is fully consistent with the management and organizational behavior's literature's definition of commitment and with the quality literature's definition of quality. Flynn et al (1990) summarized this view as follows: "When top management views quality as its overriding goal, it will become the primary goal of the organization as well" (p.7).
In their study of U.S. organizations operating with a more traditional approach to quality, Japanese organizations operating in the U.S., and U.S. firms using some of the Japanese approaches to quality, Ebrahimpour and Lee (1988) found that certain steps were required for organizations to be successful in their quality efforts. They stated "The first measure starts with top management's understanding, commitment, and support to quality improvement ideas" (p.31). In his employee opinion survey about quality at a large, successful, U.S. organization, Hershauer (1979) found that the majority of employees he interviewed felt that a personal commitment to quality was considered necessary for successful implementation of quality. Hansen, Hill, and Bishop (1988) echoed this view in stating that management must be actively involved in quality and that employees at all levels must be personally committed to quality for its efforts to be successful.

Wall and Zeynel (1991) and Hayes (1985) insisted that implementing quality in an organization required tremendous changes in organizational focus and that such changes would not take place without senior managers' commitment. Marash (1989) said that potential buyers would consider foreign products more favorably than U.S. products because of their belief that U.S. organizations had less commitment to quality than their international competitors. To compete successfully with multinationals by instilling quality in their
organizations, Marash (1989) suggested that senior managers "must make extraordinary efforts to reach out to the middle and supervisory levels, for it is there that resistance to change is most severe" (p.122).

In confirming the importance of senior managers' commitment to quality, Sharp (1990) insisted that subordinates would only be committed to quality if they believed that management's concern was primarily with improving quality, not with improving the bottom line. Karlins and Hargis (1988) said that commitment was synonymous with dedication and that subordinates modeled their feelings of dedication after their managers. In a comprehensive study of Japanese and U.S. room air conditioning organizations, Garvin (1986) discovered that the relationships between managers' commitment to quality, subordinates' commitment to quality and quality performance were positively correlated. Among the implications for managers, Garvin (1986) found the following "...high levels of quality performance are accompanied by organizational commitment to that goal. Attitudes appear to be quite important: without a management and a work force dedicated to quality, little is likely to be accomplished" (p.669). He suggested that only senior managers could instill a commitment to quality in their subordinates, and wrote the following:

By now it is almost an article of faith among quality experts: Successful quality performance requires
a management dedicated to that goal. Without commitment at the highest levels, such objectives as delivery and cost are thought to take precedence. All too often, the result is an 'us versus them' attitude which pits quality control against production.

But if top management embraces quality, these tensions are likely to be reduced. Little work, however, has been done to confirm this view. Nor have the specifics of management direction-setting been studied carefully. Some messages about quality are more effective that others, yet little is known about how employees distinguish among them. Are policy statements, for example, enough to demonstrate management's seriousness? Will slogans and banners suffice? Or are tangible actions and personal participation required if quality is to improve? (Garvin, 1988, p. 170)

Role Theory

This section is divided into two parts. The first part discusses roles and groups. The second part discusses status.

Roles

Role theorists have attempted to explain different aspects of the relationships among individuals. These relationships are most often studied within the context of
common groups such as families, communities, sports teams, religious affiliations, or formal businesses. "Many facets of real-life behavior may be studied...Role analysts examine patterned forms of such complex real-life behavior, which includes the types and varieties of differentiated aggregates, social positions, specializations and divisions of labor" (Biddle & Thomas, 1966, p.3). Roles are most commonly defined as the pattern of individuals' behaviors in groups (Biddle & Thomas, 1966; Bertrand, 1972; Paulus, 1983).

Berne (1963) defined a group as follows: "A group may be defined as any social aggregation that has an external boundary and at least one internal boundary" (p.54). He continued to explain that external boundaries distinguish members of the group from nonmembers of a group, and that internal group boundaries distinguish different classes of people within a group. Katz and Kahn (1966) stated that the concept of roles is particularly important when discussing formal organizations. They defined organizations as role systems, and defined the individual's role in an organization as follows: "Each person in an organization is linked to some set of other members by virtue of the functional requirements of the system which are heavily implemented through the expectations those members have of him; he is the focal person for that set. An organization can be viewed as consisting of a number of such sets, one for each person in the organization" (p.197). Naylor, Pritchard, and Ilgen
(1980) define roles in organizations as the employees' "stable patterns of interdependent behavior" (p.115). In formal organizations, the most common internal boundary distinguishes managers from nonmanagers. An organization is a kind of complex social system having at least two functionally different subsystems which work together towards a common goal (Bertrand, 1972). All organizational groups are made up of relationships between different classes of people.

**Status**

Social organizations, or groups, are made up of roles representing different relative ranks (Bertrand, 1972). "...relatively stable status hierarchies emerge whenever a collection of individuals exists" (Naylor, Pritchard, & Ilgen, 1980, p.229). Some researchers believe that layered systems of authority were required for societies to avoid non-productive anarchy and that "we are trained from birth that obedience to proper authority is right and disobedience is wrong" (Cialdini, 1984, p.210). Many believe that individuals of higher rank and status in groups have social power giving them the ability to influence the behavior of individuals of lower status (Bandura, 1974; Paulus, 1983; Bertrand, 1972; Peabody, 1962).

In formal organizations, role differences are understood by all of the individuals in the organization. Differences in roles are made known in titles, compensation levels, and
positions on organization charts. Bertrand (1972) defined organizations as follows "Organizations are characterized by a relatively high degree of differentiation. Power is unevenly distributed in organizations, and some members inevitably exercise more authority and control than others" (p.134). Bandura (1977), and Biddle and Thomas (1966) stated that individuals of higher status are often considered models whose behaviors should be imitated by individuals of lower status. Hersey and Blanchard (1982) suggested that one of the key factors allowing certain individuals in organizations to influence others was their higher rank and position in the organization. The social science and organizational behavior literature confirm that the behavior of individuals of higher status in organizations influences the behavior of individuals of lower status in those organizations (Boss & Boss, 1985; Naylor, Pritchard, & Ilgen, 1980). In organizations, "the occupant of one role has authority over the occupant of another on organizational matters [which] means that the influence of the one over the other is a matter of organizational law; it is legitimate and is so accepted" (Katz & Kahn, 1966, p.204).

Human Resource Development

This section is divided into three parts. The first part defines HRD. The second part reviews the types of problems
addressed by HRD professionals and the kinds of solutions recommended by HRD professionals. The third part discusses HRD roles and competencies.

**Definition of HRD**

HRD has been defined as "the process of increasing the capacity of the human resource through development. It is the process of adding value to individuals, teams, or an organization as a human system" (McClagan, 1989, p. 52), and as "the introduction of organized activities designed to foster increased knowledge, skills, and competencies and improved behavior" (Gilley & Egglend, 1989, p. 5). Swanson and Gradous (1988) defined HRD as follows: "HRD may be viewed as the business process that converts inputs into outputs. Employees are the inputs. Employee work performances that contribute to the goals of the organization are the outputs" (p. 6). Using the common constructs of development, behavior improvement, and goal achievement, the definition of HRD may be restated as follows: HRD is the identification and application of systematic development activities which seek to improve human and organizational performance.

The American Society for Training and Development (ASTD) stated that training and development, career development, and organizational development are HRD's primary focus areas from HRM. Human resource planning, performance management systems, and selection and staffing are HRD's secondary areas.
(McClagan, 1989). The ASTD defines the focus of each of those six areas as follows:

**Training**
Focus: identifying, ensuring, and - through planned learning - helping develop the key competencies that enable individuals to perform current or future jobs

**Career development**
Focus: ensuring an alignment of individual career planning and organization career-management processes to achieve an optimal match of individual and organizational needs

**Organization development**
Focus: defining how tasks, authority, and systems will be organized and integrated across organizational units and in individual jobs

**Human resource planning**
Focus: determining the organization's major human resource needs, strategies and philosophies

**Performance management systems**
Focus: ensuring individual and organization goals are linked and that what individuals do every day supports the organizational goals
Selection and staffing

Focus: matching people and their career needs and capabilities with jobs and career paths (McClagan, 1989, p.53)

HRD Problems and Solutions

HRD professionals define performance problems as gaps or needs. HRD specialists assume that performance problems are caused by something that is deficient either in the employee or on the organizational system in which she is working (Jacobs, 1988; Gilbert, 1978; Rummler & Brache, 1988; Herem, 1979; Harless, 1970). "A need can be defined as the difference between 'what is' and 'what should be'. To reduce the gap between poor performance ('what is') and improved performance ('what should be'), managers of HRD and their staff have to sort out and identify possible ways to solve the problem" (Gilley & Egglund, 1989, p. 13). The types of performance problems addressed by HRD are:

- lack of skill, knowledge, or attitude
- lack of tools in the environment
- lack of data in the environment
- lack of a person's capacity to perform some aspect of a job
- lack of data, instruments, and incentives within systems of the organization (Jacobs, 1988, p. 6).
HRD specialists are skilled at providing the following kinds of interventions to solve organizational problems:

• training
• job performance aids
• feedback systems
• employee selection
• organization redesign (Jacobs, 1988, p. 6).

**HRD Roles and Competencies**

Gilley and Eggland (1989) determined that there were four broad categories of HRD job roles. Those roles are: managers, learning specialists, instructional designers, and consultants. Further, Gilley and Eggland found that five primary competencies were necessary for HRD specialists. Those competencies are: needs assessment; program design, development, and evaluation; marketing of HRD programs; cost/benefit analyses, and facilitation of learning.

**Synthesis**

This study integrated the literature from commitment, quality, role theory, and HRD to provide a unique way of analyzing senior managers' quality management behaviors, subordinate managers' commitment to quality, and quality performance. Both the commitment and quality literatures
suggest the importance of senior managers' behaviors as antecedent to commitment and performance in subordinates. The role theory literature supported this view by describing the influential role of status in relationships. In addition, the commitment literature indicated that commitment to a specific organizational direction such as quality, and to a specific set of organizational objectives operationalized at the individual level, had not been empirically studied. Commitment studies at the level of a specific referent such as quality added a new perspective to the literature. The role theory view of status relationships provided an integrated context for looking at senior managers' quality management behaviors as antecedents to commitment to quality in subordinates. Finally, HRD provided the framework to look at using senior managers' quality management behaviors as a means to ensure commitment to ensure that quality occurs among subordinates.

In sum, the relationship of senior managers quality management behaviors to quality commitment and quality performance in subordinates could best be studied by integrating the complementary research in commitment, quality, role theory, and HRD. By combining the four areas, this study suggested a new method of performance analysis in organizations which has both theoretical and practical implications.
CHAPTER III

METHODOLOGY

This chapter describes the methodology used to address the research questions. The chapter is divided into six sections. The first section describes the research setting. The second section describes the participants. The third section describes the design of the study. The fourth section describes the instrumentation. The final section describes the research procedures.

Research Setting

The research setting was two divisions in two large, successful, financial-service organizations. Both organizations are nationally recognized and have offices and subsidiaries in various locations throughout the United States. The parent organizations have similar total dollar assets (approximately $30 billion).
The two divisions selected for this study met the following criteria desired by the researcher:

- Their structure included both senior and subordinate managers.
- Their senior managers had expressed a high concern for quality and had initiated quality programs focusing on continuous product and service improvement and customer service.
- They were service organizations.
- The divisions were among the largest discrete units in their organizations (Organization I: Division A ~ 1500 employees; Organization II: Division B ~ 1000 employees).

Participants

The participants in the study were senior managers and their subordinate managers. The organizations had similar title structures. In order of seniority, the majority of the titles in Organization I were grouped as follows: Director, Senior Vice President, Vice President, Officer. The titles in Organization II, also in order of seniority, were: Vice President, Director, Associate Vice President, and Officer. The reporting relationships, not the respondents' titles, determined whether they were categorized as "senior" or as
"subordinate" managers. Organization I's senior managers included the director and his or her direct reports; Organization II's senior managers included the vice president and his direct reports. All other managers were classified as "subordinate" for the purposes of this study. Together, the two divisions had nineteen senior managers and sixty-three subordinate managers yielding a total of eighty-two possible respondents. Seventeen of the nineteen senior managers were also subordinate managers. The target and the accessible populations for this study were the same because a census of senior managers and their direct reporting managers was used.

Sampling and selection error were controlled using the census method. Frame error was controlled by asking a senior manager in each of the two divisions to review and validate the final list of senior and subordinate managers immediately prior to the distribution of the data-collection instruments. All of the participants in the study were volunteers and were asked to sign a form (The Ohio State University Form # HS-027) indicating their consent to participate in the study. Data on personological variables such as age, gender, race, years of managerial experience, time in position, length of service, and level of education, were collected on the participants. For the protection of the participants, the research proposal, including the instruments and the conditions under which the instruments were to be administered, was reviewed and approved by the Human
Subjects' Review Committee at the Ohio State University. (Appendix A).

Design of the Study

The design of the study was descriptive survey research. The study examined the following four variables:

- senior managers' perception of their commitment to quality
- senior managers' perception of their quality management behaviors
- subordinate managers' perception of their commitment to quality
- subordinate managers' perception of their senior managers' quality management behaviors

The research questions for this study were answered by describing the variables and exploring the relationships between all of the independent and dependent variables. Since the relationships examined in this study were from a population, rather than from a sample, the statistical significance of relationships was not reported. Only correlation coefficients of .30 or greater were considered significant enough to be reported in this study. This decision rule was adopted because .30 conforms to Davis'
(1971) convention of "moderate" (p. 49), and because a correlation coefficient of .30 explains almost ten percent of the variance in the population. The independent and dependent variables in the study are listed below:

**Independent Variables**

- senior managers' perception of their commitment to quality
- senior managers' perception of their quality management behaviors
- subordinate managers' perception of their senior managers' quality management behaviors

**Dependent Variables**

- senior managers' perception of their quality management behaviors
- subordinate managers' perception of their senior managers' quality management behaviors
- subordinate managers' perception of their commitment to quality

In addition, the influence of both the senior and the subordinate managers' personological variables (extraneous variables) on the primary variables in this study also was investigated. The relationships between the variables which were explored as part of this study can be displayed as follows:
Figure 1

Relationships between the Variables in the Study

Instrumentation

Four instruments were designed for this study:
Commitment to Quality Questionnaire; Senior Managers' Quality Management Behaviors Questionnaire - Self-Assessment; Senior Managers' Quality Management Behaviors Questionnaire - Assessment by Subordinate Manager; and Personal Information Questionnaire. The first three of these instruments were fifteen-item, five-point Likert-type scales. The Personal Information Questionnaire had nine-items. Two of the items required the respondents to write their title and the name of their work unit. This information was not used for data analysis, but was used as additional validation of each of
the respondent's classification as a "senior" or as a "subordinate" manager. The remaining seven items required the respondents to select a response from among several developed by the researcher. The items on the Commitment to Quality Questionnaire are consistent with Porter et al's (1974) OCQ and with the affective commitment items on the Allen and Meyer (1990) organizational commitment scale. The items on the two quality management behaviors questionnaires were developed from the following nine dimensions deemed necessary for successful quality programs:

1. customer-supplier interface
2. employee involvement
3. employee development
4. standardized work practices
5. quality at the source
6. quality planning
7. performance measurement
8. reward and recognition systems
9. commitment to quality

The nine dimensions of quality management developed for this study represent a synthesis of Flynn et al's (1990) eight dimensions of quality management, Deming's (1986) fourteen points, the questions Garvin used in his 1986 exploratory study of quality in Japanese and U.S. air conditioning organizations, the variables identified by Locke and Latham (1988) as antecedent to goal commitment, the 1991 Malcolm
Baldridge National Quality Award Guidelines, the Forum Corporation's 1991 research study on quality management, the 1991 U.S. Government Accounting Office's report on quality management practices, and Jacobs and Jones' (1989) features of synchronous work groups. See Appendix B for a complete display of the nine dimensions, their definitions, and the related scale items on the two quality management behaviors questionnaires.

The Personal Information Questionnaire was developed following discussions with three experts who are faculty at the Ohio State University. The instruments were administered to senior managers and their subordinate managers as indicated in Table 1.

Research Procedures

Four steps were followed in this study. First, data were collected and analyzed on the content validity of the instruments during a field test. Second, data was collected and analyzed on the construct validity of the instruments during a field test. Third, information on the reliability of the instruments was collected and analyzed during a pilot test. Fourth, data were collected and analyzed to explore the relationships between the independent and dependent variables in the study.
Table 1

**Administration of Instruments**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Respondent(s)</th>
<th>Instrument Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment to Quality</td>
<td>Sr. &amp; Sub. Mgrs.</td>
<td>15-item, 5-point, Likert-type scale</td>
</tr>
<tr>
<td>Sr. Mgrs. QMB-Self</td>
<td>Sr. Mgrs.</td>
<td>15-item, 5-point Likert-type scale</td>
</tr>
<tr>
<td>Sr. Mgrs. QMB-Sub.Mgr.</td>
<td>Sub. Mgrs.</td>
<td>15-item, 5-point, Likert-type scale</td>
</tr>
<tr>
<td>Personal Info.</td>
<td>Sr. &amp; Sub. Mgrs.</td>
<td>9-item circle answer</td>
</tr>
<tr>
<td>OCQ</td>
<td>Sr. &amp; Sub. Mgrs.</td>
<td>15-item, 5-point, Likert-type scale</td>
</tr>
</tbody>
</table>
See Appendix C for examples of the questionnaires.

1. Determining Content Validity

The content validity of the three quality instruments refers to the extent to which the content of the instruments represents the construct of commitment to quality and the behaviors that demonstrate commitment to quality. The content validity of the Personal Information Questionnaire refers to the extent to which the instrument captures relevant demographic information on the respondents. The content validity for the four instruments designed for this study was assessed by a panel of experts in a field test. The panel of experts included three professors from the Ohio State University, one professor from Harvard University, one professor from the University of Minnesota, and a representative of senior management from the organizations which were used for this study. Responses were received from the professors from The Ohio State University and from the organizations participating in this study. As a result of the field test, the commitment to quality questionnaire was revised. The remaining instruments were not revised. (See Appendix D)

2. Determining Construct Validity

To test the validity of the Commitment to Quality Questionnaire, the Commitment to Quality Questionnaire was mailed with Porter et al's (1974) OCQ to six senior managers
and to twenty-three subordinate managers in two offices in Ohio's state government. These managers were selected because their levels matched those of the senior and subordinate managers in the research study, and because the senior administrator in the government had frequently emphasized his desire that state of Ohio agencies implement successful quality programs. All of the senior managers responded to the questionnaires. Of the twenty-three subordinate managers, one was no longer in the office being surveyed, and one did not respond. All of the respondents also returned signed consent forms. Using the mode scores, the typical respondent can be described as between forty-one and sixty-one years old, was male and white, had over sixteen years of managerial experience, had been in his position approximately one year, had been with the organization over ten years, and had either an undergraduate college degree, or a Ph.D. or its academic equivalent. The specific breakdown of the twenty-seven respondents on the personological variables is shown in Appendix E.

Construct validity for the Commitment to Quality Questionnaire was assessed by comparing its responses with responses to Porter et al's (1974) OCQ which has become the industry standard for measuring organizational commitment (Reichers, 1985). Convergent validity was considered appropriate because commitment to quality is commitment to an identified organizational goal. Convergent validity was
measured using Pearson product moment correlation. The correlation coefficient was .45. Davis (1971) defines this level of association as "moderate" (p.49). This result can be interpreted to mean that this study's Commitment to Quality Questionnaire and Porter et al's (1974) OCQ are both measuring similar types of commitments. However, there is a difference between organizational commitment and commitment to quality.

3. Testing for Reliability

The two Senior Managers' Quality Management Behaviors Questionnaires, the Personal Information Questionnaire, an internal solicitation memorandum, the requisite consent forms, and the instructions for completing the materials were mailed to the same twenty-nine senior managers and subordinate managers as mentioned at the same time as the Commitment to Quality Questionnaire and the OCQ. The six senior managers responded and the same twenty-one subordinate managers responded. Cronbach's alpha was used to determine the internal consistency of the instruments developed for this study. Prior to the pilot test, the researcher had determined that the scales to be used in this study were similar to those developed by Flynn et al (1990) for their measurement instruments testing a new quality management theory. Therefore, consistent with Flynn et al, the acceptable alpha for this study's instruments was also set at .60.
The alpha coefficients on the instruments developed for this study well exceeded the acceptable .60 for an exploratory study. Therefore, no changes were made in the instruments following the pilot test. Cronbach's alpha was also used to determine the stability of the reliability of the instruments in the final study. In the final study, seventy-eight senior and subordinate managers completed the Commitment to Quality Questionnaire. Eighteen, rather than nineteen, senior managers completed the Senior Managers' Quality Management Behaviors Questionnaire - Self-Assessment because one of the senior managers had no direct reports. Seventeen of the senior managers were also subordinate managers. Together with fifty-nine other managers, they completed the Quality Management Behaviors Questionnaire - Assessment by Subordinate Manager. The alpha coefficient results for both the pilot and the final study are reported in Table 2.

The results indicated that the instruments remained stable from the pilot study through the final study.

As part of the pilot test, the reliability of the OCQ was also measured, yielding an alpha of .91. Mowday et al (1979) have reported alpha ranging from .82 to .93 with a median of .90. Based on these values, the results of this study's reliability are consistent with past results.
Table 2

Cronbach's Alpha Coefficients for Pilot and Final Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Pilot Study α</th>
<th>N</th>
<th>Final Study α</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment to Quality</td>
<td>.81</td>
<td>27</td>
<td>.80</td>
<td>78</td>
</tr>
<tr>
<td>Sr. Mgrs. QMB-</td>
<td>.87</td>
<td>6</td>
<td>.73</td>
<td>18</td>
</tr>
<tr>
<td>Self</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sr. Mgrs. QMB-</td>
<td>.95</td>
<td>21</td>
<td>.94</td>
<td>76</td>
</tr>
<tr>
<td>Sub. Mgr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While a test-retest procedure is customary to determine the reliability of a demographic instrument, this procedure was not performed on the Personal Information Questionnaire because the state offices did not wish to receive and respond to the same instrument more than once.

The Commitment to Quality Questionnaire, the Senior Managers' Quality Management Behaviors Questionnaire - Self-Assessment, the Senior Managers' Quality Management Questionnaire- Assessment by Subordinate Manager, and the OCQ were fifteen-item, five-point Likert-type scales. The means and standard deviations for questionnaires administered in
the pilot study are reported below. The respondents' scores and the means and standard deviations for the questionnaires administered in the final study are reported in Appendix F.

Table 3
Means and Standard Deviations of the Instruments Administered in the Pilot Study

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Pilot Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Commitment to Quality</td>
<td>4.09</td>
</tr>
<tr>
<td>Sr. Mgrs. QMB - Self</td>
<td>4.32</td>
</tr>
<tr>
<td>Sr. Mgrs. QMB - Sub. Mgr.</td>
<td>3.58</td>
</tr>
<tr>
<td>OCQ</td>
<td>4.02</td>
</tr>
</tbody>
</table>

The data on Commitment to Quality Questionnaire indicate that the respondents' commitment to quality was above the midrange on the scale. The Senior Managers' Quality Management Behaviors Questionnaires from both administrations indicate that while the subordinate managers saw their senior managers as using the behaviors required for successful quality
management programs, the senior managers perceived their own behaviors more positively than did their subordinate managers.

Using the average scores, and converting this study's average and standard deviation to match Mowday et al's (1979) seven point Likert-type scale, the mean and standard deviation for the OCQ in this study are 5.5 and .98, respectively. Mowday et al's mean was 4.5 with a standard deviation of .90. The mean score on the OCQ in this study is higher, and the standard deviation greater than those which Mowday et al reported. There were 27 public sector respondents in this study, and 569 public sector respondents in the Mowday et al study. Mowday et al's respondents were primarily females in lower-level clerical and health-care related jobs (81%). The respondents in this study were primarily males who were in senior and middle-level managerial jobs.

Administering the Instruments

The four questionnaires and requisite consent forms were mailed to the respondents together with instructions for completing the materials. Cover memoranda signed by a senior manager in each of the two participating organizations highlighting the importance of the study, emphasizing confidentiality, and requesting participation were also sent to the respondents. One of the organization's materials were sent through the U.S. mail; the other organization's
materials were distributed through their internal mail distribution system in sealed envelopes prepared by the researcher. The respondents from both organizations returned their completed questionnaires and consent forms directly to the researcher through the U.S. mail. See Appendix G on page 123 for copies of the materials sent to the respondents with the questionnaires. The researcher telephoned those respondents who did not return their questionnaires by the deadline indicated in the instructions and asked that they complete and return their questionnaires. Questionnaires were sent to eighty-two managers. Nineteen senior managers (100%) returned their questionnaires. Of the sixty-three subordinate managers, fifty-nine (93.6%) returned their questionnaires, one chose not to participate, one was out of the country and unable to be contacted, and two did not respond. The seventy-eight useable questionnaires received by the researcher represented a 95.1% response rate. Seventeen of the nineteen senior managers were also subordinate managers. When these senior managers' were counted twice the responses increased from seventy-eight to ninety-five. The table below displays the number of respondents per category.
## Table 4

**Study Respondents**

<table>
<thead>
<tr>
<th>Type of Respondent</th>
<th>Real Number</th>
<th>Number by Type of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior managers</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Senior managers who are</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>also subordinate managers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subordinate managers</td>
<td>59</td>
<td>76</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>78</strong></td>
<td><strong>95</strong></td>
</tr>
</tbody>
</table>

The data collected on the primary variables investigated in this study were interval data. The results were analyzed using descriptive statistics, including means and standard deviations. Pearson product moment correlation was used to determine measures of association between variables. The personological variables were analyzed using Chi-square and Pearson product moment correlation. The Statistical Package for the Social Sciences (SPSS) was used to perform statistical analysis on the data received from the questionnaires.
CHAPTER IV

RESULTS

This chapter is divided into three sections. The first discusses the demographic information collected on the study's participants. The second section addresses each of the four research questions of the study. The final section presents additional data from the study.

Demographic Information

Data were collected on the age, race, gender, years of managerial experience, time in position, time in the organization, and level of education of the participants. Using the mode scores, the typical respondent can be described as between thirty-one and forty years old, was male and white, had between eleven and fifteen years of managerial experience, had been in his position between two and five years, had been with the organization between two and five years, and had an undergraduate college degree. The specific breakdown of the seventy-eight respondents on the personological variables is shown in the following tables:
Table 5
Age of Respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>Org. I</th>
<th></th>
<th>Org. II</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>20 to 30</td>
<td>3</td>
<td>5.9</td>
<td>1</td>
<td>3.7</td>
<td>4</td>
<td>5.1</td>
</tr>
<tr>
<td>31 to 40</td>
<td>33</td>
<td>64.7</td>
<td>10</td>
<td>37.0</td>
<td>43</td>
<td>55.1</td>
</tr>
<tr>
<td>41 to 50</td>
<td>9</td>
<td>17.6</td>
<td>13</td>
<td>48.1</td>
<td>22</td>
<td>28.2</td>
</tr>
<tr>
<td>51 to 60</td>
<td>6</td>
<td>11.8</td>
<td>3</td>
<td>11.1</td>
<td>9</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100</td>
<td>27</td>
<td>100</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 6
Gender of Respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>18</td>
<td>23.1</td>
</tr>
<tr>
<td>Male</td>
<td>60</td>
<td>76.9</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 7

Race of Respondents

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>3</td>
<td>3.8</td>
</tr>
<tr>
<td>White</td>
<td>73</td>
<td>93.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 8

Years of Respondents' Managerial Experience

<table>
<thead>
<tr>
<th>Years of Mgrl. Exp.</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5</td>
<td>8</td>
<td>10.3</td>
</tr>
<tr>
<td>6 to 10</td>
<td>24</td>
<td>30.8</td>
</tr>
<tr>
<td>11 to 15</td>
<td>26</td>
<td>33.3</td>
</tr>
<tr>
<td>Over 16</td>
<td>20</td>
<td>25.6</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 9

Length of Respondents' Time in Position

<table>
<thead>
<tr>
<th>Time</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 6 months</td>
<td>11</td>
<td>14.1</td>
</tr>
<tr>
<td>7 months to 1 year</td>
<td>24</td>
<td>30.8</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>41</td>
<td>52.6</td>
</tr>
<tr>
<td>6 to 10 years</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 10

Length of the Respondents' Time in the Organization

<table>
<thead>
<tr>
<th>Time</th>
<th>Org. I</th>
<th>Org. II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Under 6 months</td>
<td>1</td>
<td>2.0</td>
<td>-</td>
</tr>
<tr>
<td>7 months to 1 yr.</td>
<td>7</td>
<td>13.7</td>
<td>-</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>13</td>
<td>25.5</td>
<td>3</td>
</tr>
<tr>
<td>16 to 10 years</td>
<td>13</td>
<td>25.5</td>
<td>2</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>17</td>
<td>33.3</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100</td>
<td>27</td>
</tr>
</tbody>
</table>
Table 11

Level of Education of Study Respondents

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Some College</td>
<td>20</td>
<td>25.6</td>
</tr>
<tr>
<td>B.A.</td>
<td>41</td>
<td>52.6</td>
</tr>
<tr>
<td>M.A./M.B.A.</td>
<td>14</td>
<td>17.9</td>
</tr>
<tr>
<td>Ph.D./Advanced Prof.Degree</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>

Chi-square tests were run on each of the personological variables to determine whether the respondents from the two organizations could be treated as one group. The results of the Chi-square tests indicated that the two groups were different in age and in length of service in the organization, and were similar in terms of gender, race, years of managerial experience, time in current position, and level of education. Tables 12 through 18 present the Chi-square test results.
Table 12

Chi-square Results on Age by Group

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer’s V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.44</td>
<td>3</td>
<td>.329</td>
<td>.038</td>
</tr>
</tbody>
</table>

2 x 4 matrix

Table 13

Chi-square Results on Gender by Group

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer’s V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.59</td>
<td>1</td>
<td>.143</td>
<td>.208</td>
</tr>
</tbody>
</table>

2 x 2 matrix
Table 14

**Chi-square Results on Race by Group**

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer's V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.04</td>
<td>3</td>
<td>.228</td>
<td>.257</td>
</tr>
</tbody>
</table>

2 x 4 matrix

Table 15

**Chi-square Results on the Years of Managerial Experience by Group**

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer's V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.43</td>
<td>3</td>
<td>.176</td>
<td>.489</td>
</tr>
</tbody>
</table>

2 x 4 matrix
Table 16
**Chi-square Results on the Time in Current Position by Group**

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer's V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.41</td>
<td>3</td>
<td>.176</td>
<td>.493</td>
</tr>
</tbody>
</table>

2 x 4 matrix

Table 17
**Chi-square Results on the Time in Organization by Group**

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer's V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.20</td>
<td>4</td>
<td>.470</td>
<td>.002</td>
</tr>
</tbody>
</table>

2 x 5 matrix

Table 18
**Chi-square Results on the Level of Education by Group**

<table>
<thead>
<tr>
<th>Chi-square Value</th>
<th>DF</th>
<th>Cramer's V</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.07</td>
<td>4</td>
<td>.255</td>
<td>.280</td>
</tr>
</tbody>
</table>

2 x 5 matrix
The personological data have been combined for all of the personological variables with the exception of age and length of time in the organization for which the data were reported both separately and together.

Data were analyzed on the senior managers' individual scores and on the averages of their subordinate managers' clustered scores. $t$ tests on the mean dependent variable scores for all of the respondents in the study and for the subordinate manager clusters used in the study consistently indicated that $\mu_1$ in Organization I equalled $\mu_2$ in Organization II. Therefore, the data received from the two organizations participating in the study were reported as one set of combined data. See Appendix H presents results of the $t$ tests. Statistical significance was not question in this study because populations, not samples, were measured. Therefore, significance levels will not be reported.

Research Questions

**Question 1: What is the level of senior managers' commitment to quality?**

The level of senior managers' commitment to quality was answered by analyzing the responses of the study's nineteen senior managers on the Commitment to Quality Questionnaire.
The mean results are reported for the nineteen senior managers who participated in the study. The responses were as follows:

Table 19
Senior Managers' Commitment to Quality

<table>
<thead>
<tr>
<th>N</th>
<th>μ</th>
<th>σ</th>
<th>min.</th>
<th>max.</th>
<th>skew.</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>4.00</td>
<td>.391</td>
<td>2.93</td>
<td>4.53</td>
<td>-1.10</td>
</tr>
</tbody>
</table>

The Commitment to Quality Questionnaire was a five-point Likert-type scale designed to measure the single construct of commitment to quality. The five numbers on the scale were anchored by the following words:

1 = strongly disagree
2 = disagree
3 = undecided
4 = agree
5 = strongly agree

The senior managers' average response of 4.00 fell above the midrange of the scale. The results show that senior managers' level of commitment to quality was above average.
Question 2: What is the relationship between senior managers' commitment to quality and their perception of their quality management behaviors?

Pearson product moment correlation technique was used to measure the relationship between senior managers' commitment to quality and their perception of their quality management behaviors. A correlation of $r = .35$ was found between the two variables. The variables were operationalized in the Commitment to Quality Questionnaire and the Quality Management Behaviors Questionnaire - Self-Assessment. Similar to the Commitment to Quality Questionnaire, the quality management behaviors questionnaire was a five-point Likert-type scale and was anchored by the following words:

1 = never
2 = seldom
3 = about half of the time
4 = frequently
5 = always

The results show that there was only a moderate (Davis, 1971, p. 49) relationship between senior managers' commitment to quality and their perception of their quality management behaviors.
Question 3: What is the relationship between senior managers' perception of their quality management behaviors and their subordinate managers' perception of those behaviors?

Pearson product moment correlation technique was used to measure the degree of association between senior managers' perception of their quality management behaviors and their subordinate managers' perception of those behaviors. The questionnaires used for this correlation were the Senior Managers' Quality Management Behaviors Questionnaire - Self-Assessment and the Senior Managers' Quality Management Behaviors Questionnaire - Assessment by Subordinate Manager. Eighteen of the nineteen senior managers in the study had subordinate managers. The average scores of each of those eighteen senior managers was correlated with eighteen different subordinate score clusters representing the averages of each senior manager's subordinate managers. The subordinates managers' questionnaire was verbally anchored like the senior managers' questionnaire. The Pearson product moment correlation coefficient was $r = -.33$. The results show a negative relationship between senior managers' perception of their quality management behaviors and their subordinate managers' perceptions of those behaviors.
Question 4: What is the relationship between subordinate managers' perception of their senior managers' quality management behaviors and their own commitment to quality?

Pearson product moment correlation was used to explore the correlation between subordinate managers' commitment to quality and their perception of their managers quality management behaviors. The Commitment to Quality Questionnaire and to the Senior Managers' Quality Management Behaviors Questionnaire - Assessment by Subordinate Managers operationalized the two variables. The Pearson product moment correlation was calculated for the eighteen clusters of subordinate managers. The correlation was $r = .72$. The results show a very strong (Davis, 1971, p.49) relationship between subordinate managers' perception of their senior managers' quality management behaviors and their own commitment to quality.

Additional Data

Each of the personological variables was correlated with the respondents' average scores on the Commitment to Quality Questionnaire and on the two Quality Management Behaviors Questionnaires to determine whether the influence of any of the personological variables confounded the relationships indicated among the independent and dependent variables.
investigated in this study. The personological variables were dummy coded and correlated with the average scores on the dependent variable questionnaires using the Pearson product moment correlation. None of the correlations met the decision rule of significance for this study. Table 20 presents the results of the correlations.

The relationship between senior managers' commitment to quality and their subordinate managers' commitment to quality was also investigated. In addition, the relationship between senior managers' commitment to quality and the subordinate managers' perception of their senior managers' quality management behaviors was calculated. A Pearson product moment correlation was calculated. Neither correlation coefficients met the decision rule of importance for this study, $r = .30$. The relationship between senior managers' perception of their quality management behaviors and their subordinates' commitment to quality was also measured. The Pearson product moment correlation was $r = -.41$. Appendix I presents the Pearson product moment correlation results for the independent and dependent variables in the study.
Table 20

Correlations among the Personological Variables and the Dependent Variables in the Study

<table>
<thead>
<tr>
<th></th>
<th>AAVE</th>
<th>BAVE</th>
<th>CAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>.01</td>
<td>.22</td>
<td>.17</td>
</tr>
<tr>
<td>D2*</td>
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</tr>
<tr>
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<td>-.05</td>
<td>-</td>
<td>-.12</td>
</tr>
<tr>
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<td>-.01</td>
<td>-.04</td>
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<td>.01</td>
<td>-.25</td>
<td>-.04</td>
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<td>D8</td>
<td>-.18</td>
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<tr>
<td>D9</td>
<td>.02</td>
<td>-.05</td>
<td>-.12</td>
</tr>
</tbody>
</table>

D1 = Age
D2 = Gender
D3 = Race
D4 = Years of Managerial Experience
D7 = Time in Current Position
D8 = Time in Organization
D9 = Education
AAVE = Commitment to Quality
BAVE = Senior Managers' Perception of their Quality Management Behaviors
CAVE = Subordinate Managers' Perception of their Senior Managers' Quality Management Behaviors

* point biserial
CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This chapter is divided into three parts. The first part provides a summary of the results of the study. The second part discusses conclusions. The third part addresses the implications of the study.

Summary

The purpose of this study was to investigate the behaviors of senior managers that facilitate commitment to quality in subordinates. The following three questionnaires were developed to measure the relationships among the variables in this study: Commitment to Quality Questionnaire; Senior Managers' Quality Management Behaviors Questionnaire - Self-Assessment; and the Senior Managers' Quality Management Behaviors Questionnaire - Assessment by Subordinate Manager. Nineteen senior managers and fifty-nine subordinate managers responded to the questionnaires. This represented a 95.1% response rate. Data collected on the instruments indicated that they were valid and reliable.
The results from the research questions showed that the senior managers in the study scored above the midrange on the variable "commitment to quality." A moderate association was indicated between the senior managers' commitment to quality and their perception of their quality management behaviors. There was a moderate negative relationship between senior managers' perception of their quality management behaviors and their subordinate managers' perception of those behaviors. A very strong relationship was found between subordinate managers' perception of their senior managers' quality management behaviors and their own commitment to quality.

Additional data collected indicated that there was not a significant relationship between senior managers' commitment to quality and their subordinate managers' commitment to quality. Nor was the relationship between senior managers' commitment to quality and their subordinate managers' perception of their senior managers' quality management behaviors shown to be significant. There was a negative relationship between senior managers' perception of their quality management behaviors and their subordinates' commitment to quality. Finally, none of the personological variables were shown to have a significant, confounding relationship with the other variables in the study.
Conclusions

Many of the senior managers in the study populations had told the researcher that they were committed to quality prior to the study. Commitment to quality is socially acceptable at both of the organizations in the study. In addition, commitment to quality is generally socially acceptable due to the amount of current media emphasis linking the decline in U.S. productivity and sales to a lack of commitment to quality. Therefore, the senior managers' level of self-reported commitment to quality was expected.

As senior managers' commitment to quality increased there was a moderate increase in how they saw themselves using the quality management behaviors required of successful quality programs. These findings suggest that while senior managers may define themselves as committed to quality, they do not necessarily see themselves as using the behaviors that are required for successful quality improvement efforts. The moderate level of association between these two variables may indicate that the senior managers authentically feel committed to quality, or that they feel that they should be committed to quality. The fact that the questionnaire was entitled "Commitment to Quality Questionnaire" may have encouraged senior managers to try to provide responses that indicated above-average commitment to quality. The lack of a very strong association between the two variables, commitment
and behavior, may also indicate that senior managers do not possess a full understanding of what behaviors lead to successful quality improvement efforts. If such an understanding existed it could be expected that senior managers with a high level of commitment to quality would also see themselves as using the quality management behaviors indicated in the behaviors questionnaire, and vice versa. Another possible explanation for the moderate correlation is that senior managers feel committed to quality, but that the organizational systems in their organizations inhibit their behaving in a way that demonstrates that commitment. In addition, senior managers who are strongly committed to quality may be harder on themselves in evaluating their quality behavior than senior managers who are less committed to quality.

As the senior managers' perception of their quality management behaviors increased, their subordinate managers' perceptions of those same behaviors decreased, and vice versa. The results may support the commonly-held belief that individuals, in general, frequently do not see themselves as others' see them. Again, this result may also indicate that senior managers do not fully understand which behaviors are necessary to instill a commitment to quality in their subordinates.

As subordinate managers' perception of their senior managers' quality management behaviors increased, their own
commitment to quality also increased. The strength of the correlation between subordinate managers' perception of their senior managers' quality management behaviors and their own commitment to quality indicates the importance of senior managers' behaving in a way that can be positively perceived by their subordinates. The relationship shown here also strongly suggests that the nine dimensions of quality management developed for, and tested in, this study are appropriate behaviors for senior managers who wish to facilitate a commitment to quality in their subordinate managers. It is also important to note, however, that response bias, such as a halo type effect, may have influenced the subordinate managers' perceptions of their senior managers' behaviors.

The data suggest that senior managers must demonstrate their commitment to quality in such a way that it is positively perceived by their subordinate managers. This seems to be necessary for the senior managers' commitment to facilitate their subordinates' commitment to quality. Applying the nine dimensions of quality management suggested in this study appears to be the appropriate way for senior managers to demonstrate their commitment to quality and to facilitate a commitment to quality in their subordinates.

Prior research suggested the importance of senior managers' behaviors in influencing subordinates' commitments, but did not emphasize whose perception of those behaviors was
important. This study confirmed that the level of influence of senior managers' behaviors on their subordinates was directly related to how those behaviors are perceived by the subordinate managers.

The negative relationship between senior managers' perception of their quality management behaviors and their subordinate managers' commitment to quality, and the insignificant relationship between senior managers' commitment to quality and their subordinate managers' commitment to quality are counter-intuitive and should be tested further with additional larger populations to more fully understand their meaning.

Implications

Because this study was conducted at only two organizations, and because the respondents may have tried to provide socially acceptable responses, the implications that follow may not be fully generalizable. Nevertheless, the consistency of this study's results with prior research in commitment, quality, role theory, and HRD suggests that certain implications may be viable for other populations.

The results of the study suggest interventions where the following quality performance problems exist in organizations:
• Senior managers lack knowledge of quality management behaviors.

• Senior managers lack skill in using quality management behaviors with their subordinate managers.

• Senior managers lack feedback from their subordinates on their use of the quality management behaviors.

• Subordinate managers lack commitment to quality.

In organizations desiring successful quality programs, these performance problems indicate a gap between the "what is" and "what should be" (Gilley, 1989). They may result from deficiencies in knowledge, skill, data, and attitudes. The nature of the problems and their causes have clear implications for the HRD practitioner. The HRD professional's skills in needs assessment put her in a unique position to assess and analyze the causes of deficiencies in human performance. In addition, the HRD professional's skill in designing remedial interventions puts her in an ideal position to help senior managers, subordinate managers, and organizations realize successes in quality. Focusing on the quality performance problems which may exist in organizations, the following HRD interventions are suggested:

• Senior managers receive training on quality management behaviors.
Feedback systems are put in place to inform senior managers how their quality management behaviors are perceived by their subordinate managers.

Senior managers' quality management behaviors are put in place to facilitate commitment to quality in subordinate managers.

The relationships between the quality performance problems addressed in this study and possible HRD solutions is graphically presented in Table 21.

This study focused on the influence of senior managers' quality management behaviors on their subordinate managers' commitment to quality. While accepting that managers' behaviors impact subordinates' commitment and behaviors, it is important to recognize that the relationship between managers' behaviors and subordinates' commitment is only one relationship in a larger framework of organizational relationships. The commitment literature suggests that the following factors are also among those that relate to commitment: organizational climate (Angle & Perry, 1986; Eisenberger, Huntington, Hutchinson, & Sowa, 1986), professionalism (Bartol, 1979; Bateman & Strasser, 1984), opportunities to satisfy symbolic motivational states and needs (Brown, 1969; Hall, Schneider, & Nygren, 1970; Lee, 1971), social interaction, tenure, achievement, and
Table 21

**Quality Performance Problems and Solutions**

<table>
<thead>
<tr>
<th>Performance Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Managers</td>
<td></td>
</tr>
<tr>
<td>Lack of knowledge of quality management</td>
<td>Training: lectures, independent readings</td>
</tr>
<tr>
<td>behaviors</td>
<td></td>
</tr>
<tr>
<td>Lack of skill to use the quality management behaviors</td>
<td>Training: role-playing exercises</td>
</tr>
<tr>
<td>Lack of feedback on the use of quality management behaviors</td>
<td>Feedback Systems: Performance appraisals, coaching</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Subordinate Managers</td>
<td></td>
</tr>
<tr>
<td>Lack of commitment to quality</td>
<td>Senior managers use the quality management behaviors</td>
</tr>
</tbody>
</table>
advancement (Buchanan, 1974), personal characteristics (Fukami & Larson, 1984; Hall, Schneider, & Nygren, 1970; Morris & Sherman, 1981), challenge (Grusky, 1966), and situational factors such as others' goals, goal commitment, and performance (Hollenbeck & Klein, 1987). Because a relationship is assumed between commitment and performance (Egan, 1990; Kiesler & Sakumura, 1966; Kouzes & Posner, 1987; Locke & Latham, 1990), it can also be assumed that the factors listed above may also influence performance. The number of different factors which relate to individual and organizational performance suggest a new way of looking at performance in organizations. The factors which influence performance can be viewed as three interrelated components Those components are:

- a management component
- an organizational systems component
- a personal component

The management component focuses on the relationship between managers and subordinates and includes commitment, behavior and performance, the organizational systems component includes organizational goals, policies, and climate, and the personal component includes personal characteristics, employees' symbolic motivational states, and employees' needs. Managers' performance is not included in
the model because all managers, with the exception of the CEO, are also subordinates and their performance is included in the model. The model in Figure 2 displays the interaction of the factors that influence organizational performance.

This relationship displayed in the model should be tested with different populations, different levels of employees, and for quality and non-quality related goals. In this way, researchers could gain a more comprehensive understanding of performance in organizations and of the interdependent relationships among the multiple factors which influence performance.
Figure 2

Factors which Influence Performance
APPENDIX A

HUMAN SUBJECTS' REVIEW COMMITTEE FORM AND CONSENT FORM
BEHAVIORAL AND SOCIAL SCIENCES
HUMAN SUBJECTS REVIEW COMMITTEE
THE OHIO STATE UNIVERSITY

Research Involving Human Subjects

ACTION OF THE REVIEW COMMITTEE

With regard to the employment of human subjects in the proposed research protocol:

9180102 THE RELATIONSHIP BETWEEN SENIOR MANAGERS' COMMITMENT TO QUALITY, THEIR SUBORDINATE MANAGERS' COMMITMENT TO QUALITY, AND QUALITY PERFORMANCE, Ronald L. Jacobs, Nancy Lenthe Dowling, Educational Studies

THE BEHAVIORAL AND SOCIAL SCIENCES REVIEW COMMITTEE HAS TAKEN THE FOLLOWING ACTION:

____ APPROVED  _____ DISAPPROVED

____ APPROVED WITH CONDITIONS*  _____ WAIVER OF WRITTEN CONSENT GRANTED

* Conditions stated by the Committee have been met by the Investigator and, therefore, the protocol is APPROVED.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subjects Review Committee for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the Review Committee, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: June 28, 1991  
Signature: [Signature]
(Chairperson)

BS-0233 (Rev. 3/90)
APPENDIX B

NINE DIMENSIONS OF QUALITY MANAGEMENT
9 Dimensions Necessary for Successful Quality Programs, their Definitions, and Related Scale Items on the two Quality Management Behaviors Questionnaires

1. Customer-supplier interface

Developing mutually acceptable requirements for products and services between the people who supply those products and services and the people who receive them.

Questions: 2, 5

2. Employee involvement

Ensuring that employees at all levels in an organization use structured methods to contribute to the continuous improvement of processes, products, and services to meet customer requirements.

Questions: 3, 14

3. Employee development

Ensuring that employees at all levels in an organization have the opportunity to acquire the knowledge and skills to meet personal and organizational goals.

Question: 4, 13

4. Standardized work practices

Describing how employees do their jobs and how products and services move through the organization.

Question: 8

5. Quality at the source

Ensuring that employees use structured methods to troubleshoot the causes of errors at the point in the process at which they occur.

Question: 6
6. Quality planning

Developing strategic plans and organizational goals which focus on the continuous improvement of processes, products, and services to meet customer requirements.

Questions: 7, 9

7. Performance measurement

Using appropriate data to monitor how well an organization's products and services meet customer requirements.

Question: 10, 12

8. Reward and recognition systems

Providing incentives for employees who help improve products and services.

Question: 1, 11

9. Commitment to quality

Believing that continuous improvement is important for organizational success.

Question: 15
APPENDIX C

QUESTIONNAIRES
Commitment to Quality Questionnaire

Please review the following statements about quality, and then indicate the level of your agreement with each of them, using the following response categories:

1 = STRONGLY DISAGREE  4 = AGREE
2 = DISAGREE            5 = STRONGLY AGREE
3 = UNDECIDED

(Circle only one)

A1. I try hard to help our quality effort be successful.  1  2  3  4  5

A2. For more pay, I would take a position elsewhere even though managers there did not support quality.  1  2  3  4  5

A3. Our quality program's values support my personal value system.  1  2  3  4  5

A4. I feel proud to be a part of our quality program.  1  2  3  4  5

A5. I would move to a new position to be able to start a quality program.  1  2  3  4  5

A6. Our quality program just creates more work for employees.  1  2  3  4  5

A7. Implementing a quality program is the best way to ensure success in our business.  1  2  3  4  5
A8. Working in a division with a quality program brings out the best in me.

A9. Quality takes time away from my more important duties.

A10. I am very pleased that my division decided to implement a quality program.

A11. I tell friends outside this division that quality is good for employees.

A12. I would move to another division only if it had a quality program like ours.

A13. The introduction of our quality program has caused a lot of problems for employees.

A14. Quality is good for everyone.

A15. For a higher-status position, I would take a job elsewhere where there was no quality program.
SENIOR MANAGERS' 

Quality Management Behaviors Questionnaire

SELF-ASSESSMENT

Please indicate the degree to which the following statements apply to you since you have been a manager in your current work unit.

Please respond to the following statements, using the following scale:

1 = NEVER
2 = Seldom
3 = About half of the time
4 = Frequently
5 = Always

never  always
(circle only one)

B1. I recognize my employees whose results meet customer requirements.

1  2  3  4  5

B2. I ensure that my employees and their customers agree on product and service requirements.

1  2  3  4  5

B3. I ensure that my employees solve problems together.

1  2  3  4  5
B4. I ensure that employee development is part of our quality program.

B5. I ensure that my employees and their suppliers agree on product and service requirements.

B6. I ensure that my employees do not send errors to their customers.

B7. I ensure that my employees' goals emphasize quality-oriented outcomes.

B8. I ensure that my employees follow work procedures consistently.

B9. I ensure that a quality improvement program is included in our strategic plan.

B10. I ensure that comments from customers are used to evaluate quality.

B11. I compensate my employees for quality improvement efforts.

B12. I use statistical measures to help identify problems.
Bl3. I ensure that all of my employees are trained in quality improvement.

Bl4. I ensure that my employees have the opportunity to contribute suggestions for improvement.

Bl5. I ensure that my employees understand that commitment to a quality improvement process is important.
SENIOR MANAGERS’

Quality Management Behaviors Questionnaire

ASSESSMENT BY SUBORDINATE MANAGER

please indicate the degree to which your manager complies with the following statements.

Please respond to the following statements, using the following scale:

1 = NEVER  
2 = Seldom  
3 = About Half of the Time  
4 = Frequently  
5 = Always

never     always

(circle only one)

C1. My manager recognizes employees whose results meet customer requirements.

   1   2   3   4   5

C2. My manager ensures that employees and their customers agree on product and service requirements.

   1   2   3   4   5

C3. My manager ensures that employees solve problems together.

   1   2   3   4   5

C4. My manager ensures that employee development is part of our quality improvement program.

   1   2   3   4   5
C5. My manager ensures that employees and their suppliers agree on product and service requirements.

C6. My manager ensures that employees do not send errors to their customers.

C7. My manager ensures that employees' goals emphasize quality-oriented outcomes.

C8. My manager ensures that employees' follow work procedures consistently.

C9. My manager ensures that a quality improvement program is included in our strategic plan.

C10. My manager ensures that comments from customers are used to evaluate quality.

C11. My manager compensates employees for quality improvement efforts.

C12. My manager uses statistical measures to help identify problems.

C13. My manager ensures that all employees are trained in quality improvement.
C14. My manager ensures that employees have the opportunity to contribute suggestions for improvement.

C15. My manager ensures that employees understand that commitment to a quality improvement process is important.
**Personal Information Questionnaire**

Please respond to the following questions by circling the correct answer or by filling in the blank.

D1. Age
   1. 20-30
   2. 31-40
   3. 41-50
   4. 51-60
   5. 60-75

D2. Gender
   1. FEMALE
   2. MALE

D3. Race
   1. BLACK
   2. WHITE
   3. HISPANIC
   4. ASIAN
   5. OTHER

D4. Years of managerial experience (including experience in past positions and former organizations)
   1. UNDER 5
   2. 6 - 10
   3. 11 - 15
   4. OVER 16
D5. Current Title


D6. Name of your division/organizational unit


D7. Length of time in your current position

1. UNDER 6 MONTHS
2. 7 MONTHS - 1 YEAR
3. 2 - 5 YEARS
4. 6 - 10 YEARS
5. OVER 10 YEARS

D8. Length of time in the organization

1. UNDER 6 MONTHS
2. 7 MONTHS - 1 YEAR
3. 2 - 5 YEARS
4. 6 - 10 YEARS
5. OVER 10 YEARS

D9. Level of Education

1. HIGH SCHOOL
2. SOME COLLEGE
3. B.A.
4. M.A./M.B.A
5. Ph.D.
Porter, Steers, Mowday, and Boulian's Organizational Commitment Questionnaire (OCQ)

Listed below are a series of statements that represent possible feelings that individuals might have about the company or organization for which they work. With respect to your own feelings about the particular organization for which you are now working, please indicate the degree of your agreement or disagreement with each statement by circling one of the following five alternatives:

1 = STRONGLY DISAGREE  4 = AGREE
2 = DISAGREE           5 = STRONGLY AGREE
3 = UNDECIDED

(Circle only one)

E1. I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.

1 2 3 4 5

E2. I talk up this organization to my friends as a great organization to work for.

1 2 3 4 5

E3. I feel very little loyalty to this organization.

1 2 3 4 5

E4. I would accept almost any type of job assignment in order to keep working for this organization.

1 2 3 4 5
E5. I find that my values and the organization's values are very similar.

E6. I am proud to tell others that I am part of this organization.

E7. I could just as well be working for a different organization as long as the type of work was similar.

E8. The organization really inspires the very best in me in the way of job performance.

E9. It would take very little change in my present circumstances to cause me to leave this organization.

E10. I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.

E11. There's not too much to be gained by sticking with this organization indefinitely.

E12. Often, I find it difficult to agree with this organization's policies on important matters relating to its employees.

E13. I really care about the fate of this organization.
E14. For me this is the best of all possible organizations for which to work.

E15. Deciding to work for this organization was a definite mistake on my part.
APPENDIX D

CONTENT VALIDITY EXPERTS
The Experts Asked to Assess the Content Validity of the Study's Instruments

P. Michael Elvir, Bank One, Texas
David Garvin, Ph.D., Harvard University
Ronald L. Jacobs, Ph.D., The Ohio State University
Howard J. Klein, Ph.D., The Ohio State University
J. David McCracken, Ph.D., The Ohio State University
Roger G. Schroeder, Ph.D., University of Minnesota
Denis Stoddard, Ph.D., Nationwide Insurance
APPENDIX E

PERSONOLOGICAL VARIABLES: PILOT STUDY PARTICIPANTS
Table 22

**Age of Pilot Study Respondents**

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<thead>
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<th>Age</th>
<th>N</th>
<th>%</th>
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<td>31 to 40</td>
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<td>41 to 50</td>
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<td>51 to 60</td>
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Table 23

**Gender of Pilot Study Respondents**

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<tr>
<td>Male</td>
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<td>88.9</td>
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Table 24
Race of Pilot Study Respondents

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<th>%</th>
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<td>3.7</td>
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<tr>
<td>White</td>
<td>26</td>
<td>96.3</td>
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<td><strong>Total</strong></td>
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Table 25
Years of Managerial Experience of Pilot Study Respondents

<table>
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<tr>
<th>Years of Mgrl. Exp.</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Under 5</td>
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<td>11.1</td>
</tr>
<tr>
<td>6 to 10</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>11 to 15</td>
<td>6</td>
<td>22.2</td>
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<tr>
<td>Over 16</td>
<td>14</td>
<td>51.9</td>
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<tr>
<td><strong>Total</strong></td>
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### Table 26

**Length of Time in Position of Pilot Study Respondents**

<table>
<thead>
<tr>
<th>Time</th>
<th>N</th>
<th>%</th>
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<td>Under 6 months</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>7 months to 1 year</td>
<td>9</td>
<td>33.3</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>6 to 10 years</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>Over 10 years</td>
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<td>3.7</td>
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<tr>
<td><strong>Total</strong></td>
<td>27</td>
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</tr>
</tbody>
</table>

### Table 27

**Length of Time in the Organization of Pilot Study Respondents**

<table>
<thead>
<tr>
<th>Time</th>
<th>N</th>
<th>%</th>
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<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td>7 months to 1 year</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>2 to 5 years</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>6 to 10 years</td>
<td>8</td>
<td>29.6</td>
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<tr>
<td>Over 10 years</td>
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<td>33.3</td>
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<tr>
<td><strong>Total</strong></td>
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Table 28

**Level of Education of Pilot Study Respondents**

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<thead>
<tr>
<th>Level of Education</th>
<th>N</th>
<th>%</th>
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<tr>
<td>High School</td>
<td>4</td>
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<tr>
<td>Some College</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>B.A.</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>M.A./M.B.A.</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Ph.D./Advanced Prof. Degree</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>100</td>
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</table>
APPENDIX F

FINAL STUDY QUESTIONNAIRE SCORES, MEANS AND STANDARD DEVIATIONS
**RESPONDENTS' QUESTIONNAIRE SCORES**

<table>
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(Cases 30-40 and 83-89 represent the senior managers in the study; their case numbers are indented under the case numbers representing their subordinate managers.)
Table 29

Means and Standard Deviations on the Instruments Administered in the Final Study

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APPENDIX G

MATERIALS ACCOMPANYING QUESTIONNAIRES
INSTRUCTIONS FOR COMPLETING THE ENCLOSED MATERIALS

Questionnaires

The following four questionnaires have been enclosed for you to complete:

1. Commitment to Quality Questionnaire (yellow)

2. Senior Managers' Quality Management Behaviors Questionnaire - Self-Assessment [for you to assess your own quality management behaviors] (blue)

3. Senior Managers Quality Management Behaviors - Assessment by Subordinate Manager [for you to assess the quality management behaviors of your immediate manager] (green)

4. Personal Information Questionnaire (tan)

Please complete each of the four questionnaires and return them to Nancy Lenthe Dowling in the enclosed envelope NO LATER THAN DECEMBER 12, 1991.

Consent Form

In addition to the four questionnaires, a "Consent for Participation in Social and Behavioral Research" form (white) from the Ohio State University has been included. Please date and sign the form and request one of your colleagues to also sign it next to the blank marked "witness." This form should be returned to Ms. Dowling in the same envelope as your completed questionnaires.

If You Have Questions

If you have any questions about these questionnaires or about this study, please feel free to call Ms. Dowling at (614) 443-4535.
INSTRUCTIONS FOR COMPLETING THE ENCLOSED MATERIALS

Questionnaires

The following three questionnaires have been enclosed for you to complete:

1. Commitment to Quality Questionnaire (yellow)

2. Senior Managers Quality Management Behaviors - Assessment by Subordinate Manager (for you to assess the quality management behaviors of your immediate manager) (green)

3. Personal Information Questionnaire (tan)

Please complete each of the three questionnaires and return them to Nancy Lente the Dowling in the enclosed envelope NO LATER THAN DECEMBER 12, 1991.

Consent Form

In addition to the four questionnaires, a "Consent for Participation in Social and Behavioral Research" form (white) from the Ohio State University has been included. Please date and sign the form and request one of your colleagues to also sign it next to the blank marked "witness." This form should be returned to Ms. Dowling in the same envelope as your completed questionnaires.

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INSTRUCTIONS FOR COMPLETING THE ENCLOSED MATERIALS

Questionnaires

The following three questionnaires have been enclosed for you to complete:

1. Commitment to Quality Questionnaire (yellow)
2. Senior Managers Quality Management Behaviors - Self-Assessment (blue)
4. Personal Information Questionnaire (tan)

Please complete each of the three questionnaires and return them to Nancy Lenthe Dowling in the enclosed envelope NO LATER THAN DECEMBER 12, 1991.

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If you have any questions about these questionnaires or about this study, please feel free to call Ms. Dowling at (614) 443-4535.
APPENDIX H

T TEST RESULTS ON DEPENDENT VARIABLE SCORES
Table 30

*t Test Results on all of the Responses on the Commitment to Quality to Questionnaire*

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*t Test Results on all of the Senior Managers' Responses to the Quality Management Behaviors' Self-Assessment Questionnaire*

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Separate Variance Estimate

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Table 32

\textit{t Test Results on all of Subordinate Managers' Responses to the Senior Managers' Quality Management Behaviors - Assessment by Subordinate Manager Questionnaire}

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*T Test Results on all of the Senior Managers' Responses to the Commitment to Quality Questionnaire*

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**t Test Results on the Subordinate Manager Clusters’ Responses to the Commitment to Quality Questionnaire**

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**t Test Results on the Subordinate Manager Clusters' Responses to the Senior Managers' Quality Behaviors Questionnaire - Assessment by Subordinate Manager**

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APPENDIX I

PEARSON PRODUCT MOMENT CORRELATIONS
Table 36

**Pearson Product Moment Correlations**

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ASenior = Senior Managers' Commitment to Quality

BSenior = Senior Managers' Perception of their Quality Management Behaviors

ASub = Subordinate Manager Clusters' Commitment to Quality

CSub = Subordinate Manager Clusters' Perception of their Senior Managers' Quality Management Behaviors
LIST OF REFERENCES


The SPSS guide to data analysis for SPSSx. (1988). Chicago, IL: SPSS, Inc.


