

AN EMPIRICAL TEST OF MULTIPLE FOCI OF COMMITMENT  
IN A WORK TEAM ENVIRONMENT

by

**James Wallace Bishop**

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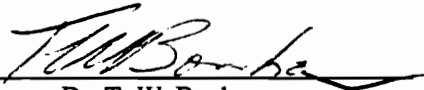
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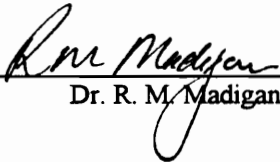
Dr. K. Dow Scott, Chairman



Dr. T. W. Bonham



Dr. A. T. Cobb



Dr. R. M. Madigan



Dr. L. M. Wolfe

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(ABSTRACT)

Organizational commitment has been recognized as a multiple foci phenomenon with two of the more important foci being the work team and the organization as a whole. That organizational and team commitment can vary differentially has been established. However, research has not attempted to determine the antecedents that may cause them to do so. At the same time, a number of constructs that have been explored as antecedents of organizational commitment have also been recognized as having particular salience in a self-directed work team environment. The purpose of this research is to test a model in which it has been hypothesized that certain antecedents will have differential effects on organizational commitment and team commitment. The model was developed employing constructs that are antecedents of commitment in the workplace and are of particular importance in a self-directed work team environment.

All but one of the hypotheses were supported indicating that factors that are important in a self-directed work team environment have differential effects on organizational and team commitment. The results are discussed in terms of both theory and praxis. Implications for practicing managers and future research are presented along with the limitations of the study.

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An Empirical Test of Multiple Commitment Foci  
in a Work Team Environment

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## **CHAPTER 1: INTRODUCTION**

### **OVERVIEW**

Organizational commitment is valued by employers because they believe and research indicates that it may reduce employee withdrawal behaviors such as turnover, tardiness, and absenteeism (Clegg, 1983; Mathieu & Zajac, 1990), increase job performance (Mathieu & Zajac, 1990; Mayer & Schoorman, 1992; Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989; Mowday, Porter, & Dubin, 1974; Porter, Crampon, & Smith, 1976), and lead to prosocial behaviors (Brief & Motowidlo, 1986; Mayer & Schoorman, 1992; O'Reilly & Chatman, 1986) which, in turn, enhance organizational competitiveness (Katz & Kahn, 1978; Mowday, Porter, & Steers, 1982; Williams & Anderson, 1991).

The study of organizational commitment has been refined by the notion that commitment in the work place is a multi-dimensional phenomenon (Becker, 1992; Becker & Billings, 1993; Morrow, 1983; Reichers, 1985). Morrow (1983) and Reichers (1985, 1986) proposed that the focus of commitment (i.e. to whom an employee is committed) is an important dimension in assessing worker attachment and called for clarity with respect to foci in commitment research.

In today's work place two important foci of commitment are an employee's work group or team and the employing organization (Becker, 1992; Becker & Billings, 1993; Hackman, 1987; Zaccaro & Dobbins, 1989). Bettenhausen (1991), in a review of the group literature, emphasized the importance of the study of commitment in work groups and pointed out that little has been done in terms of identifying the antecedents of commitment to the group.

Zaccaro and Dobbins (1989) demonstrated that some variables which previous research had identified as antecedents of organizational commitment have differential predictive capability for commitment to one's work group and commitment to the global organization. The data for their study were collected from a student Cadet Corps. However, in this case, according to Zaccaro and Dobbins the

groups were not primarily instrumental in the goal attainment for the global organization, nor was performance at the group level instrumental in the distribution of organizational rewards.

Becker (1992) showed that commitment to one's work group had an incremental impact on constructs that are typically regarded as outcomes of organizational commitment, such as prosocial behavior and intention to quit. His study, however, did not address the antecedents of commitment.

Becker and Billings (1993) contributed to the work on foci of commitment in two ways. First, they demonstrated that global commitment (defined as commitment to top management and the organization) and local commitment (defined as commitment to the work group and the group's supervisor) can vary differentially. Second, they showed that some variables, previously shown to be outcomes of organizational commitment, are differentially affected by the level of commitment to various foci. However, the issue of antecedents and their differential impact on commitment to various foci was not examined.

At the same time the literature indicates that some constructs that have been researched as antecedents of organizational commitment are also associated with factors that are of particular importance in a self-directed work team environment. These factors include (a) the level of perceived interdependence among tasks performed by team members, (b) the relationship between first level supervision and team members, and (c) the impact of role changes experienced by team members (Cummings, 1978; Glaser, 1992; Hackman, 1986; Manz & Sims, 1984, 1987; Mathieu & Zajac, 1990; Orsburn, Moran, Musselwhite, & Zenger, 1990; Saavedra, Earley, Van Dyne, 1993).

## **PURPOSE**

The question of which specific antecedents differentially impact commitment to the various foci and why they do so remains unexplored. Also unexplored are the differential impacts of commitment antecedents in an environment where the "work groups" are formal teams whose performance is instrumental to both the attainment of organizational goals and the distribution of organizational rewards.

Therefore, the purpose of this research is to test a model in which it is hypothesized that, in a self-directed work team environment, certain antecedents will have differential effects on organizational commitment and team commitment. A model was developed employing constructs that theoretical considerations indicate are antecedents of commitment in the work place and are of significant importance in a self-directed work team environment. Hypotheses were developed that posit the differential effects, that is the relative magnitude of the effects, that each antecedent has on organizational commitment and team commitment.

### **INDEPENDENT VARIABLES**

Theoretical grounds for the selection of antecedents that may differentially impact organizational commitment and team commitment can be developed by combining the following characteristics. First, previous work has produced theoretical bases for the existence of antecedent relationships between a number of attitudinal based constructs and commitment in the work place. Second, the literature indicates that several of these constructs are associated with significant differences in the self-directed work team environment relative to the traditional work setting and that these differences are likely to alter employee perceptions associated with these constructs.

When constructs that are antecedents of commitment are themselves effected by influences related to an important focus of commitment (in this case the work team), their subsequent effect on commitment may also be altered. Such alterations may manifest themselves in the form of differential impact upon the foci of commitment that are present and salient

Based on these grounds, the following constructs were selected as independent variables for this study (1) task interdependence, (2) satisfaction with supervision, (3) satisfaction with coworkers, (4) intersender role conflict, (5) resource-related role conflict. Specific but brief comments about each construct follows. Their relationships with organizational commitment and team commitment in a self-directed work team environment are more fully developed in Chapter 2.

## **Task interdependence**

Task interdependence can be defined as the extent to which individuals in the work group interact and depend on one another to accomplish their work (Campion, Medsker, & Higgs, 1993). It is an important feature of self-directed work teams (Hackman, 1986; Wall, Kemp, Jackson, & Clegg, 1986) and in many cases it is the driving force behind why teams are formed (Campion, et al., 1993). Research also suggests that high levels of perceived task interdependence lead to organizational commitment (Mathieu & Zajac, 1990).

## **Satisfaction with supervision**

Empirical results generally support satisfaction with supervision as an antecedent of organizational commitment (Brief & Aldag, 1980; Luthans, Baack, & Taylor, 1987). In terms of self-directed work teams, the relationship between first level supervision and employees undergoes a dramatic change when self-directed work teams are implemented. At the same time this relationship remains an important component in determining the success of teams (Glasser, 1992; Manz & Sims, 1984, 1987; Mills, 1983).

## **Satisfaction with coworkers**

A key feature of self-directed work teams is the high degree of self-determination in the management of their work. Numerous issues that were formerly decided by the first level supervisor are now decided by the team itself (Cummings, 1978; Hackman, 1986; Wall, et al., 1986). This means that intramember relations are of special importance when work teams are self-directed. According to Hackman (1986), positive affect among members is an important component of effective self-determination. A review of empirical studies suggests that satisfaction with coworkers has received modest support as an antecedent of organizational commitment.

## **Role conflict**

The presence of role conflict has been shown to have a negative effect on organizational commitment (Jackson & Schuler, 1985; Mathieu & Zajac, 1990). Morris and Snyder (1979) conceptualized role conflict as being composed of several sub-dimensions, including intersender conflict and resource-related conflict. Their empirical examination supported the hypothesis that both dimensions are negatively related to organizational commitment. Intersender conflict occurs when the focal person receives incompatible role expectations from two or more role senders (Morris & Snyder, 1979). Resource-related conflict occurs when there is a conflict between the time, resources, or capabilities and the defined role behavior of the focal person (Rizzo, House, & Lirtzman, 1970).

Since self-directed work teams manage many of their work processes themselves, the potential for intersender conflict originating within the team is increased. Also, the lack of sufficient resources, which leads to resource-related conflict (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), is often a major source of performance degradation of teams (Hackman, 1986).

## **ORGANIZATIONAL COMMITMENT AND TEAM COMMITMENT**

Because several definitions of organizational commitment pervade the literature (Mathieu & Zajac, 1990; Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989), the constructs "organizational commitment" and "team commitment" will be explicitly defined.

For the purposes of this study, organizational commitment and team commitment are defined as the relative strength of an individual's identification with and involvement in a particular organization (or team). Conceptually, these constructs can be characterized by at least three factors: (a) a strong belief in and acceptance of the organization's (or team's) goals and values; (b) a willingness to exert considerable effort on behalf of the organization (or team); and (c) a strong desire to maintain membership in the organization (or team) (Mowday, Porter, & Steers, 1982).

This definition was chosen for three primary reasons. First, it readily lends itself to describing commitment to both foci under consideration here (Reichers, 1985). Second, as perhaps the most popular definition of organizational commitment, it has been used in a variety of studies that have linked numerous antecedents to organizational commitment. Finally, it captures both an affective and exchange relationship between the individual and his or her focus of commitment. In this way commitment suggests an active relationship between the employee and both the organization and the team rather than mere passive loyalty (Mowday, Porter, & Steers, 1982).

It should be noted that team commitment should not be confused with group cohesion. The term "group cohesion" has the potential to confuse because a multitude of definitions for it appears in the literature (Mudrack, 1989). A succinct way to distinguish team commitment from group cohesion is given by Bettenhausen (1991), who points out that team commitment is defined as an individual level construct while group cohesion is, in general, defined as a group level construct.

## **WORK TEAM ENVIRONMENT**

In order to accomplish the stated purpose of this research, data will be collected in an environment characterized by self-directed, permanent work teams whose members are compensated under a team based incentive scheme. The teams are formally recognized as such by the organization and members perceive themselves as members of specific teams. Being self-directed means that teams control the pace of their work, distribute tasks within the group, and participate in the selection of new team members (Cummings, 1978; Hackman, 1986; Wall, et al., 1986).

### **Small number of commitment foci**

Even though team members may serve on task forces and various work, safety, and social committees, production tasks are performed exclusively with their permanent work teams. All efforts that

lead directly to increasing an individual's compensation are made in the context of the work team<sup>1</sup>. When teams are permanent and members work virtually exclusively with their teams, the number of possible foci of commitment is reduced. The use of a sample in which the number of possible foci of commitment is relatively small should reduce the possibility of confusion that might confound the results when employees are surveyed. For example, it is possible in some environments for an employee to serve on several work teams or committees and experience varying degrees of commitment to each (March & Simon, 1958; Salancik, 1977). In such cases, when asked about team commitment, the subject may not know which team to consider in formulating his or her answers and become confused as to how to respond. Unless clarification of this is possible and unless it is done, such confusion may contribute to response error and compromise the accuracy of the study.

Furthermore, the employees at this site are not represented by a union whose presence could possibly alter their commitment to either the company or the team (Angle & Perry, 1986; Dalton & Todor, 1982). Also, there are no temporary employees or outside contract employees on site whose presence could confuse alliances.

### **Alignment of team and organizational goals**

The use of a team based incentive serves to align the goals of the company with the goals of the team to the extent that achievement of goals valued by the company (i.e. high output) will have a positive effect on the income of the team members. Therefore, performance is instrumental to both the goal attainment of the organization and the distribution of organizational rewards. Since the acceptance of goals is part of the definition of commitment that is used here, commitment to either the organization or

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<sup>1</sup> An exception to this occurs when a team is "broken-up" due to absences among the members. In this case the team members are assigned as "fill-ins" on other teams. Since these assignments are done on an ad hoc basis and there is no pattern for a member of one team becoming a "regular" fill-in on another, there is little chance that a subject will become confused by what is meant by team commitment. Interviews with employees confirm this. Fill-ins are likely to experience little identification with the other team because of the temporary nature of the assignment (usually on at day-to-day basis).

the team may suffer if the goals of each are inherently conflicting and the acceptance of one interferes with the acceptance of the other. This is important because this study seeks to capture variance in team commitment and organizational commitment resulting from the antecedents salient to self-directed work teams rather than variance resulting from goal conflict.

Therefore, two important characteristics of this sample are that there is (1) a small number of commitment foci and (2) a large incentive for employees to keep team goals and organizational goals aligned. These characteristics should have the dual effect of (1) reducing the magnitude of the response error and (2) increasing the probability that any observed variance between team commitment and organizational commitment is the result of the specified antecedents.

### **SIGNIFICANCE**

This research has practical, theoretical, and methodological significance. From a practical standpoint, the results of this research should be of interest to managers who have implemented or intend to implement work teams. The chances of managers being involved with teams is increasing. A 1987 survey of the Fortune 1000 companies found that 28% had teams. A 1990 survey of the same companies showed that 47% of them used work teams, an increase of 68% in three years. Furthermore the use of teams is projected to increase even more (Lawler, Mohrman, & Ledford, 1992). By understanding the differential impact that antecedents have on organizational commitment and team commitment managers may apply specific interventions to alter an employee's "profile of commitment" (e.g. high team commitment and low organizational commitment or vice-versa, etc.) based upon the nature of the business and the tasks of the teams.

Since team commitment can lead to desired team and organizational related outcomes (Becker & Billings, 1993; Hackman, 1987; Scott & Townsend, 1994), a manager would want to ensure that commitment to the work team remains high (Becker & Billings, 1993; Zaccaro & Dobbins, 1989). Since withdrawal phenomena such as absenteeism, turnover, and intention to quit have been linked to

organizational commitment (Clegg, 1983; Cotton & Tuttle, 1986) and team commitment (Becker & Billings, 1993), the manager would want to be sure that both organizational commitment and team commitment are high.

Managers may also wish to consider interventions to increase organizational commitment in circumstances when team commitment is very high and organizational commitment is relatively low. Hackman (1987) points out that excessive team commitment can evolve into group ethnocentrism and can prompt dysfunctional competition and conflict between teams. Such circumstances may prompt teams to "act only in their own behalf, mindless of the welfare of ... the company as a whole" (Orsburn, et al., 1990: 124). Examples of such situations include a Marine Corps helicopter repair company, a sewing plant, and a circuit board factory.

In the case of the Marine Corps Company, one team was able to hoard repair parts, an activity that was instrumental in keeping the helicopters for which it was responsible air worthy. Meanwhile, other teams in the company were unable to effect repairs due to a spare parts "shortage". The net result was that one team achieved excellent results and ratings at the expense of the overall effectiveness of the company.<sup>2</sup> Paradoxically, the alignment of the team's goal and the organization's goal, to keep helicopters air worthy, is, on the surface at least, intact.

Members of a high performing sewing team in a major U.S. corporation stated that one of their "strategies" for increasing team output was to hoard certain supplies that were either in short supply or took significant time to acquire. This resulted in an increase in the team's output (and compensation) with unknown (and unconsidered) effects on the other teams and the company as a whole.<sup>3</sup> As before, the team's goal and the company's goal, high production, has the appearance of being aligned.

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<sup>2</sup> From an interview by the author with a former member of the U.S.M.C.

<sup>3</sup> From an interview by the author while doing qualitative research relative to the design of this study.

In the case of the circuit board factory, following the transition to self-directed work teams, preventive maintenance and routine cleaning chores on a chemical vat and drying oven were left undone because it was perceived that to do them would cut into the teams' productivity. The net effect was an overall decrease in the plant's productivity and disruptive friction between the teams (Orsburn, et al., 1990).

Based on the preceding discussion there are likely to be circumstances in which a manager would need to understand or may want to alter employees' commitment profiles. An increased understanding of the relationship between the various foci of commitment and their antecedents will enable managers to better plan and implement interventions designed to do this.

From a theoretical perspective, this study extends the work on multiple foci of employee commitment by developing and testing a model that differs from previous research in four ways. First, the model emphasizes the antecedent-foci relationship whereas prior research (except for Zaccaro & Dobbins, 1989) concentrated on the foci-outcome linkages. Second, the model is germane to an organizational context which is increasing in prevalence throughout industry. That is, organizational goal attainment and the distribution of organizational rewards is dependent upon the performance of formal work teams (contrast with Zaccaro & Dobbins, 1989). A successful test of this model will increase our understanding of why various antecedents lead to differential impacts on the foci under consideration and how team commitment and organizational commitment are developed.

Third, the sample will consist of members of self-directed, permanent work teams who are paid under a group incentive plan. The nature of the antecedent-commitment relationship with regards to a sample of this type has not been explored. It is important that a work force of this type be studied due to its functionality in a business setting and the fact that such teams form the basis for a significant number of work systems designs (Lawler, 1992; Ost, 1990).

Finally, the resulting model will represent a linkage between the organizational commitment literature and the work team literature through the identified antecedents which are significant in both. By

doing so it should provide a contribution to the framework which organizational researchers use to study these two important areas.

This research will also have methodological significance relative to the data analytic technique used to test the model. The use of structural equation modeling represents an advancement over previous data analytic techniques used in studies related to foci of commitment. Techniques such as Hotelling-Williams comparison of first order correlation coefficients (Zaccaro & Dobbins, 1989), hierarchical regression analysis (Becker, 1992; Zaccaro & Dobbins, 1989), and ANOVA (Becker, 1992; Becker & Billings, 1993) cannot, unlike structural equation modeling, examine a series of dependence relationships simultaneously nor can they be used with multiple dependent variables (Hair, Anderson, Tatham, & Black, 1992). To refrain from the use of models in which a dependent variable becomes an independent variable in subsequent dependence relationships and in which there may be multiple dependent variables would seriously hamper theory development and testing relative to issues like multiple foci of commitment. It is important that such models be developed and tested because they more accurately reflect the relationships as they occur in work settings such as the one from which this sample is drawn.

## **APPROACH**

In order to measure the constructs that comprise the model a single administration survey methodology is used. Survey methodology was chosen because all of the constructs in the model relate to the employees' attitudes. Though common method variance is a weakness of this type of research methodology, this design can be quite useful in providing a picture of how people feel about and view their jobs (Spector, 1995a; Spector, 1995b). Employees in a sewing plant were asked to respond to items that measure attitudes that the model asserts are determinants of organizational and/or team commitment. The survey was pilot-tested at a site similar to the one used in the study.

Due to its ability to examine a series of dependence relationships simultaneously as well as multiple dependent variables, structural equation modeling was used to test the model.

## **SUMMARY**

In summary, the purpose of this research is to test a theoretical model that has been developed to predict the levels of organizational commitment and team commitment for given levels of the identified antecedents.

This chapter has defined the focus of this study and shown how it makes practical, theoretical, and empirical contributions to our understanding of organizational commitment as a multiple foci phenomenon. It has demonstrated the importance of testing this model in a carefully selected work environment in order to not only provide a propitious test, but to achieve a high degree of parsimony and enhance the utility of the results.

Chapter 2 reviews and discusses the relevant literature on organizational commitment. The theoretical model will be supported and the appropriate research hypotheses will be presented. Chapter 3 presents the methodology used to test the model. The research setting will be described in greater detail, the variable measures will be described and their use justified, as will the statistical procedures used to test the hypotheses. Chapter 4 presents the empirical results of the study. Chapter 5 presents a discussion of the results, the implications for future research, as well as the limitations of the study. A reproduction of the survey scales are included in Appendix A.

## **CHAPTER 2: LITERATURE REVIEW**

### **OVERVIEW**

This chapter will be presented in five major parts. The first part will present an explanation of "field theory" and the "organizational horizon" both of which are important to the theoretical underpinnings of the hypotheses that appear later in this chapter. Much of the theoretical reasoning upon which the hypotheses are based refer to the proximal relationships between and among the variables. Field theory and the concept of the organizational horizon provide the necessary theoretical platform upon which the relevance of the assertions that are based on proximal issues stand.

The second section will review the literature on task interdependence as it relates to organizational commitment. The relationship that may exist between task interdependence and the two commitment foci, organization and team, in a self-directed work team environment, will be hypothesized. The third, fourth, and fifth sections will do likewise for satisfaction with supervision, satisfaction with coworkers, and role stress respectively.

### **FIELD THEORY AND THE ORGANIZATIONAL HORIZON**

Field theory, as described by Lewin (1943), is not a theory in the usual sense, but rather it is best characterized as a method that can be used to analyze causal relations and build scientific constructs. In addressing causal relations, field theory is concerned with general statements about the nature of the conditions of change. The domain in which conditions of change and changes themselves are of interest is called the "life space". An individual's life space, or "field", includes the person and the psychological environment as it exists for that person. The "boundary zone" of the life space encompasses part of the physical or social world which affect the state of the life space at a given time (Lewin, 1951).

The boundary zone, and therefore the contents of the life space (or condition of the field) is related to an individual's process of perception which, in turn, depends upon

1. the state of the inner part of the psychological field i.e., upon the character of the person, his motivation, his cognitive structure, his way of perceiving, etc. And on
2. the physical and social worlds that lie outside the person, but only to the degree that they stimulate physical receptors (Lewin, 1943: 307).

In short, according to Lewin (1943, 1951), an individual's field, or life space, is determined by what he or she is aware of in the external world and how he or she interprets it based on dispositional and experiential psychological determinants.

Though Lewin offers some rather cryptic descriptions of the components of a life space (Fine, 1986), the relation between perceived and objective reality may be described in the following way:

Life space consists of an individual's perceived situation, and not an objective description of the individual's environment. Lewin, thus, argued that people act according to the situation as they perceive and structure it. Although he does not deny the existence of objective reality, he argues that this objective reality does not directly affect human behavior (Fine, 1986: 25).

Field theory asserts that individuals' reactions to an environment are determined, to a great extent, by the proximity and the salience of the elements that are perceived (Mathieu & Hamel, 1989). More distal elements may have an indirect influence on individuals by shaping perception of more proximal elements. However, they may act as contextual influences and influence individual reactions directly, particularly if the aggregate features are especially salient to the individuals (Mathieu, 1991).

More proximal elements, on the other hand, are primarily responsible for individuals' reaction to the environment. However, proximal stimuli may have little influence on reaction if the salience is particularly low. The converse is the case with distal elements. Finally, field theory recognizes that individual differences, such as needs or personal dispositions, may bias the way in which individuals perceive the environment (Mathieu, 1991).

Field theory supports and provides a foundation for what Porter, Lawler, and Hackman (1975) refer to as an individual's "organizational horizon". An organizational horizon consists of the physical, social, and psychological impact that individuals experience as a result of their relationship with the organization. Most of the impact that an organization has on its members is derived jointly from the

people with whom the members associate in the course of their organizational activities and from the tasks that they perform.

Porter, Lawler, and Hackman (1975) observed that a particular individual's organizational horizon is limited and, in great measure, shaped by the proximity of the stimuli. They emphasize that even though a large number of people may be members of an organization, they experience the organization differently. Of singular importance are the proximal relationships, both functionally and physically, between the individuals and the determinants of their experience or perception. The "closer" the stimuli or determinant, the greater the impact it will have on the individual. Therefore, if we want to understand a person's behavior or attitude we must look at the people and things that the person comes in contact with and the tasks he or she performs and consider both the physical and functional proximity (Porter, Lawler, & Hackman, 1975).

Since different individuals will respond to the organization in potentially diverse ways, it can be said that it is not the objective features of the organization to which they respond, but to the perceived features. Hence there can never be a one-to-one correspondence between an objective structural feature and a particular type of behavior or attitude (Porter, Lawler, & Hackman, 1975).

For the purposes of this research, the central theoretical feature provided by field theory and the concept of the organizational horizon is that an individual's perception, upon which his or her attitudes and behavior are based, is determined by the proximal nature of the stimuli.

### **A current model**

The relationship between the proximal nature of stimuli and the idea of multiple foci of commitment may be the underlying principle behind some of the empirical results that have confounded researchers of organizational commitment. In the following sections the empirical results of studies that have attempted to establish an antecedent relationship between the independent variables of this study and organizational commitment will be examined. Based on this review, the conclusion that can be drawn

relative to some of these variables is that the results are mixed when consistent findings would be expected. These various results appear in Figure 1.

However, when these results are considered in light of multiple commitment foci and the effects of the proximal dimension on an individual's psychological attachment, it is reasonable to ask: Were tests for the effects of the proposed antecedents performed on all of the relevant proximal and salient foci? The implications of this question are that there may have been important entities that were objects of commitment that the researchers did not consider in their study (e.g. the work team). Such entities may have existed at the research site in some studies but not other and, to the degree they effected the respondents commitment, they may have effected the results. According to Ogilvie (1987) lack of clarity about the focus of commitment has resulted in inconsistent results when antecedent relationships have been tested.

Because of these mixed results, we are left with the possibility that the hypothesis holds in some cases and in other cases it does not. At this point a search for moderating or mediating variables could be undertaken. On the other hand, the organization and the team could be viewed as two different foci of commitment and hypotheses could be developed that describe the differential impact that various antecedents may have upon them.

### **The proposed model**

This latter course of action will be taken in the following sections. By way of preview, the models presented in Figures 2 and 3 are derived by modifying the model depicted in Figure 1 to show organizational commitment and team commitment as separate foci of commitment. Figure 2 shows the paths that are hypothesized to be more salient in bold. Figure 3 is the same as Figure 2 except that only the more salient paths are shown. In this way Figure 3 is a graphical presentation of the hypotheses to follow. In Figures 2 and 3 role conflict has been separated into two of its dimensions, intersender conflict

and resource-related conflict, and the existence of indirect effects through satisfaction with supervision and satisfaction with coworkers are shown.

Previous research on antecedents of commitment that pertain to this study will now be examined.

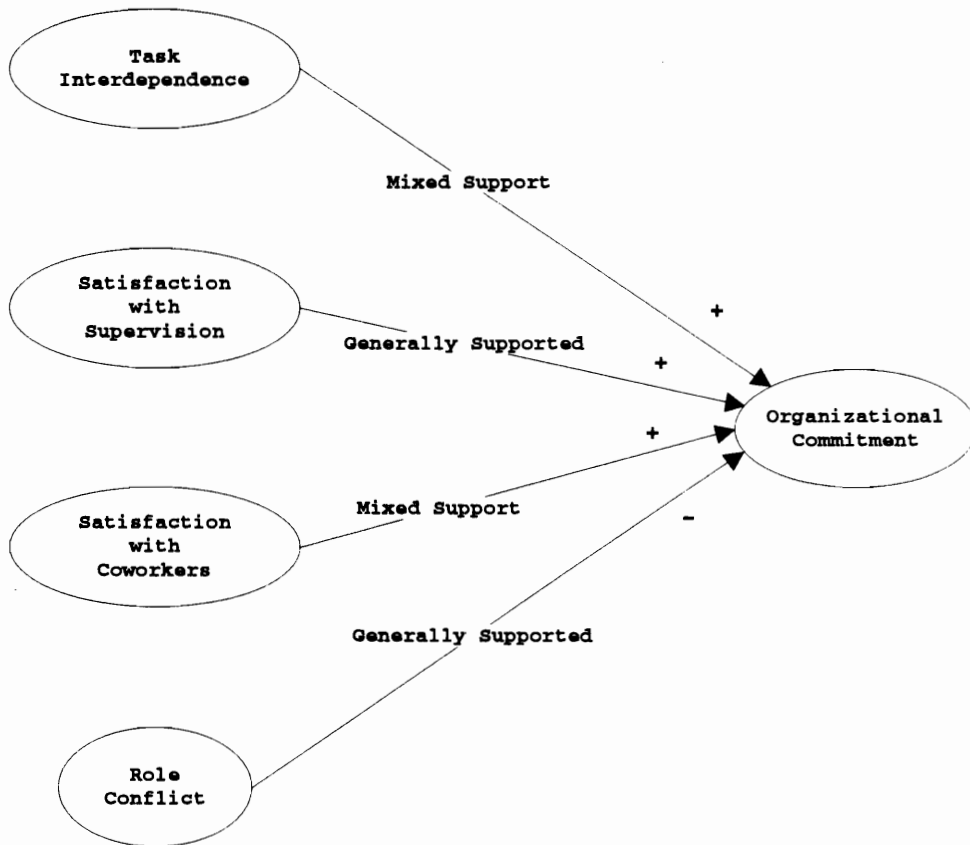
A summary of this literature review in tabular form appears in Appendix B.

## **TASK INTERDEPENDENCE**

### **Types of task interdependence**

Task interdependence has been classified in a number of ways. Perhaps the most renowned is by Thompson (1967). In his taxonomy task interdependence is classified as either sequential, reciprocal, or pooled. Sequential interdependence occurs when the order of the interdependence is specified. The products always starts at a certain station and proceeds to the end in a specific and invariant order. Reciprocal interdependence occurs when inputs and outputs are exchanged, that is, "the output of each become the inputs of the other" (Thompson, 1967: 55). Pooled interdependence occurs when everyone's output is combined. Thompson did not expect pooled interdependence to vary across jobs.

In another taxonomy, Kiggundu (1981) classified task interdependence as initiated, which is the extent to which work flows from one particular job to another, and received, which is the extent a particular job is affected by the work flow from other jobs.



**FIGURE 1**  
 Relationships among the independent variables  
 as suggested by the literature review

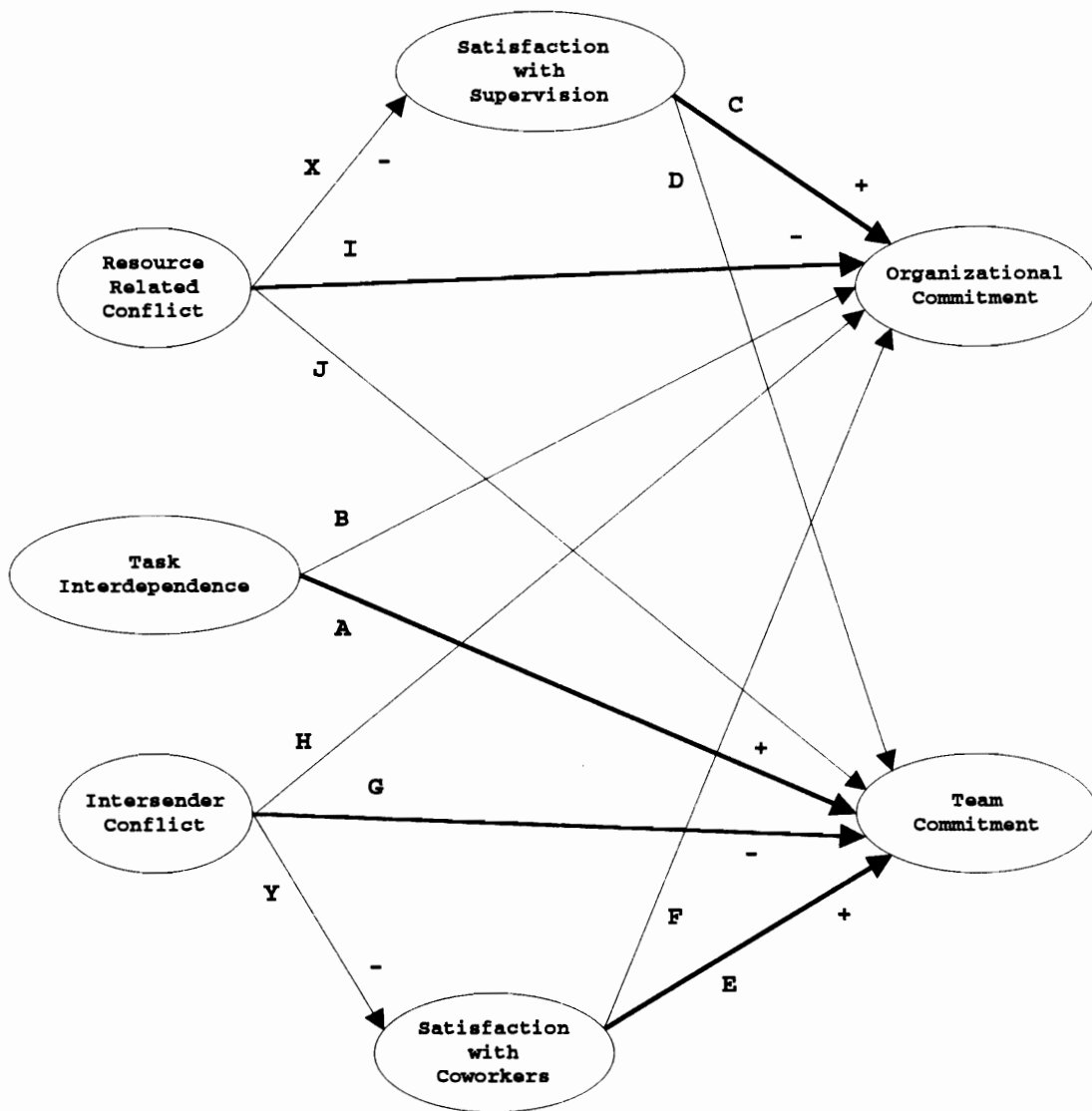


FIGURE 2  
Structural Model Showing Hypothesized Relationships

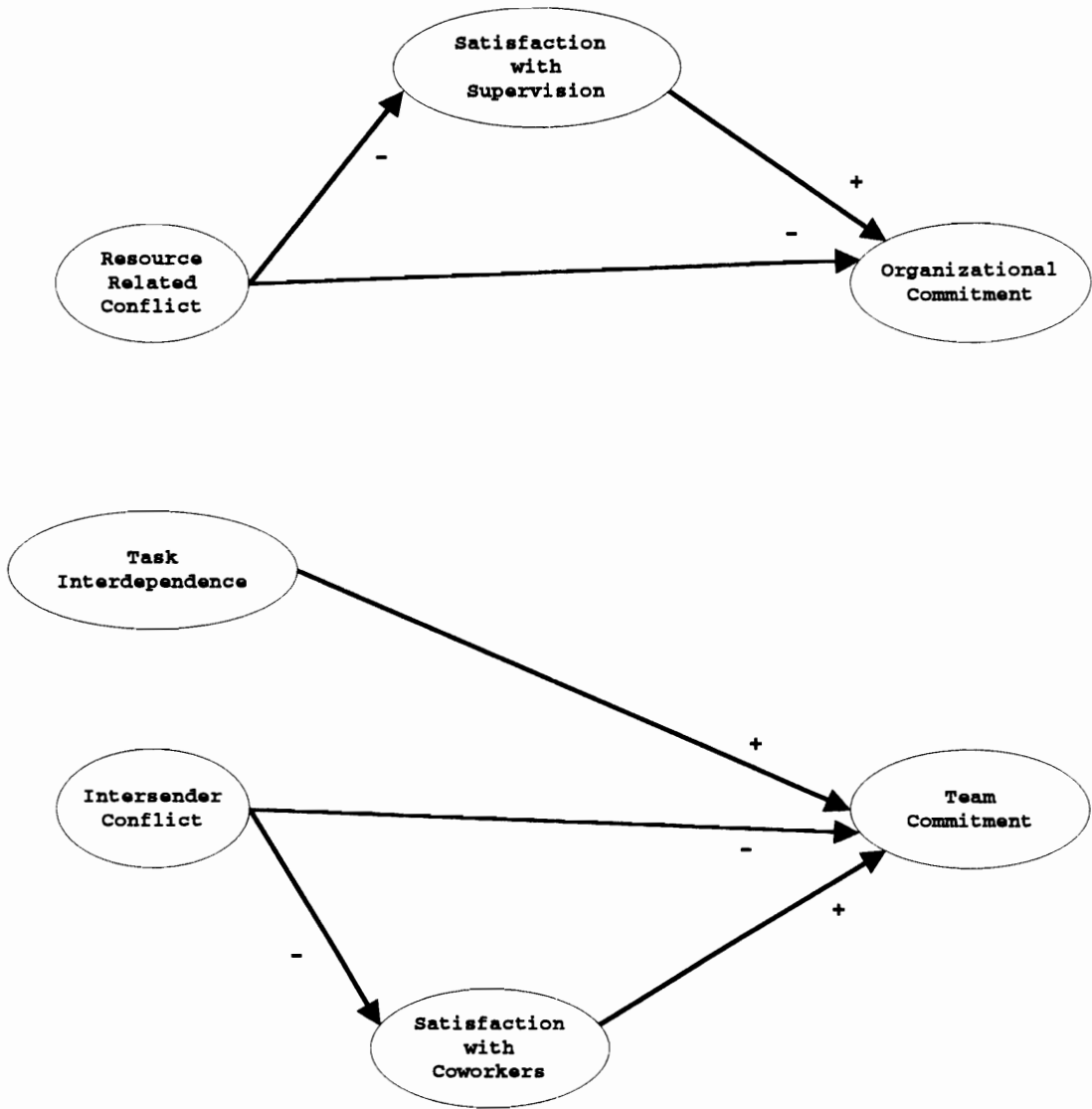


FIGURE 3  
Structural Model Showing The Most Salient Paths

### **Task interdependence and work teams**

Task interdependence, by definition, is a salient feature of self-directed work teams (Hackman, 1986; Wall, et al., 1986; Walton & Hackman, 1986). It is the defining characteristic of groups and in many cases it is the driving force behind why self-directed work teams are formed in the first place (Campion, Medsker, & Higgs, 1993). Task interdependence can be defined as the extent to which individuals in the work group interact and depend on one another to accomplish their work (Campion, Medsker, & Higgs, 1993; Kiggundu, 1981, 1983; Pearce & Gregersen, 1991)). This is the definition that will be used in this study. However, it is the level of task interdependence that is perceived by the individual that is of concern here.

### **Task interdependence and commitment**

A theoretical link between perceived task interdependence and organizational commitment has been hypothesized on the grounds that when task interdependence is perceived by workers they become more aware of the importance of their own contribution to the organization and to their immediate work group (Morris & Steers, 1980: 56). This heightened awareness may enhance employees' ego involvement and thereby increase their positive affect toward the organization (Mathieu & Zajac, 1990). As workers become aware of the importance of their contributions, they also become aware of expectations of others. Expectations of performance by others should enhance the employees' felt responsibility and hence their commitment (Salancik, 1977: 19).

### **Empirical studies**

To date, little research has been done on task interdependence as it influences attitudes toward the work team (Campion, Medsker, & Higgs, 1993) and only four studies appear in the literature that involve both task interdependence and organizational commitment (i.e., Jermier & Berkes, 1979; Morris & Steers, 1980; Parasuraman & Alutto, 1984; Steers & Spencer, 1977) and these reported mixed results. A meta-

analysis by Mathieu and Zajac (1990), using these four studies as their sample, found support for task interdependence as an antecedent of organizational commitment. These results should be viewed as tentative due to the small sample size of the meta-analysis.

Parasuraman and Alutto (1984) proposed and tested a path model for the purpose of examining sources and outcomes of stress in organizations. Their sample of 217 employees (38 managers and 179 blue collar workers) came from a food processing company. They hypothesized that organizational commitment would be influenced by task characteristics, of which task interdependence was one, and that this influence would have effects on organizational commitment both directly and indirectly through job stressors. They reported that the correlation between task interdependence and organizational commitment was not significant ( $r = 0.06$ ,  $N = 217$ , ns) and path analysis indicated that both the direct and indirect effects of task interdependence on organizational commitment were not significant (Beta = -.01).

The Parasuraman and Alutto (1984) study differs from this research in that organizational commitment was defined differently. Parasuraman and Alutto (1984) used calculative commitment as their definition of organizational commitment and they measured it accordingly with the scale developed by Alutto, Hrebiniak, and Alonso (1973). For this reason, the results should be interpreted with caution relative to this study (cf. Meyer, et al., 1989).

Steers and Spencer (1977) were concerned with the effects of perceived job scope and the need for achievement on organizational commitment. Perceived task interdependence was conceptualized as one of the components of job scope and was further decomposed into optional and required interaction. The results, based on a sample of managers in a manufacturing firm ( $N = 115$ ), indicated that increases in required interaction were positively related to organizational commitment ( $r = 0.23$ ,  $p < .05$ ) while the relationship between optional interaction and organizational commitment was not significant ( $r = -.05$ , ns). With the effects of need for achievement partialled out, neither optional interaction ( $r = -.02$ , ns) nor required interaction ( $r = 0.12$ , ns) was significant with organizational commitment. Task interdependence

within the context of work teams was not considered. Neither was the work team considered as a focus of commitment.

Jermier and Berkes (1979) used the perceived level of task interdependence as a situational factor to test the Path Goal Theory of Leadership. Their sample consisted of police officers ( $N = 158$ ), some of whom worked in a team environment (though not in a self-directed work team environment by the traditional definition) while others did not. Some of those not on a team interacted frequently with other police officers while others worked primarily alone. Hence the levels of perceived task interdependence ranged from low to high, but did not necessarily occur within the boundary of a team.

Task interdependence was dichotomized and one of their hypotheses was that, under conditions of high task interdependence, instrumental, supportive, and participative leader behavior will result in high levels of organizational commitment. Though task interdependence and organizational commitment were significantly correlated ( $r = 0.20, p < .05$ ), multivariate regression analysis did not support the hypothesis and task interdependence did not significantly contribute to the variance in organizational commitment when tested by multivariate regression ( $\text{Beta} = -.03, F = 0.17, \text{ns}$ ).

As before, the work team was not examined as a focus of commitment and though teams of some sort were involved, the environment, a police command bureaucracy, could not be described as a self-directed work team environment in the context of this study.

Morris and Steers (1980) observed that prior work on organizational commitment classified the antecedents into three major categories of variables which coincided with the typology developed by Steers (1977). These categories were personal characteristics, job-related characteristics, and work experiences. However, they pointed out that the possible effects of organizational structural variations on organizational commitment had not been satisfactorily explored. Morris and Steers also pointed out that a rich literature had been developed which indicated that organizational structural variations can affect job satisfaction and employee behavior. Since organizational structural variations had been shown to impact job satisfaction, Morris and Steers reasoned that they could also impact other work related attitudes,

specifically organizational commitment. Therefore, they proposed that a logical next step in the development of the organizational commitment literature would be to hypothesize and empirically test the notion that organizational structural variations would affect organizational commitment.

Morris and Steers (1980) noted that a previous study by Stevens, Beyer, and Trice (1978) had reported that structural variables were *not* related to commitment. Morris and Steers concluded that these finding appeared to be incongruent when considered along with the previously supported organizational structure-job satisfaction link.

Calling on the organizational horizon theory (Porter, Lawler, & Hackman, 1975) Morris and Steers then argued that structural elements were more likely to affect employees' attitudes and behaviors if such elements were relatively proximal to their work. They suggested that the Stevens, Beyer, and Trice (1978) study may not have been designed with this consideration in mind. Also, the Stevens, Beyer, and Trice (1978) study did not consider perceived task interdependence, a variable which, according to Morris and Steers, is highly proximal to the work of employees.

For their study, Morris and Steers (1980) chose variables, including task interdependence, that they felt were experienced by the subjects in a "comparatively direct and operationally meaningful way" (page 51) and thereby contributed to their subjective reality.

The subjects of their study were non-faculty employees of a university (N = 262). The reported results were that perceived task interdependence was positively correlated with organizational commitment ( $r = 0.25, p < .05$ ) and that variance in perceived task interdependence contributed significantly to the variance in organizational commitment (Beta = 0.27,  $p < .001$ ). Additionally, and in contradiction to the Stevens, Beyer, and Trice (1978) study, the organizational structural variables explained 20% of the variance in organizational commitment ( $R^2 = 0.220, df = 6, 225; \text{adjusted } R^2 = 0.20, F = 11.65, p < .001$ ).

Since felt responsibility leads to commitment (Salancik, 1977) studies that link task interdependence to felt responsibility will also be examined. Kiggundu (1983) found a positive

relationship between both initiated interdependence and received interdependence with felt responsibility for the outcome of the tasks of others. Pearce and Gregersen (1991) found that reciprocal interdependence has a positive effect on felt responsibility. Taken together, the results of these works support a linkage between task interdependence and organizational commitment through felt responsibility.

### **Summary of task interdependence studies**

It is difficult to draw concrete and generalizable conclusions about the relationship between perceived task interdependence and organizational commitment because the studies were so few, the results were mixed, and task interdependence and organizational commitment were not defined in a consistent manner across studies.

Therefore, it must be concluded that the empirical question of the relationship between perceived task interdependence and organizational commitment to which Morris and Steers (1980) alluded has yet to be satisfactorily tested (See Table B-1 in Appendix B and Figure 1). Of singular importance here is that the issue of clarity and proximity with respect to the foci of commitment was not addressed. A lack of clarity about the focus of commitment has been influential in producing some of the inconsistent findings about the antecedents of commitment (Ogilvie, 1987). In light of this, the occurrence of mixed results should not be unexpected.

### **Specifying the focus of commitment**

A theoretical case has been made for task interdependence leading to organizational commitment, however, empirical tests give mixed results. It is suggested here that the lack of consideration of the appropriate foci of commitment was responsible for these results in some cases. In this section such consideration will be made and an hypothesis will be posited regarding task interdependence and the foci of commitment under consideration.

In doing so, however, differentiation among types of task interdependence will not be made. This is for two reasons. First, the studies that linked task interdependence with felt responsibility, an important component with regards to the level of commitment an individual experiences (Salancik, 1977), reported positive results regardless of the type of task interdependence tested. Second, in the current sample it is possible that several types of interdependence may be perceived by the employees.

The most obvious type of task interdependence that would be noticeable is sequential interdependence. The product starts at a certain station and moves to the end in a specific and invariant order. However, this is from the perspective of observing the product flow. From the perspective of observing the members of the team, another type of interdependence may be detected. Based on available time, circumstances, need, and ability, team members may move about the team area assisting on other jobs, trading-off jobs, gathering supplies and/or materials, or performing other tasks that would serve to boost productivity and, concomitantly, the pay for all team members. This type of interaction, using Thompson's taxonomy, is best described as reciprocal interdependence.

Based on Kiggundu's classification, except for the first and last station, everyone on the team initiates work for others and receives work from others. Therefore, they would be in a position to perceive either initiated or received task interdependence, or both. At the same time those working at the first and last stations are free to move about as described above. In fact, industrial engineering studies estimate that the individual at the first station should have as much as 25% of their time free to gather supplies or move about and help others on the team. Therefore, rather than being concerned about the types of task interdependence that are perceived, only the level of task interdependence will be of concern.

The question being addressed here is whether the organization or the team is the more salient object for the commitment that results from the perception of task interdependence. Based on the following reasoning, it will be proposed here that it is the team.

First, individuals' performance affects their team more directly and to a greater degree than it affects the company. Team performance is monitored continuously and displayed electronically within the

view of every member of the team. Therefore, members are continuously aware of the consequences of their actions both in terms of product produced and in terms of how much each member is to be compensated. Because they are aware of the consequences of their actions, they should develop a greater sense of felt responsibility (Kiggundu, 1981, 1983; Pearce & Gregersen, 1991). Since these are consequences relative to the team, the team is the more proximal psychological factor.

Second, the individual works with, and comes in contact with, other team members on a daily basis and works in close physical proximity to them. This makes the team the more proximal physical factor.

Because the team is the more proximal entity, both physically and psychologically, the perception of high task interdependence will have a greater effect on the individual's felt responsibility, and hence commitment, to the team than to the company. This proposed relationship between task interdependence and the team and company as potential foci of commitment yields the following hypothesis: (See Figure 3.)

**Hypothesis 1:** Perceived task interdependence will be positively and more strongly related to team commitment than to organizational commitment.

## **SATISFACTION WITH SUPERVISION**

### **Organizational commitment & job satisfaction: The causal order**

The nature of a causal relationship between job satisfaction and organizational commitment has been a point of debate among researchers for a number of years. Mowday, Porter, and Steers (1982) and Porter, Steers, Mowday, and Boulian (1974) suggested that satisfaction represents an unstable and immediate affective response to the work environment when compared with organizational commitment. Organizational commitment, they proposed, was a slower developing, but more stable attitude. Therefore, they further proposed that job satisfaction would causally precede organizational commitment. Research regarding this ordering has produced mixed results. See Table B-2 in Appendix B.

Williams and Hazer (1986) concluded that satisfaction leads to commitment, while Bateman and Strasser (1984) and Vandenberg and Lance (1992) concluded the opposite, that commitment leads to satisfaction. Curry, Wakefield, Price, and Mueller (1986) reported no causal order in either direction. Farkas and Tetrick (1989) determined that commitment and satisfaction are either cyclically or reciprocally related. Mathieu (1991) reported that commitment and satisfaction are reciprocally related with the influence of satisfaction on commitment being the stronger.

Another report on this matter is dubious due to the nature of the evidence that is cited. Specifically, Dubinsky and Skinner (1984) claimed that "the preponderance of empirical evidence indicates that job satisfaction leads to organizational commitment" (page 42). However, of the four published studies that they cite for evidence, one, Oliver & Brief (1978), assumed the order and stated that strict causal statements of effect were not appropriate. The data that were analyzed by Oliver & Brief were in a theoretically defined order assumed from prior research. "However, strict causal statements of effect are not appropriate. At best, one would be permitted to analyze the data in a theoretically defined order of temporal precedence if care is taken in the interpretation of the finding" (p 57). The other three studies, Bedeian and Armenakis (1981), Porter and Steers (1973), and Rizzo, House, and Lirtzman (1970), though they studied various antecedents of job satisfaction, did not even mention organizational commitment.

It can be concluded then, that the debate over the causal order between organizational commitment and job satisfaction remains unresolved. It can be noted further that commitment to foci other than the global organization has not been considered in this debate.

Also not considered are the multiple facets of job satisfaction. These include satisfaction with (1) supervision, (2) coworkers, (3) pay, (4) the work itself, and (5) opportunity for promotion. Further, satisfaction with one of these components does not imply satisfaction with another. Therefore, just as levels of commitment to various foci are able to vary differentially, so too can satisfaction with various components of organizational life (e.g. satisfaction with supervision and satisfaction with coworkers). The inconsistent findings reported in the literature may have been abetted by not considering and examining

organizational commitment and job satisfaction as multiple foci and multiple dimensional phenomena, respectively.

These characteristics of organizational commitment and job satisfaction will be considered in this research in the discussion to follow. This direction is taken because commitment to the organization and the team may be influenced differently by the various sub-dimensions of satisfaction. Specifically, the function of the first level supervisor and his or her relationship with employees is quite different in a self-directed work team environment when compared to a traditional work setting (Cummings, 1978; Hackman, 1986; Manz & Sims, 1984, 1987; Wall, et al., 1986). This should have implications for the relationship between satisfaction with supervision and the foci of commitment under consideration here. This idea will be developed later in this section.

At the same time the nature of self-directed work teams implies that the relationships among team members differ from the relationships among employees in traditional work settings (Glaser, 1992; Hackman, 1986). This also should have implications for the relationship between satisfaction with coworkers and organizational commitment and team commitment. This idea will be developed in the section "Satisfaction with Coworkers".

### **The facilitator**

A key feature of self-directed work teams is the high degree of self-determination in the day-to-day management of work. Such things as the distribution of tasks, pace of work, and the scheduling of breaks that are now determined by the teams were formerly under the authority of first level supervisors (Cummings, 1978; Hackman, 1986; Wall, et al., 1986). One outcome of teams is that formal supervision and traditional supervisors must undergo a considerable transition in order to accommodate the increased scope of authority and responsibility taken on by the teams (Glaser, 1992; Manz & Sims, 1984, 1987; Mills, 1983). This transitional process represents an important issue during the implementation stage of

self-directed work teams. The ongoing relationships between teams and first level supervisors are also of great concern to organizations after self-directed work teams have been installed (Glaser, 1992).

The reduction in the amount and kind of direct supervision over employees has created concerns and confusion about control and accountability relative to the outcomes of the teams' tasks (Manz & Angle, 1986; Mills, 1983) and the roles, behaviors, and nature of the authority and responsibility of the external leader (Lawler, 1986; Manz & Sims, 1984).

The level of confusion over the new roles of external leaders can be illustrated by the plethora of names that have been applied to the new position. These include "coordinator," "consultant," "communicator," "unleader," and "facilitator" (Manz & Sims, 1987). The latter is the term that will be used in this study.

As facilitators attempt to take on their new and sometimes ambiguous responsibilities, team members develop expectations with regards to the relationship they will have with their facilitators and the nature of the interactions that will occur (Manz & Sims, 1984; 1987). The degree to which these expectations are met and the extent to which the interactions are satisfactory can have an important impact on the employees' attitudes toward the organization.

Indeed, effective leaders are those that "encourage the development of positive identification with the organization and create ... a degree of personal commitment and identification" (Katz & Kahn, 1978: 555). Such leaders do this by integrating what Katz and Kahn refer to as primary and secondary relationships within the organizational structure. Secondary relations are those interpersonal transactions that are required in order for employees to fulfill their organizational role requirements. These interpersonal transactions result, in great measure, from task interdependencies that are inherent in a self-directed work team environment (Morris & Sherman, 1981).

Primary relationships, on the other hand, tend to be person specific rather than universalistic, and are based on affect rather than role-related rationality. They tend to evolve from direct face-to-face interaction rather than organizationally defined connections (Katz & Kahn, 1978).

Effective leaders use both types of relationships to mediate organizational requirements with the needs of the person. By helping subordinates accomplish their role requirements through the successful completion of interdependent tasks, the supervisor is supporting and encouraging these interdependencies. This helps make secondary relationships a source of positive work experience for employees. At the same time, by maintaining an affective quality to his or her own interpersonal exchanges with subordinates, the supervisor causes these primary relationships to contribute to the employees' normative work experiences (Morris & Sherman, 1981). Effective leaders, then, act through both primary and secondary relationships to enhance the organization in the eyes of the employees and thereby to promote commitment (Katz & Kahn, 1978).

It is reasonable then, to ask team members how satisfied they are with their first level supervision, in this case, their facilitators. Even with the reduced contact between facilitators and team members, facilitators play important roles in terms of the teams for which they are responsible. For example, they help resolve conflicts (enhancing secondary relationships) and, when asked by the team, provide other forms of direction. They also make decisions that directly affect team members' pay. For example, relative to the sample used in this study, facilitators many times select or approve fill-ins for absent team members.

A fill-in that is poorly matched with the team can cause serious degradation in production that is counted toward team members' pay. Assigning fill-ins in a haphazard manner or ignoring teams' and fill-ins' mutual wishes could damage primary relations and lead to feelings of unfair and inequitable treatment. On the other hand, by attempting to match fill-ins with teams as effectively as possible or by considering team input in this decision, the facilitator will be giving fair and equitable treatment to the teams. The perception of such treatment should increase members' satisfaction with the facilitator and lead to reciprocal behavior and affect on the part of team members.

Facilitators are frequently called upon to make decisions regarding the disposition of input materials of questionable quality. The decision is not always a clear cut one. However, if the lot is rejected,

then the teams can work on materials that will produce goods for which they will receive full credit and pay. On the other hand, if the lot is not rejected and the questionable characteristics make working on it more difficult and time consuming then the team will suffer in terms of its pay which is based on the quantity of completed goods. The outcome of such a decision, and the manner in which it is derived and presented to the team, should influence the perception of fairness and thereby the level of satisfaction the members feel for the facilitator.

### **Norm of reciprocity**

It can be concluded then, that if these types of decisions are made by facilitators' in a way that is perceived to be fair and equitable by team members, then a positive effect on commitment should result (Angle & Perry, 1983; Williams, Podsakoff, & Huber, 1992). The mechanism that makes this connection is the norm of reciprocity, which

explains how perceived equitable treatment of the individual by the organization (which leads to a state of satisfaction) can culminate in a member's commitment to the organization (Angle & Perry, 1983: 128).

According to the norm of reciprocity, the recipient of benefits or consideration, including fair and equitable treatment, is morally obligated to recompense the donor (Gouldner, 1960). Incurring an obligation and subsequently repaying through reciprocation reinforces the exchange relationship that leads to commitment (Eisenberger, Fasolo, & Davis-LaMastro, 1990). The theory also has a "division of labor" component to it. This means that reciprocation will be made in goods and services that are of value to the object of the reciprocation and within the capability of the donor. In this case, fair and equitable treatment are exchanged for commitment and effort (Gouldner, 1960).

As this process continues, mutual dependence is achieved through a pattern of exchange (Gouldner, 1960). The recognition of a state of dependence implies the acceptance of increased responsibility. Commitment then is increased through the dual mechanism of increased responsibility

(Salancik, 1977) and the pattern of exchange (Mowday, Porter, & Steers, 1982). Furthermore, according to Gouldner (1960) the norm of reciprocity is one of the most ubiquitous norms in human society.

Therefore, the norm of reciprocity leads to the conclusion that team members will respond with positive affect and effort, both dimensions of organizational commitment, when they receive fair and equitable treatment from the facilitators. Furthermore, though the results are mixed, empirical research generally supports satisfaction with supervision as an antecedent of organizational commitment. See Table B-3 in Appendix B and Figure 1.

### **Empirical studies**

Many of the studies that involve job satisfaction and organizational commitment do not consider the various sub-dimensions of job satisfaction. Others report the zero-order correlation coefficient between various sub-dimensions of job satisfaction, including satisfaction with supervision, but report no results of tests for the predictive capability of satisfaction with supervision on organizational commitment.

However, the literature search did reveal four studies which used multiple regression to test the predictive capability of satisfaction with supervision on organizational commitment. In these studies organizational commitment was regressed on a set of independent variables that included satisfaction with supervision as a separate item (Brief & Aldag, 1980; DeCotiis & Summers, 1987; Luthans, Baack, & Taylor, 1987; Zaccaro & Dobbins, 1989). See Table B-3 in Appendix B.

Brief and Aldag (1980) tested a sample of nurses ( $N = 130$ ) and found that satisfaction with supervision was a significant predictor of organizational commitment ( $B = 0.191$ ,  $F = 2.34$ ,  $p < .05$ ). The equation created from this sample, termed the "screening sample", was then cross validated in a "calibration sample" ( $N = 131$ ). The correlation between the scores predicted by the equation and the actual scores of the subjects in the "calibration sample" was 0.42 ( $p < .001$ ). This correlation is analogous to the multiple of the multiple correlation of the screening sample ( $R^2 = 0.43$ ). This indicated that "an

exceedingly small amount of shrinkage occurred between the  $R^2$  of the screening sample and the  $R^2$  of the calibration sample" (p 216.).

Brief and Aldag (1980) then concluded from the statistical evidence that the regression equation developed from the screening sample could be used to make future predictions. This conclusion includes the notion that satisfaction with supervision is a predictor of organizational commitment.

Luthans, Baack, and Taylor (1987) hypothesized that satisfaction with supervision is an antecedent of organizational commitment. Their reasoning was based on the theory of Porter, Crampon, and Smith (1976) which holds that job satisfaction leads to organizational commitment. Luthans, Baack, and Taylor reasoned that employee satisfaction with supervision should be an antecedent to commitment since satisfaction with supervision was a component of overall job satisfaction. Even though the empirical results supported their hypothesis ( $r = 0.20$ ,  $p < .01$ ;  $\Delta R^2 = 0.027$ ,  $F = 13.39$ ,  $p < .001$ ) their deductive reasoning may not be correct since the causal relationship between overall job satisfaction and organizational commitment is still unresolved (See previous section, "Organizational commitment and job satisfaction: The causal order").

DeCotiis and Summers (1987) found that, even though satisfaction with supervision was positively correlated with organizational commitment ( $r = 0.41$ ,  $p < .001$ ,  $N = 367$ ), stepwise multiple regression failed to support the notion that satisfaction with supervision contributed to the variance of organizational commitment. This result differed from those found in the previous two studies. Though such an outcome could certainly occur by chance, another explanation may be in the way that they defined organizational commitment.

Their definition of organizational commitment, though similar to the one used here (See Mowday, Porter, & Steers, 1982), is more limited. It does not include the notion of exchange, in fact, it states that organizational commitment is considered "apart from any personal instrumentalities that may attend [the employees] contribution" (p. 448). The notion of exchange is included in the definition of organizational commitment used in the other studies reviewed in this section and in this study. As will be discussed later

in this section, the notion of an exchange relationship is an important component linking satisfaction with supervision with organizational commitment. Based on this reasoning in light of the restricted definition employed by DeCotiis and Summers, their results are not so surprising.

To date, there is only one study that addresses the question that is pertinent to this research: What are the relative effects on team commitment and organizational commitment of employee perceptions of the external supervisor?

Zaccaro and Dobbins (1989) found that satisfaction with supervision was correlated with both team commitment ( $r = 0.37, p < .01$ ) and organizational commitment ( $r = 0.23, p < .01$ ). Also, as they had hypothesized, correlation with team commitment was significantly greater than the correlation with organizational commitment (Hotelling-Williams  $Z = 2.02, p < .05$ ). However, subsequent hierarchical regression analysis indicated that satisfaction with supervision explained insignificant amounts of incremental variance in both organizational commitment and team commitment.

The sample used in their study, however, consisted of squadrons ("teams") within a military corps of cadets ("company") at a large Southeastern university ( $N = 203$ ). Thus it differs from the sample used in this study along three important dimensions. First, performance of the teams, or squadrons, at the group level, was not instrumental in the achievement of overall organizational goals. Second, the distribution of organizational rewards was not related to team performance. Third, squadron leaders more closely resembled traditional supervisors than they did facilitators of self-directed work teams. Each squadron leader was closely and exclusively associated with a specific squadron, thus forming a one-to-one leader-group relationship. This meant that the squadron members were the only recipients of the squadron leader's group related actions. The squadron leader not only disseminated information to the group from the corps leadership, but acted as an advocate for the squadron up the chain of command.

In short, in the Zaccaro and Dobbins (1989) study, the leaders were closely and exclusively associated with one specific group and were required to behave in such a way that numerous activities were performed on its behalf. It is not surprising then that the perceptions of satisfaction with supervision

were more highly correlated with team commitment than with organizational commitment. A theoretical explanation for this is that the proximal relationship between the squadron leader and the group caused the members to perceive the leader as a representative of the group more than a representative of the corps. This, in turn, caused the affect associated with the leader's behavior to have a greater influence on the affective attachments members had for the group than those they had for the organization.

In addition to the studies that directly tested the capability of satisfaction with supervision to predict organization commitment, thirteen studies reported zero-order correlation coefficients between the two variables; all were positive and significant. A summary is presented in Table B-4 in Appendix B.

#### **A summary of the satisfaction with supervision - organizational commitment link**

Taking the evidence in its entirety, it is concluded that satisfaction with supervision is positively related to organizational commitment and that its role as an antecedent of organizational commitment is generally supported. In summary, four studies used regression to test satisfaction with supervision as a predictor of organizational commitment. In two of the four cases the results were positive and significant. In one of the two studies that failed to support satisfaction with supervision as an antecedent of organizational commitment (i.e. DeCotiis & Summers, 1987), the non-significant findings can be reasonably questioned by the way organizational commitment was defined and the proximity of the supervision. In the other (Zaccaro & Dobbins, 1989), the nature of the sample and the relationship between the supervisor and the group members may have resulted in the non-significant findings.

#### **Team commitment versus organizational commitment**

As mentioned earlier, only Zaccaro and Dobbins (1989) have addressed the satisfaction with supervision issue that is pertinent to this study. However, their conclusion is exactly opposite of what will be hypothesized here. Zaccaro and Dobbins (1989) concluded that satisfaction with supervision is more strongly related to team commitment than to organizational commitment. In this study it will be

hypothesized that satisfaction with supervision will be more closely related to organizational commitment than to team commitment.

The reasons behind this hypothesized difference have to do with differences in the team members' relationship with their supervision in the respective samples. First, as mentioned above, in the Zaccaro and Dobbins (1989) sample, each "supervisor" (squadron leader) is associated exclusively with one "team" (squadron). In the sample used in this study, a facilitator is responsible for ten teams, and is not exclusively associated with any one of them. Second, in the military organization sampled by Zaccaro and Dobbins (1989) it is important that a squadron establish a close working relationship with the squadron leader. In the sample used in this study, great emphasis is placed on teams developing the ability to work with minimum interaction with the facilitator. Indeed, in the self-directed work team environment, it is intended that many of the functions of traditional supervisors will be replaced by a combination of the nature of the task itself and the actions of team members (Cummings, 1978; Hackman, 1986, Wall, et al., 1986).

Third, the facilitator is not part of the team and, like a traditional supervisor, administers, enforces and often explains company policies. In this way the facilitator conforms to Ogilvie's assertion that "the supervisor is a representative of the company to many employees and is often viewed as an extension of it" (1987: 341). Also, members of a given team are compensated equally based on team output. The facilitator does not participate with them in this outcome.

The squadron leader, on the other hand, is part of the unit as well as the leader of it. Like the facilitator, it is the squadron leader's duty to administer, enforce, and explain organizational policy. Unlike the facilitator, the squadron leader, by being part of the team, is more directly affected by organizational policies.

For these reasons, it is reasonable that, in the eyes of the respective team members, a squadron leader would be perceived more proximal to the team while a facilitator would be perceived as more proximal to the organization.

In summary, facilitators (1) are not part of the team, (2) are not compensated with the team, (3) do not interact exclusively with a single team, (4) spend little time with the team, and (5) are working with the objective of making teams, to the degree possible, independent of them. Therefore, they will be perceived as more proximal to the company than to the team.

Yet at the same time, the relationships between facilitators and team members remain of significant importance (Glaser, 1992; Manz & Angle, 1986; Manz & Sims, 1984, 1987). This latter point is particularly salient because the relationship between the facilitator and the team is instrumental in establishing and continuing the mutually beneficial and reciprocally based exchange relationship between the team and the company. This salience is derived from the fact that the facilitator is the focal point to which teams turn when decisions must be made that effect their production (and hence their pay) and when company provided resources are lacking.

Therefore, based on the norm of reciprocity as discussed previously and the proximal relationships among the facilitator, team members, and the company, the following hypothesis will hold. (See Figure 3.)

**Hypothesis 2:** Satisfaction with supervision will be positively and more strongly related to organizational commitment than to team commitment.

## **SATISFACTION WITH COWORKERS**

In a self-directed work team environment teams take on much of the responsibility formerly ascribed to formal supervisors. Therefore team members must, like their former supervisors-turned-facilitators, undergo a considerable transition in terms of their role requirements (Cummings, 1978; Hackman, 1986; Orsburn, et al. 1990; Wall, et al. 1986). The degree to which this transition is successful will be a determining factor of the effectiveness with which the team is able to perform. In order to make this transition successfully, members must learn how to work together to overcome conflicts and thereby "promote both group creativity and member satisfaction" (Hackman, 1986: 170).

Following Hackman's lead that satisfaction is an outcome of a successful transition, it is reasonable to inquire about how satisfied individuals are with their teammates. Since satisfaction with coworkers has been shown to be related to organizational commitment, the question pertinent to this research is: What are the relative effects of this phenomenon on team commitment and organizational commitment?

### **Empirical studies**

Many of the same studies that examined the relationship between organizational commitment and satisfaction with supervision also examined the relationship between organizational commitment and satisfaction with coworkers. Of the four studies that examined the predictive capability of satisfaction with supervision on organizational commitment, three of them (Brief & Aldag, 1980; DeCotiis & Summers, 1987; Zaccaro & Dobbins, 1989) also performed the same test for satisfaction with coworkers. The results of the statistical tests were the same except that DeCotiis and Summers (1987) found support for satisfaction with coworkers as a predictor of organizational commitment whereas they found no such support for satisfaction with supervision. See Table B-5 in Appendix B.

The reason for this difference may exist in the nature of their sample. The sample consisted of restaurant managers for a nationwide restaurant chain. It is likely that there was no full-time, on-site supervision over the managers, yet their subordinates (behaving more like coworkers) worked with them in the same location. If this was the case<sup>1</sup>, then field theory would suggest that the more proximal element (in this case the coworkers) would have the greater influence on commitment.

In the case of Zaccaro and Dobbins (1989), satisfaction with coworkers (actually fellow squadron members) predicted neither group commitment nor organizational commitment. These results may at first seem surprising; however, they may have been influenced by the nature of the sample. Following are some reasons as to why this might be the case.

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<sup>1</sup> Efforts to contact the authors for confirmation were unsuccessful.

Squadron members, unlike the subjects of this research, were neither dependent on nor responsible to team members for the distribution of organizational rewards. Since squadron members were also members of the university student body, they had the opportunity to become members of other organizations in which, unlike the Corps, they would be able to choose their associates rather than to have them assigned. Finally, there is a finite and relatively short temporal dimension to membership in a squadron. Taken together, along with the military emphasis on duty, it could be argued that commitment to the Corps and the Squadron would more likely depend upon normative antecedents than upon positive affect toward fellow team members.

As was the case with satisfaction with supervision, a number of studies reported correlation coefficients between satisfaction with coworkers and organizational commitment. See Table B-6 in Appendix B. With the exceptions of Williams, Podsakoff, and Huber (1992), Vandenberg and Scarpello (1991), and Barone, Caddy, Katell, Roselione, and Hamilton (1988), who did not examine satisfaction with coworkers, the list of studies in Table B-6 is the same as the list of studies in Table B-4 (which reported correlations between satisfaction with supervision and organizational commitment). Also, no studies were found that addressed satisfaction with coworkers and did not address satisfaction with supervision. It is speculated that this is due to the considerable amount of work that has been done on leadership and supervision issues as both constructs relate to organizational commitment.

With the exceptions of Norris and Niebuhr (1983) and Chassie and Bhagat (1980) the results of the studies that are common to Table B-4 and Table B-6 were the same in terms of the probability level of the correlations.

In the case of Norris and Niebuhr (1983), satisfaction with supervision was positively correlated with organizational commitment at the  $p < .01$  level, while satisfaction with coworkers was positively correlated with organizational commitment at the  $p < .05$  level.

In the other exception, Chassie and Bhagat (1980) found that satisfaction with supervision was positively correlated with organizational commitment but that satisfaction with coworkers was not. An

examination of their sample suggests that an effect may be at work other than either (a) a fundamental difference between the relationships that organizational commitment has with the two satisfaction dimensions or (b) chance. The all women sample consisted of 30% employees from an accounting department, 30% elementary or secondary school teachers, and 20% university professors, and 20% barbers, hairdressers, bank tellers, and clerical workers. It is inferred that at least 50% of those surveyed (i.e. teachers and professors) worked in professions in which the individual tends to work alone. Therefore, the employee's relationship with others in the organization was not a salient feature as to whether she developed commitment to it. On the other hand, the relationship with supervision was likely to be salient because the supervisor was in a position to grant favorable or unfavorable assignments and, except in the case of the school teachers, was likely to have an influence on pay raises.

A summary of the empirical evidence suggests that satisfaction with coworkers is positively related to organizational commitment. However, studies that used regression analysis to test the predictive ability of satisfaction with coworkers on organizational commitment are both few in number and mixed in outcome. Frequently in cases like this, additional empirical work is called for, and seldom decried, in order to test the same independent and dependent variables with different samples and under different conditions (e.g. field setting versus lab). However, in this case, another approach to clarifying the satisfaction with coworkers-commitment relationship is in order: that is, test for a more salient focus of commitment.

### **Team commitment versus organizational commitment**

It is hypothesized here that the more salient focus of commitment resulting from satisfaction with coworkers will be the team rather than the company. Again, this reasoning is based on the proximity and salience issues as described in the section on field theory (Lewin, 1943, 1951; Mathieu, 1991) and the norm of reciprocity (Gouldner, 1960).

As individual members work with their teammates they will develop certain levels of affect, including satisfaction, as a result of their experiences. An application of field theory indicates that the team environment is the proximal and salient context in which the affect producing experiences occur. The norm of reciprocity states that to the extent that an individual perceives a received benefit he or she will attempt to respond in kind, that is, to reciprocate.

This reasoning is consistent with the theoretical position that organizational commitment has an impact on the performance of organizational citizenship behaviors (OCBs; Williams & Anderson, 1991). In spite of the strong theoretical linkages between organizational commitment and OCBs (Williams & Anderson, 1991), attempts to provide empirical support have produced mixed results (Hunt & Morgan, 1994; O'Reilly & Chatman, 1986; Smith, Organ, & Near, 1983; Williams & Anderson, 1991). Hunt and Morgan (1994) suggest that by considering multiple foci of commitment when addressing this question, researchers might be able to resolve some of these mixed findings. Their suggestion is consistent with the empirical findings of Becker (1992) that show that team commitment has a significant marginal effect on OCBs over and above the effect of organizational commitment.

In terms of the current research, it is within the team context that the individual will attempt to respond in kind to the affect producing experiences. By attempting to respond in kind the individual is accepting responsibility to perform the reciprocating behavior on behalf of his or her coworkers. By taking on additional responsibility the individual thereby increases his or her commitment (Salancik, 1977).

For example, when an individual observes a teammate putting forth effort that benefits not only the teammate but, due to the team based compensation scheme, also benefits the observing individual as well, the observer will be inclined to reciprocate by also putting forth effort in behalf of the team. In a similar fashion, when the individual sees that teammates seldom fail to come to work, he or she, based on his or her level of positive affect, will reciprocate by hesitating to be absent. Based on the above reasoning the following is proposed: (See Figure 3.)

**Hypothesis 3:** Satisfaction with coworkers will be positively and more strongly related to team commitment than to organizational commitment.

## **ROLE STRESS**

By definition, members of self-directed work teams have more control over the way they interact with their work environments than do those in a traditional setting. A portion of this increased control comes from the freedom that teams have to distribute tasks within the group and, within the limits of the technology used, to control the pace of their work. This additional freedom and responsibility dictates that team members and facilitators take on roles that differ from those assumed by employees and their supervisors in traditional work environments (Glaser, 1992; Hackman, 1986; Orsburn, et al., 1990).

Hackman points out a number of conditions that are requisite for the support of effective self-directed work teams. These include clear overall direction, clear expectations regarding the management of performance, appropriate information systems, and adequate resources (1986: 172). The antithesis of these conditions contribute to the level of role stress experienced by individuals on the job (House & Rizzo, 1972; Kahn, et al., 1964; Rizzo, House, & Lirtzman, 1970). Role stress has been shown to be an antecedent of organizational commitment and has a negative effect upon it (Jackson & Schuler, 1985; Mathieu & Zajac, 1990).

The two role stress constructs most frequently examined in terms of organizational commitment are role ambiguity and role conflict. Role conflict is defined in terms of the dimensions of congruency-incongruency or compatibility-incompatibility in the requirements of the role. For example, there may be (1) conflict between the time, resources, or capabilities of the focal person and the defined role, (2) conflict between several roles the focal person must fill, or (3) conflict between two or more simultaneous or conflicting requests (House & Rizzo, 1972; Rizzo, House, & Lirtzman, 1970). Stated another way, role conflict is a perception of incompatible expectations sent to a focal person (Dougherty & Pritchard, 1985).

The perception of incompatible expectations may emanate from a number of sources, some more proximal to the team others more proximal to the organization. Therefore, the question arises regarding the differential impact of role conflict on commitment to the organization and the team.

Role ambiguity is defined in terms of (1) deficiencies in the clarity, or existence, of behavioral requirements needed to perform in the role and (2) deficiencies in the predictability of the outcome of one's behavior (House & Rizzo, 1972; Rizzo, House, & Lirtzman, 1970). That is, role ambiguity is characterized by a focal person's lack of clarity about sent roles.

It has been suggested that role ambiguity is more predominant (in terms of producing negative affect) than role conflict at managerial levels, while role conflict is more predominant than role ambiguity among the rank-and-file (Abdel-Halim, 1978; Hamner & Tosi, 1974, Kahn, Wolfe, Quinn, Snoek, J. D., & Rosenthal, 1964). The rationale for this condition among the rank-and-file is for those at the lower levels of the organization who have well defined jobs and know how to do them, "role ambiguity is probably not a major problem ... they are much more likely to face conflicting role demands from others. Therefore, for these members, role conflict could be expected to present the greatest problems and cause the greatest negative reactions" (Hamner & Tosi, 1974: 499). Based on this reasoning and because this study is about rank-and-file employees rather than management personnel, only role conflict will be examined.

## **Empirical studies**

A review of the literature as well as meta-analyses by Jackson and Schuler (1985) and Mathieu and Zajac (1990) indicate that role conflict has a negative effect on organizational commitment. However, we do not yet understand the psychological processes that explain the relationship between role conflict and organizational commitment (Mowday, Porter, & Steers, 1982). The most common assumption has been that role states result from perceptions of the work environment and then influence affective responses (Mathieu & Zajac, 1990). Even so, there has been little theoretical work on how these processes might

cause role conflict to relate to or influence organizational commitment (Jackson & Schuler, 1985; Mathieu & Zajac, 1990).

The reason given by many researchers for selecting role stress variables as correlates or antecedents of organizational commitment is that they have been used successfully before (Jackson & Schuler, 1985; e.g. Good, Sisler, & Gentry, 1988; Morris & Koch, 1979; Morris & Sherman, 1981). An exception to this observation is the study by DeCotiis and Summers (1987). They theorized that role conflict leads to the perception of decreased responsibility, and that according to Salancik (1977), anything that decreases perceived responsibility also decreases commitment. In summary, it can be said that the relationship between role conflict and organizational commitment has received more empirical than conceptual attention.

Five studies used regression analysis and one used canonical analysis to examine the effects role conflict on organizational commitment. See Table B-7 in Appendix B. Oliver and Brief (1978), in a study of retail sales managers ( $N = 114$ ) found that, even though a negative correlations was reported for role conflict ( $r = -.26, p < .01$ ), the beta weight in the regression equation indicated that role conflict (Beta =  $-.14, ns$ ) did not have a significant influence on the variance in organizational commitment. Since job satisfaction was in the equation and had a significant influence on organizational commitment (Beta =  $.47, p < .01$ ), Oliver and Brief (1978) assumed that job satisfaction mediated the relationship between role conflict and organizational commitment. As mentioned above (in the "Organizational commitment & job satisfaction: The causal order" section), this assumption is problematic.

Morris and Koch (1979) examined the impact of role conflict across three vocational groupings of varying degrees of complexity. Using partial correlations to test only unique variance, they found that role conflict was negatively related to organizational commitment in only the manual employees (versus clerical and professionals). The complexity of the task/role requirements for the manual employees more closely resembles the sample used for this study. Multiple regression analysis indicated that the combined impact of role ambiguity and role conflict accounted for a significant (14%,  $F = 21.22, p < .001$ ) amount of

variance in organizational commitment. The individual contributions of these role factors were not reported.

Morris and Sherman (1981), DeCotiis and Summers (1987), and Smith and Tias (1993) found that role conflict accounted for significant variance in organizational commitment. These studies were performed over a diverse set of samples (health care employees, restaurant managers, and social services employees) and the measurement instruments were consistent. The Rizzo, House, and Lirtzman (1970) scale was used to measure role conflict in all cases and the OCQ was used in two of the three. DeCotiis and Summers (1987) used their own scale to measure organizational commitment. However, an examination of the items suggested that the instrument would measure an affective response.

Glisson and Durick (1988) obtained similar results in a study of the predictors of job satisfaction and organizational commitment in human services organizations. While they used canonical analysis to examine the effects of the independent variables on both dependent variables concurrently, they also reported the partitioning of the variance in organizational commitment. Role conflict contributed significantly to the variance in organizational commitment ( $b = -.20$ ,  $F = 11.83$ ,  $p < .001$ ). The instruments they used were the OCQ and the Rizzo, House, and Lirtzman (1970) scale for organizational commitment and the role stress constructs respectively.

Five studies included role conflict and organizational commitment in path analysis models. See Table B-8 in Appendix B. Organ and Greene (1981), using a sample of scientists and engineers, found the path from role conflict to organizational commitment to be negative and significant. On the other hand, Podsakoff, Williams, and Todor (1986) in a replication of the Organ and Greene (1981) study, found no effect of role conflict on organizational commitment. Johnston, Parasuraman, Futrell, and Black (1990), using a sample of salespeople servicing retail accounts in the food industry, found, like Podsakoff, et al. (1986), no direct effect of role conflict on organizational commitment. They did, however, find an indirect negative effect of role conflict on organizational commitment through job satisfaction. Good, Sisler, and Gentry (1988), using a sample of retail sales managers reported results that differed from those of

Johnston, et al. (1990). They found a direct, negative effect of role conflict on organizational commitment as well as a negative indirect effect through job satisfaction.

Dubinsky and Skinner (1984) reported no direct influence of role conflict on organizational commitment. However, they reported negative indirect effects through job satisfaction.

Numerous other studies reported negative and significant correlations between role conflict and organizational commitment. See Table B-9 in Appendix B.

From the existing evidence it can be concluded that role conflict is negatively related to organizational commitment and can influence it directly and indirectly through job satisfaction. In summary six out of seven studies that used regression to test their hypotheses reported that variance in role conflict contributed to the variance in organizational commitment and that the relationship is negative (Table B-7 in Appendix B); four out of five path analysis reported that role conflict had either a direct (3 studies) or an indirect (1 study) negative influence on organizational commitment (Table B-8 in Appendix B); and six out of seven studies reported negative and significant correlations between role conflict and organizational commitment (Table B-9 in Appendix B).

Relative to the current research, only Zaccaro and Dobbins (1989) have come close to addressing the question posed here. They found that role conflict was correlated with both organizational commitment and team commitment and the correlations with organizational commitment were the stronger ( $Z = 2.23, p < .05$ ). Hierarchical regression indicated that role conflict did not significantly influence the variance in team commitment (Beta =  $-.07, ns$ ) but did so with regards to organizational commitment (Beta =  $-.10, p < .05$ ). However, as mentioned earlier, the nature of their sample and the nature of the organizational reward structure are much different from the sample that is to be used in this research.

To reiterate, their sample consisted of members of a Corps of Cadets in a large southeastern university. Since the Corps was a military organization that starts its members out as raw recruits, it is likely that most, if not all, of the orders and directions originate at the organizational level, and few, if

any, originate within the group. Since the squadron members are not responsible for the distribution of rewards (unlike the sample in this study) and do not issue orders that could be perceived as contradictory (as does the sample in this study), then the reported outcome that role conflict has a greater influence on organizational commitment than on team commitment does not seem unreasonable. In fact, this outcome would be expected to the extent that the organization would be perceived by the members as the source, or cause, of the role conflict.

### **Intersender conflict**

Other than Zaccaro and Dobbins (1989), no other study looked at role conflict in terms of its effects on multiple foci of commitment and, with the exception of Morris and Snyder (1979), no study has looked at the sub-dimensions of role conflict.

Morris and Snyder (1979) conceptualized role conflict as being composed of several sub-dimensions as described by Kahn, et al. (1964) and Rizzo, House, and Lirtzman (1970). These dimensions include intersender conflict and resource-related conflict. Intersender conflict occurs when the focal person perceives incompatible requests from two or more people or when a received request conflicts with an organizational policy or standard. Resource-related conflict occurs when there is a conflict between the focal person's defined role behavior and the resources required to perform the task.

Morris and Snyder (1979) found that intersender conflict and resource-related conflict were negatively related to organizational commitment ( $r = -.23, p < .05$ ;  $r = -.20, p < .05$ , respectively). Since their research question addressed the moderating effects of need for achievement and need for autonomy on the role perception-commitment relationship, a direct test for the influence of role conflict on the variance of organizational commitment was not done.

In a traditional organization, particularly those with a matrix structure, it is possible for an employee to receive conflicting requests from two or more people in positions of authority. In a self-directed work team environment, however, the teams distribute tasks among themselves and control the

pace of the work. In the sample related to this study, team members are free to move about, within the limits of their ability, in order to assist other team members with their tasks and thereby enhance the team's output and subsequently all members' financial earnings.

Since this movement comes about due to requests, either explicit or implicit, from others on the team, it is possible for an individual to perceive two or more incompatible requests simultaneously. In a similar fashion, an individual may receive incompatible cues (requests) concerning the pace of their work. The intersender-conflict that is produced will have a deleterious impact on commitment. Since it is impossible for an individual to satisfy incompatible requests, the individual cannot take on the responsibility for performing them both. According to Salancik (1977), anything that reduces responsibility also reduces commitment. Hence it can be concluded that the level of commitment will decrease.

The question relative to this study is which foci of commitment will be more affected by this process? In a self-directed work team environment the distribution of tasks and the pace of the work are subject to team decisions. The source of intersender conflict therefore, lies within the team. This means that relative to this phenomenon, the proximal salience of the team is greater than that of company. Hence, the reduction in responsibility that occurs will be the responsibility that the individual feels toward the team. It follows that the accompanying reduction in commitment (Salancik, 1977) will have more effect on team commitment than organizational commitment. Therefore: (See Figure 3.)

**Hypothesis 4a:** Intersender conflict will be negatively and more strongly related to team commitment than to organizational commitment.

At the same time, incidents of intersender conflict will cause interaction with team members to become less pleasant and, since the team will be perceived as the source of this conflict, the associated frustration will be with the team. This, in turn, will reduce the individual's satisfaction with the team and its members. Therefore: (See Figure 3.)

**Hypothesis 4b:** Intersender conflict will have an indirect and negative effect on team commitment through satisfaction with coworkers. This effect will be greater than the indirect effect of intersender conflict on organizational commitment through satisfaction with coworkers.

### **Resource-related conflict**

Adequate material resources are critical to the effectiveness of self-directed work teams. As a result, insufficient resources are often a major cause of performance degradation among teams (Hackman, 1986). As stated above, resource-related conflict occurs when there is a conflict between the focal person's defined role behavior and the resources required to perform the task. These resources include time, money, space, tools, equipment, repairs, and other physical resources.

This type of conflict interrupts the exchange relationship that is fueled by reciprocity and leads to the mutual dependence which, if acknowledged, results in commitment. At the most fundamental level, employees exchange their labor for wages. However, the process is more involved than the swap of two commodities. The employees also bring to work varying levels of the knowledge, skills, and abilities (KSAs) required to do the job. They also bring varying amounts of motivation to apply these KSAs in order to actually perform the job. Employees also develop and give the company varying degrees of commitment.

Meanwhile the company, for its part, provides a work environment that has a certain level of comfort and safety. The company also provides a set of policies and practices that lead to employees' perceptions of varying degrees of fairness. The company also provides the resources, that is raw materials and supplies, that the employees, with the application of their labor and KSAs, change into goods desired by the company for its customers.

If the company fails to provide the necessary resources, materials, supplies, equipment, and repairs, then employees who labor under a production based pay scheme cannot produce the amount of output that would allow them to reach their expected and potential pay level. The exchange relationship will then be interrupted and, in the employees' view, the company will have violated the norm of reciprocity. It will

have failed to respond to previous employee efforts, which led to production desired by the company as well as wages desired by the employees, by not providing its part of the inputs required for another cycle of exchange. Therefore, the employees are freed from the responsibility of reciprocation. Furthermore, due to the lack of resources, the employees are unable to take on the responsibility involved in completing their end of the reciprocal exchange with the company.

Since, in the employees' eyes, the company has failed in its end of the mutual responsibility required for the exchange to take place, the employees, by the company's actions, are freed from their responsibility to the company. This reduction in responsibility causes a reduction in commitment (Salancik, 1977). The question in terms of this research is: To what foci is this reduction of commitment the more salient?

Since it was the company's actions or inaction's that created the situation, then it is the company which is more salient in terms of the employees' psychological field. Therefore, it will be commitment to the company that is more affected and: (See Figure 3.)

**Hypothesis 5a:** Resource-related conflict will be more strongly related to organizational commitment than to team commitment.

The frustration associated with resource-related conflict will, in many cases, be directed toward the facilitator. The facilitator is a representative of the company whose duty it is to implement company policies and enforce company rules. Also, it is the facilitator's responsibility to see that certain types of resources are provided to the team, such as timely repairs of broken machines and competent fill-ins for absent team members. In other cases it is up to the facilitator to advise teams on how to work around certain resource deficiencies. For example, a facilitator can authorize a team to reject poor quality raw material or call for an audit when a team feels that its quality is rated lower than it should be. The result of facilitator decisions on these matters have a direct effect on team members' pay. Therefore, failure to perform these resource-related duties in a way that is perceived to be fair and equitable will cause a reduction in team members' satisfaction with the facilitator. Therefore: (See Figure 3.)

**Hypothesis 5b:** Resource-related conflict will have an indirect and negative effect on organizational commitment through satisfaction with supervision. This effect will be greater than the indirect effect of resource-related conflict on team commitment through satisfaction with supervision.

By combining all of the hypotheses presented above, we are able to construct a structural equation model that describes the overall effects of the exogenous and endogenous variables on both team and organizational commitment as shown in Figures 2 and 3.

## **SUMMARY**

The review of the organizational commitment literature demonstrates that there is considerable evidence that task interdependence, satisfaction with supervision, satisfaction with coworkers, and role conflict are antecedents of organizational commitment. The work team literature also demonstrates that these constructs are important dimensions in a self-directed work team environment. Table 1 summarizes the hypotheses.

Based on field theory and the norm of reciprocity, hypotheses were developed that linked each construct with either the team or the organization as its more salient focus of commitment. From these hypotheses a structural equation model was presented that will allow the relationships to be tested simultaneously.

The next chapter will outline the methodology of the study. This will include a description of the site, the subjects that will make up the sample, and the statistical procedures and how they will be employed.

TABLE 1  
Summary of the Hypotheses

Hypothesis	Paths as Depicted in Figure 3	Construct Relationship
Hypothesis 1:	Path A > Path B	Task interdependence is more strongly related to team commitment.
Hypothesis 2:	Path C > Path D	Satisfaction with supervision is more strongly related to organizational commitment.
Hypothesis 3:	Path E > Path F	Satisfaction with coworkers is more strongly related to team commitment.
Hypothesis 4a:	Path G > Path H	Intersender conflict is more strongly related to team commitment.
Hypothesis 4b:	Path YE > Path YF	The indirect effect of intersender conflict through satisfaction with coworkers is more strongly related to team commitment.
Hypothesis 5a:	Path I > Path J	Resource-related conflict is more strongly related to organizational commitment.
Hypothesis 5b:	Path XC > Path XD	The indirect effect of resource-related conflict through satisfaction with supervision is more strongly related to organizational commitment.

## **CHAPTER 3: METHODOLOGY**

### **OVERVIEW**

This chapter will detail the methodology used to test the hypotheses that were proposed in the previous chapter. The first section will describe the research sample. The next three sections will describe the development of the survey instrument, the measures that were incorporated in it and the details of its administration. The next section will focus on preliminary data analysis, specifically the technique used to detect the possibility of common method variance. The final section will detail the statistical tests used to test the hypotheses.

### **RESEARCH SAMPLE**

The research sample consisted of employees of a large apparel manufacturing company. The company made all of its team sewing facilities available for research efforts. A single plant was selected in which self-directed work teams have been in place for over two years. This condition was chosen to ensure that the sample would be drawn from a population in which the team sewing concept has stabilized and where employees are experienced in this method of production.

When the organization made the transition from individual sewing to team sewing, employees were allowed to select their own team members. Initially, some employees self-selected teams consisting of family and friends (in spite of management's admonitions not to do so). Teams formed in this manner often experienced problems and after one year teams were allowed to re-form. This time they were more likely to base their selection decisions on work related skills and attributes. The outcome has been smoother functioning teams and fewer team related problems. The size of the plant in which the survey was done was approximately 500 team sewing employees. Since work teams are typically made up of ten members each, this represents about fifty teams.

Team sewing was introduced into the facilities in order to reduce production costs and increase responsiveness to customer orders. As a consequence, turnaround time for customer orders has been reduced from several weeks to approximately five working days, depending on the size of the order. Quality has been improved significantly and the number of customer returns has been greatly reduced. Production costs have been reduced due to lower absenteeism, reduced work-in process, and reduced inventory requirements.

Another major source of cost savings resulted from the virtual elimination of an entire level of management. That is, the team concept made it possible to replace traditional supervisors with facilitators. The span of control for a facilitator is ten teams for a total of 100 individuals. Also eliminated were many of the industrial engineers who set individual job standards.

A team's work area consists of ten work stations with one worker each. In order to produce a garment, seven different operations must take place. Six work stations are devoted, one each, to six of the operations. A seventh operation inherently requires more time to perform. Therefore four identical work stations are devoted to this task. The entire team is within a few steps of each other and each worker can easily see the other nine.

Teams are compensated based on a team production system and a minimum performance standard has been set by industrial engineers. Performance at this minimum standard is referred to as "100%", which is 33 dozens of product per hour. Production over this amount is referred to as a percentage of this minimum standard (e.g. 110%, 120%, etc.). For purposes of compensation, the standard is aggregated to apply at the team level. Therefore, each member of a team is compensated at the same rate based upon the percentage of standard. At 100% production, team members earn approximately \$7.30 per hour. At each team's location, an electronic board indicates the team's current production level and if the team is exceeding or falling behind the goal it has established for itself.

The teams are self-directed as described by Hackman (1986) in that they monitor and manage their work processes. The process of monitoring and managing work is important to a team's

compensation because work is not counted for compensation purposes until all seven operations have been completed and the garment is boxed, ready to go to the shipping department. Therefore, in order to maximize production, and also maximize pay, workers may move around to help each other as bottlenecks develop and work piles up at various stations. Members who are "ahead" in their own work may get supplies for the team or use cross-training skills to assist directly where work is piled up.

These types of behaviors are examples of teams distributing tasks and controlling the pace of their work, two definitional characteristics of self-directed work teams. The company encourages these types of behaviors (but does not require them) by offering cross-training in the various sewing operations as well as training in quality control skills and group process skills such as communication, conflict resolution, and problem solving.

### **SURVEY INSTRUMENT DEVELOPMENT**

A survey instrument was developed to determine subject responses to the variables associated with the hypotheses developed in the last chapter. The instrument was developed by taking the following actions. First, existing literature was searched to determine how the constructs of interest were measured in other studies. Care was taken during these examinations to consider the reported characteristics of the samples and how the scale items could be tailored based on these characteristics. Second, interviews were conducted with a number of teams in other, but similar, sewing plants in order to determine how to make the scale items as meaningful as possible relative to the specific work environment and the way in which the constructs may manifest themselves.

Third, based on the literature and the qualitative interviews, an instrument was developed. When possible, existing scales were used. In cases where existing scales were not available or deemed inappropriate, scales were developed based on existing literature, observations of the work setting, and the interviews that had been conducted with employees.

Fourth, a pilot test of the instrument was conducted in order to test the interpretability of the items and the psychometric properties of the scales. The plant in which the pilot test was conducted was similar to the one in which the actual survey was administered. Forty-five respondents participated in the pilot test. The scales were refined again based on debriefing sessions with those who participated in the pilot study and a statistical analysis of the results.

## **MEASURES**

This study required the measure of seven attitudinal variables. Demographic data were also collected to provide a description of the people who participated in the study. The scales that made up the instrument are presented in Appendix A.

### **Organizational commitment and team commitment**

Organizational commitment was measured by the short form of the Organizational Commitment Questionnaire (OCQ; Mowday, Steers, & Porter 1979; Porter, Steers, Mowday, & Boulian 1974) plus one item from the long form. The long form item that was added was: "I feel very little loyalty to [company name]". This item is reverse scored. Internal consistency reliability of the nine-item short form of this scale has been reported as 0.88 using the Spearman-Brown statistic (Morris & Snyder, 1979).

Team commitment was measured by modifying the version of the OCQ mentioned above to refer to the team rather than the organization. This particular technique is suggested by Reichers (1985) and has been used successfully a number of times in the literature (e.g. Scott & Townsend, 1994; Tetrick & Farkas, 1988; Vandenberg & Scarpello, 1991; Zaccaro & Dobbins, 1989). Scott and Townsend (1994), using the same form that was used in this study reported a coefficient alpha of 0.88.

### **Task interdependence**

Task interdependence was measured by a scale developed for this study. The construction of the items was based on the work of Kiggundu (1981) and Pearce and Gregersen (1991) and were tailored to the specific tasks and the nature of the work environment in this situation. To reduce the chances of misunderstanding the questions, attempts were made, where appropriate, to word the items in the vernacular of the plant. For example, to "lay good work" (See Item 6.) has a special and important meaning in this particular sewing facility. To "lay good work" means taking extra time and pains to pass the product on to the next station in a way that will allow the next person to proceed more rapidly.

### **Satisfaction with supervision and coworkers**

Satisfaction with supervision was measured in order to capture the subjects' satisfaction with the types of interactions that are typically experienced between team members and their facilitators. Similarly, a scale which was developed to measure the subjects' satisfaction with coworkers. In both cases, the formulation of the items was based, in great measure, on the interviews with the employees, feedback from the subjects of the pilot survey, and by adapting items from the Job Descriptive Index (JDI; Smith, Kendall, & Hulin, 1969) and the Minnesota Satisfaction Questionnaire (MSQ; Weiss, Dawis, England, & Lofquist, 1967). The formulation of the new scales was done because the JDI and the MSQ focus on individual work situations while this study requires that responses relating to a team environment be captured.

### **Role conflict**

Two sub-dimensions of role conflict were measured, intersender conflict and resource-related conflict. The items used in these scales were adapted from the role conflict scale developed by Rizzo, House, and Lirtzman (1970). Morris and Snyder (1979) conducted a study in which the intersender conflict and resource-related conflict sub-dimensions of role conflict were measured separately. They

reported Spearman-Brown estimates of internal consistency reliability of 0.69 for intersender conflict and 0.65 for resource-related conflict. As with the previous scales, the specific wording of the items was designed to make them meaningful to the respondents and relevant to their environment.

## **SURVEY ADMINISTRATION**

The survey was collected as part of a larger study funded by the National Science Foundation and Sara Lee Knit Products<sup>1</sup>. It was administered by a survey team from Virginia Tech. The survey was administered during working hours. One hour was set aside for this purpose and two conference rooms were made available. Three teams were surveyed in one room and one team was surveyed in the other. This process was repeated at one hour intervals until all team members had completed the survey. Subjects were orally instructed to read all instructions carefully, to consider each item individually, and to complete the survey without talking to other employees. Special efforts were made to assure subjects that the project was in fact university research and that responses would be kept strictly confidential. It is hoped that the relative anonymity of the team affiliation, the presence of university researchers, and the assurance of confidentiality obviated any fears among the subjects that would have caused them to respond less than candidly.

## **PRELIMINARY DATA ANALYSIS**

### **Method variance**

In studies that involve cross-sectional self-report methodology the issue of common method variance is usually an issue that must be addressed. Though common method variance is a weakness of

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<sup>1</sup> “An Empirical Examination of the Determinants of Team Performance” is a joint private sector and government project funded by Sara Lee Knit Products and the National Science Foundation. This research, though addressing a different research question, was conducted concurrently with that project.

this type of research methodology, this design can be quite useful in providing a picture of how people feel about and view their jobs. Furthermore, they also tell us about the intercorrelations among various feelings and perceptions (Spector, 1995a; Spector, 1995b).

In order to provide a statistical assessment of the potential threat posed by this phenomenon, the Harmon's one-factor test (Podsakoff & Organ, 1986) was conducted on all of the variables of interest.

The test requires that all items be entered into a factor analysis. According to Podsakoff and Organ (1986), "the basic assumption of this technique is that if a substantial amount of common method variance is present, either (a) a single factor will emerge from the factor analysis, or (b) one 'general' factor will account for the majority of the covariance in the independent and criterion variables" (p. 536). They continue to note, however, that the test has had limited use and there are no strict guidelines for understanding how many factors should be expected to result from the procedure or how much variance might be explained by the first factor for it to be considered a "general" factor. In addition, they note that if the variables of interest are expected to have high intercorrelations, this must be considered when interpreting the results.

## **TESTS OF THE HYPOTHESES**

### **Structural equation modeling**

Structural equation modeling consists of two "models", a measurement model and a structural model.

#### **Measurement model**

The measurement model (1) specifies the indicators for each construct and (2) assess the reliability of each construct for use in estimating the causal relationships. The measurement model was constructed by creating two indicators (manifest variables) for each construct (latent variable). The use of multiple

indicators acknowledges measurement error by creating potential non-zero values in the vector that describes "error" in the measurement model (Hayduk, 1987). By acknowledging the potential for error variance in the manifest variables a more conservative measurement model will result and the tests of the hypotheses will be more conservative. This is in contrast to other statistical techniques (e.g. regression) which assume zero measurement error.

The technique for constructing two manifest variables from a latent variable is to rank the items of the scale in question from "best" to "worst" based on the projected coefficient alpha that would result if the item were removed from the scale. Then the "best" fitting item is placed in one list, the next best fitting item in a second list, the third best in the first list, and so on, until all items have been distributed over the two lists. The two "sub scales" thus formed become the manifest variables representing the latent variable in question. In the current model each manifest variable was composed of at least three items.

In order to assess the causal effects it is necessary that the units of measurement in the latent variables be defined in a natural way. This can be done by specifying the unit of measurement to be the same on one of the manifest variables. This is accomplished by setting the coefficient on one of the manifest variables for each latent variable to 1.00. These are referred to as reference indicators (Pedhazuer, 1982). The other coefficient is then allowed to be "free" and will be estimated by the LISREL program allowing for measurement error as described above. The measurement model is depicted in Figure 4.

### **Structural model**

The path diagram depicted in Figure 5 and upon which the tests of the hypotheses will be conducted is a block recursive model. A block equation model is one in which each of a set of dependent variables is regressed on the same set of independent variables and a recursive equation model is one in which the causal flow of influence between variables in the model is unidirectional. A block-recursive model combines both of these characteristics (Wolfe, 1980). In the case of the current model, two sets (or

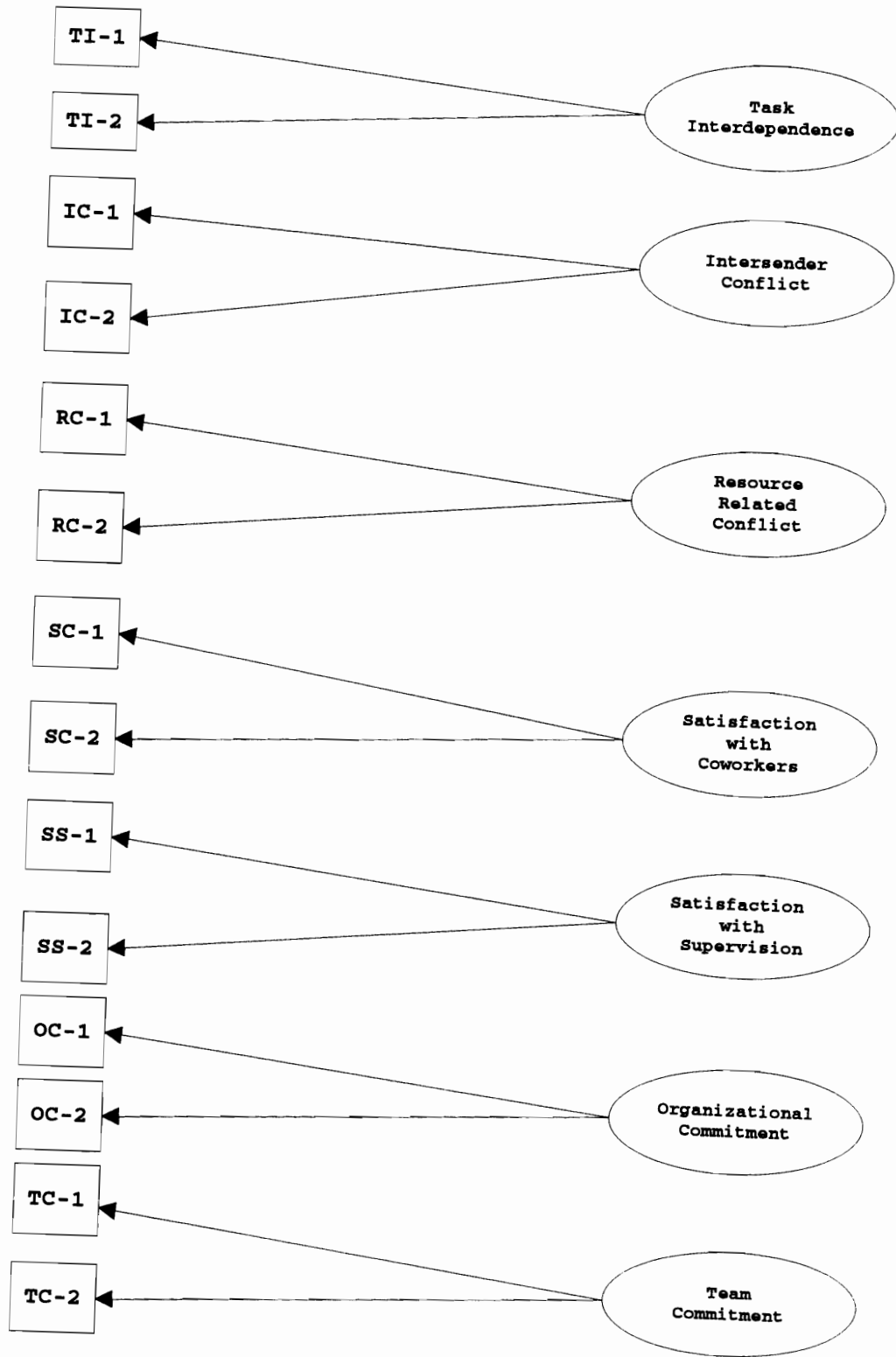
blocks) of dependent variables are entered into the model; (1) satisfaction with supervision and satisfaction with coworkers and (2) organizational commitment and team commitment.

Unambiguous causality can be established neither between satisfaction with supervision and satisfaction with coworkers nor between organizational commitment and team commitment (cf. Hunt & Morgan, 1994). Further, for the purposes of this study, establishing causal order between the variables within these pairs is not necessary. Therefore, no causal link was specified between the two satisfaction variables and the two commitment variables, but the possibility of correlated residuals was considered and allowed for in the construction of the model.

In descriptive terms the model consists of three exogenous variables (task interdependence, intersender conflict, and resource related conflict) and four endogenous variables (satisfaction with supervision, satisfaction with coworkers, organizational commitment, and team commitment) entered in blocks as described above. Even though all paths from the exogenous variables to the endogenous variables were not involved in the hypotheses, all were included in order to increase the fit of the model and allow more conservative tests. The structural model was estimated using LISREL 8.12a. The goodness-of-fit was evaluated, and the path coefficients were examined and compared.

### **Comparison of models**

Joreskog (1993) identified three types of tests for structural equation models, strictly confirmatory (SC), alternative models (AM), and model generating (MG). The alternative models approach was used here. In this study it is hypothesized that the path coefficients of certain paths are significantly stronger than others. In order to test these hypotheses, alternative models were constructed by restricting the paths in question to be equal and then re-estimating the model, forming an alternative (or restricted) model. To test an hypothesis, the difference is examined between the fit of the restricted versus the unrestricted models.



**FIGURE 4**  
Proposed Measurement Model

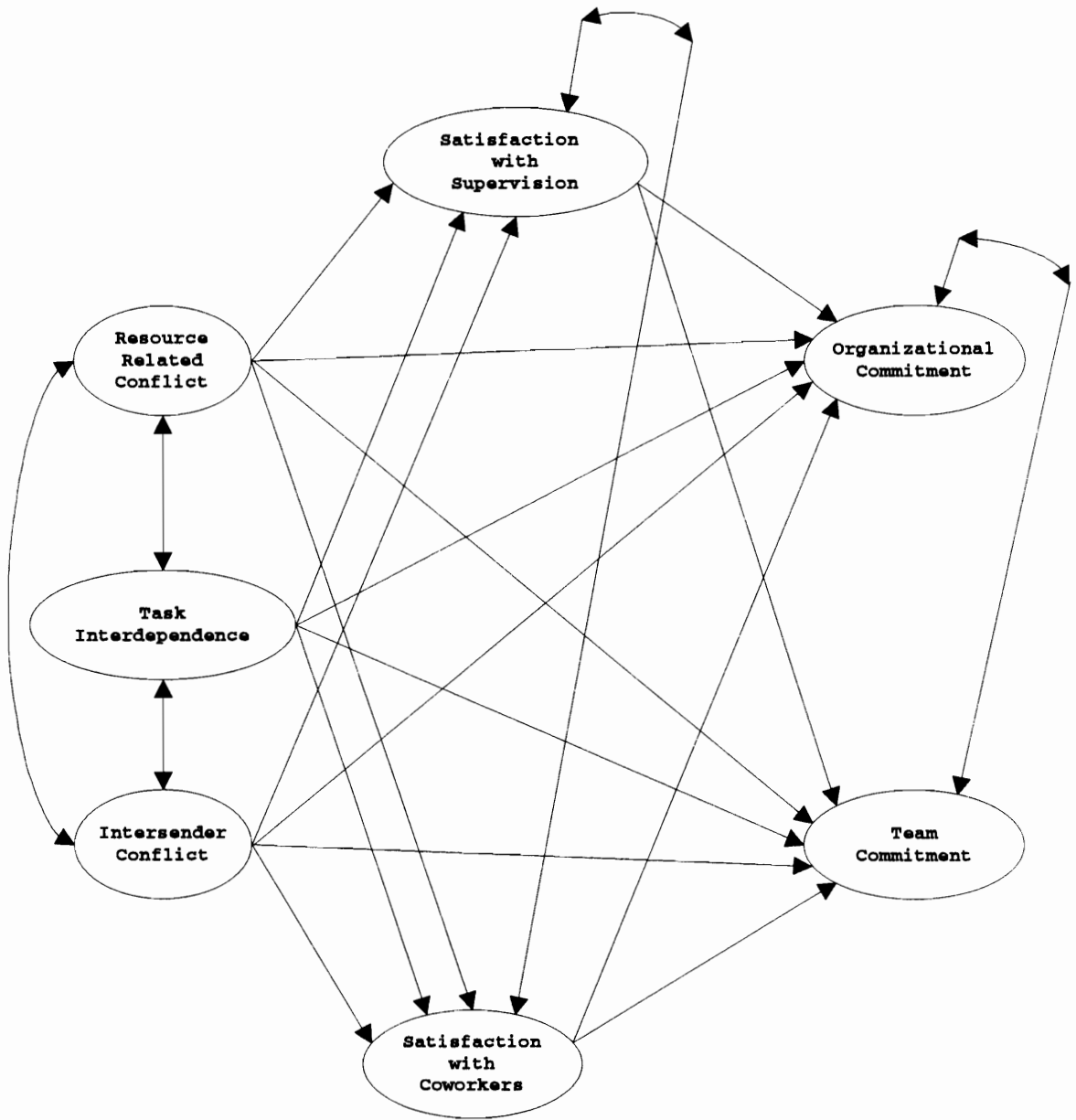


FIGURE 5  
Proposed Structural Model

For a given hypothesis to be supported three conditions must hold. First, the restricted (alternative) model must fit the data less well than the unrestricted (base) model. Second, the difference in the path estimates must be in the hypothesized direction. Third, the sign of the path coefficient in question must be in the hypothesized direction. For example, suppose a model in which the paths are allowed to be different (unrestricted model) fits the data significantly better than a model in which the paths are set equal (restricted model). Such a result would indicate that the paths are indeed different because forcing them to be equal causes the model to fit the data less well. By inspection it can be determined if the path coefficient has the proper sign and if the difference is in the hypothesized direction.

In summary, (1) if the model fits the data less well in the restricted model, (2) if the difference between the path coefficients is in the proper direction, and (3) if the path coefficient has the proper sign, then the hypothesis is supported. Hypotheses 1, 2, 3, 4a, and 5a were tested in this manner.

The difference in the fits of the models will be determined by the Likelihood Ratio (LR) test, otherwise known as the chi-square ( $X^2$ ) difference test. The test is done in the following manner: Since the Likelihood Ratio (LR) follows a  $X^2$  distribution, then the differences between two LR's will also follow a  $X^2$  distribution according to the differences in their respective degrees of freedom (Bollen, 1989). A comparison of the resulting test statistic with a critical value from a  $X^2$  table will determine if the fit of the models are significantly different.

With repeated testing on the same data with just varying the equality constraints, the  $X^2$  test statistic is correlated with the ones that come before and after it. The usual probability levels do not reflect this dependency. However, the  $X^2$  difference tests are asymptotically uncorrelated, and in this sense they are preferable to the individual  $X^2$  tests. However, the problem of testing multiple hypotheses remains but can be treated by using a Bonferroni adjustment to the alpha levels. In this case, since five invariance  $X^2$  difference tests are being conducted, the critical probability level will be set to  $0.05/5 = 0.01$  to maintain an overall alpha of 0.05 (Bollen, 1989). The tests of Hypotheses 1, 2, 3, 4a, and 5a, were done in accordance with the preceding description.

In testing each hypothesis, one path will be restricted, adding one degree of freedom since one fewer parameter must be estimated. Therefore, the test statistic will be based on a  $X^2$  distribution with one degree of freedom. The critical value for a  $X^2$  with  $df = 1$  at the  $p < .05$  level is 3.84. The critical value for a  $X^2$  with  $df = 1$  at the  $p < .01$  level is 6.64. Therefore, the critical value used to hold the overall alpha to 0.05 per the Bonferroni adjustment is 6.64.

There are no direct statistical tests to detect significant differences between two different indirect effects in a structural model. Therefore, Hypotheses 4b and 5b cannot be subjected to a specific statistical test and thereby evaluated by a statistical criteria. Inferences, based on the interpretation of path coefficients must be made and one's judgment must be employed to determine whether the preponderance of the evidence indicates whether the hypotheses are supported.

### **SUMMARY**

In summary, the sample that will be surveyed for this research is uniquely qualified to provide a straight forward and propitious test for the hypotheses. The scales used to make up the research instrument were either derived from existing scales or constructed employing a stringent and careful process to maximize the validity and reliability of the resulting instrument. A check for common method variance was done. Support for five of the hypotheses proposed in this research were determined by the use of accepted statistical methods. Support for the other two hypotheses were determined by reasonable inferences based on the preponderance of the evidence.

## **CHAPTER 4: RESULTS**

### **OVERVIEW**

Chapter 3 described the methodology used to test the hypotheses detailed after the literature review in Chapter 2. This chapter will be presented in three parts. The first part will report the demographic characteristics of the sample and details surrounding the administration of the survey. The second part will discuss the adequacy and refinement of the scales used to measure the constructs and their psychometric properties. In part three the results of the tests of the hypotheses will be presented.

### **SURVEY ADMINISTRATION AND DEMOGRAPHICS**

A total of 485 employees at a sewing plant took part in the survey. This represented all of the workers who worked in sewing teams who were present during one of the two days of the survey administration. Plant management reported no unusual absence patterns during either of the two days.

The subjects were paid for the time devoted to the survey by prorating their teams' production for the remainder of the day over the hour used for the survey. Prior to the commencement of the survey, instructions were given and confidentiality was assured. The administration proceeded in a quiet, orderly manner. Monitors were with the subjects at all times to answer questions and address concerns. Care was taken to note any observations made by the subjects pertaining to the survey instrument or the survey setting. A number of important observations were indeed made by the subjects which influenced the subsequent analysis of the responses. These will be addressed in the next section. A total of 16 surveys had to be dropped from the analysis because of subjects inability or unwillingness to complete enough of the survey for the responses to be meaningful. For the purpose of the structural equation analysis the usable sample size was 464.

Table 2  
Personal Demographic Information for Study Respondents

Variable	N	Percent
<b>GENDER</b>		
Female	470	98.1%
Male	9	1.9%
<b>AGE</b>		
under 20	5	1.2%
20-29	93	24.3%
30-39	163	35.0%
40-49	117	25.2%
50-59	55	11.8%
over 60	12	2.6%
<b>MARITAL STATUS</b>		
Married	377	79.4%
Single	98	20.6%
<b>DEPENDENTS</b>		
none	151	32.3%
1	140	30.0%
2	111	23.8%
3 or more	65	13.9%
<b>EDUCATION</b>		
Less than High School	80	16.7%
High School Degree	300	62.6%
Some College	89	18.6%
College Degree	10	2.1%
<b>RACE</b>		
Asian American	3	0.6%
African American	11	2.3%
Native American	15	3.1%
Latin American	2	0.4%
European American	442	92.7%
Other	4	0.8%

**TABLE 3**  
**Work-Related Demographic Information Work-Related Demographic Information for Study Respondents**

Variable	N	Percent
<b>TENURE w/COMPANY (yrs.)</b>		
Less than 1	28	5.9%
1 to 5	105	22.1%
5 to 10	122	25.7%
10 to 15	32	6.7%
15 to 20	85	17.9%
more than 20	103	22.7%
<b>YEARS IN TEAM SEWING</b>		
Less than 1	77	16.3%
1 to 2	264	55.9%
2 to 3	126	26.7%
More than 3	4	1.2%

Table 2 shows the personal demographic characteristics of the subjects. The subjects were 98.1% female, with a median age of about 37 years which is typical for this industry. The subjects were predominately European-Americans (92.7%), with Native Americans comprising the second largest racial group with only 3.1%. African Americans comprised 2.3% of the subjects with Asian Americans and Latin Americans making up 0.6% and 0.4%, respectively. A majority of the respondents had a high school education (62.6%), and some had attended college (18.6%), and a few had college degrees (2.1%). Approximately 17% had not completed high school.

Table 3 presents the work related demographic characteristics of the sample. Seventy-three percent of the subjects had been with the company for 5 years or longer, with 22.7% having been employed by the organization for over 20 years. Over 83% of the respondents had been working in team sewing for over a year.

## **ADEQUACY AND REFINEMENT OF THE MEASURES**

Following the administration of the survey, the scales were reformatted based on empirical results, theoretical considerations, and conversations with respondents during which they shared their observations concerning the survey instrument with the survey administrators. As a result of this process several items were dropped from the analysis.

With regards to the Intersender Conflict (IC) scale, item four (IC4) did not load well and was dropped from the analysis. Dropping this item was also justified on theoretical grounds because it addressed an individual's perceptions of teammates' needs rather than conflicting messages received from two or more senders.

With regards to the Task Interdependence (TI) scale four items were dropped. Items that related to the transfer of information and talking with others were dropped. The tasks performed by the respondents are so highly repetitive and technologically constrained that very little transfer of information between employees is necessary. That is, everyone understands the job and how to do it. Therefore, items related to the transfer of information (TI2 and TI9) were dropped from the analysis. Also, much of the communication that goes on between workers related to helping each other and performing team related tasks is non-verbal. This is a particular salient point since the noise level in the plant prohibits effective verbal communication except between individuals whose work stations are adjacent to one another. It should also be noted that, based on interviews with employees and plant management, the term "talking" in this particular plant typically refers to idle chatter that is perceived to inhibit performance and is not at all "required". Indeed, talking has, on occasion, been sanctioned by team members. Therefore, the item related to the requirement of "often talking with others" (TI3) was dropped.

Item one (TI1) was also dropped from the analysis; it did not load well and was apparently misunderstood by the respondents. There are at least three possibilities why this might be the case. First, much of the time sewers work independently on their respective jobs, so perhaps it was perceived that the need to coordinate their efforts with others does not occur "frequently". It is interesting that a subsequent

item (TI6) mentioned the coordination of efforts and loaded well. However, it mentioned the coordination of efforts with respect to performance (and by implication pay) but did not refer to the frequency of the these efforts.

Second, this item was the first in the Task Interdependence scale. This explanation is consistent with the dialectic nature of interdependence and independence as noted by Pearce and Gregersen (1991). Therefore it is possible that the respondents were influenced more by the notion of working independently rather than they were by the importance of coordinating their efforts and that this influence remained until they saw more questions about team member interactions, particularly as they related to team performance. Third, the directions preceding this scale did not mention the nature or purpose of the questions to follow. This illustrates the trade-off between preparing the respondents for the questions to follow so that they will understand the nature of the questions versus "priming" them to provide socially desirable responses. The modifications to this scale conforms to the admonitions of Pearce and Gregersen (1991) and Kiggundu (1983) that when measuring task interdependence it is important to tailor the items to the specific work situation.

Three items were dropped from the Resource-Related Conflict (RC) scale. An item related to training (RC10) was dropped from the analysis because everyone had completed training on their jobs and had qualified at the acceptable level required to retain employment. Cross-training on other jobs, though planned, had not yet taken place. This question may have had more meaning had the cross training been completed. Items related to personnel decisions (RC6 and RC7) were also dropped. It was felt that the construct of resource-related conflict would be more accurately measured by retaining only those items that pertained to the resources that were the most pertinent to the ability of the individuals to perform their job: materials, supplies, and equipment.

Dropping items from these scales was not undertaken lightly. This action was taken based on feedback from survey respondents, observations of the work site, and empirical analysis of the responses. It is believed that taking this action provides a more accurate measure of the respective constructs than

does refraining to do so. No items were dropped from established scales that had been previously validated and reported in the literature, i.e. the OCQ, used to measure Organizational Commitment, and the modified OCQ, used to measure Team Commitment. No items were dropped from the Satisfaction with Supervision Scale and the Satisfaction with Coworkers Scale. The Cronbach Coefficient Alpha for each scale indicates acceptable internal reliability. See Table 4. See Appendix A for a complete listing of survey items and the resulting tests for Cronbach Coefficient Alpha.

**TABLE 4**  
**Cronbach Coefficient Alpha**

<b>Construct</b>	<b>Alpha</b>
Task Interdependence.....	0.841
Intersender Conflict.....	0.845
Resource Related Conflict.....	0.752
Satisfaction with Coworkers.....	0.901
Satisfaction with Supervision.....	0.950
Organizational Commitment.....	0.895
Team Commitment.....	0.864

### **Factor analysis**

An exploratory factor analysis using principal components analysis was performed on the 55 items that made up the seven scales. The values and differences between the eigenvalues suggested the presence of seven factors. See Table 5. The seven factor solution was confirmed via iterated principal factoring, with squared multiple correlations as communality estimates and a Harris-Kaiser rotation. The eigenvalues of the seven factors ranged from a low of 1.0646 to a high of 11.7462 and together they accounted for 92% of the variance. This solution lends itself to a straight forward interpretation. See Table

6. Four of the factors were simply the scales that the items were intended to measure. These were Intersender Conflict (IC), Task Interdependence (TI), Satisfaction with Supervision (SS), and Organizational Commitment (OC).

TABLE 5  
Eigenvalues for the Seven Factor Solution

	Fac1	Fac2	Fac3	Fac4	Fac5	Fac6	Fac7
Eigenvalue	11.746	5.608	3.924	3.072	1.901	1.470	1.065
Difference	6.138	1.685	0.851	1.172	0.430	0.406	0.332
Proportion	0.374	0.179	0.125	0.098	0.061	0.047	0.034
Cumulative	0.374	0.553	0.678	0.776	0.836	0.883	0.917

Factor 3, identified as Team Commitment (TC) had nine out of ten of its items load on the Team Commitment Scale. One item (TC1) did not load on any factor. Factor 7, identified as Satisfaction with Coworkers (SC) had one item (SC1) that loaded on another factor, Team Commitment, and a second item (SC3) that cross loaded on both Satisfaction with Coworkers and Team Commitment. The other five items loaded strongly on Factor 7.

Factor 6, identified as Resource Related Conflict (RC) had two items that did not load, RC7 and RC9. Item RC7 loaded on Factor 1, Satisfaction with Supervision. An examination of this item, "Facilitators are seldom available when needed" (reverse score), suggests that it may be related to both satisfaction with supervision and the facilitators responsibility in making sure resources are available to the team. Item RC9, related to materials handlers, did not load on any of the factors. The other items loaded well on Factor 6.

Overall, the seven factor solution provides support for both convergent and discriminant validity of the measures of the seven constructs pertinent to this study.

Table 6  
Factor Analysis of the 55 items in the Survey Instrument

Item	Fac1	Fac2	Fac3	Fac4	Fac5	Fac6	Fac7
<b>Intersender Conflict</b>							
IC1	-6	2	-18	9	42*	-2	-9
IC2	-3	0	2	5	57*	-2	-17
IC3	3	-2	6	-6	61*	-8	2
IC5	6	-3	-1	-4	68*	9	26
IC6	0	-2	-13	6	67*	-2	9
IC7	-2	4	15	-5	60*	0	-23
IC8	4	-6	11	-3	75*	6	-2
IC9	-13	9	-17	2	55*	1	-8
<b>Task Interdependence</b>							
TI4	5	-6	5	71*	-4	2	-3
TI5	5	-5	5	61*	-2	-2	-4
TI6	-4	5	-1	52*	20	-7	7
TI7	2	2	-10	74*	5	4	11
TI8	-3	-2	1	70*	-3	0	-3
TI10	-1	-1	1	78*	-5	2	-4
<b>Resource Related Conflict</b>							
RC1	0	4	-12	-5	13	55*	13
RC2	6	0	2	-1	-2	71*	-9
RC3	2	-2	-5	0	1	87*	6
RC4	3	-1	19	7	0	73*	-13
RC7	-47*	1	-14	0	2	24	8
RC8	-4	-11	-19	6	-10	32*	1
RC9	-20	6	-11	-8	-3	26	-6
<b>Satisfaction with Coworkers</b>							
SC1	1	2	42*	1	-2	8	26
SC2	-6	-6	10	2	5	-1	78*
SC3	8	-5	47*	-8	2	3	34*
SC4	2	-2	-13	-1	-8	-3	81*
SC5	8	5	6	-3	-13	6	66*
SC6	5	-5	20	-4	-8	-2	62*
SC7	-1	6	-9	3	9	-3	93*
<b>Satisfaction with Supervision</b>							
SS1	83*	1	8	-2	5	-4	0
SS2	90*	4	-8	0	0	9	6
SS3	89*	8	-4	3	-2	6	1
SS4	93*	0	-7	-1	0	5	-3
SS5	92*	-2	-5	3	2	9	6
SS6	79*	1	11	-3	-1	-12	-6
SS7	74*	-4	7	5	-4	-9	-9

Table 6 (continued)  
Factor Analysis of the 55 items in the Survey Instrument

Item	Fac1	Fac2	Fac3	Fac4	Fac5	Fac6	Fac7
<b>Organizational Commitment</b>							
OC1	-11	55*	-6	15	-3	1	5
OC2	3	81*	-3	0	-3	-1	2
OC3	5	34*	-1	11	-3	-7	0
OC4	0	59*	4	-1	10	7	-5
OC5	8	70*	8	-9	12	-8	3
OC6	6	84*	-2	-4	-7	-4	-4
OC7	5	74*	-8	-4	-4	-2	5
OC8	2	82*	-7	0	2	2	8
OC9	-4	57*	13	16	7	-7	-2
OC10	-5	81*	1	-4	-7	6	-10
<b>Team Commitment</b>							
TC1	-9	26	10	24	-8	10	2
TC2	0	4	69*	4	-14	6	-6
TC3	3	2	27*	10	1	-9	7
TC4	-2	16	49*	-10	3	5	-9
TC5	-5	10	53*	-6	-12	6	15
TC6	2	4	79*	-1	1	-3	3
TC7	-7	8	71*	3	-13	3	-7
TC8	-2	-10	95*	1	7	-2	-6
TC9	-6	8	51*	17	12	-2	18
TC10	0	-8	91*	-2	5	4	-4

NOTE: Printed values are multiplied by 100 and rounded to the nearest integer. Values greater than 0.26 have been flagged by an '\*'.

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### Methods variance

As mentioned in Chapter 3, in studies that involve cross-sectional self-report methodology the issue of common method variance should be addressed and the Harman one-factor test would be conducted. The results of the factor analysis mentioned above revealed that the first factor had an eigenvalue of 11.746 and accounted for 37% of the variance. The second factor had an eigenvalue of 5.608 and accounted for 18% of the variance. See Table 5. As indicated above, a seven factor solution is

suggested with all seven factors accounting for 92% of the variance. The results suggest that at least a four factor solution, accounting for 78% of the variance, is reasonable.

With factor analysis suggesting at least a four factor solution and the first factor accounting for only 37% of the variance. Given that many of the items included in this analysis are hypothesized to be correlated, the results of this analysis suggest that common method variance should not be a significant problem.

There can be legitimate concern about method variance due to the use of the OCQ and a modified OCQ in the same instrument. However, the results indicate this is not a problem since the items (with the one exception noted above) loaded strongly on their respective factors. There were no cross loadings and the differences in the eigenvalues of the two factors was 1.685. Also, these scales were placed as far from one another as possible in the survey instrument.

### **Measurement model**

As indicated in Chapter 3, the measurement model was constructed by creating two indicators (manifest variables) for each construct (latent variable). Table 7 presents the descriptive statistics, including the Pearson's correlation coefficients for the latent variables.

The estimated measurement model showing the standardized factor loadings is depicted in Figure

6. The fit indices for the measurement model are:

Chi-Square with 56 Degrees of Freedom = 91.53 (P = 0.0019)

Goodness of Fit Index (GFI) = 0.97

Adjusted Goodness of Fit Index (AGFI) = 0.95

Root Mean Square Residual (RMR) = 0.020

Standardized RMR = 0.025

According to Wheaton (1987) the Chi-Square (which is a likelihood-ratio chi-square) is dependent upon sample size. With a relatively large sample size the chi-square / degrees of freedom ratio ( $X^2/df$ ) is sometimes used to assess fit. Acceptable ratios range from up to 2 (Wheaton, Muthen, Alwin, & Summers, 1977) to up to 5 (Carmines, & McIver 1981). Though there is question about the  $X^2/df$  ratio (Wheaton,

1987), it can be used along with other indicators to assess the fit of models with large sample sizes. In this case of this measurement model the  $X^2/df$  ratio is 1.63, suggesting a good fit. In addition to the low  $X^2/df$  ratio, the high values of the Goodness of Fit Index, Adjusted Goodness of Fit Index, and the low value of the Root Mean Square Residual indicates that the measurement model fits the data well. Confidence in this conclusion is bolstered by the fact that all of the T-values were large (the smallest was 7.35). See Figure 7.

## **TESTS OF HYPOTHESES**

With the scales used to measure the constructs demonstrating acceptable reliability, factor analysis supporting discriminant and convergent validity, concerns about methods variance and data normality satisfied, and the model fitting the data well, the results of the hypotheses are now presented.

### **Structural model**

The model was estimated using the Maximum Likelihood estimation method by LISREL 8.12a. A summary of the paths and their significance levels can be found in Table 8 and Figure 8. The model fit the data well as can be seen by the following fit indices.

Chi-Square with 56 Degrees of Freedom = 91.53 (P = 0.0019)  
Goodness of Fit Index (GFI) = 0.97  
Adjusted Goodness of Fit Index (AGFI) = 0.95  
Root Mean Square Residual (RMR) = 0.020  
Standardized RMR = 0.025

### **Comparison of the models**

The first five hypotheses were tested employing the method described in Chapter 3. The results follow and a summary of the results is shown in Table 9 and Figure 9. Since one path was restricted in each of the first five hypotheses tested, the difference in the degrees of freedom in each case will be 1.

TABLE 7  
Means, Standard Deviations, and Correlations among the Latent Variables

Construct	1	2	3	4	5	6	7
1. Task Interdependence	1.0						
2. Intersender Conflict	0.178 <sup>b</sup>	1.0					
3. Resource-Related Conflict	0.050	0.234 <sup>b</sup>	1.0				
4. Satisfaction w/Coworkers	-0.036	-0.581 <sup>b</sup>	-0.167 <sup>b</sup>	1.0			
5. Satisfaction w/Supervision	0.045	-0.263 <sup>b</sup>	-0.367 <sup>b</sup>	0.285 <sup>b</sup>	1.0		
6. Organizational Commitment	0.152 <sup>b</sup>	-0.141 <sup>a</sup>	-0.314 <sup>b</sup>	0.184 <sup>b</sup>	0.311 <sup>b</sup>	1.0	
7. Team Commitment	0.048	-0.506 <sup>b</sup>	-0.136 <sup>a</sup>	0.699 <sup>b</sup>	0.217 <sup>b</sup>	0.315 <sup>b</sup>	1.0
Mean	5.545	3.938	4.069	4.231	3.611	3.904	4.051
SD	0.459	0.997	0.907	0.900	1.025	0.939	0.944

a - p<.01

b - p<.001

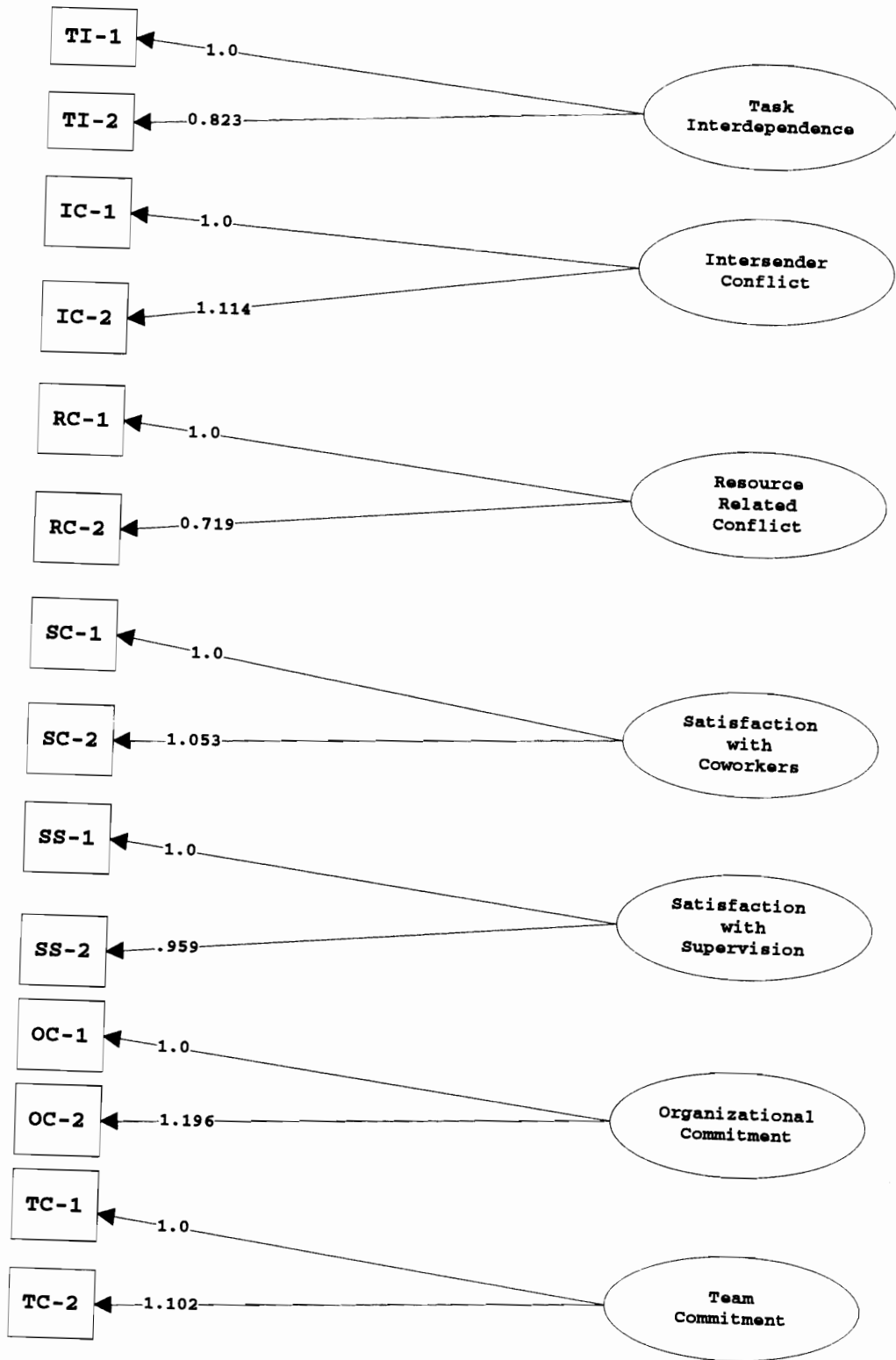


FIGURE 6  
Measurement Model Showing Factor Loadings

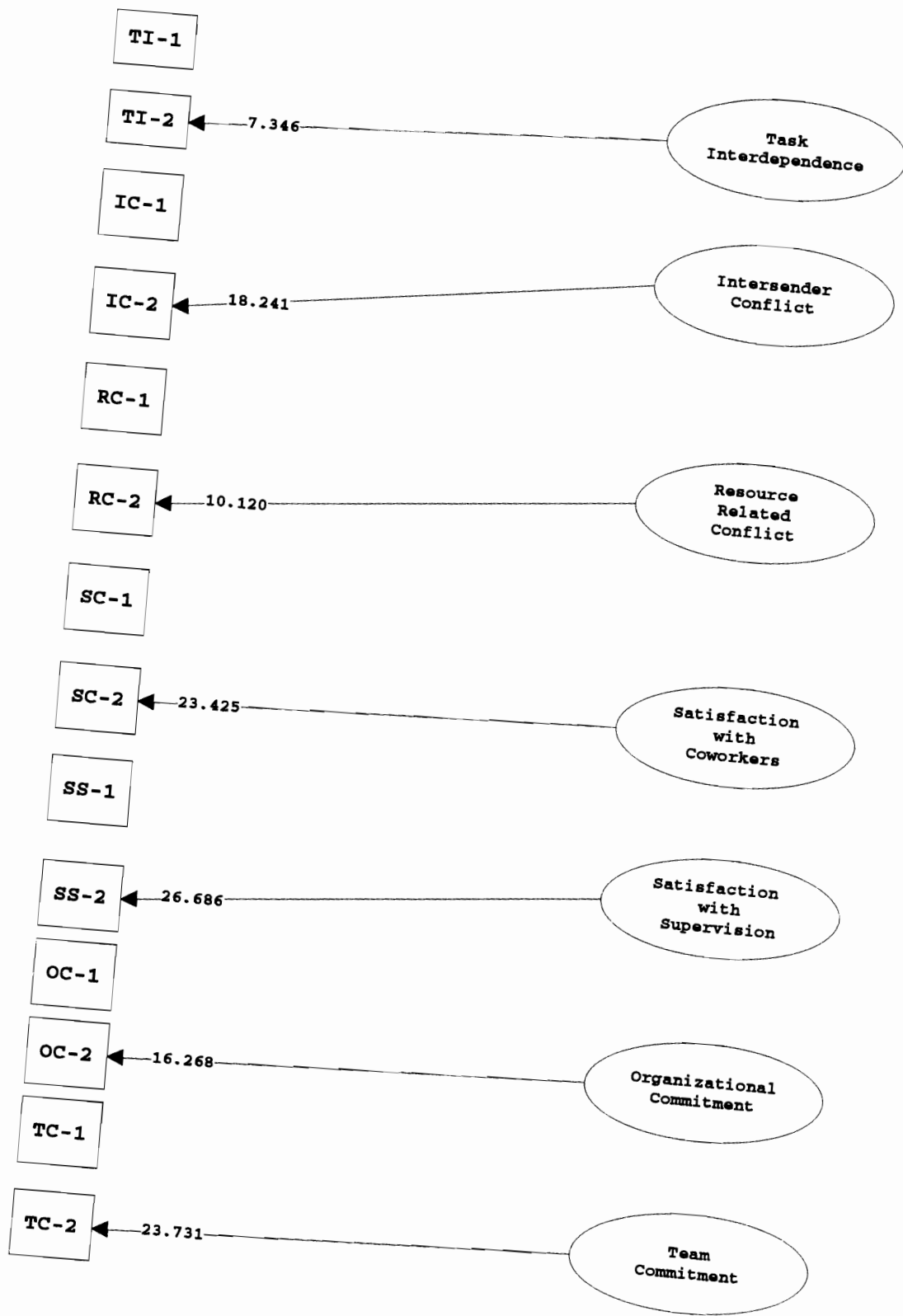


FIGURE 7  
Measurement Model Showing T-Values

**Hypothesis 1:** Perceived task interdependence will be positively and more strongly related to team commitment than to organizational commitment.

This hypothesis was tested by restricting the paths from task interdependence to organizational commitment and from task interdependence to team commitment to be equal. An inspection of the path coefficients shows that the path to organizational commitment (0.321,  $p < .001$ ) is stronger than the one to team commitment (0.201,  $p < .01$ ), opposite from what was posited in the hypothesis. The  $X^2$  difference test indicated that the restricted model did not fit the data less well than the base model ( $X^2 = 1.57$ , ns). Therefore, the paths are not significantly different and this hypothesis is not supported.

**Hypothesis 2:** Satisfaction with supervision will be positively and more strongly related to organizational commitment than to team commitment.

This hypothesis is supported. It was tested by restricting the paths from satisfaction with supervision to organizational commitment and from satisfaction with supervision to team commitment to be equal. Forcing the paths to be equal resulted in the restricted model fitting the data significantly less well than the base model ( $X^2 = 13.65$ ,  $p < .005$ , after the Bonferroni adjustment). The path coefficient from satisfaction with supervision to organizational commitment is positive and significant (0.151,  $P < .001$ ) while the path to team commitment is not significant (-0.0283, ns).

**Hypothesis 3:** Satisfaction with coworkers will be positively and more strongly related to team commitment than to organizational commitment.

This hypothesis is also supported. When the paths from satisfaction with coworkers to organizational commitment and from satisfaction with coworkers to team commitment were restricted to be equal, the restricted model fit the data less well than the base model ( $X^2 = 53.68$ ,  $p < .05$ , after the Bonferroni adjustment). The path coefficient from satisfaction with coworkers to team commitment is positive, significant (0.741,  $p < .001$ ), and greater than the path coefficient from satisfaction with coworkers to organizational commitment (0.138,  $p < .05$ ).

TABLE 8  
Path Coefficients for the Base Structural Model

Independent Variables	Independent Variables			
	Sat. with Coworkers	Sat. with Supervision	Org. Commitment	Team Commitment
Task Interdependence	0.136	0.164	0.321 <sup>c</sup>	0.201 <sup>b</sup>
Intersender Conflict	-0.638 <sup>c</sup>	-0.229 <sup>c</sup>	0.043	-0.120 <sup>a</sup>
Resource Related Conflict	-0.0034	-0.415 <sup>c</sup>	-0.215 <sup>c</sup>	-0.021
Satisfaction with Coworkers			0.138 <sup>a</sup>	0.741 <sup>c</sup>
Satisfaction with Supervision			0.151 <sup>c</sup>	-0.028
$R^2$	.445	.226	.202	.641

a -  $p < .05$

b -  $p < .01$

c -  $p < .001$

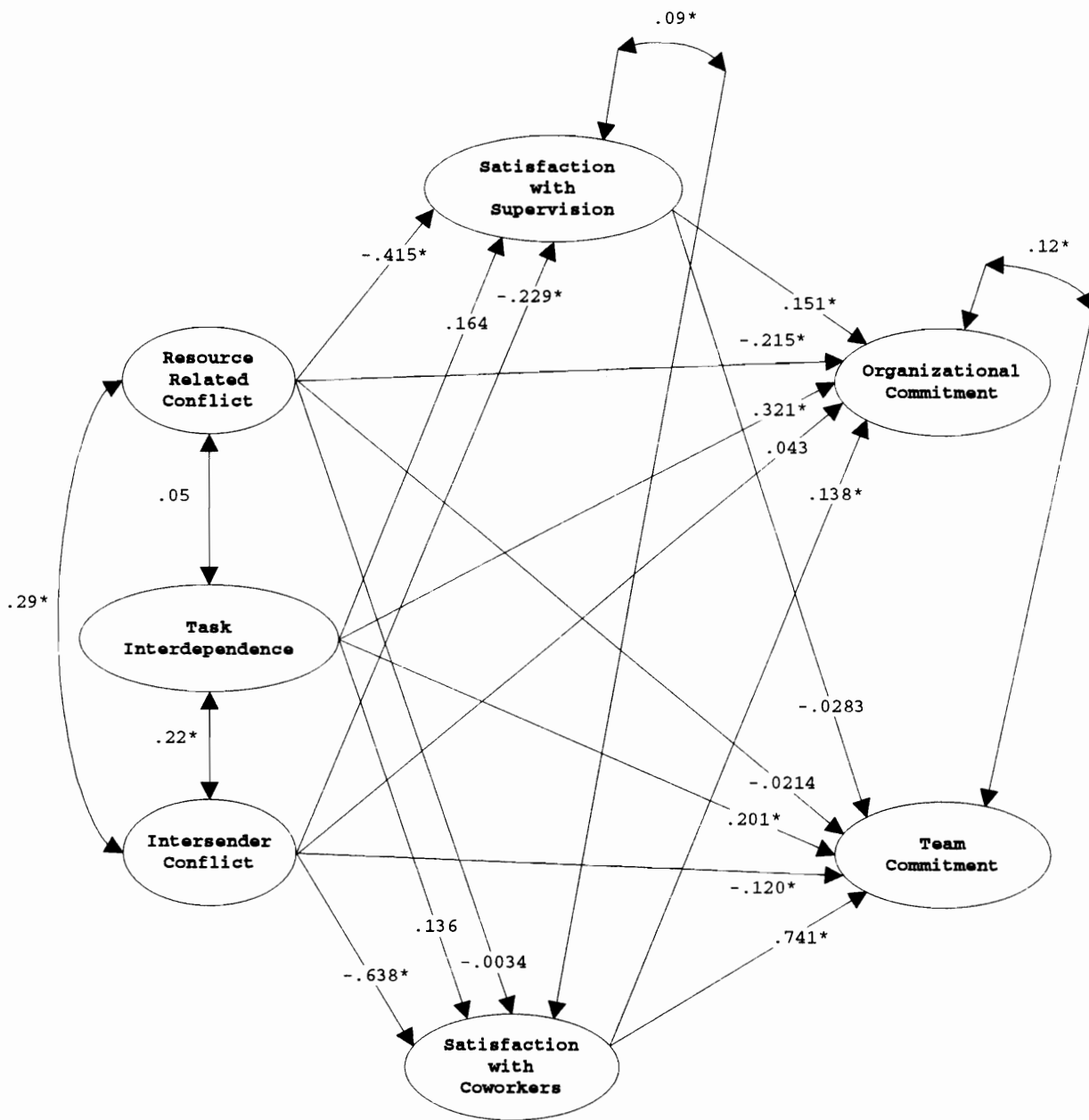


FIGURE 8  
Solution of the Structural Model

TABLE 9  
Chi-Square Difference Tests for Hypotheses

Hypothesis	Chi-Square	Chi-Square Difference (one df)	Hypothesis Conclusion
BASE MODEL	91.53		
H1: Task Interdependence	93.10	1.57	not supported
H2: Satisfaction w/Supervision	105.18	13.65 <sup>b</sup>	supported
H3: Satisfaction w/Coworkers	145.21	53.68 <sup>b</sup>	supported
H4a: Intersender Conflict	95.72	4.19 <sup>a</sup>	partially supported*
H5a: Resource Related Conflict	102.98	11.45 <sup>b</sup>	supported
Test Statistic without Bonferroni adjustment: Alpha = 0.05		3.84	
Test Statistic for Overall alpha = 0.05 with Bonferroni adjustment: 0.05/5 = .01		6.64	

a -  $p < .05$  without the Bonferroni adjustment

b -  $p < .05$  with the Bonferroni adjustment

\* Partial support is claimed for this hypothesis on the grounds that the test statistic exceeds the critical value for a probability of  $p < .05$  prior to the Bonferroni adjustment and because the path coefficient from intersender conflict to organizational commitment is not significant while the path coefficient from intersender conflict to team commitment is significant.

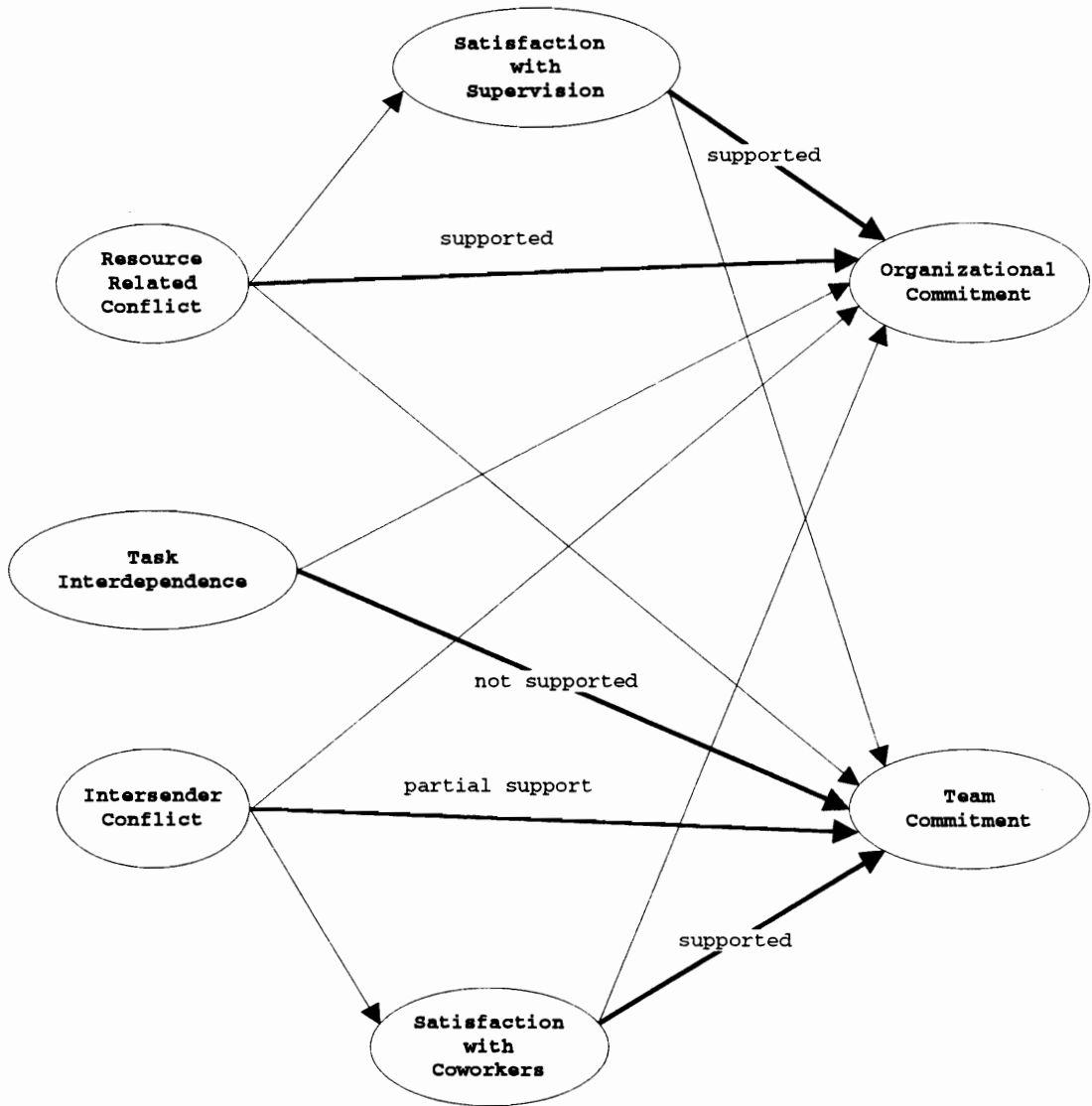


FIGURE 9  
Structural Model with Hypotheses Results

**Hypothesis 4a:** Intersender conflict will be negatively and more strongly related to team commitment than to organizational commitment.

Forcing the path from intersender conflict to organizational commitment to be equal to the path from intersender conflict to team commitment resulted in a restricted model that fit the data less well than the base model based on the  $X^2$  difference test if the Bonferroni adjustment is not done ( $X^2 = 4.19$ ,  $p < .05$ ). Without the Bonferroni adjustment the test statistic for the  $p < .05$  level is 3.48, with the Bonferroni adjustment this test statistic is 6.64. Therefore, with the Bonferroni adjustment the difference in how the two models fit the data is not significant. However, the path coefficient from intersender conflict to team commitment is negative, as hypothesized, and significant (-0.120,  $p < .05$ ). On the other hand, the path from intersender conflict to organizational commitment is not significant (0.0426, ns). Based on these two pieces of evidence it is concluded that this hypothesis is partially supported.

**Hypothesis 5a:** Resource-related conflict will be more strongly related to organizational commitment than to team commitment.

This hypothesis is supported. Forcing the paths from resource-related conflict to organizational commitment and from resource-related conflict to team commitment to be equal resulted in a restricted model that fit the data less well than base model ( $X^2 = 11.45$ ,  $p < .05$ , after the Bonferroni adjustment). The path coefficient from resource-related conflict to organizational commitment is negative, as hypothesized, and significant (-0.215,  $p < .001$ ). The path from resource-related conflict to team commitment is not significant (-0.0214, ns).

### **Indirect effects**

There are no direct statistical tests to detect significant differences between two different indirect effects in a structural model. Therefore, as mentioned in Chapter 3, Hypotheses 4b and 5b cannot be tested by a specific statistical test. Inferences, will be made based on interpretations of the path coefficients as reported by the LISREL program.

**Hypothesis 4b:** Intersender conflict will have an indirect and negative effect on team commitment through satisfaction with coworkers. This effect will be greater than the indirect effect of intersender conflict on organizational commitment through satisfaction with coworkers.

By multiplying the path coefficient from intersender conflict to satisfaction with coworkers (-0.638) by the path coefficient from satisfaction with coworkers to team commitment (0.741) the indirect effects of intersender conflict on team commitment through satisfaction with coworkers is obtained (-0.473). Similarly the effects of intersender conflict on organizational commitment through satisfaction with coworkers is -0.0881. This indirect path to team commitment from intersender conflict is greater than that to organizational commitment by a factor of 5.37. Also note that the path from satisfaction with coworkers to organizational commitment is not significant. This means that to obtain a value that represents the indirect effect of intersender conflict on organizational commitment through satisfaction with coworkers, it is necessary to arithmetically involve a path whose coefficient is not significantly different from zero.

This latter point is of less importance than the first because the estimate of the path is not zero. Taken together, however, it is claimed here that the preponderance of the evidence suggests that the hypothesis is supported.

**Hypothesis 5b:** Resource-related conflict will have an indirect and negative effect on organizational commitment through satisfaction with supervision. This effect will be greater than the indirect effect of resource-related conflict on team commitment through satisfaction with supervision.

By employing similar arithmetic as above, the indirect effects of resource-related conflict on organizational commitment through satisfaction with supervision is -0.0624 while the indirect effects on team commitment is 0.0117. Because of the difference in signs between these effects, the ratio between the numbers would be meaningless. However, similar to the previous situation involving Hypothesis 4b, the effect of resource-related conflict on team commitment through satisfaction with supervision involves a path whose coefficient is not significantly different from zero. Also, the sign of the indirect effects on team commitment is opposite of that on organizational commitment. Considering the totality of the empirical evidence it is claimed that the hypothesis is supported.

## **SUMMARY**

This chapter presented the results of the hypotheses posited in Chapter 2 based on the analysis described in Chapter 3. Of the seven hypotheses, three were supported by formal statistical tests (Hypothesis 2, Hypothesis 3, Hypothesis 5a), two were supported by reasonable inferences made in the absence of formal statistical tests (Hypothesis 4b & Hypothesis 5b), one received partial support based on formal statistical tests and the magnitude of the related path coefficients (Hypothesis 4a), and one is not supported (Hypothesis 1).

The next chapter will present a discussion of the results of the analysis and draw conclusions based upon them. The practical and theoretical implications of the research will be presented along with its limitations. Directions for future research based on by these findings will be suggested.

## **CHAPTER 5: DISCUSSION AND CONCLUSIONS**

### **OVERVIEW**

This chapter consists of three major parts. In the first section the findings relative to the hypotheses that were tested in Chapter 4 will be summarized and discussed in terms of theoretical and practical implications. The second section will discuss the limitation of the study. The final section will present a set of recommendations for future research.

### **DISCUSSION OF THE FINDINGS**

#### **Task interdependence**

The hypothesis related to perceived task interdependence was not supported. It was hypothesized that task interdependence would be positive and more strongly related to team commitment than to organizational commitment. While the data indicated that both path coefficients were positive they also indicated that task interdependence was more strongly related to organizational commitment, though the difference was not significant.

Possible explanations for this result involve the constraints imposed by the technology used at the research site. The tasks performed by the subjects were extremely technologically constrained. The product flows one way through the teams' work stations and each job is performed in an invariable sequence. As defined by Thompson (1967) this is an example of sequential interdependence. That is, the order of the interdependence is specified. The product always starts at a certain station and proceeds to the end in a specific and invariant order.

However, that is from the perspective of the product flow. Based on time, circumstances, need, and ability, team members may move about the team area assisting on other jobs, trading-off on jobs, gathering supplies and/or materials, or performing other tasks that would serve to boost productivity and,

concomitantly, the pay for all team members. This type of interaction would reflect a type of interdependence that Thompson labeled "reciprocal", that is "the outputs of each become the inputs for the other" (1967: 55).

To detect reciprocal interdependence at the current research site, one would have to consider not only the movement of the product through the system, but the movement of the people around the product as it does so.

With this in mind, a scale was designed with the intention of detecting the "extra layer" of interdependence that would be perceived by those who saw beyond the normal product flow. This intention was not met. Note that the mean and standard deviation for this variable are 5.5 and .46, respectively (Table 7). Possible explanations include:

1. Few people were able to perceive beyond the sequential interdependence inherent in the technology. Perhaps this would change as greater experience with team sewing is acquired.
2. Most people perceived high levels of both the sequential and reciprocal interdependence.
3. The technological constraints were so powerful that the subjects were able to see only the interdependence inherent in the technology and responded accordingly.
4. The instrument was not designed well enough to detect the differences being looked for. This point would tend to confirm the observation by Pearce and Gregersen (1991) that the empirical measurement of perceived task interdependence is fraught with great difficulty.

### **Satisfaction with supervision**

The hypothesis that satisfaction with supervision was positively and more strongly related to organizational commitment than to team commitment was supported (Hypothesis 2). The research reviewed in Chapter 2 supports a positive relationship between satisfaction with supervision and organizational commitment (See Figure 1). The current results tend to confirm such findings. Also, the current results are directly opposite those reported by Zaccaro and Dobbins (1989), who found that

satisfaction with supervision was more strongly related to team commitment than to organizational commitment. It was predicted that this would be the case due to the nature of the relationships between teams and the supervisors in the two samples. That is, the facilitators are more proximal to the organization while the squadron leaders are more proximal to the team.

Together, this work and that of Zaccaro and Dobbins (1989) provide unique support for field theory (Lewin, 1943) and the way elements in the work environment influence an individual's organizational horizon (Porter, Lawler, & Hackman, 1975). Specifically, the same dependent variables, organizational commitment and team commitment, were differentially effected by the same independent variable, satisfaction with supervision, based on the subject's organizational horizon as influenced by the physical and psychological environment. Team membership, shared rewards, and the amount of shared time and interaction were environmental characteristics that were different between the two studies. It is thought that these differences were contributory to the differences in the outcome.

This illustrates the point that one can not hypothesize whether satisfaction with supervision will have a stronger influence on team commitment or organizational commitment without understanding the proximal and functional nature of the relationship.

The implications for researchers is that when designing a study one cannot simply assume that a relationship exists in a specified way in all cases. One must first carefully define the constructs under consideration and then consider the proximal and salient aspects of their relationships.

**Implications for managers.** Prior research has linked organizational commitment with intention to quit and turnover (Mathieu & Zajac, 1990). Therefore, practicing managers concerned with these issues should also be concerned about the relationships between employees and company management. A word of caution: They should also be aware that in the self-directed work team environment characterized by this site, interaction with facilitators tends to be primarily task related. Also, the instrument designed to measure satisfaction with supervision attempted to capture task related dimensions of satisfaction as well as affective dimensions. Hence, being satisfied with supervision with no task related basis may not lead to

the relationship between satisfaction with supervision and organizational commitment that was found here.

The implications for practicing managers is that when designing or planning an intervention one must consider environmental factors rather than assume that a relationship exists in a particular way in all cases.

### **Satisfaction with coworkers**

The hypothesis that satisfaction with coworkers was positively and more strongly related to team commitment than to organizational commitment was supported (Hypothesis 3). In Chapter 2, it was argued that the norm of reciprocity (Gouldner, 1960) and the concomitant felt responsibility (Salancik, 1979) would be the mechanism that linked satisfaction with coworkers to commitment. That the proximal nature of the team and its members made the team the more salient object of the resulting commitment is not surprising. Furthermore, it is consistent with the notion of an individual's organizational horizon being a function of the proximal and salient features of the entities that he or she perceives (Lewin, 1943; Porter, Lawler, & Hackman, 1975).

The magnitude of the differences between the paths between satisfaction with coworkers and team commitment and between satisfaction with coworkers and organizational commitment is quite striking relative to the other paths that were tested. The  $X^2$  difference relative to this hypothesis was about four times greater than the next largest  $X^2$  difference and exceeded the critical value by almost an order of magnitude. In addition, the direct effect of satisfaction with coworkers on team commitment (0.741,  $p < .001$ ) is over five times greater than its effect on organizational commitment (0.138,  $p < .05$ ). Also note that the T-value of the path from satisfaction with coworkers to team commitment is 11.81 with a critical value of 3.29 ( $p < .001$ ). The T-value of the path from satisfaction with coworkers to organizational commitment is 2.00 with a critical value of 1.96 ( $p < .05$ ). These statistics emphasize the strength of the relationship between satisfaction with coworkers and team commitment.

In Chapter 2 it was pointed out that research has reported mixed support for satisfaction with coworkers as an antecedent of organizational commitment. It was then suggested that the more salient focus of commitment resulting from satisfaction with coworkers may be team commitment. The above evidence supports this argument.

As pointed out in Chapter 2, the debate over the causal relationship between job satisfaction and organizational commitment is far from being resolved. It was then suggested that more definitive results might be obtained, or at least more parsimonious questions may be addressed, if multiple foci of commitment were considered with respect to the multidimensional nature of job satisfaction. The results of Hypotheses 2 and 3 support this direction and illustrate that the debate over the causal relationship between job satisfaction and organizational commitment should be reformulated to address both different foci of commitment and their relationships with different dimensions of satisfaction.

**Implications for managers.** Previous research has suggested that team commitment contributes to team performance (Scott & Townsend, 1993) and certain organizational citizenship behaviors (OCBs; Becker, 1992). This study supports the hypothesis that satisfaction with coworkers leads to team commitment. Therefore, since practicing managers would be desirous of high performance and OCBs, they would want to monitor for harmonious relationships that lead to positive affect among team members and be prepared to intervene when necessary.

A word of caution is in order at this point. The reward structure at the research site used in this study serves to align employees' efforts with the magnitude of their pay. At the same time, as with satisfaction with supervision, the instrument used to measure satisfaction with coworkers attempted to capture task related dimensions of satisfaction that were also important in achieving high pay levels. For example, respondents were asked how satisfied they were with "the skills of your teammates" (Item SC1; See Appendix A) and "how hard your teammates work" (Item SC3; See Appendix A). The implication is that practicing managers would want to be sure that satisfaction with coworkers refers to task related as well as affective dimensions. To do otherwise may make it possible for an environment to develop in

which satisfaction with coworkers is high but is based on non-task related issues. In such an environment non-task related behaviors may become encouraged and positively reinforced among team members.

To the extent that practicing managers want to be cognizant of the level of satisfaction members of work teams have with each other, they should also be concerned about the causes of this type of satisfaction. In this study, no explicit hypotheses were made relative to intersender conflict and satisfaction with coworkers except as related to the indirect effect of intersender conflict on team commitment through satisfaction with coworkers. The solution of the path model based on the current data supports the idea that intersender conflict has a significant and negative direct effect on satisfaction with coworkers (-0.638,  $p < .001$ ). However, a negative relationship is implicit in the argument leading to the hypothesis (H4b).

Managers considering steps to reduce the level of intersender conflict within teams should proceed with caution. Reducing intersender conflict through training and subsequent improvement in interpersonal communication, problem solving, and conflict resolution should lead to positive outcomes. On the other hand, reducing intersender conflict by sanctioning legitimate attempts to communicate ideas and feelings is likely to have negative consequences.

### **Role conflict**

The hypotheses involving role conflict pertained to both direct and indirect effects on organizational commitment and team commitment. The results of the hypotheses related to direct effects on the two commitment foci will be discussed first along with the associated theoretical issues. Second, the hypotheses pertaining to indirect effects will be similarly discussed. Then the practical implications of all four hypotheses will be discussed.

**Direct effects.** Hypothesis 4a ("Intersender conflict will be negatively and more strongly related to team commitment than to organizational commitment.") received partial support. Hypothesis 5a ("Resource-related conflict will be negatively and more strongly related to organizational commitment

than to team commitment.") was supported. Taken together, the results of these hypotheses are consistent with prior research on role conflict which has generally concluded that role conflict constitutes an antecedent of organizational commitment and has a negative relationship with it. As hypothesized in Chapter 2 these results are also consistent with Salancik's contention that anything that reduces responsibility also reduces commitment (1977: 17).

These results also support the argument that role conflict has several sub-dimensions as described by House and Rizzo (1972), Kahn, et al. (1964), and Rizzo, House, and Lirtzman (1970) and empirically tested by Morris and Snyder (1979).

**Resource-related conflict.** In the case of resource-related conflict, the company is responsible for providing the materials, supplies, and equipment required by the employees to produce output desired by the company and earn their own living. When resources are lacking, it is the employees' perceptions that the company's actions, or inactions, are the cause. This means that it is the company that has reduced the employees' ability to take on the responsibility of converting inputs into the desired product. Therefore, it is reasonable that resource-related conflict would have a greater deleterious effect on organizational commitment than on team commitment. This reasoning is supported by the empirical findings related to this model.

**Intersender conflict.** A similar set of processes occur in the case of intersender conflict. In a self-directed work team environment, many of the directive functions traditionally performed by first level supervisors are now assumed by the team. When intersender conflict occurs in connection with task related directives, it inhibits the employees' ability to perform and their felt responsibility for doing so is reduced. The reduction in responsibility leads to a reduction in commitment (Salancik, 1979). Since the preponderance of the task related directives originate within the team, it is reasonable that the associated intersender conflict would have a greater deleterious effect on team commitment than on organizational commitment. The empirical findings of this study support this theoretical reasoning.

**Indirect effects.** The hypotheses involving the indirect effects of intersender conflict (Hypothesis 4b) and resource-related conflict (Hypothesis 5b) were both supported. In the case of resource-related conflict, it was hypothesized that the indirect effects of resource-related conflict through satisfaction with supervision would be negative and more strongly related to organizational commitment than to team commitment. The empirical results not only support the hypothesis but they show that the indirect effect through satisfaction with supervision (-0.063) is approximately 30% of the direct effect of resource-related conflict on organizational commitment (-0.215,  $p < .001$ ). That is, when considering the effect of resource-related conflict on organizational commitment, the addition of the indirect effect of the path through satisfaction with supervision to the direct effect increases the total effect by approximately 30%.

In the case of intersender conflict, it was hypothesized that the indirect effect of intersender conflict through satisfaction with coworkers would be negative and more strongly related to team commitment than to organizational commitment. The empirical results, in addition to providing support for this hypothesis (Hypothesis 4b), are interesting in that the indirect effect of intersender conflict on team commitment through satisfaction with coworkers (-0.473) is approximately four times the direct effect (-0.12,  $p < .05$ ). This means that while intersender conflict does indeed have a deleterious effect on team commitment, as reported in the literature, the preponderance of this effect is through satisfaction with coworkers. This finding, though perhaps surprising at first, is consistent with Hackman's argument that as members learn to overcome conflict they "promote both group creativity and member satisfaction" (1986: 170).

**Implications for managers.** The results of this study suggest that role conflict plays an important part in the levels of organizational commitment and team commitment that exist in the work setting. Practicing managers should be aware that resource-related conflict not only has a significant and negative direct effect on organizational commitment, but it also has a significant and negative indirect effect on it as well.

Practicing managers should also be aware that resource-related conflict has a significant and negative direct effect on satisfaction with supervision. This could be problematic if the supervisor is involved in attempts to solve problems associated with resource availability. This is because the employees may tend to see the supervisor as part of the problem. Therefore, in addressing resource related problems, managers should also consider the relationships that exist between employees and supervisors.

As mentioned earlier, the hypothesis that the direct effect of intersender conflict on team commitment was negative and more strongly related to team commitment than to organizational commitment received only partial support. Even so, the effects of intersender conflict on team commitment are still quite important. First, the direct effect is significant ( $-0.12, p < .05$ ) and, second, the indirect effect through satisfaction with coworkers ( $-0.473$ ) is four times larger than the direct effect. Therefore, when these effects are combined, they indicate that a one unit decrease in intersender conflict leads to a 0.593 unit increase in team commitment.

To managers, this finding should serve to emphasize the importance of the quality of the interaction that takes place within teams. Not only does satisfaction with coworkers have a large direct effect on team commitment ( $0.741, p < .001$ ) but the indirect effect of intersender conflict through it accounts for the majority of the impact that intersender conflict has on team commitment.

### **Overall model**

In viewing the overall model with respect to the hypotheses, the results of this study add additional support for the general proposition that organizational commitment and team commitment vary differentially (See Becker, 1992; Becker & Billings, 1993; Hunt & Morgan, 1994). Also supported is the proposition that such differential variation can be caused by phenomena that are of particular importance in the self-directed work team environment.

When the results of the hypotheses are taken together an interesting symmetry can be seen. See Table 10. Specifically, two antecedents were more strongly related to organizational commitment than to

team commitment, one with a positive influence (satisfaction with supervision) and the other with a negative influence (resource-related conflict), and two others were more strongly related to team commitment, one with a positive influence (satisfaction with coworkers) and the other with a negative influence (intersender conflict).

The implication of this symmetry is that if one wishes to alter an employee’s profile of commitment, numerous options are available to either increase or decrease commitment by either increasing or decreasing an antecedent. For example team commitment may be increased by either raising satisfaction with coworker or lowering intersender conflict. Organizational commitment may be increased by raising satisfaction with supervision or lowering resource-related conflict. For managers this situation suggests great flexibility in term of the options available to address commitment related issues. For researchers, this outcome offers an interesting framework to consider when developing conceptual ideas relative to commitment in the workplace. Are there worthwhile theoretical and practical considerations based on this symmetry or is it simply a condition that may be appealing to one’s sense of order?

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TABLE 10  
Direct Effect of Independent Variables on Organizational Commitment and Team Commitment.

Independent Variable	Stronger Effect on	Direction of Effect
Satisfaction w/Supervision	Organizational Commitment	positive
Resource Related Conflict	Organizational Commitment	negative
Satisfaction w/Coworkers	Team Commitment	positive
Intersender Conflict	Team Commitment	negative
Task Interdependence	(no sig. difference)	positive

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The independent variables were selected for the theoretical rationale delineated in Chapter 1. Briefly, the environmental conditions in a self-directed work team environment may influence how these variables act on relevant foci of commitment, specifically the organization and the work team. In the event, it can be concluded that the model, even though based on antecedents of organizational commitment, is more descriptive of team commitment. This can be concluded because the model explains 64% of the variance in team commitment and only 20% of the variance in organizational commitment. See Table 8. This finding provides at least empirical support for the notion of reconceptualizing the theoretical linkages of organizational commitment antecedents to include other relevant and salient foci.

## **LIMITATIONS**

This study, like all field research, has limitations. One such limitations is the choice of variables that were used as antecedents in this study. Though chosen with care, it is likely that the inclusion of other variables would add to the contribution of this study. A difficulty of adding additional variables however is the length of the survey instrument that subjects would be required to complete. At the same time the inclusion of as many relevant variables as is practical allows for the generation of a theoretical framework that is as complete as possible.

One issue that was not addressed in this study is the possibility of a trade off between organizational and team commitment by employees in a self-directed work team environment. Though it was not hypothesized that an increase in commitment to one foci results in a corresponding decrease in commitment to the other, further conceptual and empirical work on this issue represents an opportunity for future research.

One concern with regards to the sample was the issue of literacy. Random responses by those who were unable to comprehend the instrument may contribute to some attenuation of variance. Care was taken in the wording of the items. Efforts were made with regards to reading level, the vernacular of the

subjects, and the jargon of the industry to produce an instrument that was readable and useful. The pilot test was useful in this endeavor.

The seriousness with which the subjects approach a study is an important consideration. Efforts were made to create a serious mood in the survey administration rooms. This was done by both word and deed. First, the fact that this was university research was emphasized. Second, it was pointed out that the survey items originated from interviews with teams like themselves. Third, monitors were present at all times and maintained a friendly but businesslike demeanor. Finally, it was promised that a summary of the results would be made available to the participants.

Participation in the survey was mandatory. While this avoids the problems of non-response bias, non-involved subjects may not be as veracious in their responses as one would hope. To combat these concerns, each survey was checked manually and the data summaries were examined for scales that were completely omitted and other signs that the survey was clearly not completed in a forthright manner. As a result of these checks 16 surveys were disqualified.

Another limitation of the study is that the subjects are almost entirely female (98%). Although there is no reason to believe that this condition would have a detrimental effect on the generalizability of the study, this condition should be noted. Differences in the ways that men and women are socialized may affect their experience of the team environment.

The severe technological constraints encountered in the research setting was both a benefit as well as a limitation. It was a benefit in that it provided strict standardization of job tasks throughout the sample. At the same time it allowed for little discretionary latitude in the way tasks were performed. It is believed that this lack of discretionary latitude had the effect of creating an environment in which there could be little variance in how the respondents were able to perceive task interdependence.

Measurement of the constructs also constitute a potential limitation of this study. A diligent search of the literature was done in order to find existing scales to measure the constructs of interest. Where possible such scales were used (i.e. organizational commitment and team commitment) and in all cases

existing scales were used as models for item construction. In some cases (particularly task interdependence, intersender conflict, and resource related conflict) it was necessary to tailor the items so that they would be relevant to the environment in which the respondents worked. It is important to do this in order to capture the construct as it affects workers' attitudes within the context of their environment (Kiggundu, 1981, 1983; Morris & Snyder, 1979; Pearce & Gregersen, 1991).

In the event, several of the scales were developed specifically for this study (satisfaction with coworkers, satisfaction with supervision, resource related conflict, intersender conflict, and task interdependence). Therefore these scales have not had the advantage of extensive testing and usage over an extended period of time.

Another limitation relative to construct measurement pertains to the possible "priming" of the subjects. For example, it was hypothesized that resource-related conflict was more strongly related to organizational commitment than to team commitment and this hypothesis was supported. However, this conclusion would be undermined if the subjects were "primed" to think in terms of the organization when giving their responses. Consider, for example, item RC3 of the resource-related conflict scale. It reads: "Getting supplies is a problem around here." It is hoped that by stating the item this way the subjects are free to consider either the team or the organization as being responsible ("Getting supplies is a problem around here *because the company is negligent in this regard.*" or "Getting supplies is a problem around here *because my teammates do not make the effort to go get them.*")

On the other hand, item RC7, "Mechanics respond quickly when we have a broken machine." (reverse scored), likely "primes" subjects to think of the organization because the mechanics are clearly not part of the team. Even so, some respondents may take it upon themselves to see to it that the mechanics act quickly and respond to the item from a team perspective.

Another example: Intersender conflict was hypothesized to be more strongly related to the team than to the organization. This hypothesis received partial support using very conservative statistical methodology. As with the case of resource-related conflict, this conclusion would be undermined if the

subject were “primed” to think of the team when responding to the items. Efforts were made to avoid such “priming”. For instance, item IC2 of the intersender conflict scale reads “I receive conflicting requests from two or more people.” The respondent is free to consider the “two or more people” as teammates, facilitators, plant management, or any combination thereof.

On the other hand, item IC1, “Some people on my team want to do things quite differently.” likely “primes” subjects to think of the team because the item specifically refers to “some people on my team”. At the same time subjects could think of this situation in terms of the company because it is the company’s responsibility to train employees in team related skills and assist them in creating an harmonious environment.

In summary, every attempt was made to make the items neutral as to whether they pertained to the team or the organization. This was a difficult objective and it is still possible that “priming” took place. To the extent that it did so the results of the study are compromised.

A final limitation is that this study was based on cross sectional data. Therefore, in the absence of the temporal dimension, causal inferences must be made based on theoretical considerations and the results of previous research.

## **FUTURE RESEARCH**

This model needs to be expanded in three ways: (1) in terms of outcome variables, (2) generalizing it to different work environments, (3) adding relevant antecedents.

**Outcome variables.** Outcome variables that research has linked to team commitment (e.g. performance) and organizational commitment (e.g. intention to quit) need to be examined within the context of this model. It is argued here that differentiating between team commitment and organizational commitment is important both theoretically and in praxis. Such an examination would provide empirical support for (or against) this position.

**Environmental factors.** As pointed out in the first section of this chapter, this model explains only 20% of the variance in organizational commitment while accounting for 64% of the variance in team commitment. At least two factors are likely to have contributed to this result. One is the characteristics of the research site.

A great amount of emphasis is put on teams at this particular site. This emphasis is exemplified by the compensation system of shared outcomes, the amount of team related training provided by the company, and other attempts to encourage employees to think in terms of teams. These other attempts include such things as having the employees name their teams, the display of up-to-the-minute team production results, and informal awards for outstanding teams. It should be pointed out that identification with one's team is one of the goals when self-directed work teams are implemented.

At other sites, individuals will be affected by dynamics involving teams that will be different from this site. For example, cross functional activities across teams may produce theoretically based results different from those reported here. This may be true especially for team members with boundary spanning tasks and responsibilities. Therefore, testing this model in other environments will establish boundaries for its generalizability and suggest ways to adapt it to a variety of situations.

Different results may also be forthcoming from sites in which the tasks are not so technologically constrained and more discretionary latitude is available in deciding how tasks are to be performed. Such results may be particularly salient with respect to task interdependence.

Future work should also test this model with the compensation scheme of the subjects as a contextual variable. As described previously the incentive scheme used with this sample is likely to have had an influence on the relationships among the variables.

**Additional antecedents of commitment.** Another factor contributing to the amount of explained variance in team commitment being over three times that of organizational commitment is the likely existence of other common antecedents of team commitment and organizational commitment. The existence of such constructs is suggested empirically by the significance of the covariance between the

disturbance terms of team commitment and organizational commitment (0.12,  $p < .001$ ). This condition suggests the existence of a common causal factor not included in the model. It may be that such an antecedent is more strongly related to organizational commitment than to team commitment while significantly related to both. The probability of this type of relationship is increased because in designing this model an overt attempt was made to identify and include antecedents of commitment that were especially salient in a team environment.

**Other issues.** Though unrelated to any of the hypotheses, post hoc analysis revealed a negative and significant direct effect of intersender conflict on satisfaction with supervision (-0.229,  $p < .001$ ). This suggests the following question: Should intersender conflict be viewed as a single construct? or Should intersender conflict be viewed as having multiple sources and therefore be measured separately based on the source(s) of interest. In this study the former view was taken and, to the degree possible and with the exception of two items, was measured by a scale that did not mention the team specifically. Future work may want to consider intersender conflict as a multi-source phenomena and develop hypotheses describing its effects as a function of its source.

Finally the concept of commitment as a multiple foci phenomenon may be expanded to other foci. Based on sound theory and practical applicability the relationships between and among other foci of commitment, their antecedents, and outcomes can be examined using this model as a prototype.

## **SUMMARY**

This work contributes to the field in three ways. First, it provides practical guidance to managers who work or plan to work in a team environment. Second, this work provides a theoretical linkage between the commitment literature and the work team literature through the examination of the relationships among constructs that are important to both. Finally, the use of structural equation modeling allowed for the examination of dependence relationships and multiple dependent variables so that the

relationships between and among constructs could be configured in ways that are hypothesized to exist in the work place.

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**APPENDIX A**

On the following pages of this appendix are the scales that were used to make up the survey instrument that was presented in the previous appendix along with a brief description and the reliability coefficients.

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- A. Name: Resource-related Conflict
- B. Variable: RESORCON  
Items: RC1-RC10
- C. Description: This scale measures the role conflict that occurs when an individual lacks the resources to perform the defined role behavior.
- D. Directions: The following items relate to situations that may come up during your work. Please mark, with an 'X', the extent to which you agree or disagree with these statements.

E. Items:

1. I frequently lack the materials to do my work.
2. Work output is often held down due to broken or unavailable equipment.
3. Getting supplies is a problem around here.
4. Production would increase by a good amount if we always had enough materials.
5. Getting a good replacement for a teammate who quits is difficult. \*
6. My team seldom gets an adequate "fill-in" when needed. \*
7. Facilitators are seldom available when needed.
8. Mechanics respond quickly when we have a broken machine. (R)
9. Materials handlers seldom, if ever, let us run out of materials. (R)
10. I lack the training to do some of the things that I should be doing to help my team. \*

\* These items were dropped from the scale.

- F. Response Scale: A standard six-point Likert response was used for this measure.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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- G. Statistical Information: Alpha = .751
- H. Source: This measure was developed for this study. It's development was based on Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 15(2): 150-163.

**Cronbach Coefficient Alpha for Resource Related Conflict**

For RAW variables: 0.749248

For STANDARDIZED variables: 0.751725

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
RC1	0.463299	0.720105	0.465826	0.722082
RC2	0.589030	0.689495	0.589556	0.694135
RC3	0.713793	0.661204	0.717795	0.663568
RC4	0.573324	0.698638	0.570769	0.698475
RC7	0.320027	0.749684	0.322285	0.752670
RC8	0.325098	0.751769	0.326828	0.751731
RC9	0.315052	0.748644	0.311826	0.754824

- A. Name: Perceived Task Interdependence
- B. Variable: TASKINT  
Items: TI1-TI10
- C. Description: This scale measures the extent to which individuals in the work group perceive that they interact and depend on one another to accomplish their work.
- D. Directions: Please read the following items and think about how well they describe the way you feel about YOUR JOB.

E. Items:

1. I frequently must coordinate my efforts with others.\*
2. My own performance is dependent on receiving accurate information from others.\*
3. My work requires me to talk with others fairly often.\*
4. For the team to perform well, members must communicate well.
5. To achieve high performance it is important to rely on each other.
6. It is important for members to “lay good work” or pass work to the next station carefully.
7. To get good performance we must coordinate our efforts.
8. Jobs performed by team members are dependent on one another.
9. Other members of my team depend on me for information or materials to perform their jobs.\*
10. To accomplish our goals we must work together.

\* These items were dropped from the scale.

- F. Response Scale: A standard six-point Likert response was used for this measure.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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- G. Statistical Information: Alpha = .841
- H. Source: This measure was developed for this study. It's development was based on Pearce, J. L., & Gregersen, H. B. (1991). Task interdependence and extrarole behavior: A test of the mediating effects of felt responsibility. Journal of Applied Psychology, 76(6): 838-844 and Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. Personnel Psychology, 46: 823-850.

**Cronbach Coefficient Alpha for Task Interdependence**

For RAW variables: 0.827861

For STANDARDIZED variables: 0.840584

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
TI4	0.643352	0.791651	0.659380	0.806217
TI5	0.534203	0.816761	0.535339	0.830528
TI6	0.528304	0.820899	0.528400	0.831850
TI7	0.685790	0.784512	0.695564	0.798883
TI8	0.604469	0.798705	0.604818	0.817068
TI10	0.676423	0.791258	0.686872	0.800655

- A. Name: Intersender Conflict
- B. Variable: INTERCON  
Items: IC1-IC9
- C. Description: This scale measures the role conflict that occurs when an individual receives incompatible role expectations from two or more role senders.
- D. Directions: The following statements relate to things you may experience at work. Please mark with an 'X' the extent to which you agree or disagree with the following statements.
- E. Items:
1. Some people on my team want to do things quite differently. \*\*
  2. I receive conflicting requests from two or more people. \*\*
  3. I do things that are likely to be accepted by one person and not accepted by others. \*\*
  4. I know when others need me to help out on other jobs. (R)\*
  5. Sometimes I don't know what others expect of me.
  6. If I ask a question of two people, I'm likely to get two different answers.
  7. If I help one person on my team, another person won't like it.
  8. I am often confused about what others expect of me on the job.
  9. It is often difficult to get people to agree on what should be done.

\_\_\_\_\_

\* This item was dropped from the scale.

\*\* These items adapted from the Rizzo, House, and Lirtzman (1970) scale.

- F. Response Scale: A standard six-point Likert response was used for this measure.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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- G. Statistical Information: Alpha = .845
- H. Source: This scale is based on the scale developed by: Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 15(2): 150-163.

**Cronbach Coefficient Alpha for Intersender Conflict Scale**

For RAW variables: 0.843258

For STANDARDIZED variables: 0.845025

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
IC1	0.549900	0.828379	0.550077	0.830276
IC2	0.633924	0.817193	0.639217	0.819156
IC3	0.502147	0.835361	0.501644	0.836175
IC5	0.452374	0.839703	0.447534	0.842649
IC6	0.629818	0.819176	0.632341	0.820026
IC7	0.581716	0.824111	0.579236	0.826676
IC8	0.627334	0.818081	0.625488	0.820891
IC9	0.656872	0.814720	0.663084	0.816120

- A. Name: Satisfaction with Supervision
- B. Variable: SATSUPER  
Items: SS1-SS7
- C. Description: This scale measures the individual's satisfaction with his or her facilitator.
- D. Directions: The following statements relate to how SATISFIED you are with your FACILITATOR.
- E. Items:

How SATISFIED are you with:

- 1. The way your facilitator handles complaints.
- 2. The way you are treated by your facilitator.
- 3. The fairness of your facilitator's decisions.
- 4. The competence of your facilitator.
- 5. The personal interest your facilitator takes in you.
- 6. The availability of your facilitator when he or she is needed.
- 7. The decisions your facilitator makes with regards to "fill-ins".

F. Response Scale: A standard six-point Likert response was used:

extremely dissatisfied	dissatisfied	somewhat dissatisfied	somewhat satisfied	very satisfied	extremely satisfied
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- G. Statistical Information: Alpha = .950
- H. This scale was developed by the author

**Cronbach Coefficient Alpha for Satisfaction with Supervision**

For RAW variables: 0.948529

For STANDARDIZED variables: 0.950270

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
SS1	0.823158	0.940752	0.823597	0.943041
SS2	0.857845	0.937850	0.861448	0.939842
SS3	0.877605	0.936096	0.881152	0.938163
SS4	0.866410	0.937309	0.868707	0.939225
SS5	0.858615	0.937902	0.861786	0.939814
SS6	0.799483	0.943535	0.797333	0.945239
SS7	0.726048	0.949779	0.722936	0.951369

- A. Name: Satisfaction with Coworkers
- B. Variable: SATCWORK  
Items: SC1-SC7
- C. Description: This scale measures the individual's satisfaction with his or her teammates.
- D. Directions: The following statements relate to how SATISFIED you are with your TEAMMATES. Put an 'X' in the box that best describes the extent to which you are satisfied
- E. Items:

How SATISFIED are you with:

1. The skills of your teammates.
2. The friendliness of the people on your team.
3. How hard your teammates work.
4. How you get along with others on your team.
5. The decisions made by you and your teammates.
6. How you and your teammates work together.
7. The opportunity to make friends with your teammates.

F. Response Scale: A standard six-point Likert response was used:

extremely dissatisfied	dissatisfied	somewhat dissatisfied	somewhat satisfied	very satisfied	extremely satisfied
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- G. Statistical Information: Alpha = 0.901
- H. This scale was developed by the author

**Cronbach Coefficient Alpha for Satisfaction with Coworkers**

For RAW variables: 0.899469

For STANDARDIZED variables: 0.901281

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
SC1	0.597599	0.896520	0.587172	0.900221
SC2	0.707049	0.884920	0.714929	0.885953
SC3	0.692758	0.887098	0.687934	0.889020
SC4	0.681052	0.887839	0.686945	0.889131
SC5	0.753533	0.879170	0.754267	0.881433
SC6	0.807459	0.872217	0.805206	0.875490
SC7	0.723203	0.883542	0.727955	0.884463

- A. Name: Organizational Commitment
- B. Variable: ORGCOMM  
Items: OC1-OC10
- C. Description: This scale measures the individual's commitment to the organization.
- D. Directions: The following items describe the way you may feel about working for SARA LEE KNIT PRODUCTS.
- E. Items:
1. I am willing to put in a great deal of effort beyond that normally expected in order for SLKP to be successful.
  2. I talk up (brag about) SLKP to my friends as a great organization to work for.
  3. I feel very little loyalty to SLKP. (R)
  4. I would accept almost any type of job assignment in order to keep working with this company.
  5. I find that my values and SLKP values are very similar.
  6. I am proud to tell others that I am part of this company.
  7. SLKP really inspires the very best in me in the way of job performance.
  8. I am extremely glad that I chose SLKP to work with over others that I was considering working with when I joined.
  9. I really care about the fate of SLKP.
  10. For me this is the best of all possible companies for which to work.
- F. Response Scale: A standard six-point Likert response was used for this measure.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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- G. Statistical Information: Alpha = .895
- H. Source: Adapted from: Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover, among psychiatric technicians. Journal of Applied Psychology, 59(5): 603-609.

**Cronbach Coefficient Alpha for Organizational Commitment**

For RAW variables: 0.894939

For STANDARDIZED variables: 0.894650

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
OC1	0.467626	0.894603	0.474435	0.895065
OC2	0.785826	0.873629	0.777986	0.874607
OC3	0.361662	0.902838	0.366049	0.901973
OC4	0.479715	0.896469	0.474269	0.895076
OC5	0.711792	0.879344	0.702705	0.879837
OC6	0.820772	0.871543	0.813721	0.872088
OC7	0.701013	0.880175	0.696580	0.880258
OC8	0.776772	0.875067	0.776256	0.874728
OC9	0.589745	0.888400	0.598022	0.886937
OC10	0.722214	0.878705	0.724107	0.878361

- A. Name: Team Commitment
- B. Variable: TEAMCOMM  
Items: TC1-TC10
- C. Description: This scale measures the individual's commitment to his or her team. It is based on the OCQ, a scale developed by Porter, Steers, Mowday, and Boulian (1974) to measure organizational commitment. It has been modified successfully in numerous studies designed to measure commitment to foci other than global organizations, such as teams.
- D. Directions: The following are statements about how you may feel about WORKING ON YOUR TEAM. Please mark, with an 'X' the box that most closely matches your own feelings.
- E. Items:
1. I am willing to put in a great deal of effort beyond that normally expected in order for the team to be successful.
  2. I talk up (brag about) this team to my friends as a great team to work on.
  3. I feel very little loyalty to this team. (R)
  4. I would accept almost any job in order to keep working with this team.
  5. I find that my values and the team's values are very similar.
  6. I am proud to tell others that I am part of this team.
  7. This team really inspires the very best in me in the way of job performance.
  8. I am extremely glad that I chose this team to work with over other teams.
  9. I really care about the fate of this team.
  10. For me this is the best of all possible teams with which to work.
- F. Response Scale: A standard six-point Likert response was used for this measure.

strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
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- G. Statistical Information: Alpha = .864
- H. Source: Adapted from: Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover, among psychiatric technicians. Journal of Applied Psychology, 59(5): 603-609.

**Cronbach Coefficient Alpha for Team Commitment**

For RAW variables: 0.867728

For STANDARDIZED variables: 0.863513

Deleted Variable	Raw Variables		Std. Variables	
	Correlation with Total	Alpha	Correlation with Total	Alpha
TC1	0.211789	0.876294	0.216545	0.878644
TC2	0.702242	0.844704	0.697818	0.840220
TC3	0.289285	0.879721	0.289730	0.873144
TC4	0.416907	0.869670	0.416684	0.863317
TC5	0.663360	0.848278	0.655355	0.843830
TC6	0.787666	0.838138	0.780241	0.833089
TC7	0.693548	0.845618	0.689991	0.840889
TC8	0.758891	0.840184	0.750446	0.835686
TC9	0.567096	0.857834	0.571215	0.850853
TC10	0.740832	0.840831	0.731507	0.837326

**APPENDIX B**

On the following pages of this appendix is a tabular summary of the literature review that was done in Chapter 2.

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**TABLE B-1**

**A Summary of Studies involving task interdependence and organizational commitment.**

Study	interdependence- commitment link tested directly	type of commitment (measure)	results	Self-Directed Teams considered
Steers & Spencer (1977)	no	affective (OCQ)	ns	no
Jermier & Berkes (1979)	no	affective (OCQ)	mixed	no
Morris & Steers (1980)	yes	affective (OCQ)	positive	no
Parasuraman & Alutto (1984)	no	calculative (AHA)	ns	no

TABLE B-2

Studies that examine causal order of satisfaction and commitment.

Measurement						
Study	Sample	N	OC	JS	Statistical Technique	Conclusion
Williams & Hazer (1986)	mental health workers office workers	106 157	OCQ OCQ	9-item <sup>1</sup> 2-item <sup>2</sup>	Structural modeling	satisfaction leads to commitment
Bateman & Strasser (1984)	nurses	129	OCQ	JDI	Cross-lagged correlations	commitment leads to satisfactions
Vandenberg & Lance (1992)	MIS professionals	100	OCQ	scale by authors	Structural modeling	commitment leads to satisfactions
Curry, et al. (1986)	nurses	508	OCQ	Brayfield & Roth	Structural modeling	no causal order in either direction
Farkas & Tetrick (1989)	Navy enlisted personnel	440	OCQ	2-items by authors	Structural modeling	commitment and satisfaction are either cyclically or reciprocally related.
Mathieu (1991)	Army & Navy ROTC Cadets	588	OCQ	MSQ	Structural modeling indicated that	commitment and satisfaction are reciprocally related with the influence of satisfaction on commitment being the stronger.

<sup>1</sup> Scale by Michaels & Spector (1982)

<sup>2</sup> Scale by Bluedorn (1982)

TABLE B-3

Studies that used regression to test of the predictive ability of satisfaction with supervision on organizational commitment.

Study	Sample	N	Measurement		Outcome	
			OC	S/S	Statistic	predicts OC
Brief & Aldag (1980)	nurses	130	OCQ	JDI	Unstandardized regression coefficient: B = .191, F = 2.34, p < .05	Supported
Luthans, Baack, & Taylor (1987)	wide variety of jobs and employees	406	OCQ	JDI	DR <sup>2</sup> = .027, F = 13.39, p < .001	Supported
DeCotiis & Summers (1987)	restaurant managers	367	authors' 6-items scale	MSQ	Stepwise regression results: not significant	Not supported
Zaccaro & Dobbins (1989)	Student Corps of Cadets	202	OCQ	Taylor & Bowers scale	Standardized regression coefficient: b <sup>1</sup> = .11, ns b <sup>2</sup> = .11, ns	Not Supported

<sup>1</sup> For Organizational Commitment.

<sup>2</sup> For Group Commitment.

TABLE B-4

Studies which reported correlations between organizational commitment and satisfaction with supervision.

Study	Sample	N	Measurement		Correlation
			OC	S/S	
Stone & Porter (1975)	blue & white collar workers	556	OCQ <sup>1</sup>	JDI <sup>2</sup>	$r = .43, p < .05$
Hom, Katerberg, & Hulin (1979)	National Guard members	373	OCQ	IOR <sup>3</sup>	$r = .48, p < .05$
Parasuraman (1982)	non supervisory workers	160	AHA <sup>4</sup>	JDI	$r = .18, p < .05$
Chasie & Bhagat (1980)	working women	115	OCQ	JDI	$r = .21, p < .01$
Chacko (1982)	women managers	55	OCQ	JDI	$r = .49, p < .05$
Green, Blank, & Liden (1983)	bank employees	160	OCQ	JDI	$r = .31, p < .01$
Meglino, Ravlin, & Adkins (1989)	production workers supervisors managers	191 17 13	OCQ	JDS <sup>5</sup>	$r = .62, p < .05$

<sup>1</sup> OCQ: Organizational Commitment Questionnaire (Porter, Smith, Mowday, & Boulian, 1974)

<sup>2</sup> JDI: Job Descriptive Index (Smith, Kendall, & Hulin, 1969)

<sup>3</sup> IOR: Index of Organizational Reactions

<sup>4</sup> Organizational commitment scale developed by Alutto, Hrebiniak, & Alonso (1973)

<sup>5</sup> JDS: Job Diagnostic Survey (Hackman & Oldham, 1975)

TABLE B-4 (continued)

Studies which reported correlations between organizational commitment and satisfaction with supervision.

Williams, Podsakoff, & Huber (1992)	nursing home employees	300+	OCQ	JDI	$r = .48, p < .001$
Dragow & Miller (1982)	non-managerial employees of a large retail organization	1046	OCQ	JDI	$r = .47, p < .01$
Vandenberg & Scarpello (1991)	MIS professionals	100	OCQ	SWMSS	$r = .56, p < .05$
Barone, et al. (1988)	variety of employees	182	OCQ	JDI	$r = .46, p < .01$
Norris & Niebuhr (1983)	professional accountants	135	OCQ	JDI	$r = .57, p < .01$
Colarelli, Dean, & Konstans (1983)	accountants	280	OCQ	JDS	$r = .45, p < .01$ $r = .15^6, p < .01$

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<sup>6</sup> Partial correlation with organizational commitment holding job satisfaction constant.

**TABLE B-5**  
**Studies that used regression to test of the predictive ability of satisfaction with coworkers on organizational commitment.**

Study	Sample	N	Measurement		Outcome	
			OC	S/CW	Statistic	predicts OC
Brief & Aldag (1980)	nurses	130	OCQ	JDI	Unstandardized regression coefficient: B = .191, F = 2.34, p < .05	Supported
DeCotiis & Summers (1987)	restaurant managers	367	authors' 6-item scale	MSQ	Stepwise regression results: DR <sup>2</sup> = .004, , p < .05	Supported
Zaccaro & Dobbins (1989)	Student Corps of Cadets	202	OCQ	Taylor & Bowers scale	Standardized regression coefficient: b <sup>1</sup> = .06, ns b <sup>2</sup> = .08, ns	Not Supported

<sup>1</sup> For Organizational Commitment.

<sup>2</sup> For Group Commitment.

TABLE B-6

Studies which reported correlations between organizational commitment and satisfaction with coworkers.

Study	Sample	N	Measurement		Correlation
			OC	S/CW	
Stone & Porter (1975)	blue & white collar workers	556	OCQ <sup>1</sup>	JDI <sup>2</sup>	r = .21, p < .05
Hom, Katerberg, & Hulin (1979)	National Guard members	373	OCQ	IOR <sup>3</sup>	r = .26, p < .05
Parasuraman (1982)	non supervisory workers	160	AHA <sup>4</sup>	JDI	r = .32, p < .05
Chasie & Bhagat (1980)	working women	115	OCQ	JDI	r = .13, ns
Chacko (1982)	women managers	55	OCQ	JDI	r = .34, p < .05
Green, Blank, & Liden (1983)	bank employees	160	OCQ	JDI	r = .45, p < .01
Meglino, Ravlin, & Adkins (1989)	production workers supervisors managers	191 17 13	OCQ	JDS <sup>5</sup>	r = .16, p < .05

<sup>1</sup> OCQ: Organizational Commitment Questionnaire (Porter, Smith, Mowday, & Boulian, 1974)

<sup>2</sup> JDI: Job Descriptive Index (Smith, Kendall, & Hulin, 1969)

<sup>3</sup> IOR: Index of Organizational Reactions

<sup>4</sup> Organizational commitment scale developed by Alutto, Hrebiniak, & Alonso (1973)

<sup>5</sup> JDS: Job Diagnostic Survey (Hackman & Oldham, 1975)

TABLE B-6 (continued)

Studies which reported correlations between organizational commitment and satisfaction with coworkers.

Dragow & Miller (1982)	non-managerial employees of a large retail organization	1046	OCQ	JDI	$r = .40, p < .01$
Norris & Niebuhr (1983)	professional accountants	135	OCQ	JDI	$r = .21, p < .05$
Colarelli, Dean, & Konstans (1983)	accountants	280	OCQ	JDS	$r = .44, p < .01$ $r = .30^6, p < .01$

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<sup>6</sup> Partial correlation with organizational commitment holding job satisfaction constant.

**TABLE B-7**  
**Studies in which the effects of role conflict on organizational commitment were tested by regression.**

Study	Sample	N	Measurement		Outcome
			OC	RC	
Oliver & Brief (1978)	retail sales managers	114	OCQ (precursor)	RHL <sup>1</sup>	$b = -.14$ , not significant
Morris & Koch (1979)	manual	75	OCQ	RHL	$r = -.30$ , $p < .01$ $r = -.14$ , ns $r = -.14$ , ns The above correlations are part correlations. Regression with both role ambiguity and role conflict. $R^2 = .14$ , $F = 21.22$ , $p < .001$
	clerical	129			
	professional	55			
	All	259			
Morris & Sherman (1981)	health care employees	506	OCQ	RHL	$b = -.21$ , $F = 34.31$ , $p < .001$
DeCotiis & Summers (1987)	restaurant managers	367	authors' scale	RHL	$D R^2 = .048$ , $p < .001$
Glisson & Durick (1988)	human services workers	319	OCQ	RHL	$b = -.20$ , $F = 11.83$ , $p < .001$

<sup>1</sup> Role conflict scale by Rizzo, House, and Lirtzman (1970).

TABLE B-7 (continued)  
 Studies in which the effects of role conflict on organizational commitment were tested by regression.

Zaccaro & Dobbins (1989)	Corps of Cadets	202	OCQ	RHL RHL	$b^2 = -.10, p < .05$ $b^3 = -.07, ns$
Smith & Tisak (1993)	social service workers	204	OCQ	RHL	$B = -.38, p < .01$

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<sup>2</sup> For Organizational Commitment.

<sup>3</sup> For Group Commitment.

TABLE B-8

Studies in which the effects of role conflict on organizational commitment were tested by path analysis

Study	Sample	N	Measurement		Outcome
			OC	RC	
Organ & Greene (1981)	Scientists & engineers	247	Mills (1967)	RHL	b = -.20, p < .05
Podsakoff, Williams, & Todor (1986) <sup>1</sup>	professionals nonprofessionals	88 168	OCQ	RHL	b = .01, ns b = -.15, ns
Good, Sisler, & Gentry (1988)	retail managers	440	OCQ	RHL	b = -.148, p < .05
Johnston, et al. (1990)	salespeople in consumer goods	261	OCQ	RHL	b <sup>2</sup> = -.145, p < .05
Dubinsky & Skinner (1984)	retail salespeople	116	AHA <sup>3</sup>	RHL	Indirect influence through job satisfaction

<sup>1</sup> Path coefficients are unstandardized parameter estimates.

<sup>2</sup> Represents the indirect effect through job satisfaction.

<sup>3</sup> Scale developed by Alutto, Hrebiniak, & Alonso, (1973) to measure calculative commitment.

TABLE B-9

Studies which reported the correlation between role conflict and organizational commitment.

Study	Sample	N	Measurement		Correlation with OC
			OC	RC	
Aldag & Brief (1978)	police officers	99	OCQ	RHL	$r = -.520, p < .001$
Dubinsky & Matteson (1979)	retail salespeople	203	Donnelly & Ivancevich	RHL	$r = -.12, p < .05$
Welsch & LaVan (1981)	health care professionals	142	OCQ	Kahn, et al. (1964)	$r = -.47, p < .01$
Chacko (1982)	women managers	70	OCQ	RHL	$r = -.30, p < .05$
Jones (1986)	MBA grads	102	OCQ	RHL	$r = -.61, p < .01$
Reichers (1986)	mental health professionals	124	OCQ	RHL	$r = -.39, p < .001$
Witt & Boerkrem (1991)	R & D lab workers	76	OCQ	RHL	$r = -.06, ns$

## **Curriculum Vitae**

**James W. Bishop**

Department of Management  
2007 Pamplin Hall  
R. B. Pamplin College of Business  
Virginia Polytechnic Institute & State University  
Blacksburg, VA 24061-0233

### **EDUCATION**

- Ph.D.**            **Virginia Polytechnic Institute & State University, R. B. Pamplin College of Business, 1995.**  
Major: Organizational Behavior/Human Resource Management  
Minor: Statistics  
Dissertation Chair: K. Dow Scott, Ph.D.  
GPA: 3.8.  
Dissertation Title: Multiple Foci of Commitment in a Work Team Environment  
Current Status: The dissertation proposal has been successfully defended. A pilot test of the research instrument has been completed. Data gathering has been completed. Data analysis is underway.
- MBA**            **Virginia Polytechnic Institute & State University, R. B. Pamplin College of Business, 1988.**  
Concentration: Finance
- BS**              **Wake Forest University, 1970.**  
Major: Mathematics; Minor: Physics

## RESEARCH

### Refereed Proceedings:

- Bishop, J. W., (1995). Multiple foci of commitment in a work team environment: An international perspective. Fourth Annual Miles International Conference. (May, 1995, El Paso, Texas)
- Bishop, J. W., (1994). The effect of the fit between corporate strategy and management training on performance and commitment. Organizational Studies Doctoral Student Conference Proceedings. (Presented, October, 1994, Seattle)
- Bishop, J. W., (1994). Carnegie, Taylor, Scanlon: Down the Road to Increased Productivity and Up Maslow's Pyramid. Organizational Studies Doctoral Student Conference Proceedings. (Presented, October, 1994, Seattle)
- Bishop, J. W. (1993). A theoretical model for the examination of the effects of the Scanlon Plan financial incentive on the relationship between employee participation and performance. Organizational Studies Doctoral Student Conference Proceedings, 6-7. (Presented, October, 1993, Albany)
- Bishop, J. W. (1993). Corporate strategy and management training objectives: A conceptualization of their effect on firm performance. Organizational Studies Doctoral Student Conference Proceedings, 8-9. (Presented, October, 1993, Albany)
- Bishop, J. W. & Veliyath, R. (1991). The mix of executive compensation and the mix of shareholder returns: A conceptualization of their relationship. Eds. D. F. Ray & M. E. Schnake, Southern Management Association Proceedings: 20-23. (Presented: November, 1991, Atlanta.)

### Presentations:

- Bishop, J. W., (1995) Antecedents of team commitment and organizational commitment and some possible consequences of "unbalanced" commitment. Virginia Society of Human Resources Management Annual Conference, April, 1995, Blacksburg, Virginia.

### Revise and Resubmit:

- Veliyath, R., & Bishop, J. W., CEO compensation and firm performance: Unraveling hidden strategic group level effects. (*International Journal of Organizational Analysis*)

### Work in Progress:

- Bishop, J. W. & Hoell, R., Scanlon Plans and Section 8(a)(2) of the NLRA: Productivity in the balance. (Final Editing)
- Bishop, J. W. & Veliyath, R., The mix of executive compensation and shareholder returns: Firm performance and the clientele effect. (Data Collection)
- Scott, K. D., & Bishop, J. W., Instrumental and affective antecedents of team commitment. (Working Paper)



**Research Related Work Experience (continued)**

<b>1990-1993</b>	<b>Virginia Polytechnic Institute and State University</b> <b>Graduate Research Assistant</b> <b>Dr. Rajaram Veliyath, Department of Management</b>
Responsibilities and activities	Data collection, statistical programming and data analysis for various projects in strategic management
<b>1990-1991</b>	<b>Virginia Polytechnic Institute and State University</b> <b>Research Assistant Barringer Center for Research in HRM</b> <b>Dr. K Dow Scott, Director</b>
Selected Corporate Affiliate Members	Bell Atlantic, Dominion Bank Shares, First American Bank Shares, Ingersol-Rand, Kay Jewelers, Medical Facilities of America, Philip Morris, Piedmont/USAir, Reynolds Metals, Sara Lee Knit Products, Signet Bank, Southern States, U.S. Postal Service, Washington Post
Responsibilities and activities	Draft executive summaries, organize conferences, perform literature reviews.

**Research Interests:**

Commitment in the workplace, Workteams and Team Productivity, Employee Involvement, Management Training and Development.

## TEACHING

**August 1995 -  
May 1995**

### **Virginia Polytechnic Institute and State University**

Assist in the planning and administration of Senior and Graduate level Human Resources Management classes and Graduate level Compensation classes.

- Design, administer, and grade tests.
- Advise and assist students with assignments, projects, and papers.
- Conduct class and lecture as needed.

**January 1994 -  
May 1994**

### **Virginia Polytechnic Institute and State University**

Instructor - Department of Management

Organizational Behavior

Overall Student Evaluation: 4.77/5

**June 1993 -  
August 1993**

### **Virginia Polytechnic Institute and State University**

Instructor - Department of Management

Management Theory & Practice

Overall Student Evaluation: 4.80/5

**May 1992 - June 1992**

### **Virginia Polytechnic Institute and State University**

Instructor - Department of Management

Administrative Theory & Practice

Overall Student Evaluation: 4.38/5

**1979-1980**

### **IBM Corporation**

Instructor in Diagnostic Techniques for Operating Systems.

**Responsibilities**

Design, schedule, administer, and teach courses on diagnosing failures in large mainframe computer systems.

**1970-1972**

### **Roanoke City Schools**

Faculty Member: High School Mathematics, Geometry, and Physics.

### **Teaching Interests:**

Organizational Behavior, Business Strategy & Policy, General Management, Human Resource Management, Statistics, Finance

## **INDUSTRIAL EXPERIENCE**

**1980-1990**

**Virginia Polytechnic Institute and State University  
Senior Computer Systems Engineer**

- Selected achievements
- Managed a major department (Hardware Services) during Computing Center restructure. Handled all personnel and administrative functions, including reassignment of personnel.
  - Managed the transition of hardware maintenance responsibility from internal personnel to outside vendors.
  - Negotiated contracts for the maintenance of all University owned terminals and PCs (at 1/2 the projected cost).
  - Reduced turnaround time for equipment requisitions from 7-10 days to 24 hours, reports to upper management from 24-48 hours to 20 seconds, and blanket purchase approvals from the State Government Agency from 3 weeks to zero through the development and use of on-line computer systems.
  - Reviewed and implemented the approval process for the purchase of over \$5 million of DP equipment per year.
  - Negotiated the University's first BITNET link; installed and tested the related intercomputer communications software.
  - Installed all of the University's IBM operating systems.

**1973-1980**

**IBM Corporation  
Senior Programming Support Representative**

- Provide Programming Support for large mainframe computer systems.
  - Instruct customer personnel on diagnostic software.
  - Manage problem control and customer situations when outages occurred.
- Selected achievements
- Maintained customer satisfaction at a level 30% higher than corporate average.
  - Designed and taught educational courses for customer personnel.

## SERVICE

### University Service:

1994	Advisor: MBA Case Team Competition. Eastern Regional Competition.
1991-1995	Department representative to the University Library Committee
1991-1992	Graduate Student Representative to the University Computer Committee.
1990-1991	Department representative to the Graduate Student Assembly
1985-1987	Faculty/Staff Advisor to the Virginia Tech Weight & Fitness Club

### Departmental Service:

1994-1995	Secretary-Treasurer, Ph.D. Association.
1992-1994	Vice President, Ph.D. Association.
1991-1992	Treasurer, Ph.D. Association.

### Professional Service:

- Ad Hoc Reviewer: Southern Management Association Conference, 1995.
- Ad Hoc Reviewer: Organizational Studies Doctoral Student Conference, 1995.
- Ad Hoc Reviewer: Southern Management Association Conference, 1994.
- Ad Hoc Reviewer: Organizational Studies Doctoral Student Conference, 1994.
- Reviewer (1993): Hellriegel, D. & Slocum, J. W. Management, (7th Ed.), Cincinnati: South-Western.
- Ad Hoc Reviewer: Organizational Studies Doctoral Student Conference, 1993.

### Community Service:

1994-1995	International Service Projects Committee and Club Projects Committee, Rotary International.
1993-1994	Public Relations Committee, Rotary International.
1991-1993	Chairman, Youth Services and Awards Committee, Rotary International.

- Invited Speaker, Blacksburg High School Awards Assembly, 1992, 1993, 1994.
- Invited Speaker, Auburn High School Commencement Ceremony, 1992, 1993.
- Invited Speaker, Shawsville High School Awards Ceremony, 1993, 1994.

## AWARDS AND HONORS

- 1991 - Named Paul Harris Fellow by Rotary International.
- 1989- Twenty Year Service Award for service to the Amateur Athletic Union.
- 1988 - National MBA Case Team Competition, Virginia Polytechnic Institute and State University, at the University of Mississippi, Oxford, Mississippi.
- 1987 Beta Gamma Sigma - National Honor and Service Business Fraternity
- 1983 Phi Kappa Phi - National Honor and Service Fraternity

## CONSULTING

- 1992-1993** Sara Lee Knit Products; Conducted Nominal Group Techniques, administered questionnaires, and analyzed data in order to determine what factors effect team productivity.
- 1989-1990** Roanoke Times and World News; Advised on the development of a marketing strategy for the newspaper. Performed data analysis to support recommendation.

## SELECTED COURSEWORK

### Management

#### Organizational Behavior

Dynamics of Organizational Behavior  
Seminar in Organizational Behavior (Part 1)  
Seminar in Organizational Behavior (Part 2)  
Seminar in Leadership Research

#### Human Resource Management

Human Resources Planning and Development  
Organizational Staffing  
Wage and Incentive Systems  
Seminar in Advanced Topics in HRM

#### Labor Relations

Legal Environment of Employee Relations  
Collective Bargaining

#### Business Strategy

Business Policy  
Business and Society  
Management Information Systems  
Seminar in Strategic Management  
Seminar in Organizational Theory

### Statistics/Research Methods

Statistics in Research I  
Statistics in Research II  
Advanced Statistics for Education  
Advanced Research Design and Methodology  
Seminar in Marketing Theory  
Multivariate Statistics  
Application of Structural Equations  
Quantitative Topics in Applied Psychology

### Marketing

Marketing Policy and Strategy  
Product Management  
Consumer Behavior

### Finance

Financial Policies  
Capital Investment Decisions  
Portfolio Theory  
Finance Cases

