CONFLICT RESOLUTION BETWEEN PRINCIPALS AND TEACHERS IN ELEMENTARY SCHOOLS

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ABSTRACT

Conflict Resolution Between Principals and Teachers in Elementary Schools

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The purpose of this study was to test the Likerts' (1976) system 4T conflict resolution theory in an elementary school setting to assess its potential to explain constructive conflict resolution, and to test an extension to the theory based on the Graen and Cashman (1975) Leader-Member Exchange model. The study focused on teachers' perceptions of their principals' ability to constructively manage conflict.

A Likert-type survey questionnaire was administered to 216 elementary school teachers from eastern Ontario and Quebec to assess their perceptions of the following variables: system 4T conflict resolution style, help with work, performance goals, technical competence, school effectiveness, satisfaction with problem solving, and loyalty to the principal. Constructive conflict resolution, a latent variable, was measured by school effectiveness, satisfaction with problem solving, and loyalty to the principal. For the extension of the theory, help with work was used as an indicator of in-group/out-group membership.

Structural equation modeling and Lisrel VI (Joreskog & Sorbom, 1984) were used to analyze the two models which represented the system 4T conflict resolution theory and the extension to the theory.

ABSTRACT

Three hypotheses were tested

Hypothesis One

The closer teachers' perceptions of the principals' conflict resolution behavior are to system 4T; and the higher the level of performance goals, help with work, and technical competence, the greater the level of constructive conflict resolution perceived by those teachers.

Hypothesis Two

Group membership, as measured by help with work, will be related to principals' system 4T conflict resolution behavior.

Hypothesis Three

Group membership, as measured by help with work, will be related to constructive conflict resolution.

The following results were obtained from this study: 1) the Likerts' system 4T theory holds, however it may be over-specified requiring only the system 4T conflict resolution style factor and the technical competence factor; 2) constructive conflict resolution is not unidimensional; 3) perceptions of system 4T conflict resolution behavior have an effect on the satisfaction and loyalty dimensions of constructive conflict resolution more than the effectiveness dimension; 4) the group membership effect exists in educational settings; 5) group membership has an effect on teachers' perceptions of principals' conflict resolution behavior; and 6) group membership has an effect on teachers' perceptions of constructive conflict resolution.

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CHAPTER I

INTRODUCTION

Conflict is a frequent occurrence in human experience. It arises between nations, organizations, groups, and individuals. Conflict may have a profound impact on virtually every aspect of organizations and the people within them. Its potential for disruption, diversion, and destruction has lead many to attempt to eliminate conflict or at least to suppress it. However, such action is usually fruitless since conflict is inescapable.

The unavoidability of conflict demands that we examine our responses to it. Although many people think conflict is always harmful it is best viewed as neutral with the potential for positive and negative outcomes depending on how it is managed. The conflict which exists within schools is no different (Bloomberg & Greenfield, 1980). The management of school conflict is fundamental to the successful management of our educational organizations. Principals must effectively manage conflict to realize the potential of positive conflict outcomes.

The Nature of Conflict

The underlying sources of conflict in organizations are numerous. Pondy (1967) identified three basic types: competition for scarce resources, drives for autonomy, and

divergence of goals. Lippitt (1982) expanded this list by including misunderstandings, personality clashes, substandard performance, lack of cooperation, and use of authority. Conflict may also arise from the structure of the organization and interaction with the external environment. Thus, conflict within an organization springs from the environment, structure, use of resources, and interactions among members.

Conflict begins as a difference. Pondy (1967) suggested that the perception of difference is the first step in the development of conflict behavior. Perceived conflict is followed by felt conflict when hostile feelings develop. Finally, manifest conflict occurs when the individual behaves overtly in some way to deal with the perceived differences. Thus, conflict is best thought of as a dynamic process of perception, emotion, and behavior set within the context of a relationship rather than as a specific event.

Conflict in Schools

Pondy (1966) identified two different types of conflict: bargaining conflict and bureaucratic conflict. Bargaining conflict arises from the pressure brought to bear on school administrators from interest groups and political coalitions seeking divergent goals. Bureaucratic conflict arises from the internal structures and relationships of the

organization. This study is concerned with bureaucratic conflict between principals and teachers.

As principals and teachers interact conflict arises from the complexity of the workplace and heterogeneity within the workgroup. Conflict opportunities are frequently created by disagreements regarding allocation of resources, performance appraisals, and role interpretations; divergent goals, values, and beliefs; and varying instructional strategies (Lam, 1984; Schmuck & Runkel, 1985). The way in which the principal responds to the conflicts that arise from the daily operation of the school influences whether conflict outcomes will be destructive or constructive. Thus, the principal's conflict management style has a fundamental impact on effective schools.

The resolution of conflict between principals and teachers is vital to achieving effective schools for several reasons. Dealing with conflict may demand a significant amount of a principal's time (Schmuck & Runkel, 1985); the educational process may be affected, both favorably and unfavorably, by the manner in which conflict is resolved (Schmuck & Runkel, 1985); and unresolved conflict may quickly destroy an organization (Bailey, 1971). Consequently, managing conflict resolution is an indispensable skill for principals.

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Although current conflict theories have much to offer to practitioners regarding the constructive resolution of conflict, these theories often fail to account for the complexity of conflict interactions in the workplace and for heterogeneity within the workgroup. Explanations of the complex interactions among parties to a conflict that address multiple dimensions, not just the one or two dimensions frequently used in widely cited theories are probably more reflective of reality. Another weakness of many theories is their inability to account for differences among individuals. Teachers within schools hold unique cultural orientations, differ in personal and professional values, and maintain distinctive educational philosophies. It is these differences that frequently lead to conflict (Follett, 1941; Chesler, Crowfoot, & Bryant, 1978). Unfortunately, most conflict theories employ a methodology that averages respondents' scores across groups, thereby losing the ability to capture these important differences (Korman, 1966). The result is that many modern conflict theories are limited by relying on only two dimensions and by a methodology that loses important information due to averaging individual responses.

Purpose of the Study

This study tested the Likert and Likert (1976) system 4T theory of conflict resolution. The Likerts' work may be a

useful theory to explain constructive resolution of intrafaculty conflict because it includes the variables contained in other conflict theories, it contains additional relevant variables, and its methodology can be easily extended to account for individual differences. The purpose of the study was to test the system 4T theory of conflict resolution in an elementary school setting to assess its potential to explain constructive conflict resolution, and to test an extension to the theory based on the Graen and Cashman (1975) Leader-Member Exchange model.

Definitions of Conflict

As indicated previously, the notion of difference is the essence of conflict. Follett (1941) stated that conflict is "the appearance of difference, difference of opinions, of interests" (p. 1). Another conflict definition suggested that it is "a natural condition existing in any multiparty heterogeneous system... and is derived from the fact that persons ... differ from one another on a variety of values, goals, and material resources; in addition, they are interdependent and must interact with regard to these differences" (Chesler et al., 1978, p.84). Most conflict definitions include the elements of difference, and antagonistic interaction.

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Owens (1987) noted that while there is little agreement regarding definitions of conflict, there is a general concurrence that two things are essential: divergent views (or apparently divergent views), and incompatibility of views. Some forms of divergent and incompatible views cited in the literature are mutually exclusive goals, values, and outcomes. Likert and Likert (1976) defined conflict as "the active striving for one's own preferred outcome which, if attained, precludes the attainment by others of their own preferred outcome, thereby producing hostility" (p. 7). The Likerts limited their theory to substantive conflict, as defined by Guetzkow and Gyr (1954). Substantive conflict is rooted in the substance of the task; affective conflict is rooted in the emotional affective aspects of interpersonal relations. Consequently, for this study organizational conflict is defined as overt hostile behavior resulting from incompatible task-related goals.

The importance of conflict in organizations has not been ignored by organizational theorists. The following chapter presents a review of the literature of organizational conflict theory, conflict effects, and the Likerts' system 4T conflict resolution theory.

CHAPTER II

REVIEW OF THE LITERATURE

Conflict Theory

Early Conflict Theories

The study of conflict has a long history. Fink (1968) identified an extensive list of early conflict writers including Tarde, 1899; Simmel, 1903; Carver, 1908, 1915; Cooley, 1918; Ross, 1930; and Sorokin, 1947. Many of these early theorists were sociologists or economists dealing with societal conflict, as opposed to the narrower topic of organizational conflict. The early writers conceptualized conflict as being one-dimensional with competition on one end of the scale and cooperation on the other end of the scale. Their work established the competitive nature of social relations; noted the prevalence of conflict in society; established its links to structure, power and authority; and identified the functional or constructive potential of successful conflict resolution.

Organizational Conflict Theories

As organizational theories developed, researchers began to apply these theories to conflict in organizations. When the limitations of one-dimensional models were recognized

the cooperation-competition framework was abandoned in favor of two-dimensional theories as espoused by Blake and Mouton (1964), Lawrence and Lorsch (1967), and Thomas (1976). However, these widely cited conflict theories fail to account for complex interactions and individual differences; instead, the theories tend to stress the need for a single conflict style that leads to successful conflict resolution.

One of the early proponents of a single best style of conflict management was Mary Parker Follett. She viewed conflict as "a moment in the interacting of desires" (1941, p. 5.). Maintaining that conflict is value free, neither good nor bad, she noted that both constructive and destructive resolutions appear possible. Follett identified three ways of dealing with conflict: domination, compromise, and integration, of which only integration successfully settles conflict. Integration requires bringing differences into the open, dividing these differences into their components, and re-evaluating the results to find a solution that achieves the desires of both sides. There is no sacrifice by either side, thus, creating a new, stable reality. Today, this approach is referred to as the win-win approach to conflict resolution. Follett's contributions include identifying the potential for constructive conflict

resolution, stressing the importance of openness, and identifying the first single conflict style of behavior.

Blake and Mouton (1964) expanded conflict theory to include two dimensions instead of one, thus, creating several conflict styles. Despite this augmentation, their theory of conflict remains similar to Follett's. They proposed a two-dimensional conflict theory based on concern for people, and concern for production. The two dimensions are derived from the results of the Ohio State studies identifying consideration and initiating structure as the two organizational leadership dimensions. The theory stated that certain universals exist in every organization: purpose, people, and hierarchy. Whenever managers act, they make assumptions about how to achieve purpose through people. That is, they must resolve two problems: the problem of achieving production and the problem of dealing with the members of the organization. As conflict arises within the structure of the organization, managers react to the conflict in relation to the two dimensions of purpose and people. These reactions become the manager's conflict management style. Using a nine point scale to measure change in the two dimensions of concern for people and concern for production, Blake and Mouton described five major styles of conflict resolution behavior. Like Follett, they argued that there is one best way to resolve conflict. Of the five

styles, the confrontation style is reported to be the most effective style. Although Blake and Mouton expanded the number of dimensions included in their theory, the essence of the theory remains similar to Follett's earlier work.

Thomas (1976) proposed another two-dimensional model that focuses on assertiveness and cooperativeness. Assertiveness is defined as an attempt to satisfy one's own needs while cooperativeness is defined as an attempt to satisfy another's needs. Blake and Mouton used both dimensions of task and consideration, however, Thomas used two aspects of only one of these dimensions - consideration. Both concern for self and concern for others are elements of consideration. Like Blake and Mouton, Thomas named five conflict resolution styles: collaboration, competition, avoidance, accommodation, and compromise. Thomas' collaboration, the most successful conflict resolution style, closely resembles the Blake and Mouton confrontation style.

Lawrence and Lorsch (1967) also supported the argument that there is a single best conflict resolution style. They used a two-dimensional theory based on integration and differentiation. Integration refers to the quality of collaboration among departments that are required to work together in response to environmental demands. Differentiation refers to differences in attitudes and

behavior among departments as a result of division of labor. Differentiation is a source of conflict. To overcome this conflict, functional specialists are required to integrate the activities of the differentiated departments within the organization. Although the Blake and Mouton theory explains general organizational conflict, this theory is limited to interdepartmental conflict. Lawrence and Lorsch examined six companies within the plastics industry (an industry with high uncertainty and many opportunities for conflict) with different performance records; two high performers, two middle performers, and two low performers. As a result of a factor analysis of the Blake and Mouton instrument they reduced the styles of conflict behavior from five to three: confrontation, smoothing, and forcing. Using these three styles, they reported that confrontation is used to a significantly greater degree in high-performing organizations than in other organizations. Managers in the medium-performing organizations use confrontation to a significantly greater extent than managers in the low-performing organizations. In addition, managers in the medium and low performing organizations are more likely to smooth over conflict than managers in the high performing organizations. Lawrence and Lorsch concluded that confrontation behavior leads to effective conflict resolution. Although the sample size in the study was small

and restricted to one specific industry, the results strengthen the argument that among various styles of conflict resolution some are more constructive than others.

In a departure from the two-dimensional approach, several contributions have been made using systems theory. The advantage of systems theory over other frequently cited theories is that it includes multiple variables in the conflict equation. Katz and Kahn (1966) noted that in any open system with limited resources, conflict is inevitable. They assert that conflict is a process resulting from the internal structures and processes of the organization. The Katz and Kahn model included six categories of variables: organizational properties; conflict of interest; role expectations; personality and predisposition; external norms, rules, and procedures; and interaction. The Likerts (1976) also used the systems approach. The theory incorporated the earlier single conflict styles work and added several other important dimensions that address organizational complexity and individual differences. Thus, the Likerts' system 4T theory has several potential advantages over other conflict theories due to its ability to deal with an organization's complexity and its individual members.

All of the organizational conflict theories mentioned above assume that conflict can be constructively managed.

That is, certain positive effects occur as a result of constructively managing conflict. Before examining the Likerts' system 4T theory in detail, it is important to define constructive conflict resolution in terms of these conflict effects. The next section reviews the treatment of constructive conflict resolution in the literature to establish an appropriate way of measuring it.

Conflict Effects

Conflict is recognized as having both destructive and constructive outcomes. Destructive outcomes are well known. Potentially constructive outcomes of conflict are cited by a number of authors (Coser, 1956; Schmidt & Tannenbaum, 1960; Thompson, 1960; Hoffman & Maier, 1961; Blake & Mouton, 1964; Boulding, 1964; Litterer, 1966; Van Doorn, 1966; Pondy, 1967; and Deutsch, 1971). Follett (1941) suggested that effective organizations are not those without conflict, but rather those that have found ways to "set conflict to work," to make it... "do something for us" (pp. 1-2). Following this line of thought, an effective school should not be without conflict, but a place where conflict has been made to be constructive. Therefore, one challenge facing the principal is to manage conflict constructively.

Numerous variables have been used to measure constructive conflict resolution: productivity (Pondy, 1967;

Burke, 1970; Robbins, 1978); stability (Pondy, 1967; Owens, 1987); adaptability (Pondy, 1967; Filley, 1978; Robbins, 1978; Owens, 1987); effectiveness (Lawrence & Lorsch, 1967; Jones & White, 1985); cohesiveness and trust (Wynn, 1978); job performance (Burke, 1970, Renwick, 1977); satisfaction (Deutsch, 1969; Likert & Likert, 1976; Robbins, 1978; Schnake & Cochran, 1985); trust and power (Dubin, 1957; Schmidt & Tannenbaum, 1960; Kuhn, 1961; Blake & Mouton, 1964; Burke, 1969; Likert & Likert, 1976); work motivation (Schnake & Cochran, 1985); and innovation (Filley, 1978; Robbins, 1978; Wynn, 1978). Since there is no direct measure of constructive conflict resolution a variety of measures have been used to indicate the presence of the construct. Despite the many variables used, there have been no attempts to treat the constructive conflict resolution construct as multidimensional. It appears to be assumed that constructive conflict resolution is unidimensional. Furthermore, research tends to focus on two perspectives: successful resolution from the point of view of the organization and successful resolution from the point of view of the individual. Three main dimensions of constructive conflict resolution emerge from the literature: satisfaction with conflict outcomes, personal effectiveness and organizational performance. To establish which dimensions to include as indicators of the

construct the literature on organizational effectiveness was used as a guideline.

Hage (1965) cited adaptiveness, production, efficiency, and job satisfaction as organizational ends. Steers (1975) found adaptability-flexibility, productivity, and job satisfaction frequently occurring concepts in organizational effectiveness models. Miskel, Fevurly, and Stewart (1979) noted that perceived organizational effectiveness, loyalty, and job satisfaction represent a variety of outcomes that have been widely used to approximate organizational performance. These last three variables, effectiveness, satisfaction, and loyalty appear to be sufficiently comprehensive to indicate constructive conflict resolution.

The inclusion of effectiveness and satisfaction as indicator variables may be problematic if the construct of constructive conflict resolution is unidimensional. It has been recognized for a long time that the relationship between satisfaction and organizational performance is not a simple one (Brayfield and Crockett, 1955). If they are separate concepts then constructive conflict resolution cannot be unidimensional. In a recent study Gunn and Holdaway (1985) found a direct relationship between principals' overall job satisfaction and school effectiveness. However, Johnson and Holdaway (1991) found only a weak relationship between principals' job

satisfaction and performance. Since the underlying assumption of constructive conflict resolution is that the end result will be increased satisfaction and improved effectiveness and there is the possibility of a relationship between these variables, it was assumed that the construct was unidimensional and both of these dimensions were included in the study.

The previous review of the literature on organizational conflict suggests that three variables can be used as indicators of constructive conflict resolution: effectiveness, satisfaction, and loyalty. These variables will be referred to in the study as the conflict resolution variables. The following section examines the educational literature regarding these three indicator variables.

It has already been noted that conflict is an enduring characteristic of schools. Milstein, Lusthaus, and Lusthaus (1980) stated that whatever the outcomes of conflict they are certain to have an impact on the educational process. Blumberg (1985) found that among school superintendents, dealing with conflict was the dominant condition of work. In a survey of school principals Williamson and Campbell (1987) found that relations with subordinates was one of the four major causes of stress. Thus, conflict within a school is likely to strongly influence the principal as well as the principal-teacher relationship.

REVIEW OF THE LITERATURE

Cameron (1986) stated that the construct of effectiveness was inherently tied to all organizational theory and was the ultimate dependent variable in research on organizations. In a 1985 study Eberts and Stone found that principals directly influence student achievement, in part, by reducing conflict among the participants in the educational process. Miskel, McDonald, and Bloom (1983) found that structural and expectancy linkages between principals and teachers were consistent predictors of organizational effectiveness. Organizational effectiveness was defined in their study as a multidimensional concept based on Mott's (1972) definition of effectiveness which included productivity, adaptability, and flexibility. Heck, Larsen, and Marcoulides (1990) using a theoretical causal model were able to positively link the principal's management of school climate and participative decision making with student achievement . However, the relationship between principal behavior and student achievement is not yet firmly established. Hoy, Tarter, and Bliss (1990) found that at best the influence of the principal on student achievement is indirect. As Cameron suggested, the inclusion of effectiveness as a measure of constructive conflict resolution in schools is fundamental. Given the uncertainty regarding principal behavior and student achievement, Mott's

definition of effectiveness would appear to encompass a broader view of school effectiveness.

Holdaway (1978) concluded that satisfaction is generally considered an organizational outcome. A number of studies have used satisfaction in this way and have found a relationship between the principal's leadership style and teacher satisfaction (Belasco & Alutto, 1972; Grassie & Carss, 1973; Miskel & Gerhardt, 1974; Miskel et al., 1979; Miskel et al., 1983; Johnson & Holdaway, 1991). Doster (1982) also found a relationship between levels of teacher satisfaction and degree of intrafaculty conflict. Based on these findings, the use of satisfaction as an indicator of constructive conflict resolution appears justified.

Blau and Scott (1962) noted that subordinate loyalty was a measure of effective use of informal authority by the superior. Johnston and Venable (1986) noted that the concept of loyalty to the principal is derived from the Blau and Scott view of subordinate loyalty. Hoy, Tarter, and Forsyth (1978) linked teacher loyalty to the principal's ability to stimulate work group productivity. Loyalty has also been found to be related to authority, principal's leadership style and organizational structures (Hoy & Williams, 1971; Hoy & Rees, 1974; Miskel et al., 1979). According to these findings it would appear that teacher loyalty to the

principal would be another useful indicator of constructive conflict resolution.

In summary, a number of variables have been used to measure constructive conflict resolution. Most studies treat this variable as unidimensional. For the purposes of this study, three indicator variables of constructive conflict resolution were chosen: teachers' perceptions of organizational effectiveness, teachers' satisfaction with principal leadership and interaction, and teachers' loyalty to the principal.

Having identified a way of measuring constructive conflict resolution, an explanation of the Likerts' system 4T theory follows. The system 4T theory is best understood in light of Likert's earlier management systems theory. The following section reviews Likert's earlier work, examines support from business and educational studies, and identifies several methodological concerns. The system 4T theory is then presented in detail.

Likert's Earlier Management Systems Theory

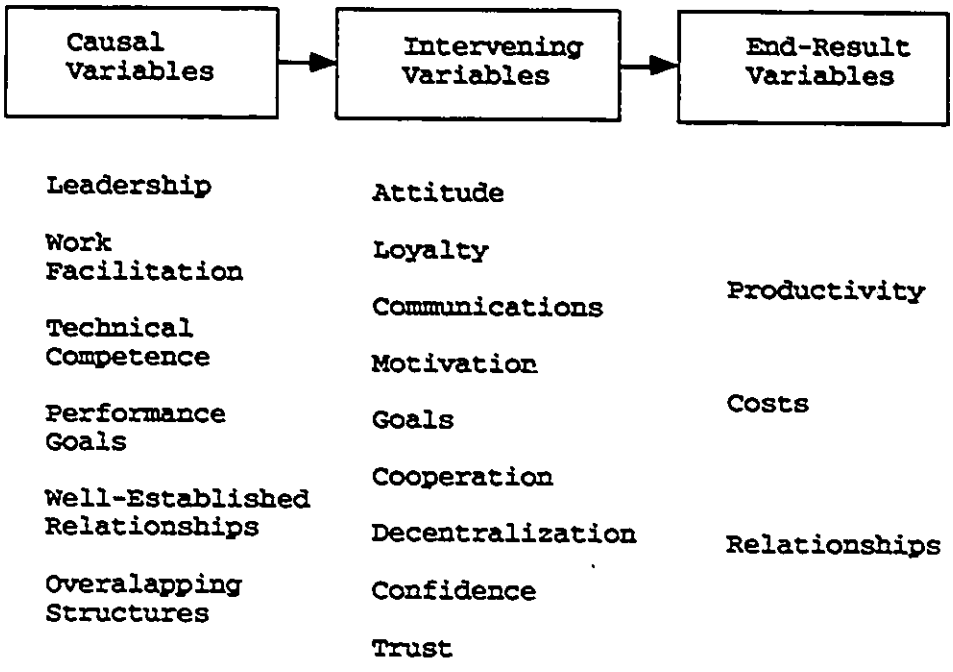
System 1-4 Management Theory

Likert progressively developed the system 4 management theory between 1961 and 1967 (Likert, 1961; Likert, 1967). The theory proposes a relationship among management

practices, work group performance, and organizational outcomes. Likert stated that management patterns create a social system that influences group member effectiveness which in turn influences organizational effectiveness. A highly developed social system creates an effective work group which produces desired organizational outcomes. Likert called these social systems interaction-influence networks. He identified three types of variables - causal, intervening, and end-result as the main elements underlying the interaction-influence network.

Figure 1 illustrates the main concepts of the theory. Causal variables are under the direct influence of managers and include leadership, work facilitation, technical competence, performance goals, well-established relationships, and overlapping structures. These variables identify the prevailing management pattern that determines whether or not the organization has a highly evolved social system. The intervening variables reflect the impact of the social system on the group members and include attitude, loyalty, communication, motivation, goals, cooperation, decentralization, confidence, and trust. In a highly developed social system group members' ratings on the intervening variables would be high. The end result variables are the desired organizational outcomes. They include productivity, costs, and relationships.

FIGURE 1
Likert's Management Systems Theory



The management pattern of an organization can be placed along a continuum of highly developed to poorly developed. Likert identified four types of management systems ranging from the lowest labelled exploitive-authoritarian to the highest labelled collaborative. Figure 2 illustrates the system 1-4 continuum based on an eight point scale.

The exploitive-authoritarian system is one that is manager-centered. Managers make decisions, downward communication patterns predominate, and coercion is relied upon for motivation. Employees are viewed as objects used by the organization to obtain its ends.

The benevolent-authoritarian system is also manager centered but relies less on coercion for motivation. Employees are still seen as needing close supervision although some upward communication is acceptable.

The consultative system differs from the previous two systems in important ways. While managers retain final decision- making power, employees are valued for their consultative contribution to the process. Less centralization and greater trust exist within the organization. Motivation methods are positive.

The collaborative system is the most highly developed system where employees are seen as valuable members of the organization and share decision making equally with

FIGURE 2
System 1-4 Management Continuum

System 1		System 2		System 3		System 4	
Exploitive Authoritarian		Benevolent Authoritarian		Consultative		Collaborative	
1	2	3	4	5	6	7	8

managers. High trust, cooperative team work, and mutual goal setting are characteristic of this level.

Likert developed the Profile of Organizational Characteristics (POC) to measure the management pattern of an organization. Since the management pattern of an organization and its subsequent level of social development is dependent upon the causal variables, each of these variables will be examined below. In order to create a highly evolved social system, Likert emphasized the need for leadership based on the principle of supportive relationships. The principle states that:

> The leadership and other processes of the organization must be such as to ensure a maximum probability that in all interactions and in all relationships within the organization, each member, in the light of his background, values, desires, and expectations, will view the experience as supportive and one which builds and maintains his sense of personal worth and importance (Likert, 1961, p.103).

The application of the principle of supportive relationships helps account for differences among individuals caused by culture, values, and beliefs. Highly developed leadership reflects the ease with which the organization can establish effective teams, create upward as well as downward communications, establish shared goals, and develop group methods of decision making. System 1-3 organizations use person-to-person relationships while system 4 organizations

rely heavily on group meetings and cooperative team approaches. The constructive use of teams in problem solving, goal setting, and decision making is fundamental to the system 4 concept.

The ability to facilitate work reflects the willingness and ability of managers to provide resources and training to staff. Resources include equipment, release time, and budget planning. Training refers to the technical and operational training necessary to keep employees up to date in their field as well as skilled in the group processes of system 4. Thus, work facilitation is the willingness and ability of the manager to provide individualized assistance to the employee.

Unlike many other theorists, Likert acknowledged that good management requires mastery of the traditional technical skills of planning, organizing, coordinating, and controlling. In addition, managers must be knowledgeable in technical fields, skilled in interaction processes, and accomplished in problem-solving techniques. In other words, managers must possess the skills necessary to deal with conflict situations specifically, and human workplace interactions generally.

Likert also asserted that successful managers set and maintain high performance goals and encourage subordinates to set high performance goals. However, high performance

goals without supportive behavior creates resentment. Goals must not be imposed from above but established as a group. System 4 provides a pattern of management, through the use of group decision making, that allows such a process to occur.

Another causal variable, well-established working relationships, represents the human asset value of the members of the organization. Highly effective managers and groups add to the income-producing or service-producing assets of the organization. In most complex organizations, new employees face several months to a year of interaction with other organizational members before they can become integrated into the system. Members must come to know each other well enough to understand the communications coming to them from others. A new organization lacks the well established relationships among its employees and must expend considerable time, effort, and money to create them. Likert suggested that the nature of these relationships will vary with the existing system. System 1 and 2 organizations will create fear and hostility among new members, while system 3 and 4 organizations will develop favorable and cooperative relationships.

Finally, system 4 organizations develop overlapping horizontal and vertical structures to effectively coordinate their operations and to maintain supportive and cooperative

processes. Members of one group are also members of another horizontal or vertical group. Cross linking allows influence to occur in the lateral direction, as well as in the traditional upward direction. Today, most not-for-profit organizations that are organized along service or program lines provide the overlapping organizational structures that allow for the requisite horizontal relationships proposed by Likert.

In summary, Likert proposed that organizations create management systems that influence group performance which in turn influences organizational effectiveness. The closer a management system is to system 4 the greater the organizational effectiveness will be.

Supporting Evidence from Business Organizations

There are numerous studies that support Likert's earlier theory. Likert (1977) stated that between 1947 and 1977 over 500 studies encompassing more than 300 organizations were conducted testing his theory. While the vast majority of the studies were from the world of business and industry, some focused on not-for-profit organizations such as schools, governments, hospitals, and military organizations. Summaries of many of these studies were included in Likert's writings. The results of this research provide substantial support for the earlier theory.

However, contrary findings have been published that conclude that the relationship between participative management style and organizational effectiveness is not strong (Herzberg, Mausner, Peterson, & Capwell, 1957; Miller & Form, 1967; Miller & Monge, 1986). Likert explained the contradictory findings by postulating that these types of studies fail to measure the complete set of end-result variables. He claimed that by concentrating on just productivity or just efficiency these studies omit the significant losses due to reduced employee motivation, increased hostility, absence, and turnover. Furthermore, he stated that if all outcome variables are properly accounted for, then the results will support the theory.

Applicability to Education

An important question for administrators in education is whether or not Likert's theory is applicable to schools. Based on the research in business organizations, Likert modified the POC to develop the Profile of a School (POS). Likert (1977) cited over 40 studies that used the POS and concluded their results consistently showed that the closer the school system is to system 4, the better the school's outcomes. The outcomes include better communication; better cooperation and coordination; more flexible and innovative organization; greater employee satisfaction; more highly

motivated students; higher student achievement; and more favorable student attitudes.

Cullers, Hughes, and McGreal (1973) compared leadership behavior and student satisfaction/dissatisfaction in six high schools. They found that the schools with the highest number of satisfied students had principals who used a participative leadership model. Although their sample size was too small to be conclusive, the researchers felt the evidence strong enough to support a relationship between administrative behavior and pupil satisfaction. In a study of elementary schools, Clark (1981) reported a significant relationship between system 4 leadership styles and higher productivity. Dow (1983) reported unpublished research that found schools in the system 3 or 4 range were perceived to be more effective than schools in the system 1 or 2 range. McKillikan (1975) found that leadership and influence by subordinates were significant factors in a school's ability to adopt innovation in classroom openness.

The evidence regarding the Likert work and its applicability to elementary and secondary schools is not all supportive. Arena (1983) used the POS to measure the principal's leadership style in effective and ineffective schools. He found no significant differences in principal's leadership style between effective and ineffective schools. In a study of elementary schools, Greenblatt (1982) reported

that effectiveness was highest for leaders rated system 2 and lowest for leaders rated system 1. These studies suggest that in some situations Likert's theory may not apply.

In summary, the findings from the school-based studies that used the Likert work were similar to the findings from the organizational studies. Links between the principal's leadership style and both satisfaction and effectiveness were supported. Thus, the preponderance of evidence suggests that the Likert theory applies to schools.

Methodological Concerns

A number of methodological weaknesses have been attributed to the type of survey questionnaires Likert used. These include a lack of relationship between leaders' self descriptions of behavior and followers' descriptions of leader behavior, distortions in perceptions of leaders' behaviors by followers, social desirability bias, and restricted data ranges (Luthans, 1977). Although these weaknesses are inherent in the methodology, steps can be taken to mediate their effect, or failing this, to at least identify the sources of threat. These steps are described below.

Researchers reported little or no relationship between leaders' self descriptions of behavior and followers' descriptions of leader behavior (Schriesheim & Kerr, 1977;

Bass, 1981). Ilgen and Fuji (1976) found both subordinate and leader descriptions statistically unrelated to descriptions made by independent observers. One way of dealing with this problem is to focus entirely on the followers' perceptions. Conflict can exist if teachers perceive, independent of the principal's perception, the existence of a conflict situation and act accordingly. Therefore, by focusing on teachers' perceptions only, the relationship between principals' and teachers' perceptions becomes irrelevant.

Subordinates may attribute causality to their leaders rather than assign it to seemingly uncontrollable events (Karmel, 1978). It is possible that unknown elements of the situation cause the outcomes that teachers attribute to their principals. Since there is no way to control this attributional tendency, it must be identified as a possible threat.

The distortion of responses due to social desirability bias is a common problem in survey research. Social desirability reflects the tendency of subjects to claim socially desirable traits and to deny socially undesirable traits. Reducing bias is usually achieved by prevention and measurement (Nederhof, 1985). Using a social desirability scale, treating social desirability as a moderator variable,

and administering instruments using an anonymous group interview may control the effects of this type of bias.

Finally, restricted data ranges may be problematic. Data from school-based studies indicate that scores on the system 1-4 continuum tend to group around system 3 (Bechard, 1970; Javier, 1971; Gilbert, 1972; Fox, 1973; Weeks, 1978; and Doster, 1982). That is, teachers report a limited range of behavior between high system 2 and high system 3 with few system 1 and 4 scores. To address this problem a sample size large enough to insure the widest possible data range should be used. In addition, the use of individual responses instead of averaged responses should expand the range sufficiently to reduce this problem.

The preceding reviewed Likert's earlier management systems theory, supporting evidence, and applicability to education. The following section presents the system 4T theory which emerged from this earlier work.

System 4T Theory

In developing the system 4T theory, the Likerts started with several major assumptions regarding conflict resolution:

(1) Conflict involves interaction among persons within a social system.

(2) The extent to which a conflict is likely to be resolved constructively depends directly upon the effectiveness of the social systems used during the conflict.

(3) The more socially mature the social system ... the greater the probability the conflict will be resolved constructively (Likert & Likert, 1976, p. 41).

From these assumptions it can be seen that the heart of the system 4T theory is the organization's interaction-influence network. The Likerts stated that superior management of conflict is the result of establishing a participative interaction-influence network, using the principle of supportive relationships, holding high performance goals, possessing technical competence, providing high levels of help with work, establishing good working relationships, and maintaining appropriate overlapping structures. In other words, if a manager improves the social system then the manager's ability to constructively manage conflict will also improve. Thus, the closer an organization's management system is to system 4T the greater the likelihood of constructive resolution of organizational conflict (Likert & Likert, 1976).

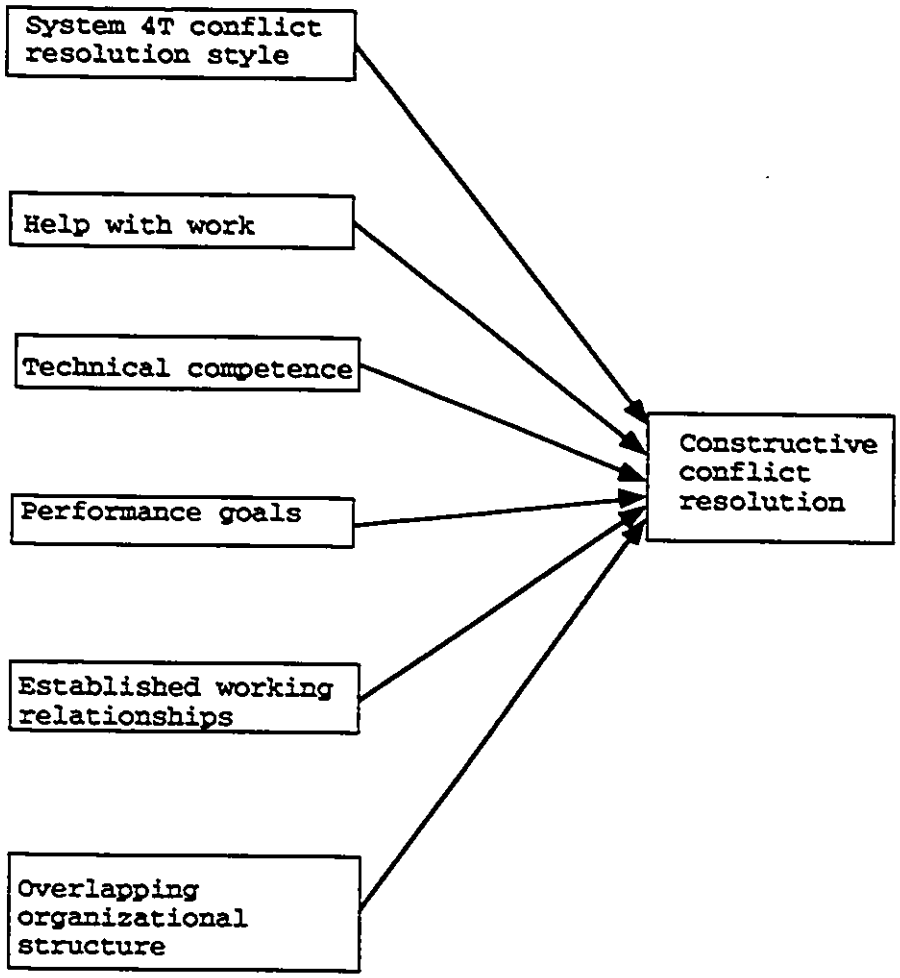
The Likerts developed the Profile of Conflict Characteristics (POCC) to measure manager's conflict resolution behavior on a system 1 to system 4T range. To

differentiate this range from the earlier system 1-4 range they labelled the highest developed social system - system 4T. They claimed that the POCC is an elaboration of the conflict portion of the system 1-4 continuum as detailed in the POC, the motivational forces tapped by different management systems, and other tables of organizational variables. The POCC focuses on two main areas: communications and conflict resolution style. The underlying assumption is that team-building behaviors and supportive relationships will enhance constructive conflict resolution.

The complete system 4T conflict resolution theory, as shown in Figure 3, includes the variables which should improve the theory's ability to describe the operating characteristics of an organization, its level of performance, and its capacity to manage conflict constructively. These variables are system 4T conflict resolution style, help with work, technical competence, performance goals, established working relationships, and overlapping organizational structures. These variables will be referred to throughout the study as the conflict management variables.

The Likerts stated that by knowing the present state of the conflict management variables one can estimate with

FIGURE 3
Likerts'System 4T Conflict Model



Note. Adapted from Likert and Likert (1976) p. 50.

reasonable accuracy the organization's capacity to manage conflict and theorganization's level of performance. "An organization must score high on all of these variables to be highly effective as a social system" (Likert & Likert, 1976, p. 50). Furthermore, they submitted that system 4T is the most socially mature and developed form of human interaction and provides the most highly developed and effective means of managing control.

The system 4T theory may be a better theory to use than other organizational conflict theories to predict constructive resolution of intrafaculty conflict for several reasons. First, the system 4T continuum reflects a conflict resolution style that is similar to the single conflict styles found in other organizational conflict theories. Second, the theory includes help with work, technical competence, performance goals, well-established working relationships, and overlapping structures as variables which add elements of the workplace not accounted for in other theories. Third, the principle of supportive relationships permits the use of the individual as the unit of analysis which eliminates the methodological problems associated with group averaging. Each of these reasons will be expanded in the following section.

System 4T conflict resolution style, as measured by the POCC, provides a measure similar to the single best conflict

style reported in other conflict theories. The POCC measures a portion of the interaction-influence network that relates to conflict by assessing teachers' perceptions of the principals' pattern of conflict resolution behavior. Likert characterizes system 4T conflict behavior as problem solving. This is the same as the Blake and Mouton (1964) confrontation style and Thomas'(1976) collaboration style. Consequently, the results of the POCC are similar to those obtained using other organizational conflict theories.

The system 4T theory may account for workplace complexity by measuring multiple dimensions. In addition to conflict resolution style there are five variables in the theory: help with work, high performance goals, technical competence, well-established working relationships, and overlapping structures. With the addition of these variables the theory may explain conflict resolution better than the more limited two-dimensional theories.

Although Likert proposed a systems theory that operates at the organizational level, he intended managers to apply the theory with regard to the specific needs of individuals in the organization. Whereas managers may exhibit general patterns of behavior, they possess the flexibility, within a system of behavior, to behave differently toward each individual. Strategy is dictated by the management system; tactics are dictated by the

individual's needs. The principle of supportive relationships compels the manager to adapt to an employee's background, values, desires, and expectations. The application of this principle in the domain of conflict requires that a principal's behavior be examined from the point of view of the individual teacher. As a result, each teacher's perception becomes an important indicator of conflict resolution. This unit of analysis allows for the capturing of teacher heterogeneity.

System 4T - Supportive Research

In a study of school principals and teachers, Weeks (1978) compared work group perceptions of conflict resolution behavior (as measured by the POCC), and climate (as measured by the POS). He found a significant relationship between teachers' perception of the principal's conflict resolution behavior and teachers' perceptions of climate. Since the POCC is a more detailed elaboration of the conflict portions of the POC, from which the POS is derived this amounts to a test of validity of the POCC. Therefore, a conclusion that can be drawn from Weeks is that the POCC does indeed measure the same characteristics of behavior as measured on the system 1-4 continuum.

Doster (1982) also supported the Likerts' theory. She used Mullen's Diagnostic Survey for Leadership Improvement

and his Leadership Problem Interaction Survey to measure teacher satisfaction with leadership style and problem-solving interaction. These two variables are similar to Likert's system 1-4 conflict resolution behavior (as measured by the POCC) and satisfaction with conflict resolution (a dependent variable). Using regression analysis, Doster compared these two variables to "the perceived degree of intrafaculty conflict as measured by the POCC" (p. 112). She found that the degree of intrafaculty conflict is a function of teacher satisfaction with principals' leadership styles and teacher satisfaction with principals' problem-solving interaction techniques. Thus, Doster found a significant relationship between conflict resolution behaviors and satisfaction with conflict resolution. Although she did not include the full range of variables specified in the Likerts' system 4T theory, her work supports the hypothesized relationships.

Leader-Member Exchange Model

As with the other widely cited conflict theories, the system 4T theory suffers from data averaging, thereby losing the ability to capture individual differences among teachers. Graen and Cashman (1975) resolved this methodological problem by rejecting the assumption of homogeneous leader behavior and assuming instead,

heterogeneous behavior from both the supervisor and the unit members. By focusing on "role-making" in leader-member dyads they developed the Leader-Member Exchange (LMX) model.

Graen and Cashman used the member's evaluation of the leader's willingness to provide individualized assistance as a measure of leader-member exchange. They hypothesize "that a dyadic relationship characterized by a high degree of individualized assistance is more likely to produce negotiated exchanges between a member and a leader than one characterized by a low degree of this treatment variable" (p.145). They define an in-group exchange as one in which the leader is open to requests for individual assistance. An out-group exchange is one in which the leader is relatively closed to such requests. In-group members are reported to receive consistently greater amounts of resources and more supportive and sensitive treatment than out-group members. Furthermore, leaders who establish in-group exchanges with their own superiors are seen as more technically competent.

Dansereau, Graen, and Haga (1975) supported the Graen and Cashman findings stating that unit differentiation is an inescapable fact. Following the vertical dyad model, Crouch and Yetton (1988) also found support for Graen's hypothesis that in-group and out-group structure is a primary characteristic of a management group. In addition, they reported that high performing subordinates interact

frequently with their managers and low performing subordinates interact less frequently. They concluded, as did Jacobs (1971), that two types of relationships exist between leaders and members: in-groups and out groups. In-group members experience substantial discretion in defining their own problems, seeking and getting assistance, and being influenced by the manager. Out-group members experience less manager friendliness, greater task structure, and more formal organizational authority.

Summary

The review of the literature traced the evolution of Likert's management systems theory, the Likerts' system 4T conflict resolution theory, relevant research, and the Graen and Cashman LMX model. This review established the appropriateness of using the system 4T theory in educational settings, and identified a way of eliminating methodological problems using the LMX model. The next chapter develops an extension of the system 4T theory based on the Graen and Cashman model, and identifies the research problem and hypotheses.

CHAPTER III

PURPOSE OF THE STUDY

System 4T Theory Extended

Using the Graen and Cashman LMX model with the individual as a unit of analysis, the system 4T theory can be extended to account for group differentiation thereby eliminating the problematic group-averaging technique. By using individual responses, rather than group averages, as the unit of analysis the effect of in-group/out-group membership on system 1-4 behavior can be tested. Furthermore, the effect of in-group/out-group membership on constructive conflict resolution can be examined. That is, if in-group/out-group differentiation exists, will the groups perceive the dependent and independent variables differently? Will in-group members perceive the principal's conflict behavior as closer to system 4T and perceive greater constructive conflict resolution than will out-group members?

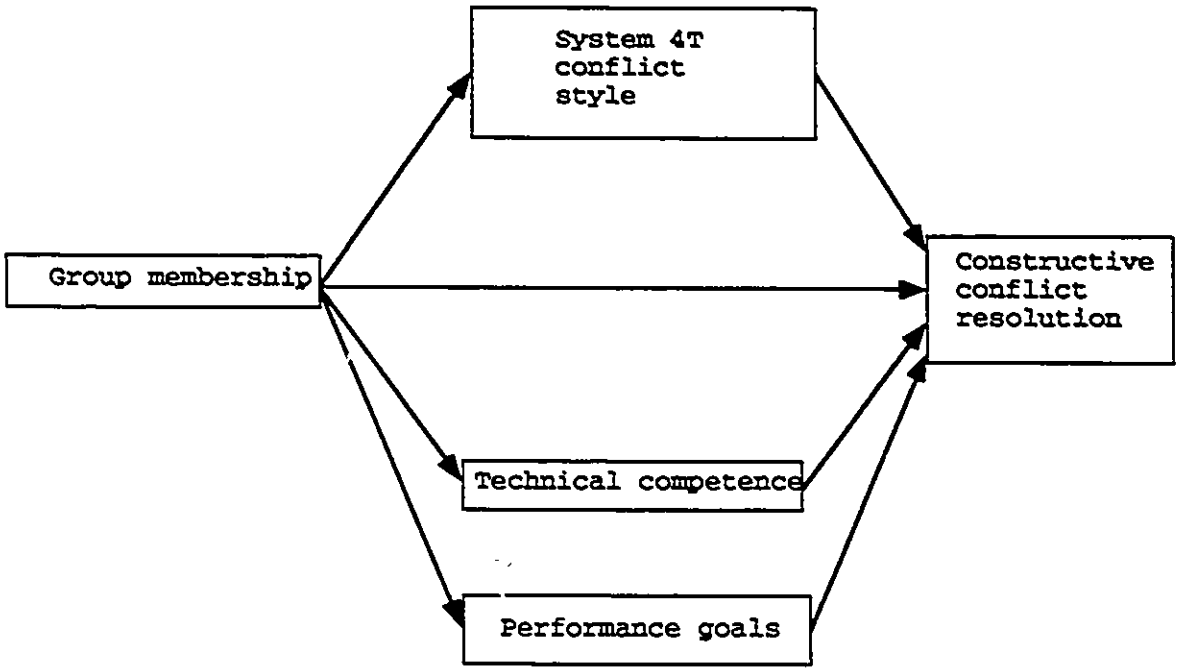
It is possible to simplify the theoretical model slightly by holding the well-established working relationship variable and the overlapping structure variable constant. If all subjects in the study have spent a sufficient amount of time interacting with a principal it

can be assumed that well-established relationships exist. In this study that time period was arbitrarily chosen as one year. To eliminate influences due to varying organizational structures this study included elementary school teachers only. It was assumed that most elementary schools have similar structures. The findings of school-level studies demonstrate that school level makes a difference (Koff, Laffey, Olson, & Cichon, 1979-1980; Firestone & Herriott, 1982a, 1982b; Herriott & Firestone, 1984). Glatthorn and Newberg (1984) found that elementary schools are structurally different from secondary schools. These studies imply, but do not explicitly support, homogeneity among school levels.

In simplifying the model the possibility of including other variables such as teacher experience, age, gender, education level and school size were considered. However, with the exception of school type which was already accounted for, there was little evidence that any of these variables would have an influence on conflict resolution (Renwick, 1977; Salley, 1979; Salley, McPherson, & Baehr, 1979; Wilson, Pentecoste, & Bailey, 1984; Formisano, 1987).

Using the individual as the unit of analysis and adopting the LMX model, the system 4T theory can be extended as shown in Figure 4. This extended system 4T theory may provide a highly useful model of constructive resolution of intrafaculty conflict.

FIGURE 4
Extended System 4T Conflict Model



PURPOSE OF THE STUDY

Statement of the Problem and Hypotheses

Based on the Likerts' system 4T theory and Graen and Cashman's LMX model this study addresses two research questions:

1) Do elementary school teachers perceive that principals who are judged to score high on the system 1-4 conflict resolution behavior continuum, provide a high level of help with work, possess a high level of technical competence, and maintain a high level of performance goals resolve conflict more constructively than principals who are rated lower on these variables?

This question is derived directly from the Likerts' system 4T conflict theory which states that high levels of each of the conflict management variables system 4T conflict resolution style, help with work, technical competence, and performance goals result in constructive conflict resolution. The following main hypothesis is proposed

Hypothesis One

The closer teachers' perceptions of the principals' conflict resolution behavior are to system 4T; and the higher the level of performance goals, help with work, and technical competence, the greater the level of constructive conflict resolution perceived by those teachers.

The second question is based on the LMX model of Graen and Cashman. It seeks to establish the presence and impact of in-group/out-group differentiation in educational settings by examining the relationships among in-group/out-group membership,
the principal's conflict resolution style, and constructive conflict resolution.

2) Does in-group and out-group membership have an effect on teachers' perceptions of the principals' conflict resolution behavior and constructive conflict resolution?

In-group/out-group membership should create two groups that perceive principals differently. In-group members should rate their principals closer to system 4T conflict behavior and higher on constructive conflict resolution than should out-group members. The following hypotheses are proposed

Hypothesis Two

Group membership, as measured by help with work, will be related to principals' system 4T conflict resolution behavior.

Hypothesis Three

Group membership, as measured by help with work, will be related to constructive conflict resolution.

CHAPTER IV

METHODOLOGY

Sample

This study focused on teachers' perceptions of their principals' ability to constructively manage conflict. In order to maintain similarity among organizational structures, it was assumed that the organizational structures of elementary schools differ very little from each other. Therefore, to hold the structural variable constant the sample was limited to elementary school teachers.

Since this study involved defining latent variables in terms of observed measured variables and the modelled relationships among these latent variables, LISREL VI (Joreskog & Sorbom, 1984) was chosen to analyze the data. Anderson and Gerbing (1988) suggested that when using LISREL, sample sizes in excess of 150 are typically needed to obtain parameter estimates with sufficiently small standard errors to be of practical use. Tanaka (1987) also suggested that sample sizes should be a minimum of 100, preferably 200 or more. Given these guidelines, a sample of convenience of 216 elementary school teachers from eastern Ontario and Quebec was used in this study. An additional 127 elementary teachers were included for a reliability study.

METHODOLOGY

Subjects

The subjects were surveyed while attending a variety of courses offered by the Faculty of Education at the University of Ottawa during the summer of 1990. The instruments were administered in group settings with the identities of all individuals remaining anonymous. To hold established working relationships constant the sample was screened to eliminate teachers who had not worked with their principal for at least one year. In addition, any teacher who had not experienced a conflict situation with the principal was not included in the study. In a few cases teachers indicated that they only dealt with vice-principals and used these individuals when responding. This difference should not have caused any problems since the data collected would simply reflect the conflict management system created by the vice-principal instead of that of the principal. In addition, the unit of analysis was the individual teacher, therefore, whether the leader was the principal or the vice-principal should not have an effect on the hypothesized relationship.

The teachers in the study came from an even distribution of rural, suburban, and city school boards. Subjects reported that 33% came from rural schools, 36% from suburban schools, and 31% from city schools. The mean number of years working with a principal was five.

METHODOLOGY

Instruments

The following section presents the procedures used to validate and test the reliability of the instruments. First, each instrument in the study is examined including the Index of Perceived Organizational Effectiveness, the Leadership Problem Interaction Survey, the Loyalty to the Principal Index, the Profile of Conflict Characteristics, a measure of help with work, a measure of the principal's technical competence, and a measure of the principal's performance goals, then descriptive statistics are presented for all variables used in the initial reliability study. Assumptions of normality were checked using measures of skewness, and kurtosis obtained with the SPSSx (SPSS, 1986) application software. A confirmatory factor analysis was conducted for each instrument using LISREL VI to verify the relationships of the observed variables to their posited underlying constructs. A correlation matrix was used for each of these analyses. These correlation matrices are included in Appendix A. As suggested by Breckler (1990), several goodness-of-fit indices were used in order to assess how well the models fit the data including the goodness-of-fit index (GFI) and the root-mean-square residual (RMSR) (Joreskog & Sorbom, 1985); the normed fit index (NFI) (Bentler & Bonett, 1980); the normed-fit index, type II (NFI2) (Marsh, Balla, & McDonald, 1988); the parsimonious

normed-fit index (PNFI) (Mulaik, Jones, Van Alstine, Bennett, Lind, & Stillwell, 1989), and the unbiased relative noncentrality index (RNI) (McDonald & Marsh, 1990). The chi-square global fit statistic was also provided, however, for proper interpretation this statistic requires larger sample sizes than used in this study (Breckler, 1990). Anderson and Gerbing (1988) and McDonald (1985) recommended that the patterning of the residuals be used to locate the source of misspecification in models and this practice was adopted to help determine model fit. In all model specifications used in the study error terms were uncorrelated. Internal consistency was also verified using SPSSx (N=127).

The Index of Perceived Organizational Effectiveness

The Index of Perceived Organizational Effectiveness (IPOE) (Mott, 1972) was designed to measure three aspects of effectiveness (EFEC): productivity (PROD), flexibility (FLEX), and adaptability (ADAP). The instrument consists of eight questions and uses a Likert-type response scale ranging from one to eight. To verify the underlying structure of the instrument a confirmatory factor analysis was conducted. Based on these three criteria a three factor model was tested with the latent variables representing each of these criteria. Table 1 shows that the model resulted in a good fit with GFI = 0.940, RMSR = 0.053 and only three

residuals greater than 0.1. The factor loadings are presented in Table 2 which shows that the loadings on each factor were quite high (for correlation matrix see Appendix A Table A-1).

Mott provided extensive indicators of validity for the IPOE, a frequently used and established instrument. Miskel et al. (1979) modified the IPOE for use in schools by adapting the language to an educational setting. They reported a global alpha coefficient of 0.89 in their sample. However, they did not conduct a confirmatory factor analysis and were unable to report individual subscale reliability. Table 3 summarizes the reliability test of the instrument in this study. With N=125, the PROD factor had an alpha coefficient of 0.79, the FLEX factor had an alpha coefficient of 0.73, the ADAP factor had an alpha coefficient of 0.83, and EFEC had a global alpha coefficient of 0.83. While the ADAP subscale indicated slightly higher reliability than PROD and FLEX, all three subscales were judged to be acceptably reliable.

Table 1
Confirmatory Factor Analysis of the Index of Perceived Organizational Effectiveness

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
3	127	33.92	17	0.01	0.053	0.94	0.95	0.58	0.91

Table 2
Factor Loadings for Index of Perceived Organizational Effectiveness

Variable #	PROD	FLEX	ADAP
3	0.789	0.000	0.000
4	0.801	0.000	0.000
5	0.000	0.000	0.787
6	0.000	0.000	0.694
7	0.000	0.000	0.505
8	0.000	0.000	0.585
9	0.000	0.860	0.000
10	0.000	0.820	0.000

Table 3
Reliability Test for Index of Perceived Organizational Effectiveness

Factor	Alpha coefficient
EFEC	0.83
PROD	0.79
FLEX	0.73
ADAP	0.83

The Leadership Problem Interaction Survey

Mullen (1980) developed the Leadership Problem Interaction Survey (LPIS) to diagnose the degree of satisfaction that subordinates perceive in regard to leadership problem-solving interaction within a school organization. It is a 10 item scale and is scored on a range of one to eight. The degree of satisfaction (SATI) is determined by measuring the difference between the what "is"

and the what "should be" responses. An intensity score is derived by squaring the mean responses to "is" and "should-be" and computing the difference of the squared "is" and "should-be" mean scores. Since this method of scoring appears to distort large differences, a different scoring method was employed. Intensity was calculated by using the absolute value of the differences between the "is" and "should-be" scores. Since direction of intensity was not of interest, the use of the absolute values eliminated negative numbers and did not distort the scale. Both methods were tested for reliability. The second method produced a slightly higher alpha coefficient of 0.93 than the first method which yielded an alpha coefficient of 0.91. Therefore, the second method was used since it did not distort the scale and resulted in slightly higher reliability.

To verify the underlying structure of the instrument a confirmatory factor analysis was conducted. A one factor model was tested with the latent variable representing SATI. Table 4 shows that the one factor model resulted in a good fit with GFI = 0.934 , RMSR = 0.037, and no residuals greater than 0.1. The factor loadings are shown in Table 5 (for correlation matrix see Appendix A Table A-2).

Table 4
Confirmatory Factor Analysis of the Leadership Problem Interaction Survey

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
1	127	45.56	35	0.11	0.037	0.934	0.98	0.77	0.93

Table 5
Factor Loadings for Leadership Problem Interaction Survey

Variable #	SATI
11	0.802
12	0.662
13	0.698
14	0.721
15	0.742
16	0.702
17	0.758
18	0.751
19	0.740
20	0.667

The Loyalty to the Principal Index

The Loyalty to the Principal Index (LPI) was originally developed by Blau and Scott (1962), expanded by Murray and Corenblum (1966) and modified by Hoy and Williams (1971). The instrument is designed to measure cognitive, behavioral, and affective aspects of teacher loyalty to the principal (LOYL). The scale consists of eight items scored on a range of one to eight. The confirmatory factor analysis presented in Table 6 shows that a one factor model resulted in a good

fit with GFI = 0.955, RMSR = 0.024, and no residuals greater than 0.1. The factor loadings are presented in Table 7 (for correlation matrix see Appendix A Table A-3). It should be noted that had this scale measured cognitive, behavioral, and affective aspects of loyalty the factor analysis should have resulted in a three factor model not a one factor model. Loyalty as measured by this scale is actually unidimensional. Johnston and Venable (1986) reported high validity and reliability with an alpha coefficient of 0.89. In this study reliability was also found to be very high with an alpha coefficient of 0.95.

Table 6
Confirmatory Factor Analysis of the Loyalty to the Principal Index

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
1	127	18.14	9	0.034	0.024	0.955	0.99	0.59	0.97

Table 7
Factor Loadings for Loyalty to the Principal Index

Variable #	LOYL
52	0.760
53	0.806
54	0.891
55	0.757
56	0.947
57	0.946

The Profile of Conflict Characteristics

The Profile of Conflict Characteristics consists of 17 items scored on a range of one to eight. The POCC is designed to measure system 4T conflict resolution style (STYL). There are no reliability or validity tests reported on the POCC, therefore, it was treated as a newly constructed instrument. The instrument was submitted to a panel of three professors of educational administration who judged that the instrument had face validity. The scale consists of the following questions:

21) What methods of resolving conflicts does your principal use?

22) How much does your principal try to understand your point of view?

23) How much does your principal seek to use joint problem solving to develop innovative solutions satisfactory to both parties?

24) How much does your principal strive to discover and state explicitly the integrating goals and common interests that they share?

25) How candid and unguarded is the communication and interaction between you and your principal?

26) To what extent does your principal attempt to deceive you?

27) To what extent does your principal make efforts to build channels of communication, and interaction between opposing parties?

28) To what extent are innovative, mutually acceptable solutions being sought?

29) To what extent does your principal strive to gain power over you?

30) To what extent does your principal strive to seek mutually satisfying solutions?

31) To what extent does your principal use a third party to help find a mutually acceptable solution?

32) To what extent do the solutions reached result in favorable cooperative attitudes between you and your principal?

33) To what extent are the channels for the flow of interaction and influence between you and your principal effective?

34) How well can your principal state clearly and with understanding your point of view,or your preferred solution?

35) When solutions are reached how well do you accept them?

36) When solutions are reached how well do you implement them?

37)How many open channels of communication are there for flow of information and influence between you and your principal?

A reliability analysis yielded an alpha coefficient of 0.96, however, the reliability could be improved by deleting questions 26 and 31. These two questions were not used in the remainder of the data analysis. To verify the underlying structure a one factor model was tested with the latent variable representing STYL. Table 8 shows that the one factor model represented a reasonably good fit with GFI = 0.815, RMSR = 0.041 and only three residuals greater than 0.1. The factor loadings for this model are shown in Table 9 (for correlation matrix see Appendix A Table A-4). A two factor model based on the pattern of fitted residuals was

Table 8
Confirmatory Factor Analysis of the Profile of Conflict Characteristics

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
1	127	215.12	90	0.000	0.041	0.815	0.93	0.80	0.88
2	127	177.29	89	0.000	0.035	0.849	0.95	0.80	0.90

Table 9
Factor Loadings for the Profile of Conflict Characteristics

Variable #	STYL
21	0.860
22	0.882
23	0.868
24	0.847
25	0.768
27	0.688
28	0.869
29	0.617
30	0.899
32	0.916
33	0.927
34	0.853
35	0.791
36	0.694
37	0.826

tested with questions 25 and 26 loading on only the second factor. While this two factor model resulted in an acceptable fit with GFI = 0.849, RMSR = 0.035 and three residuals greater than 0.1, the PNFI of this model was the same as the one factor model (see Table 8). Table 10 presents the factor loadings for this model. In addition, the RNI of the two factor model was only slightly better, at

0.90 compared to 0.88, for the one factor model. The second model, therefore, provided only a marginally better fit. Since little could be gained by using the two factor model the one factor model was deemed appropriate. Two questions were removed from the scale so a second reliability test was conducted that resulted in an alpha coefficient of 0.97.

Table 10
Factor Loadings for the Profile of Conflict Characteristics - Two Factor Model

Variable #	Factor 1	Factor 2
21	0.863	0.000
22	0.883	0.000
23	0.869	0.000
24	0.850	0.000
25	0.767	0.000
27	0.691	0.000
28	0.870	0.000
29	0.618	0.000
30	0.900	0.000
32	0.914	0.000
33	0.927	0.000
34	0.854	0.000
35	0.000	0.940
36	0.000	0.818
37	0.824	0.000

Help With Work

To measure the variable of help with work (HELP) five questions were submitted to the previous panel of three judges to assess face validity. The following questions were included in the instrument:

> 38) To what extent has your principal helped you receive the kind of professional training you desire?

39) To what extent is your principal willing to give you individual assistance?

40) To what extent does your principal offer you more resources to help you do your work compared to other teachers in your school?

41) To what extent do you think your principal invites you to participate in decision making compared to other teachers in your school?

42) To what extent do you think you have greater access to your principal than most other teachers in the school?

Each item was scored on a scale of one to eight. A one factor confirmatory factor analysis model resulted in a good fit with GFI = 0.899, RMSR = 0.054, and one residual > 0.1 (see Table 11). The factor loadings are presented in Table 12 (for correlation matrix see Appendix A Table A-5). Reliability testing revealed relatively high reliability with an alpha coefficient of 0.89. Based on the results of the confirmatory factor analysis item scores were averaged to form a single score for HELP.

Table 11
Confirmatory Factor Analysis of Help with Work

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
1	127	36.41	5	0.00	0.054	0.899	0.90	0.45	0.89

Table 12
Factor Loadings for Help with Work

Variable #	HELP
38	0.812
39	0.816
40	0.787
41	0.762
42	0.732

Technical Competence

To measure technical competence (COMP) several questions were submitted to the panel of judges to assess face validity. The following five questions were deemed valid:

43) When a tough job arises to what extent does the principal have the "know-how" to get it done?

44) To what extent does the principal plan ahead?

45) When a teacher is having trouble to what extent does the principal know how to help?

46) To what extent does the principal know how to deal effectively with conflict?

47) How often does the principal fail to do a good job because of poor administrative skills?

Each item was scored on a scale of one to eight. Reliability testing revealed relatively high reliability with an alpha coefficient of 0.89. However, with item 47 deleted the alpha

coefficient was increased to 0.90, so item five was not included in the study. The confirmatory factor analysis of the modified one factor model (see Table 13) resulted in a good fit with GFI = 0.902, RMSR = 0.058 and one residual > 0.1. The factor loadings are presented in Table 14 (for correlation matrix see Appendix A Table A-6). A two factor model based on the residual pattern was also tested and yielded an excellent fit with GFI = 0.993, RMSR = 0.009, and no residuals > 0.1 (see Table 13). The factor loadings for the two factor model are presented in Table 15. The two factor model was clearly a better fit. However, grouping the four items of this scale in the manner suggested by the two factor model did not appear to make sense substantively. The only thing that items 43 and 44 seemed to share in common was the underlying factor COMP. The same was true for items 44 and 45. Given the lack of substantive support for a two factor model and the fact that model one was also a good fit with RNI = 0.92, the one factor model was adopted. As with the Help With Work scale, the item scores were averaged based on the results of the confirmatory factor analysis to form a single score for COMP.

Table 13
Confirmatory Factor Analysis of Technical Competence

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
1	127	27.75	2	0.000	0.058	0.902	0.93	0.31	0.92
2	127	1.81	1	0.179	0.009	0.993	1.00	0.17	0.99

Table 14
Factor Loadings for Technical Competence

Variable #	COMP
43	0.799
44	0.702
45	0.937
46	0.882

Table 15
Factor Loadings for Technical Competence - Two Factor Model

Variable #	Factor 1	Factor 2
43	0.918	0.000
44	0.794	0.000
45	0.000	0.957
46	0.000	0.882

Performance Goals

To measure performance goals (GOAL) the following questions were deemed valid by the judges:

48) To what extent do you feel your principal has high self expectations?

49) To what extent do you feel your principal is truly committed to the performance goals shared with you?

50) To what extent does your principal attempt to implement the goals he or she espouses?

51) What level of performance goals does your principal seek to have you achieve?

Each item was scored on a scale of one to eight. A one factor confirmatory factor analysis revealed a good fit with GFI= 0.996, RMSR = 0.018, and no residuals > 0.1 (see Table 16). Factor loadings are shown in Table 17 (for correlation matrix see Appendix A Table A-7). For these items, the reliability test resulted in an alpha coefficient of 0.78. While this was lower than the other scales it was judged acceptable. Item scores were averaged to form a single score for GOAL.

Table 16
Confirmatory Factor Analysis of Performance Goals

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI2	PNFI	RNI
1	127	1.05	2	0.591	0.018	0.996	1.00	0.34	0.99

Table 17
Factor Loadings for Performance Goals

Variable #	GOAL
48	0.490
49	0.794
50	0.895
51	0.584

Descriptive Statistics

Table 18 presents descriptive statistics and the results of the skewness and kurtosis tests for all variables in the reliability study. Skewness ranged between -0.85 and 0.94, well within the accepted range of -1.0 to 1.0 (Muthen & Kaplan, 1985). Kurtosis scores ranged between -1.5 and 1.1, with only four of 55 variables exceeding the range of -1.0 to 1.0. Thus, there were no serious deviations from normality among the individual variables.

Table 18
Descriptive Statistics

Variable	Mean	Std Dev	Skewness	Kurtosis
IPOE - (EFEC)				
V3	5.468	1.435	-0.62	0.09
V4	5.984	1.134	-0.67	0.67
V5	5.661	1.346	-0.79	-0.26
V6	4.992	1.365	-0.33	-0.26
V7	4.984	1.522	-0.46	0.08
V8	4.614	1.718	-0.24	-0.54
V9	4.496	1.302	-0.09	-0.14
V10	4.614	1.291	0.08	-0.06
LPIS (SATI)				
V11	5.386	2.218	-0.31	-1.07
V12	6.236	1.950	-1.04	0.14
V13	5.877	2.184	-0.76	-0.57
V14	6.291	1.882	-0.85	-0.15

Table 18
Descriptive Statistics

Variable	Mean	Std Dev	Skewness	Kurtosis
V15	5.354	2.084	-0.32	-0.91
V16	6.281	1.831	-0.86	-0.37
V17	5.592	2.129	-0.56	-0.76
V18	5.825	1.902	-0.56	-0.76
V19	5.960	1.820	-0.50	-0.78
V20	5.680	2.066	-0.56	-0.76
POCC - (STYL)				
V21	4.661	1.989	-0.20	-0.96
V22	4.614	1.835	-0.05	-0.91
V23	4.381	2.007	-0.04	-1.09
V24	4.039	1.986	0.18	-1.07
V25	4.685	2.312	-0.04	-1.33
V26	6.144	1.768	-0.95	0.12
V27	4.405	2.025	0.14	-0.99
V28	4.331	2.063	0.10	-0.99
V29	5.024	2.174	-0.39	-0.99
V30	4.661	1.981	-0.18	-1.06
V31	2.746	1.884	0.85	-0.46
V32	4.585	2.076	-0.11	-1.13
V33	4.452	2.010	-0.01	-1.23
V34	4.254	1.914	0.06	-1.02
V35	5.073	1.619	-0.21	-0.59
V36	5.368	1.663	-0.72	-0.32
V37	4.362	1.922	0.04	-0.96

Table 18
Descriptive Statistics

Variable	Mean	Std Dev	Skewness	Kurtosis
Help With Work (HELP)				
V38	4.360	2.245	0.13	-1.22
V39	4.619	2.194	-0.06	-1.18
V40	3.800	2.008	0.45	-0.65
V41	4.650	2.265	-0.26	-1.22
V42	4.280	2.131	-0.07	-1.09
Technical Competence (COMP)				
V43	4.770	2.110	-0.16	-1.06
V44	5.024	2.022	-0.22	-0.93
V45	4.128	1.947	0.31	-0.93
V46	4.160	2.119	0.09	-1.23
V47	5.598	1.870	-0.69	-0.4
Performance Goals (GOAL)				
V48	5.488	1.924	-0.49	-0.56
V49	4.544	2.058	0.07	-1.11
V50	5.273	1.853	-0.23	-0.99
V51	5.942	1.416	-0.81	0.88
LPI (LOYL)				
V52	4.756	2.566	-0.19	-1.48
V53	3.484	2.481	0.63	-1.16
V54	4.512	2.295	-0.09	-1.31
V55	4.189	2.090	0.13	-1.15
V56	4.465	2.291	-0.04	-1.30
V57	4.357	2.425	0.13	-1.31
V58	4.449	2.356	0.03	-1.38
V59	5.296	1.596	-0.68	0.14

METHODOLOGY

Data Collection

Permission was obtained from summer session teachers to administer the questionnaire during class time. Subjects were allowed as much time as required to complete the questionnaire. Instructions to the subjects were the same each time and included a brief description stating that the research was about conflict between teachers and principals, and the definition of conflict used in this study. Subjects were also asked to not fill in the questionnaire if they had not worked with their principal for at least one year, were not a regular elementary classroom teacher, or felt that they had not experienced any conflict with their principal as previously defined. They were then asked to evaluate their principal, or vice-principal, whoever was the most appropriate, using the instrument. Respondents were also asked to refrain from identifying either themselves or the principal. Strict anonymity was maintained throughout the study. The first 127 completed questionnaires were used for the reliability study. After initial reliability testing, an additional 216 questionnaires were collected for the main sample.

Data Analysis

Constructive conflict resolution (CRES), in both the Likerts' theory and the proposed extension to the theory, is a latent variable - unable to be measured directly. Joreskog

and Sorbom (1985) stated that "LISREL is a general computer program for estimating unknown coefficients in a set of linear structural equations ... and is designed to handle models with latent variables" (p. I.2). In order to appropriately deal with latent variables and to properly assess the relative strengths of the other variables taken together LISREL VI was used to analyze the hypothesized models. A specified a-priori theoretical model is supported if the observed data can be closely reproduced by a set of parameter estimates, thus, the test is whether the specified model is consistent or inconsistent with the data. The essence of this approach is to specify an hypothesized model and assess the goodness-of-fit between the model and the observed sample data (Byrne, 1989). Since there is no definitive test of goodness-of-fit a number of different fit indices should be used (Anderson & Gerbing, 1988; Breckler, 1990). The fit indices used for the reliability study were also used for the main sample.

Structure of Conflict Management Variables

To confirm the structure of the conflict management variables in the sample all the independent variables taken together were subjected to a confirmatory factor analysis based on the patterns obtained in the reliability analysis. Figure 5 shows the measurement model used.

Table 19 presents the results of the confirmatory factor analysis. The data resulted in a chi-square of 831.59 with 344 df, the GFI was 0.771 and the RMSR was 0.052. Factor loadings are presented in Table 20 (for correlation matrix see Appendix B Table B-1). There were 17 residuals, out of a possible 378 residuals, greater than 0.1. There was no apparent pattern among the residuals that suggested a better fit. Given the strong factor loadings, and relatively high fit indices this model was accepted. Table 21 shows the intercorrelations among the four factors. It is clear that with a range of 0.831 to 0.870 STYL, HELP, COMP, and GOAL were highly intercorrelated.

Structure of Conflict Resolution Variables

To test the observed conflict resolution variables EFEC, SATI, and LOYL the same procedure was used. First, these variables were analyzed with a confirmatory factor analysis based on the factor patterns derived in the reliability analysis. The measurement model tested is shown

Table 19
Confirmatory Factor Analysis of all Conflict Management Variables

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI	PNFI	RNI
4	216	831.59	344	0.000	0.052	0.771	0.89	0.79	0.87

Table 20
Factor Loadings for all Conflict Management Variables

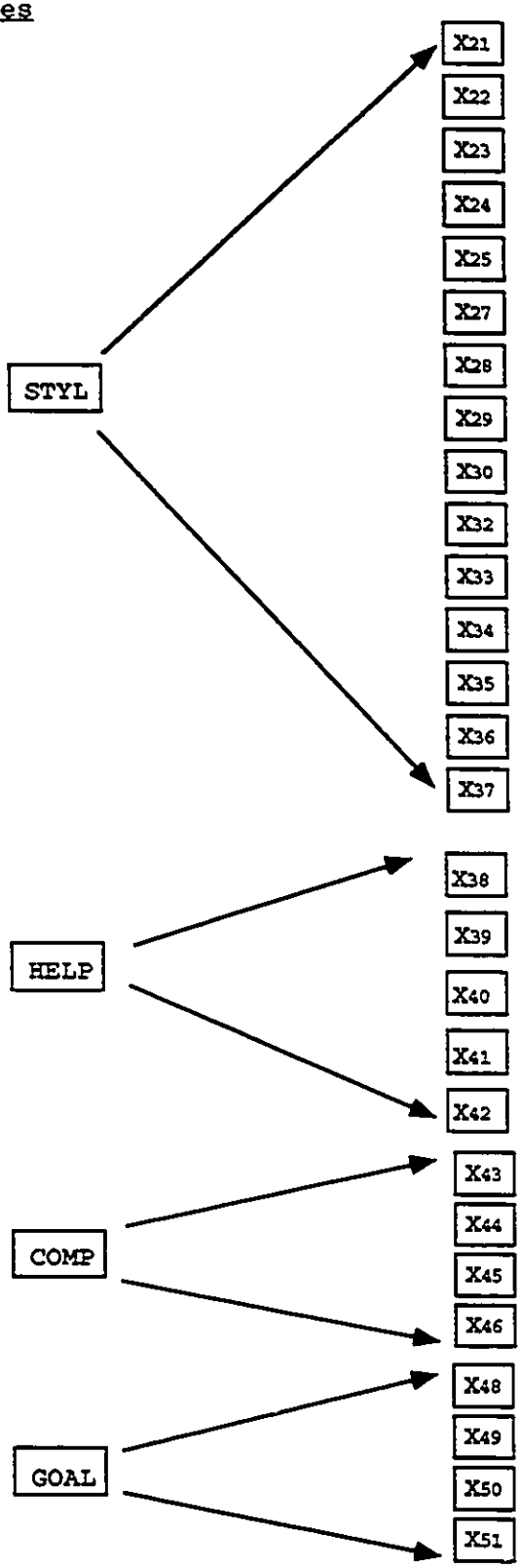
Variable	STYL	HELP	COMP	GOAL
V21	0.845	0.000	0.000	0.000
V22	0.893	0.000	0.000	0.000
V23	0.878	0.000	0.000	0.000
V24	0.863	0.000	0.000	0.000
V25	0.728	0.000	0.000	0.000
V27	0.734	0.000	0.000	0.000
V28	0.900	0.000	0.000	0.000
V29	0.628	0.000	0.000	0.000
V30	0.916	0.000	0.000	0.000
V32	0.904	0.000	0.000	0.000
V33	0.924	0.000	0.000	0.000
V34	0.864	0.000	0.000	0.000
V35	0.781	0.000	0.000	0.000
V36	0.669	0.000	0.000	0.000
V37	0.853	0.000	0.000	0.000
V38	0.000	0.826	0.000	0.000
V39	0.000	0.915	0.000	0.000
V40	0.000	0.769	0.000	0.000
V41	0.000	0.725	0.000	0.000
V42	0.000	0.590	0.000	0.000
V43	0.000	0.000	0.852	0.000
V44	0.000	0.000	0.741	0.000
V45	0.000	0.000	0.923	0.000
V46	0.000	0.000	0.921	0.000
V48	0.000	0.000	0.000	0.476
V49	0.000	0.000	0.000	0.950
V50	0.000	0.000	0.000	0.744
V51	0.000	0.000	0.000	0.526

Table 21
Factor Intercorrelations for all Conflict Management Variables

	STYL	HELP	COMP	GOAL
STYL	1.000			
HELP	0.870	1.000		
COMP	0.870	0.831	1.000	
GOAL	0.831	0.842	0.864	1.000

Figure 5

Measurement Model for Confirmatory Factor Analysis of Conflict Management Varaiables



Where

STYL = System 4T conflict resolution theory
HELP = Help with work
COMP = Technical Competence
GOAL = Performance goals

in Figure 6. Then, a second order factor analysis was conducted to test whether the indicator variables loaded on the underlying CRES factor.

The confirmatory factor analysis showed that the factor structure underlying the reliability data also held for the observed data with chi-square of 420.47 with 242 df, GFI = 0.862, and RMSR = 0.055 (see Table 22). The factor loadings are shown in Table 23 and the model was deemed a good fit. Table 24 shows the factor correlations among the conflict resolution variables (for correlation matrix see Appendix B Table B-2). This table shows that the three effectiveness factors, PROD, ADAP, and FLEX were correlated to each other but not to SATI and LOYL, while SATI and LOYL were highly correlated (0.799). This indicated that PROD, ADAP, and FLEX shared something in common. This result suggested a respecified second order model with EFEC the underlying factor for PROD, ADAP, and FLEX. Table 24 also shows unexpectedly high correlations between ADAP and both

Table 22
Confirmatory Factor Analysis of all Conflict Resolution Variables

Factors	N	Chi-square	Df	P	RMSR	GFI	NFI	PNFI
5	216	420.47	242	0.000	0.055	0.862	0.95	0.83

Table 23
Factor Loadings for Confirmatory Factor Analysis of all Conflict Resolution Variables

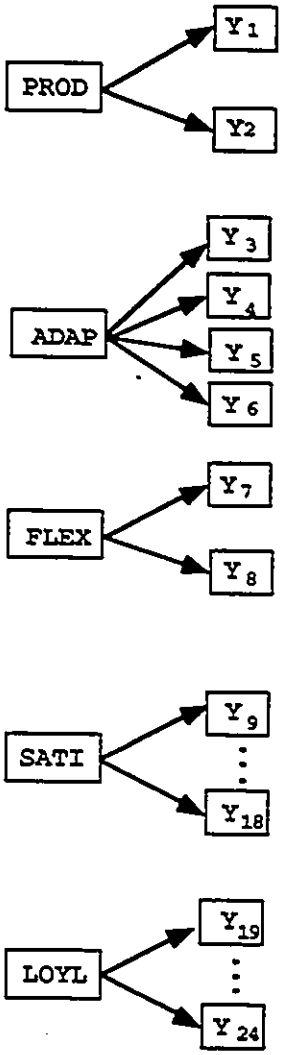
	PROD	ADAP	FLEX	SATI	LOYL
VAR 1	0.745	0.000	0.000	0.000	0.000
VAR 2	0.822	0.000	0.000	0.000	0.000
VAR 3	0.000	0.598	0.000	0.000	0.000
VAR 4	0.000	0.663	0.000	0.000	0.000
VAR 5	0.000	0.567	0.000	0.000	0.000
VAR 6	0.000	0.654	0.000	0.000	0.000
VAR 7	0.000	0.000	0.858	0.000	0.000
VAR 8	0.000	0.000	0.874	0.000	0.000
VAR 9	0.000	0.000	0.000	0.816	0.000
VAR 10	0.000	0.000	0.000	0.635	0.000
VAR 11	0.000	0.000	0.000	0.657	0.000
VAR 12	0.000	0.000	0.000	0.707	0.000
VAR 13	0.000	0.000	0.000	0.745	0.000
VAR 14	0.000	0.000	0.000	0.700	0.000
VAR 15	0.000	0.000	0.000	0.794	0.000
VAR 16	0.000	0.000	0.000	0.804	0.000
VAR 17	0.000	0.000	0.000	0.786	0.000
VAR 18	0.000	0.000	0.000	0.668	0.000
VAR 19	0.000	0.000	0.000	0.000	0.808
VAR 20	0.000	0.000	0.000	0.000	0.812
VAR 21	0.000	0.000	0.000	0.000	0.925
VAR 22	0.000	0.000	0.000	0.000	0.794
VAR 23	0.000	0.000	0.000	0.000	0.932
VAR 24	0.000	0.000	0.000	0.000	0.964

Table 24
Factor Correlations from Confirmatory Factor Analysis of all Conflict Resolution Variables

	PROD	ADAP	FLEX	SATI	LOYL
PROD	1.000				
ADAP	0.709	1.000			
FLEX	0.578	0.712	1.000		
SATI	0.233	0.466	0.250	1.000	
LOYL	0.239	0.347	0.265	0.799	1.000

Figure 6

Measurement Model for Confirmatory Factor Analysis of Conflict Resolution Variables



Where

PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal

SATI (0.466) and LOYL (0.347). To account for this relationship the error terms between ADAP and SATI, and ADAP and LOYL were allowed to be correlated in the model. The respecified structural model is presented in Figure 7 (The paths for the correlated error terms among ADAP, SATI, and LOYL were omitted from the figure for clarity). Table 25 shows that this respecified model had an acceptable fit with a GFI of 0.862, RMSR of 0.056 and 25 residuals greater than 0.1 out of a possible 300 residuals but none greater than 0.198 and no obvious pattern emerging from the residuals that would suggest an improved model. Table 26 shows the standardized path coefficients among CRES, EFEC, SATI, and LOYL. Table 27 shows the factor loadings for the effectiveness variables PROD, ADAP, and FLEX. Figure 8 displays the final structural model representing all conflict resolution variables and their respective path coefficients.

Structural Models

To test the first hypothesis the model in Figure 9 was analyzed using structural equation modeling. To eliminate problems with identification (Hayduk, 1987) the number of x variables required to be estimated in the Lisrel model was reduced by averaging together all the items that loaded on the same factor. These were then submitted to the model as a

Table 25
Second Order Confirmatory Factor Analysis of Respecified Structural Model of all Conflict Resolution Variables

N	Chi-square	Df	P	RMSR	GFI
216	420.81	243	0.000	0.056	0.862

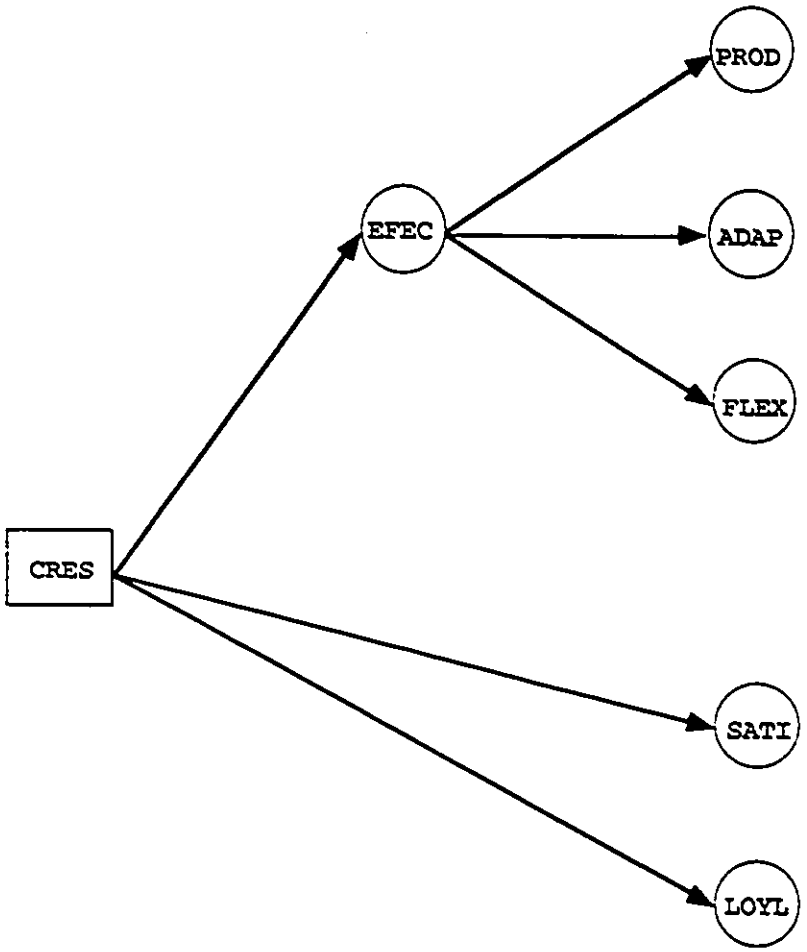
Table 26
Standardized Path Coefficients for Second Order Confirmatory Factor Analysis of Respecified Structural Model of Conflict Resolution Variables

Eta	CRES
PROD	0.000
ADAP	0.000
FLEX	0.000
SATI	0.871
LOYL	0.915
EFEC	0.384

Table 27
Factor Loadings for Effectiveness Variables in the Respecified Second Order Confirmatory Factor Analysis

	EFEC
PROD	0.752
ADAP	0.944
FLEX	0.759

Figure 7
Respecified Structural Model of Conflict Resolution Variables

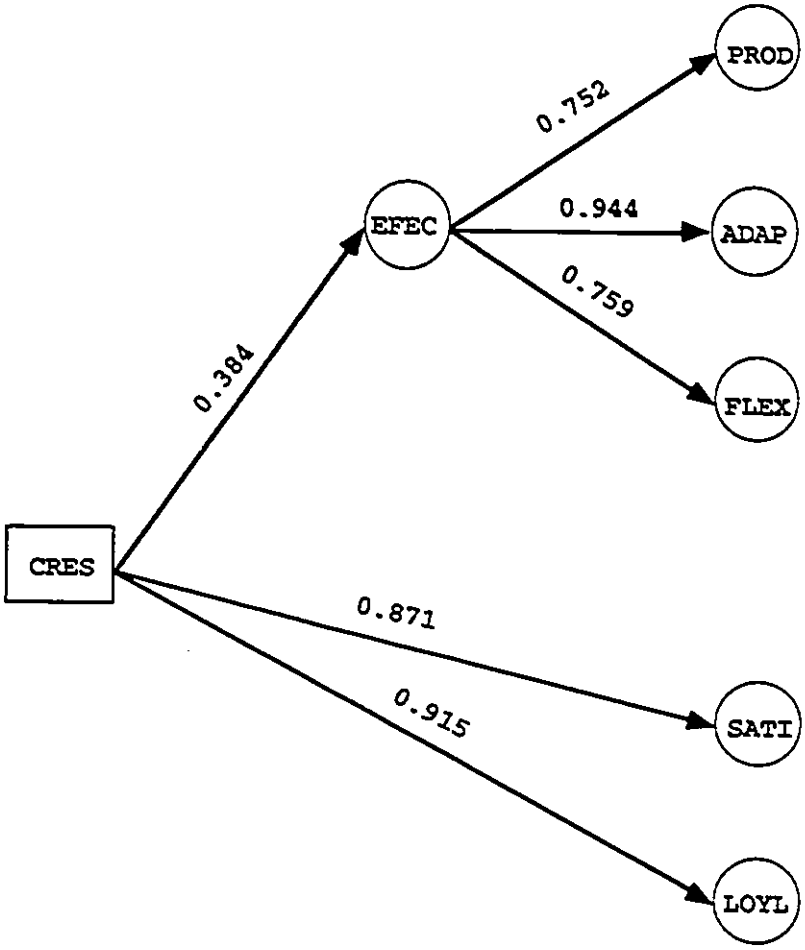


Where

CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

Note. The y variables were included in the model but have been deleted from the figure for clarity

Figure 8
Structural Model of Conflict Resolution Variables Including Path Coefficients

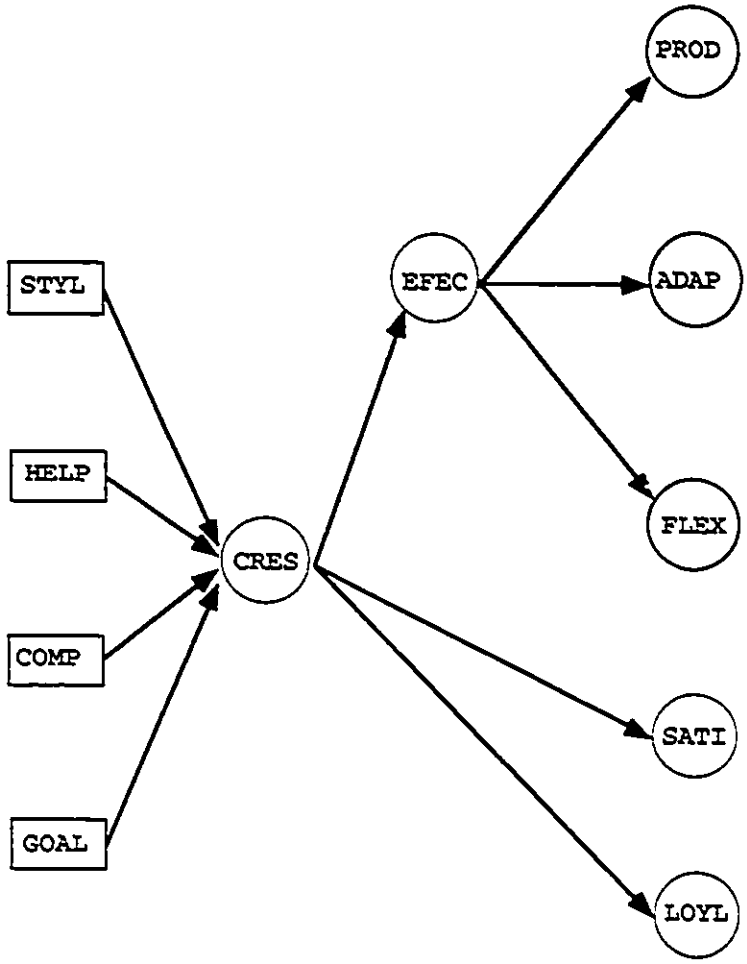


Where

CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

Note. For the sake of clarity, the y variables and the correlated errors among ADAP, SATI, LOYL were omitted from this figure.

Figure 9
Structural Model of Hypothesized System 4T Conflict Theory



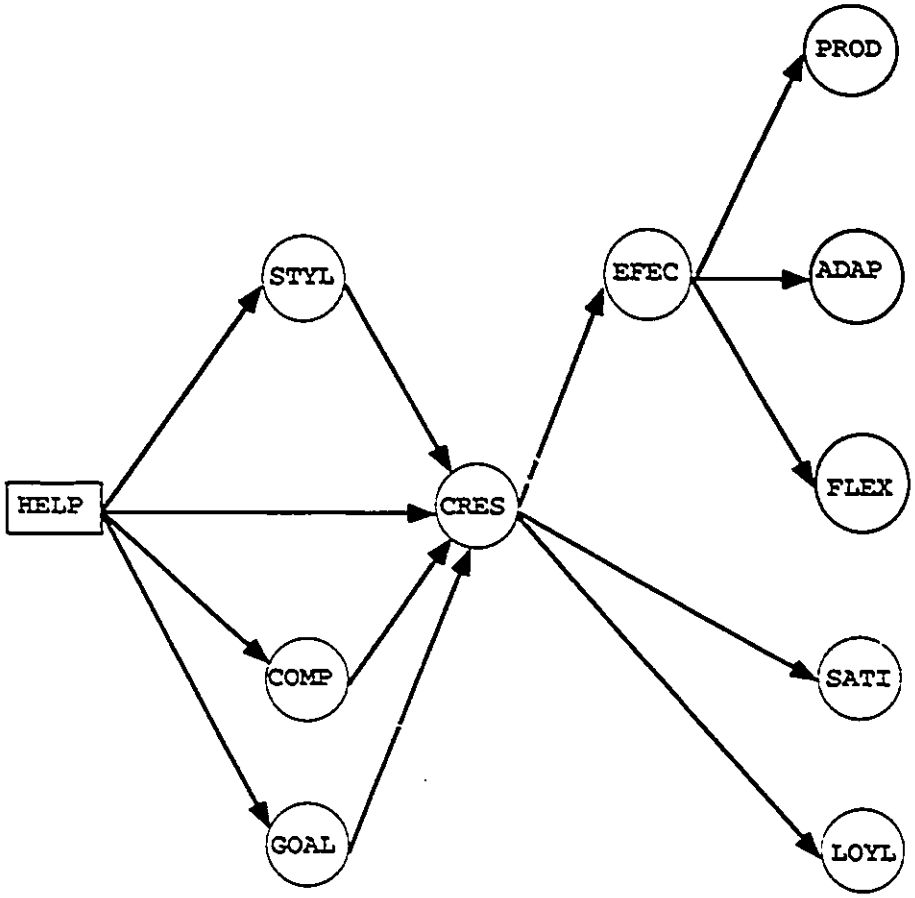
Where

STYL = System 4T conflict resolution style
HELP = Help with work
COMP = Technical competence
GOAL = Performance goals
CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

single x variable. For example, for each subject, all items that loaded on STYL were averaged together to form a single score. The same was done for each of the other three conflict management variables HELP, COMP, and GOAL. This reduced the number of x variables for each subject to four. No further problems with identification were encountered so this averaging procedure was not necessary for the y variables. To support hypothesis one the total effect of the conflict management variables (STYL, HELP, COMP, and GOAL) on CRES would be expected to be high.

Figure 10 represents the model used to test the second and third hypotheses. In Figure 10 the y variables have been omitted from the diagram for clarity although the y variables were included in the actual model. To support hypothesis two the direct effect of HELP on STYL should be high. Finally, if hypothesis three is to be supported, then the total effect of HELP on CRES should be high. The total effect of HELP on CRES is the sum of the direct effect of HELP on CRES and the indirect effects via the STYLE, COMP, and GOAL factors.

Figure 10
Structural Model of Hypothesized Relationship Between Group Membership and System 4T Conflict Resolution Behavior



Where

STYL = System 4T conflict resolution style
HELP = Help with work
COMP = Technical competence
GOAL = Performance goals
CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

CHAPTER V

RESULTS

The two models developed to test the system 4T conflict resolution theory and the extension to that theory presented in the last chapter were submitted to LISREL VI for testing. This chapter presents the results of that testing including assessment of the goodness of fit between the models and the data, and path coefficients among the relevant variables.

Test of Hypothesis One

The model proposed in Figure 9 was used to test hypothesis one. Table 28 shows that the model representing the Likerts' system 4T theory resulted in a good fit with GFI = 0.852 and RMSR = 0.054 (for correlation matrix see Appendix C Table C-1). Table 29 shows the factor loadings of the question items on PROD, ADAP, FLEX, SATI, and LOYL. Table 30 shows the path coefficients among the conflict resolution variables (PROD, FLEX, ADAP, SATI, LOYL, EFEC, and CRES). The standardized path coefficients among the conflict management variables and CRES are presented in Table 31. The path relationships among the variables in the first model are presented in Figure 11.

Conflict Resolution Variables

As Table 30 shows CRES was highly related to both SATI

Table 28
Goodness of Fit of Structural Model - Hypothesis One - System 4T Theory

N	Chi-square	Df	P	RMSR	GFI
216	549.50	336	0.000	0.054	0.852

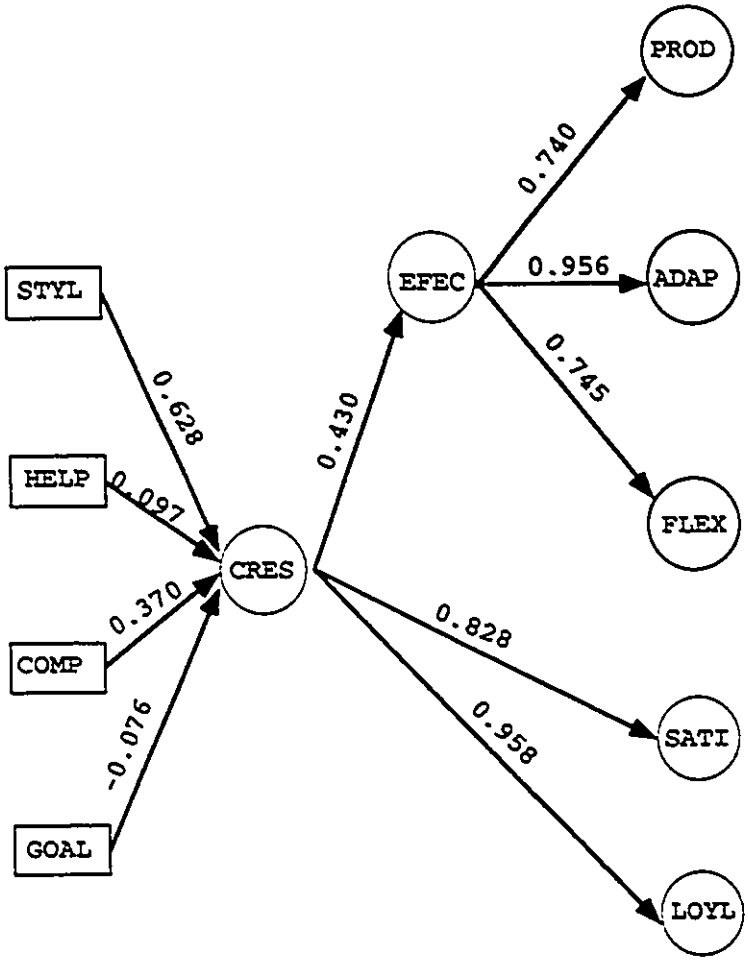
Table 29
Factor Loadings of Question Items on Conflict Resolution Variables - Hypothesis One

Var	PROD	ADAP	FLEX	SATI	LOYL
VAR 1	0.747	0.000	0.000	0.000	0.000
VAR 2	0.820	0.000	0.000	0.000	0.000
VAR 3	0.000	0.604	0.000	0.000	0.000
VAR 4	0.000	0.664	0.000	0.000	0.000
VAR 5	0.000	0.548	0.000	0.000	0.000
VAR 6	0.000	0.641	0.000	0.000	0.000
VAR 7	0.000	0.000	0.860	0.000	0.000
VAR 8	0.000	0.000	0.871	0.000	0.000
VAR 9	0.000	0.000	0.000	0.813	0.000
VAR 10	0.000	0.000	0.000	0.631	0.000
VAR 11	0.000	0.000	0.000	0.653	0.000
VAR 12	0.000	0.000	0.000	0.703	0.000
VAR 13	0.000	0.000	0.000	0.744	0.000
VAR 14	0.000	0.000	0.000	0.696	0.000
VAR 15	0.000	0.000	0.000	0.790	0.000
VAR 16	0.000	0.000	0.000	0.801	0.000
VAR 17	0.000	0.000	0.000	0.781	0.000
VAR 18	0.000	0.000	0.000	0.658	0.000
VAR 19	0.000	0.000	0.000	0.000	0.819
VAR 20	0.000	0.000	0.000	0.000	0.811
VAR 21	0.000	0.000	0.000	0.000	0.932
VAR 22	0.000	0.000	0.000	0.000	0.802
VAR 23	0.000	0.000	0.000	0.000	0.932
VAR 24	0.000	0.000	0.000	0.000	0.964

Table 30
Path Coefficients Among Conflict Resolution Variables - Hypothesis One

	EFEC	CRES
PROD	0.740	0.000
ADAP	0.956	0.000
FLEX	0.745	0.000
SATI	0.000	0.828
LOYL	0.000	0.958
EFEC	0.000	0.430

Figure 11
Structural Model of Hypothesis One - System 4T Conflict Theory



Where

STYL = System 4T conflict resolution style
HELP = Help with work
COMP = Technical competence
GOAL = Performance goals
CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

(0.828) and LOYL (0.958) and only slightly related to EFEC (0.430) as expected from the prior testing of the structure of the instruments.

Table 31
Standardized Path Coefficients Among the Conflict Resolution Variables and the Conflict Management Variables for Hypothesis One

	STYL	HELP	COMP	GOAL
CRES	0.628	0.097	0.370	-0.076

Conflict Management Variables

The standardized path coefficients for the relationships among CRES and STYL, HELP, COMP, and GOAL are presented in Table 31. The direct effect of STYL on CRES was moderately strong (0.628). Because HELP, COMP, and GOAL were highly correlated with STYL (see Table 32) the path coefficients for these variables reflect the unique effect of each variable after accounting for the effect of the other variables. For HELP (0.097) and GOAL (-0.076) there was no appreciable additional contribution, however, COMP did have an additional effect on CRES of 0.370. Hypothesis one predicted these positive effects, therefore, hypothesis one was supported.

Test of Hypothesis Two

The model proposed in Figure 10 was used to test hypothesis two. Table 33 shows that the model resulted in a

Table 32
Intercorrelations Among Conflict Management Variables - Hypothesis One

	STYL	HELP	COMP	GOAL
STYL	1.000			
HELP	0.741	1.000		
COMP	0.771	0.690	1.000	
GOAL	0.613	0.599	0.740	1.000

reasonably good fit with GFI = 0.816 and RMSR = 0.062. The residuals did not reveal any patterns that would improve the model specification. Table 34 shows the factor loadings of the y variables on PROD, ADAP, FLEX, SATI, and LOYL and Table 35 shows the path coefficients among the latent variables. The standardized path coefficients among HELP and the latent variables are presented in Table 36. The path relationships among the variables in model two are presented in Figure 12.

Table 33
Goodness of Fit of Structural Model of Hypothesis Two and Three

N	Chi-square	Df	P	RMSR	GFI
216	703.87	339	0.000	0.062	0.816

Hypothesis two suggested that group membership, as measured by HELP, would be related to STYL. Table 36 shows that HELP was strongly related to STYL with a standardized path coefficient of 0.741. Thus, hypothesis two was supported.

Table 34
Factor Loadings of Y Variables on Conflict Resolution Variables for Hypothesis Two

	PROD	ADAP	FLEX	SATI	LOYL
VAR 1	0.744	0.000	0.000	0.000	0.000
VAR 2	0.817	0.000	0.000	0.000	0.000
VAR 3	0.000	0.600	0.000	0.000	0.000
VAR 4	0.000	0.659	0.000	0.000	0.000
VAR 5	0.000	0.544	0.000	0.000	0.000
VAR 6	0.000	0.637	0.000	0.000	0.000
VAR 7	0.000	0.000	0.857	0.000	0.000
VAR 8	0.000	0.000	0.868	0.000	0.000
VAR 9	0.000	0.000	0.000	0.789	0.000
VAR 10	0.000	0.000	0.000	0.612	0.000
VAR 11	0.000	0.000	0.000	0.634	0.000
VAR 12	0.000	0.000	0.000	0.682	0.000
VAR 13	0.000	0.000	0.000	0.722	0.000
VAR 14	0.000	0.000	0.000	0.675	0.000
VAR 15	0.000	0.000	0.000	0.766	0.000
VAR 16	0.000	0.000	0.000	0.777	0.000
VAR 17	0.000	0.000	0.000	0.758	0.000
VAR 18	0.000	0.000	0.000	0.639	0.000
VAR 19	0.000	0.000	0.000	0.000	0.786
VAR 20	0.000	0.000	0.000	0.000	0.778
VAR 21	0.000	0.000	0.000	0.000	0.895
VAR 22	0.000	0.000	0.000	0.000	0.770
VAR 23	0.000	0.000	0.000	0.000	0.894
VAR 24	0.000	0.000	0.000	0.000	0.925

Table 35
Standardized Path Coefficients Among the Latent Variables - Hypothesis Two

Eta	EFEC	CRES	STYL	COMP	GOAL
PROD	0.737	0.000	0.000	0.000	0.000
ADAP	0.955	0.000	0.000	0.000	0.000
FLEX	0.743	0.000	0.000	0.000	0.000
SATI	0.000	0.816	0.000	0.000	0.000
LOYL	0.000	0.954	0.000	0.000	0.000
EFEC	0.000	0.414	0.000	0.000	0.000
CRES	0.000	0.000	0.657	0.387	-0.080

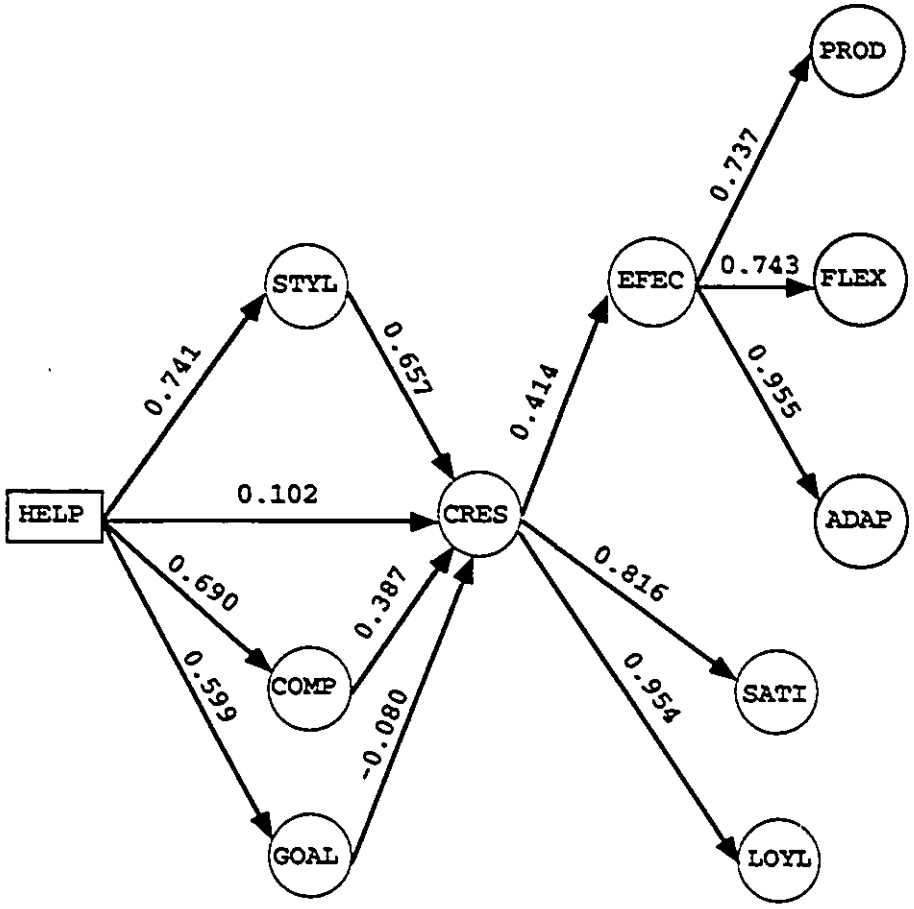
Table 36
Standardized Path Coefficients Among the Latent Variables and HELP - Hypothesis Two

Eta	HELP
CRES	0.102
STYL	0.741
COMP	0.690
GOAL	0.599

Test of Hypothesis Three

The extension to the system 4T Theory as stated in hypothesis three proposed that group membership (HELP) will be related to CRES. Figure 12 shows HELP treated as an exogenous variable with all the other conflict management variables treated as endogenous variables. The relationships among HELP and the other conflict management variables are presented in Table 36. HELP had a direct effect on CRES of 0.102. In addition, HELP was strongly related to STYL (0.741), COMP (0.690), and moderately related to GOAL (0.599). From Table 35 it can be seen that STYL (0.657), and COMP (0.387) were positively related to CRES, while GOAL (-0.080) was negatively related to CRES. Thus, HELP had a strong positive indirect effect on CRES through STYL and COMP and a weak negative indirect effect on CRES through GOAL. As a result, the total effect of HELP on CRES was high (0.808). Therefore, hypothesis three was also supported.

Figure 12
Structural Model of Hypothesized Relationship Between Group Membership and System 4T Conflict Resolution Behavior



Where

STYL = System 4T conflict resolution style
HELP = Help with work
COMP = Technical competence
GOAL = Performance goals
CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

Summary of Results

Hypothesis one stated that the closer teachers' perceptions of the principals' conflict resolution behavior are to system 4T; and the higher the level of help with work, technical competence, and performance goals, the greater the level of constructive conflict resolution perceived by those teachers. This hypothesis predicted that each of the conflict management variables STYL, HELP, COMP, and GOAL would be highly related to CRES. The model supported this relationship and hypothesis one was accepted.

Hypothesis two stated that group membership, as measured by help with work, will be related to principals' system 4T conflict resolution behavior. This hypothesis predicted that HELP would be related to STYL. The model supported this relationship and hypothesis two was accepted.

Finally, hypothesis three stated that group membership, as measured by help with work, will be related to constructive conflict resolution. The model showed HELP had a weak direct effect but strong indirect effects on CRES. Thus, HELP had a high total effect on CRES. Therefore, hypothesis three was also accepted.

CHAPTER VI

DISCUSSION

The purpose of this study was to test the Likerts' system 4T conflict resolution theory in an elementary school setting to assess its potential to explain constructive conflict resolution and to test an extension to the theory to see whether group membership, as proposed by Graen and Cashman (1975) is related to conflict resolution behavior and constructive conflict resolution. This chapter will discuss the results of the study, examine limitations, explore implications for theory and practice, and finally identify possible directions for future research.

Analysis

Constructive Conflict Resolution

It was initially assumed, as supported by the literature, that the latent construct constructive conflict resolution was unidimensional. Although many variables have been used to measure constructive conflict resolution three variables were selected as appropriate indicators: effectiveness, satisfaction, and loyalty. The initial data analysis indicated that constructive conflict resolution was not unidimensional. A second order confirmatory factor analysis revealed a three factor structure (effectiveness, satisfaction, and loyalty) with effectiveness as one

dimension, and satisfaction and loyalty as another. Studies of participative management which have also included these variables reveal similar results.

The complexity of this relationship is well recognized. In a comprehensive review of participative management and its effect on productivity and satisfaction Locke and Schweiger (1979) concluded that productivity was unrelated to participative management while satisfaction was related. In a more recent meta-analysis of participation, productivity, and satisfaction Miller and Monge (1986) concluded that participation has an effect on both productivity and satisfaction, with satisfaction influenced somewhat more than productivity. Thus, effectiveness and satisfaction appear to be separate dimensions of organizational reality.

Since the Likerts' system 4T theory evolved from a theory closely associated with participative management, in this study it is reasonable to find the effectiveness and satisfaction variables pointing to two different underlying dimensions of constructive conflict resolution. Therefore, one can conclude that constructive conflict resolution is not unidimensional and consists of at least an effectiveness component and a satisfaction/loyalty component. The possibility of other dimensions of constructive conflict resolution also exists.

DISCUSSION

Hypothesis One

The first hypothesis stated that the closer teachers' perceptions of the principals' conflict resolution behavior are to system 4T; and the higher the level of help with work, technical competence, and performance goals the greater the level of constructive conflict resolution will be as perceived by those teachers. This hypothesis constituted a test of the Likerts' system 4T theory.

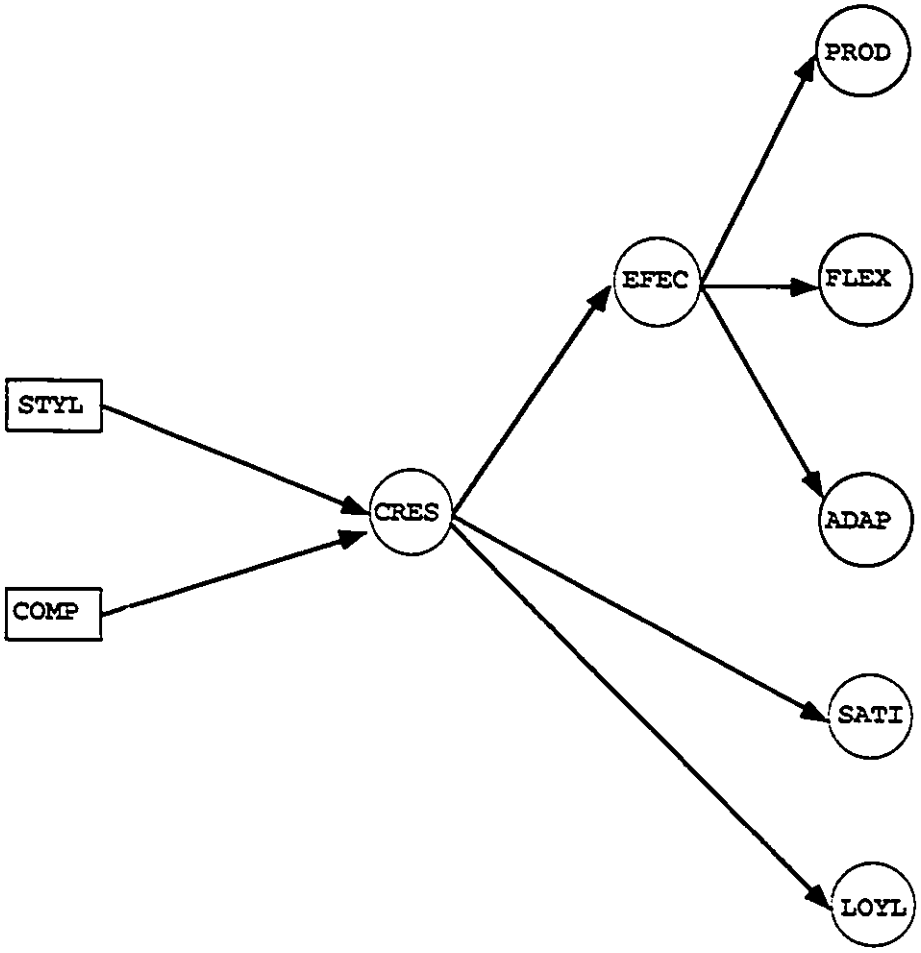
The Likerts assumed that a highly effective social system (system 4T conflict resolution style) coupled with all the other conflict management variables (help with work, technical competence, and performance goals) would lead to constructive conflict resolution. The results of the study (Figure 11) indicated support for this assumption. The data indicated moderately high correlations between system 4T conflict resolution style and constructive conflict resolution. The lower path coefficients among help with work, and performance goals were due to the fact that most of their contribution to an effect on constructive conflict resolution was already accounted for by system 4T conflict resolution style. Therefore, these two variables added little additional information to the model. Technical competence, however, had an additional small effect on constructive conflict resolution. As a result, including help with work and performance goals in the system 4T theory

is redundant since the system 4T conflict resolution style and the technical competence factors already account for most of the contribution of these variables. Figure 13 shows a modified model of the Likerts' system 4T theory based on these findings.

The argument previously advanced that the system 4T theory may account for workplace complexity by measuring several dimensions (help with work, technical competence and performance goals) rather than the two dimensions usually measured by other theories was justified. The high correlations among these variables and system 4T conflict resolution style suggest they are closely related. However, the low path coefficients identified in the model among help with work, performance goals, and constructive conflict resolution indicated that they had little additional effect on constructive conflict resolution beyond that of system 4T conflict resolution style and technical competence. The result is that the Likerts' system 4T theory does seem to encompass greater workplace complexity in its approach to constructive conflict management than other two-dimensional conflict theories.

It was also found that the conflict resolution variables were not equally influenced by system 4T conflict resolution style. Conflict resolution style had a greater effect on satisfaction and loyalty than on effectiveness.

Figure 13
Structural Model of Revised System 4T Conflict Resolution Theory



Where

STYL = System 4T conflict resolution style
COMP = Technical competence
CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
ADAP = Effectiveness - Adaptability
FLEX = Effectiveness - Flexibility
SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

Conflict resolution style had only a moderate influence on effectiveness. However, conflict resolution style had a strong influence on the satisfaction and loyalty factors of constructive conflict resolution. This is consistent with other findings on the quality of principal-teacher relationships (Nelson, 1980; Nicholson, 1980) that showed greater teacher satisfaction with participative principals. These findings are also in agreement with Johnson and Holdaway (1991) who found that elementary school principals' perceptions of effectiveness were only weakly related to job satisfaction. Therefore, the use of the Likerts' approach to conflict resolution is most likely to result in a greater increase in satisfaction and loyalty than to increased effectiveness.

Although hypothesis one was supported, the data showed that the theory may be over-specified. While constructive conflict resolution was highly related to all four conflict management variables help with work and performance goals added little additional information to the model. The theory could be streamlined by eliminating these two factors.

Hypothesis Two

While the in-group/out-group work of Graen and Cashman (1975) has been found to hold in several settings it has not been previously tested in an educational setting. For the group membership effect to be present, group membership

should influence both the teachers' perceptions of the principals' conflict resolution behavior and the teachers' perceptions of constructive conflict resolution. That is, in-group members should perceive their principals as closer to system 4T and report more constructive conflict resolution while out-group members should report the opposite. Hypotheses two and three tested these propositions.

Hypothesis two stated that group membership, as measured by help with work, is related to teachers' perceptions of principals' system 4T conflict resolution behavior. The data indicated a high degree of direct relationship between help with work and the conflict resolution style. Help with work was also fairly strongly related to technical competence and performance goals. Therefore, group membership does influence the teachers' perceptions of the principals' system 4T conflict resolution behavior in educational settings. Thus, hypothesis two was supported.

Hypothesis Three

Hypothesis three stated that group membership was related to constructive conflict resolution. Hypothesis three was also supported. The data showed that teachers who rated their principals high in help with work (i.e., in-group members) also perceived their principals as

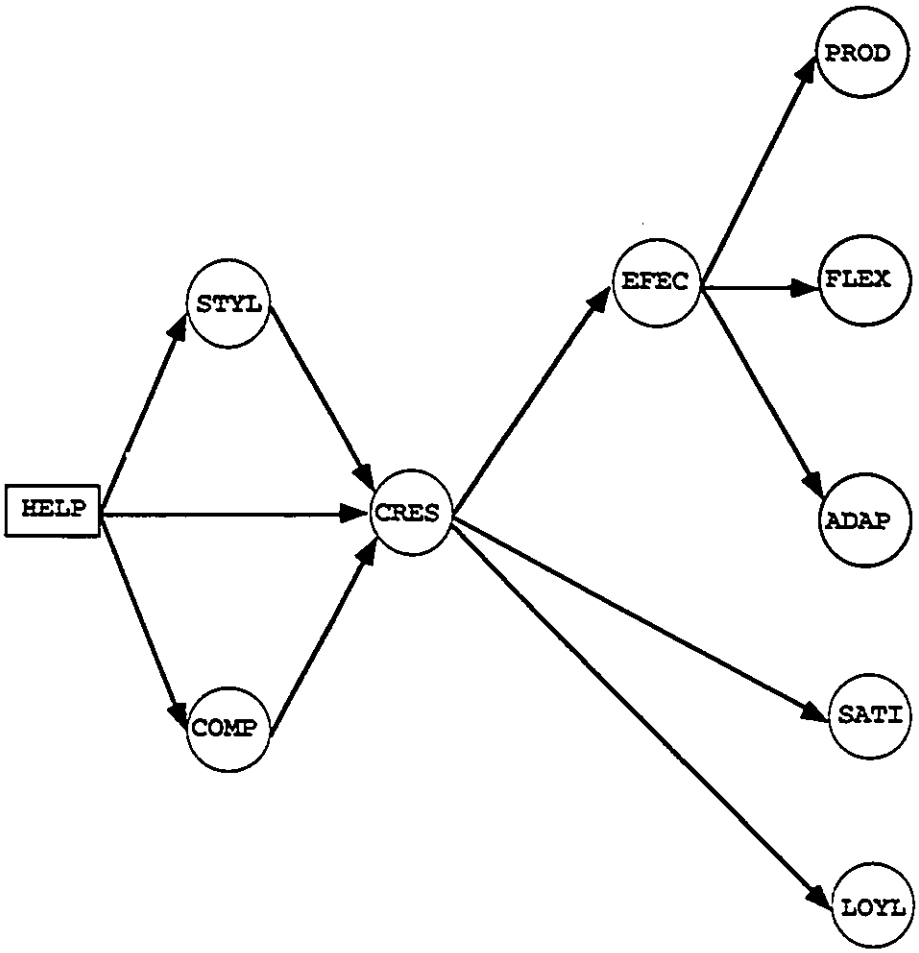
constructive resolvers of conflict. This finding is in accordance with other studies that show the members' satisfaction to be positively related to LMX (Dansereau et al., 1975; Graen, Dansereau, Minami, & Cashman, 1973; Scandura & Graen, 1984; Seers & Graen, 1984; Vecchio & Gobdel, 1984).

The data also supported the Graen and Cashman proposition that group membership would have an effect on technical competence and performance goals. Help with work was moderately related to both technical competence and performance goals, although these in turn were not strongly related to constructive conflict resolution after the effect of conflict resolution style was taken into account. Thus, the extended model not only accounted for mature social systems via system 4T conflict resolution behavior, it also accounted for individuals' perception of the leader-member exchange. Figure 14 presents a model of the extended system 4T conflict resolution theory based on the findings in this study.

Summary

In summary, the following results were obtained from this study: 1) the Likerts' system 4T theory holds, however it may be over-specified requiring only the system 4T conflict resolution

Figure 14
Structural Model of Extended System 4T Conflict Resolution Theory



Where

STYL = System 4T conflict resolution style
COMP = Technical competence
CRES = Constructive conflict resolution
PROD = Effectiveness - Productivity
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SATI = Satisfaction
LOYL = Loyalty to the principal
EFEC = Effectiveness

style factor and the technical competence factor; 2) constructive conflict resolution is not unidimensional; 3) perceptions of system 4T conflict resolution behavior have an effect on the satisfaction and loyalty dimensions of constructive conflict resolution more than the effectiveness dimension; 4) the group membership effect exists in educational settings; 5) group membership has an effect on teachers' perceptions of principals' conflict resolution behavior; and 6) group membership has an effect on teachers' perceptions of constructive conflict resolution.

Limitations

Before considering the theoretical and practical implications of these findings it is important to examine the limitations of the study. There are several ways in which the interpretation of this study is constrained: the nature and size of the sample, the definition of constructive conflict resolution, the original assumptions, and the social desirability and attribution threats. Each limitation is elaborated in the following section.

Nature and Size of Sample

The sample for this study consisted of elementary teachers attending a university summer session. The teachers were not randomly selected, nor were they drawn from a province wide geographic distribution. Nevertheless, the

sample was not homogeneous either. Teachers attending the summer session came from a number of school districts located in the eastern portion of Ontario and Quebec. They represented small, medium, and large schools. Therefore, application of the findings of this study should be seen as suggestive of findings of a fairly broad population of teachers.

When using structural equation modeling sample size influences the interpretation of some goodness-of-fit measures, Chi square being one of them. In order for LISREL to compute plausible parameter estimates and avoid the problem of identification a fairly large number of cases is required - the more variables involved the greater the number of cases required. While a sample size of 200 is generally considered adequate, some authors would recommend a much larger sample. Since there are no stringent rules governing this aspect of the study the reader is cautioned that a larger sample size might produce different results.

Definition of Constructive Conflict Resolution

A second limitation of the study lies in the definition of constructive conflict resolution. This construct is a latent variable that cannot be directly measured. Therefore, an attempt must be made to identify those measurable variables that seem to underlie the construct. Based on the literature three directly measurable variables were used -

effectiveness, satisfaction, and loyalty. It is possible that including different variables as indicators would alter the outcome of the study. Since there is no other research in this area that has attempted to use structural equation modeling to test the impact of observable conflict variables on latent variables it is difficult to determine the effect of having chosen these three indicators as opposed to other possible indicators.

Original Assumptions

The third set of constraints on the interpretation of the study relates to two variables - well established relationships and overlapping structures. It was assumed early in the study that both of these variables could be held constant. It is possible that these assumptions may not have been warranted. An examination of the procedures to deal with these variables reveals possible sources of error.

The Likerts stated that constructive conflict resolution required well-established relationships. Unfortunately, they were silent as to what this meant in operational terms. Assuming that a reasonable period of time was required to establish relationships a minimum time limit of one year was imposed on all respondents. That is to say that if the teacher had spent less than one year with a principal then it was assumed that insufficient time had elapsed to allow the development of the appropriate

relationship. It is possible that one year is not long enough for these relationships to evolve. It is also possible that teachers who have not secured permanent status within a school board might perceive conflict interactions somewhat more positively than if they had a more secure position. Finally, in order to hold the overlapping structure variable constant the study was conducted with elementary school teachers as subjects. It was assumed that most elementary schools share the same structure where interaction between either the principal or vice-principal and the teacher is direct. This is not necessarily the case in higher levels of schools where department heads or other administrative positions may intervene. The selection by the teacher of either a principal or vice-principal to focus on when responding to the instruments should have made no difference to the study. However, it may be that within some elementary schools management structures existed which were different from the norm and could have contaminated the data.

Social Desirability and Attribution Threats

It was mentioned earlier that response distortion due to the effect of social desirability and causal attribution was a common problem in survey research. Attempts were made to control for the social desirability effect by carefully designing the questions and anonymous group administration

of the instrument. Nevertheless, social desirability may have played a role in this study. As well, causal attribution may also have had an unreported effect on the results.

Implications for Theory

Four theoretical implications arise from this study including the need for an expanded definition of constructive conflict resolution, the need to revise the Likerts' system 4T conflict theory, recognition of the leader-member exchange in educational organizations, and an extension to the Likerts' system 4T conflict theory. Each will be dealt with separately.

Expanded definition of Constructive Conflict Resolution

Previous studies of conflict resolution have defined constructive conflict resolution as unidimensional. While a wide variety of measures have been used few researchers have attempted to use multiple dimensions. It is clear from the confirmatory factor analyses in this study that the data supported two distinct dimensions, a satisfaction-loyalty dimension and an effectiveness dimension. While the literature has dealt with these two dimensions in domains other than conflict there has been no research other than this study that has identified the possibility that constructive conflict resolution may bring about a greater

increase in satisfaction and loyalty and a lesser increase in effectiveness. Until this study, there appears to have been a tacit assumption that constructive conflict resolution meant an increase in all dimensions. Clearly, this is not the case.

In organizational conflict theories that emphasize a single best conflict resolution style (e.g., Blake & Mouton, 1964; Thomas, 1976) constructive conflict resolution should be seen in the light of multidimensionality. That is, behavior based on concern for people and concern for productivity is likely to impact productivity and satisfaction differently. It is probable that by including more outcome variables interpretation of these theories can be further refined.

Another interesting result lies in the weak relationship between loyalty and effectiveness. Blau and Scott (1962) suggested that worker productivity was related to subordinate loyalty. They proposed that the superior gained willing compliance more easily as a result of having achieved subordinate loyalty. Productivity supposedly increased as a result of an increased ability to stimulate work group effort. In terms of an educational setting, high teacher loyalty to the principal should be related to high productivity. In this study loyalty and effectiveness turned out to be distinct unrelated factors of constructive conflict resolution. Thus, the Blau and Scott proposition

was not supported. Perhaps there are subtle differences in the constructs of productivity, as espoused by Blau and Scott, and effectiveness, as used in this study. However, these two constructs do appear to be so closely related that some form of relationship between loyalty and effectiveness should have been present. The Blau and Scott proposition requires reexamination.

Revised System 4T Theory

A second theoretical outcome of this study is the need to revise the Likerts' system 4T theory. As originally stated the system 4T theory hypothesized that superior management of conflict is the result of establishing a participative interaction-influence network, using the principle of supportive relationships, holding high performance goals, possessing technical competence, providing high levels of help with work, establishing good working relationships, and maintaining appropriate overlapping structures. The participative interaction-influence network and the principle of supportive relationships are measured by the POCC while the other variables are measured independently. The Likerts claimed that scores for all of these variables must be high to indicate an effective social system. The data in this study supported this. However, help with work and performance goals added little additional information to the theory.

Therefore, the theory may be revised by stating that with established working relationships and overlapping organizational structure held constant, the closer the principal's conflict resolution style is to system 4T while accompanied by high levels of technical competence, the higher teacher satisfaction and teacher loyalty will be.

In this revised model can the lack of relationship between system 4T conflict resolution style, technical competence, and effectiveness be explained? Miller and Monge (1986) labelled Likert's earlier management systems theory an affective model relating participation, satisfaction, and productivity. In their meta-analytic review of cognitive, affective, and contingency models Miller and Monge found support for the conclusion that participative management has a stronger effect on satisfaction than on productivity, and that participation in goal setting does not have a strong effect on productivity. Given the emphasis in the Likerts' system 4T theory on participation similar results could be expected. Johnson and Holdaway (1991) also found a weak relationship between principal satisfaction and administrative effectiveness. Therefore, the findings in this study are consistent with the literature to date.

What is not clear is why effectiveness was not related to satisfaction and loyalty. Miskel et al. (1983) found that work interdependence, communications and teacher expectations were consistent predictors of school

effectiveness and job satisfaction. The school effectiveness measure was the same as that used in this study, while the satisfaction measure was similar to the one used in this study. If teacher expectations are predictors of effectiveness and satisfaction then surely teachers expect supportive leadership and constructive resolution of conflict. Therefore, it would appear that help with work, conflict resolution style, and technical competence in this study should also be related to effectiveness, yet they were not. In the Miskel et al. study they used the school as a unit of analysis and averaged teacher responses. Perhaps their findings break down at the individual teacher level used in this study.

What is also not clear is why teachers who are dissatisfied with the principal's style of conflict resolution should rate their school high on effectiveness? Why is satisfaction not related to effectiveness? Perhaps the answer lies in the fact that, regardless of how effectiveness is measured, it reflects efforts aimed at student learning. Teachers may see their own level of satisfaction with the principal's behavior as irrelevant to the achievement of school effectiveness - regardless of how the principal behaves it is the teachers who get the job done. Therefore, teachers may be unwilling to "punish" students because of the principal.

Another possible explanation may lie in the notion of personal effectiveness as opposed to organizational effectiveness. In this study, Mott's Index of Perceived Organizational Effectiveness was used to measure teachers' perceptions of organizational effectiveness. Perhaps constructive conflict resolution has a direct effect only on personal effectiveness. Since personal effectiveness was not measured in this study further research would be required to pursue this possibility.

Finally, the finding that system 4T conflict resolution style, technical competence, and help with work were strongly related to both satisfaction and loyalty lends some support to House's (1971) path-goal theory. House stated that leader behavior, measured in part by leader support and participation, was related to job satisfaction and acceptance of the leader. Since system 4T behavior is participative and help with work is supportive these variables correspond to Houses's independent variables. Satisfaction in this study is similar to job satisfaction, while loyalty is similar to acceptance of the leader. Assuming that teachers have high needs for autonomy and achievement, the path-goal theory predicts that participative leadership and support will lead to high job satisfaction and leader acceptance. Both of these were outcomes in this study.

DISCUSSION

Leader-Member Exchange in Education

The Graen and Cashman LMX model has received considerable support (McClane, 1991) however, none of it in the area of education. This study strongly supports the existence of the LMX effect in elementary school settings. A frequent criticism of many conflict and leadership theories is that they use group averaging techniques that are inappropriate. Based on this study, theories that assume group homogeneity or use group averaging techniques in data analysis in an elementary school setting lose much information about the reality of the educational workplace. Thus, the impact of the LMX effect needs to be considered in all aspects of teacher-principal interactions including leadership, decision making, supervision, and communication. Current educational administration theories, at all levels of analysis, do not account for in-group/out-group membership. As a result, some of the research findings derived from these theories are likely inaccurate. These inaccuracies can arise from failing to account for the LMX effect, losing information due to group-averaging techniques, or a combination of both. The LMX effect should also be taken into consideration in the design of future research to prevent masking the heterogeneity of the teaching workgroup environment.

Extended System 4T Theory

Finally, the data supported the proposed extension of the Likerts' theory. Teachers' perceptions of in-group/out-group membership directly influences perceptions of system 4T conflict resolution style which in turn influences perceptions of constructive conflict resolution. In-group/out-group membership also has an effect on perceptions of constructive conflict resolution. Thus, principals who use a system 4T conflict resolution style with teachers who perceive themselves as out-group members will be perceived to achieve lower levels of constructive conflict resolution (satisfaction and loyalty components) compared to teachers who perceive themselves as in-group members. Therefore, the leader-member exchange becomes a major factor in how teachers perceive the principals' attempts to positively influence the satisfaction and loyalty components of constructive conflict resolution.

These results are congruent with Lawler's (1973) satisfaction model and discrepancy models (Festinger, 1957; March & Simon, 1958; Ortloff, 1980) which propose that satisfaction is determined by the difference between perceptions of the amount of organizational resources that should be received and perceptions of the amount actually received. In-group members perceive that they are receiving fairly high amounts of organizational resources while out-group members perceive they are receiving lesser amounts.

For in-group members the gap between expectations and reality is smaller. This should lead to predictions of greater satisfaction among in-group members and lower satisfaction among out-group members. These feelings of greater and lesser satisfaction due to the LMX effect should also be carried over into the conflict arena as the results of this study indicated.

From the above it can be seen that the LMX effect has a profound influence on all the key variables related to principal-teacher interaction. Not only is the LMX effect operating in the conflict arena but it is directly related to technical competence and performance goals. It would appear that the LMX effect is a fundamental process in schools. It helps shape a teacher's perception of the entire social system created by the principal and has an important effect on satisfaction and loyalty.

Implications for Administrative Practice

This study presents several implications for practice. First, is the need to recognize that teachers do not perceive themselves as being treated equally by the principal. Some teachers perceive a closer and more supportive relationship with the principal than others. Graen and Cashman (1975) found that leaders rely on selected followers to help them achieve their goals. In exchange for this support leaders are willing to give these followers

greater access to themselves, more help with work, more information, more resources, better offices, etc. Teachers not in this group are aware of this special treatment and react to it. They perceive themselves as members of an out-group and are consequently less satisfied with conflict resolution, see the principal as less competent and rate the level of the principal's performance goals lower. A first step for principals is to accept this as a reality in the school. The next step is to attempt to identify the groups that the teachers probably associate themselves with.

Principals should not assume that their behavior will be understood in the same way by the in-group and out-group members. When disagreements, misunderstanding, and conflicts arise principals can use the information regarding group membership to see if the teacher's perceptions are playing a role in the communication process. Deliberately paying more attention to out-group members, may mediate the negative effects of the group split. The level of teacher satisfaction may be increased by either lessening the perceived differences between the two groups or seeking to increase the size of the in-group.

Another ramification for principals to consider is the deleterious effect of the in-group/out-group split on team building. Out-group members are less likely to be open, honest, and trusting in a team setting. They likely will be less inclined to commit to goals proposed by in-group

members. Jealousy, competition, resentment, and hostility could be manifested when issues which identify in-group/out-group membership (e.g, distribution of resources) are discussed. Blumberg and Greenfield (1980) stated that principals tend to manage conflict with the aim of maintaining order. This leadership style would tend to perpetuate the perceived differences among teaching staff and foster increased dissatisfaction. Openly discussing these perceived differences may eventually result in better working relationships with a larger number of teachers. This would be a case of deliberately increasing conflict temporarily in the short term in order to decrease it in the long term (Robbins, 1978).

The popular literature directed toward principals offers much advice on how to handle conflict in specific situations. For example, matching toughness with toughness and flexibility with flexibility. However, the expanded system 4T approach to conflict management suggests that principals can increase teachers' perceived level of satisfaction and loyalty, and to a lesser extent effectiveness, by developing participative interaction-influence networks, using the principle of supportive relationships, and demonstrating technical competence. Since this requires time to achieve, the long term quality of relationships appears to be more important in conflict management than the use of any situation specific conflict

technique. Therefore, principals should put less emphasis on conflict resolution tricks and more emphasis on building constructive interpersonal interactions.

Finally, principals can improve their own level of satisfaction by implementing the extended system 4T theory. It was stated earlier that a primary concern of principals is the level of stress caused by conflict with staff members. In a study of 131 elementary schools in Alberta, Johnson and Holdaway (1991) found that overall job satisfaction for principals was most strongly related to working relationships with teachers. Thus, teachers' perceptions of in-group membership and system 4T conflict behavior lead to greater teacher satisfaction with the principal. This, in turn, improves the principal's own perception of job satisfaction.

Further Research

Based on the results of this study further research may be usefully pursued in several areas: the multidimensional nature of constructive conflict resolution, the impact of the LMX model in education, the place of the revised Likert work and expansion of the limitations in the study.

The current set of shared assumptions about the unidimensionality of constructive conflict resolution are erroneous. As Bacharach (1989) stated in regards to participation in decision making, to create valid assumptions a better understanding of the construct's

underlying structure is needed. The underlying structure of constructive conflict resolution should be more carefully examined. The results of this study indicated that leader behaviors can have different levels of effects on different component factors of constructive conflict resolution. Therefore, knowing what these factors are could greatly improve our ability to understand the outcomes that we are trying to appropriately manage. Specifically, a comprehensive search for component factors, their relative importance to this construct, and the effect and strength of inter-relationships among the factors should be conducted. This will lead to better operational definitions of this critical dependent variable.

The size and effect of the leader-member exchange in principal-teacher relationships is another avenue that merits exploration. While a great deal has been written about the relationships among principals and teachers in the areas of leadership, decision-making, communication, and motivation little has taken into account the heterogeneous nature of these relationships. Does in-group/out-group membership account for the lack of relationship among leaders' self descriptions of behavior and followers' descriptions of leader behavior (Schriesheim & Kerr, 1977; Bass, 1981)? How does in-group/out-group membership influence perceptions of satisfaction? Is conflict more frequent and "severe" among out-group members? How do in-

groups and out-groups differ in their interpretations of principals' communications? All of these questions and many more are raised by the application of the LMX model to theory in educational administration.

Additionally, since in-groups and out-groups exist in elementary school settings how do these groups relate to each other? Are there differences regarding conflict and non-conflict situations? Do the same relationships hold for non-teaching members of the school? Does the in-group/out-group dichotomy hold elsewhere in the district structure? Can the LMX model be expanded to the broader political arena of school district constituents? The possible applications of the LMX model are broad.

There is also the methodological improvement gained by using the LMX model. The loss of information due to data averaging is avoided when this approach is adopted. This raises the question of how would the results of past studies that relied on data averaging change if repeated using the more heterogeneous approach? Would conclusions about satisfaction, productivity, motivation, and effectiveness remain the same or would we gain new insight regarding these fundamentals? All of these questions are worth exploring in the future.

It was proposed that the Likerts' system 4T theory would better account for workplace complexity than other conflict theories such as those proposed by Blake and Mouton

(1964), Lawrence and Lorsch (1967) and Thomas (1976). These theories, as was Likert's original model, were based on two dimensions similar to the initiating-structure and consideration dimensions. Since the Likerts' model was supported in this study would the proposition continue to be supported after a comparative analysis with these other similar theories? Would these theories produce the same results as the Likerts' did if they were expanded by using the LMX model? While this study showed that the expanded modified system 4T theory was useful in explaining increased satisfaction and loyalty and to a lesser extent effectiveness, it would be informative to know if these other models would do as well. If there are differences, what would they be and how could they be explained?

Finally, there were certain limitations incorporated in this study that could be modified for future study. An elementary school setting was used to hold organizational structure constant. Since elementary schools differ significantly in structure from secondary schools (Glatthorn and Newberg, 1984) this study could be repeated in a secondary school setting to see if the same results are obtained. The study was also limited to substantive conflict. A broader view of the conflict resolution process may be obtained if affective conflict was included as well.

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APPENDICES

APPENDIX A

Correlation Matrices for Reliability Study

Table A-1
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for Index of Perceived Organizational Effectiveness

	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 3	1.000					
VAR 4	0.631	1.000				
VAR 5	0.332	0.350	1.000			
VAR 6	0.407	0.458	0.583	1.000		
VAR 7	0.335	0.276	0.385	0.264	1.000	
VAR 8	0.326	0.278	0.478	0.286	0.474	1.000
VAR 9	0.395	0.382	0.413	0.414	0.160	0.349
VAR 10	0.354	0.386	0.394	0.390	0.251	0.261

	VAR 9	VAR 10
VAR 9	1.000	
VAR 10	0.705	1.000

Table A-2
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for Leadership Problem Interaction Survey

	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15	VAR16
VAR 11	1.000					
VAR 12	0.577	1.000				
VAR 13	0.598	0.510	1.000			
VAR 14	0.627	0.483	0.548	1.000		
VAR 15	0.585	0.438	0.500	0.589	1.000	
VAR 16	0.546	0.489	0.478	0.525	0.484	1.000
VAR 17	0.613	0.477	0.510	0.464	0.566	0.558
VAR 18	0.578	0.426	0.544	0.477	0.558	0.502
VAR 19	0.525	0.514	0.427	0.502	0.629	0.546
VAR 20	0.543	0.448	0.457	0.494	0.448	0.479

	VAR 17	VAR 18	VAR 19	VAR 20
VAR 17	1.000			
VAR 18	0.649	1.000		
VAR 19	0.556	0.622	1.000	
VAR 20	0.509	0.495	0.515	1.000

APPENDIX A

Table A-3
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for Loyalty to the Principal Index

	VAR 52	VAR 53	VAR 54	VAR 55	VAR 56	VAR 57
VAR 52	1.000					
VAR 53	0.563	1.000				
VAR 54	0.687	0.728	1.000			
VAR 55	0.638	0.585	0.631	1.000		
VAR 56	0.711	0.760	0.839	0.760	1.000	
VAR 57	0.725	0.775	0.853	0.687	0.893	1.000

Table A-4
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for the Profile of Conflict Characteristics

	VAR 21	VAR 22	VAR 23	VAR 24	VAR 25	VAR 27
VAR 21	1.000					
VAR 22	0.832	1.000				
VAR 23	0.807	0.782	1.000			
VAR 24	0.761	0.758	0.804	1.000		
VAR 25	0.641	0.620	0.647	0.668	1.000	
VAR 27	0.523	0.619	0.534	0.638	0.550	1.000
VAR 28	0.736	0.764	0.752	0.762	0.646	0.722
VAR 29	0.519	0.589	0.502	0.473	0.532	0.388
VAR 30	0.782	0.800	0.768	0.772	0.718	0.609
VAR 32	0.751	0.797	0.763	0.754	0.671	0.608
VAR 33	0.786	0.813	0.802	0.783	0.724	0.667
VAR 34	0.752	0.746	0.733	0.688	0.664	0.593
VAR 35	0.621	0.665	0.660	0.557	0.605	0.483
VAR 36	0.528	0.592	0.602	0.521	0.570	0.347
VAR 37	0.697	0.686	0.726	0.695	0.706	0.582

	VAR 28	VAR 29	VAR 30	VAR 32	VAR 33	VAR 34
VAR 28	1.000					
VAR 29	0.524	1.000				
VAR 30	0.783	0.581	1.000			
VAR 32	0.811	0.603	0.841	1.000		
VAR 33	0.786	0.576	0.807	0.873	1.000	
VAR 34	0.738	0.474	0.767	0.783	0.797	1.000
VAR 35	0.680	0.489	0.691	0.788	0.762	0.681
VAR 36	0.570	0.397	0.614	0.672	0.655	0.564
VAR 37	0.706	0.492	0.750	0.723	0.758	0.749

APPENDIX A

	VAR 35	VAR 36	VAR 37
VAR 35	1.000		
VAR 36	0.769	1.000	
VAR 37	0.698	0.630	1.000

Table A-5
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for Help With Work

	VAR 38	VAR 39	VAR 40	VAR 41	VAR 42
VAR 38	1.000				
VAR 39	0.744	1.000			
VAR 40	0.649	0.604	1.000		
VAR 41	0.544	0.636	0.580	1.000	
VAR 42	0.542	0.506	0.642	0.675	1.000

Table A-6
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for Technical Competence

	VAR 43	VAR 44	VAR 45	VAR 46
VAR 43	1.000			
VAR 44	0.729	1.000		
VAR 45	0.729	0.642	1.000	
VAR 46	0.684	0.557	0.843	1.000

Table A-7
Correlation Matrix used for Confirmatory Factor Analysis of Reliability Study for Performance Goals

	VAR 48	VAR 49	VAR 50	VAR 51
VAR 48	1.000			
VAR 49	0.382	1.000		
VAR 50	0.452	0.708	1.000	
VAR 51	0.236	0.485	0.520	1.000

APPENDIX B

Correlation Matrices for Main Sample

Table B-1
Correlation Matrix used for Confirmatory Factor Analysis of Main Sample for all Conflict Management Variables

	VAR 21	VAR 22	VAR 23	VAR 24	VAR 25	VAR 27
VAR 21	1.000					
VAR 22	0.822	1.000				
VAR 23	0.787	0.798	1.000			
VAR 24	0.740	0.786	0.833	1.000		
VAR 25	0.594	0.633	0.602	0.651	1.000	
VAR 27	0.572	0.671	0.614	0.689	0.554	1.000
VAR 28	0.727	0.795	0.802	0.795	0.622	0.743
VAR 29	0.551	0.596	0.533	0.487	0.479	0.409
VAR 30	0.770	0.818	0.804	0.800	0.653	0.663
VAR 32	0.760	0.809	0.758	0.752	0.677	0.631
VAR 33	0.754	0.808	0.798	0.787	0.716	0.700
VAR 34	0.719	0.768	0.753	0.724	0.620	0.612
VAR 35	0.635	0.688	0.646	0.568	0.576	0.512
VAR 36	0.552	0.573	0.565	0.490	0.504	0.372
VAR 37	0.718	0.744	0.744	0.729	0.653	0.616
VAR 38	0.608	0.613	0.616	0.641	0.519	0.588
VAR 39	0.711	0.720	0.710	0.705	0.634	0.620
VAR 40	0.552	0.530	0.522	0.590	0.439	0.493
VAR 41	0.549	0.540	0.566	0.547	0.553	0.486
VAR 42	0.370	0.386	0.378	0.396	0.421	0.311
VAR 43	0.578	0.610	0.588	0.591	0.437	0.531
VAR 44	0.482	0.489	0.525	0.520	0.309	0.418
VAR 45	0.703	0.733	0.743	0.700	0.542	0.598
VAR 46	0.712	0.748	0.765	0.711	0.555	0.610
VAR 48	0.300	0.262	0.266	0.294	0.181	0.327
VAR 49	0.693	0.691	0.740	0.727	0.564	0.606
VAR 50	0.480	0.450	0.459	0.469	0.340	0.426
VAR 51	0.360	0.349	0.364	0.328	0.246	0.391

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	VAR 28	VAR 29	VAR 30	VAR 32	VAR 33	VAR 34
VAR 28	1.000					
VAR 29	0.541	1.000				
VAR 30	0.844	0.597	1.000			
VAR 32	0.820	0.607	0.839	1.000		
VAR 33	0.823	0.571	0.827	0.870	1.000	
VAR 34	0.761	0.568	0.802	0.773	0.799	1.000
VAR 35	0.701	0.491	0.708	0.751	0.749	0.684
VAR 36	0.571	0.410	0.605	0.646	0.639	0.552
VAR 37	0.756	0.540	0.778	0.757	0.785	0.752
VAR 38	0.637	0.439	0.640	0.624	0.675	0.638
VAR 39	0.757	0.488	0.728	0.714	0.787	0.713
VAR 40	0.577	0.338	0.557	0.508	0.595	0.564
VAR 41	0.555	0.331	0.562	0.526	0.654	0.556
VAR 42	0.391	0.214	0.420	0.372	0.475	0.375
VAR 43	0.626	0.373	0.619	0.603	0.636	0.655
VAR 44	0.545	0.293	0.514	0.474	0.514	0.572
VAR 45	0.726	0.484	0.732	0.700	0.737	0.752
VAR 46	0.759	0.569	0.783	0.734	0.767	0.783
VAR 48	0.325	0.176	0.317	0.252	0.315	0.320
VAR 49	0.747	0.469	0.745	0.705	0.741	0.742
VAR 50	0.507	0.257	0.505	0.423	0.513	0.550
VAR 51	0.365	0.189	0.354	0.351	0.389	0.367

	VAR 35	VAR 36	VAR 37	VAR 38	VAR 39	VAR 40
VAR 35	1.000					
VAR 36	0.764	1.000				
VAR 37	0.709	0.620	1.000			
VAR 38	0.498	0.398	0.601	1.000		
VAR 39	0.630	0.569	0.735	0.762	1.000	
VAR 40	0.426	0.358	0.549	0.659	0.679	1.000
VAR 41	0.541	0.457	0.585	0.540	0.640	0.627
VAR 42	0.426	0.317	0.412	0.469	0.497	0.570
VAR 43	0.502	0.463	0.593	0.582	0.664	0.516
VAR 44	0.395	0.394	0.520	0.516	0.528	0.476
VAR 45	0.645	0.568	0.701	0.634	0.742	0.534
VAR 46	0.657	0.580	0.705	0.641	0.755	0.546
VAR 48	0.288	0.170	0.297	0.341	0.325	0.231
VAR 49	0.596	0.526	0.679	0.697	0.755	0.633
VAR 50	0.408	0.387	0.492	0.523	0.531	0.474
VAR 51	0.324	0.261	0.336	0.357	0.333	0.316

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	VAR 41	VAR 42	VAR 43	VAR 44	VAR 45	VAR 46
VAR 41	1.000					
VAR 42	0.664	1.000				
VAR 43	0.462	0.396	1.000			
VAR 44	0.405	0.301	0.779	1.000		
VAR 45	0.519	0.394	0.781	0.683	1.000	
VAR 46	0.503	0.359	0.768	0.624	0.857	1.000
VAR 48	0.189	0.091	0.488	0.502	0.361	0.356
VAR 49	0.549	0.420	0.709	0.635	0.735	0.760
VAR 50	0.372	0.227	0.623	0.632	0.568	0.585
VAR 51	0.325	0.144	0.337	0.394	0.383	0.388

	VAR 48	VAR 49	VAR 50	VAR 51
VAR 48	1.000			
VAR 49	0.423	1.000		
VAR 50	0.540	0.699	1.000	
VAR 51	0.322	0.494	0.491	1.000

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Table B-2
Correlation Matrix used for Confirmatory Factor Analysis of Main Sample for all Conflict Resolution Variables

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6
VAR 1	1.000					
VAR 2	0.613	1.000				
VAR 3	0.294	0.357	1.000			
VAR 4	0.358	0.465	0.577	1.000		
VAR 5	0.331	0.290	0.283	0.295	1.000	
VAR 6	0.333	0.321	0.379	0.304	0.487	1.000
VAR 7	0.367	0.407	0.340	0.405	0.294	0.448
VAR 8	0.384	0.413	0.341	0.433	0.398	0.387
VAR 9	0.184	0.183	0.189	0.261	0.299	0.336
VAR 10	0.100	0.005	0.140	0.218	0.203	0.206
VAR 11	0.153	0.055	0.148	0.218	0.189	0.378
VAR 12	0.217	0.158	0.127	0.171	0.269	0.383
VAR 13	0.154	0.110	0.129	0.257	0.248	0.395
VAR 14	0.135	0.022	0.104	0.122	0.201	0.293
VAR 15	0.148	0.044	0.019	0.127	0.141	0.249
VAR 16	0.201	0.209	0.091	0.212	0.252	0.359
VAR 17	0.241	0.199	0.089	0.214	0.252	0.298
VAR 18	0.052	0.050	0.028	0.154	0.190	0.314
VAR 19	0.306	0.202	0.155	0.211	0.226	0.286
VAR 20	0.110	0.109	0.092	0.129	0.089	0.203
VAR 21	0.184	0.146	0.088	0.128	0.245	0.325
VAR 22	0.132	0.136	0.148	0.125	0.152	0.254
VAR 23	0.177	0.171	0.115	0.155	0.241	0.286
VAR 24	0.209	0.171	0.140	0.187	0.227	0.284

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	VAR 7	VAR 8	VAR 9	VAR 10	VAR 11	VAR 12
VAR 7	1.000					
VAR 8	0.750	1.000				
VAR 9	0.207	0.215	1.000			
VAR 10	0.175	0.155	0.579	1.000		
VAR 11	0.208	0.244	0.582	0.516	1.000	
VAR 12	0.218	0.225	0.633	0.453	0.519	1.000
VAR 13	0.249	0.191	0.591	0.420	0.422	0.574
VAR 14	0.110	0.053	0.525	0.418	0.443	0.467
VAR 15	0.068	0.086	0.659	0.510	0.530	0.492
VAR 16	0.195	0.151	0.642	0.438	0.531	0.529
VAR 17	0.199	0.138	0.589	0.515	0.470	0.553
VAR 18	0.113	0.036	0.550	0.434	0.373	0.500
VAR 19	0.227	0.168	0.610	0.413	0.495	0.500
VAR 20	0.162	0.062	0.473	0.403	0.414	0.413
VAR 21	0.206	0.193	0.608	0.453	0.482	0.499
VAR 22	0.180	0.137	0.493	0.310	0.401	0.418
VAR 23	0.257	0.223	0.571	0.438	0.446	0.502
VAR 24	0.259	0.206	0.632	0.483	0.486	0.522

	VAR 13	VAR 14	VAR 15	VAR 16	VAR 17	VAR 18
VAR 13	1.000					
VAR 14	0.503	1.000				
VAR 15	0.583	0.594	1.000			
VAR 16	0.593	0.558	0.670	1.000		
VAR 17	0.631	0.615	0.592	0.660	1.000	
VAR 18	0.559	0.480	0.491	0.540	0.564	1.000
VAR 19	0.495	0.494	0.551	0.568	0.541	0.438
VAR 20	0.415	0.466	0.545	0.514	0.488	0.364
VAR 21	0.529	0.543	0.688	0.651	0.562	0.442
VAR 22	0.488	0.384	0.508	0.561	0.479	0.361
VAR 23	0.529	0.491	0.593	0.612	0.565	0.427
VAR 24	0.567	0.550	0.686	0.634	0.608	0.469

	VAR 19	VAR 20	VAR 21	VAR 22	VAR 23	VAR 24
VAR 19	1.000					
VAR 20	0.624	1.000				
VAR 21	0.749	0.751	1.000			
VAR 22	0.676	0.653	0.734	1.000		
VAR 23	0.734	0.752	0.863	0.771	1.000	
VAR 24	0.779	0.795	0.888	0.746	0.900	1.000

APPENDIX C

Correlation Matrix for Structural Models

Table C-1
Correlation Matrix Used to Test Structural Models for Hypotheses

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6
VAR 1	1.000					
VAR 2	0.613	1.000				
VAR 3	0.294	0.357	1.000			
VAR 4	0.358	0.465	0.577	1.000		
VAR 5	0.331	0.290	0.283	0.295	1.000	
VAR 6	0.333	0.321	0.379	0.304	0.487	1.000
VAR 7	0.367	0.407	0.340	0.405	0.294	0.448
VAR 8	0.384	0.413	0.341	0.433	0.398	0.387
VAR 9	0.184	0.183	0.189	0.261	0.299	0.336
VAR 10	0.100	0.005	0.140	0.218	0.203	0.206
VAR 11	0.153	0.055	0.148	0.218	0.189	0.378
VAR 12	0.217	0.158	0.127	0.171	0.269	0.383
VAR 13	0.154	0.110	0.129	0.257	0.248	0.395
VAR 14	0.135	0.022	0.104	0.122	0.201	0.293
VAR 15	0.148	0.044	0.019	0.127	0.141	0.249
VAR 16	0.201	0.209	0.091	0.212	0.252	0.359
VAR 17	0.241	0.199	0.089	0.214	0.252	0.298
VAR 18	0.052	0.050	0.028	0.154	0.190	0.314
VAR 19	0.306	0.202	0.155	0.211	0.226	0.286
VAR 20	0.110	0.109	0.092	0.129	0.089	0.203
VAR 21	0.184	0.146	0.088	0.128	0.245	0.325
VAR 22	0.132	0.136	0.148	0.125	0.152	0.254
VAR 23	0.177	0.171	0.115	0.155	0.241	0.286
VAR 24	0.209	0.171	0.140	0.187	0.227	0.284
VAR 25	0.250	0.205	0.209	0.211	0.221	0.404
VAR 26	0.174	0.136	0.182	0.243	0.219	0.216
VAR 27	0.147	0.165	0.180	0.197	0.232	0.308
VAR 28	0.101	0.069	0.081	0.135	0.138	0.170
VAR 29	0.235	0.249	0.207	0.257	0.222	0.317
VAR 30	0.236	0.210	0.154	0.239	0.226	0.295
VAR 31	0.237	0.222	0.185	0.257	0.173	0.315

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	VAR 7	VAR 8	VAR 9	VAR 10	VAR 11	VAR 12
VAR 7	1.000					
VAR 8	0.750	1.000				
VAR 9	0.207	0.215	1.000			
VAR 10	0.175	0.155	0.579	1.000		
VAR 11	0.208	0.244	0.582	0.516	1.000	
VAR 12	0.218	0.225	0.633	0.453	0.519	1.000
VAR 13	0.249	0.191	0.591	0.420	0.422	0.574
VAR 14	0.110	0.053	0.525	0.418	0.443	0.467
VAR 15	0.068	0.086	0.659	0.510	0.530	0.492
VAR 16	0.195	0.151	0.642	0.438	0.531	0.529
VAR 17	0.199	0.138	0.589	0.515	0.470	0.553
VAR 18	0.113	0.036	0.550	0.434	0.373	0.500
VAR 19	0.227	0.168	0.610	0.413	0.495	0.500
VAR 20	0.162	0.062	0.473	0.403	0.414	0.413
VAR 21	0.206	0.193	0.608	0.453	0.482	0.499
VAR 22	0.180	0.137	0.493	0.310	0.401	0.418
VAR 23	0.257	0.223	0.571	0.438	0.446	0.502
VAR 24	0.259	0.206	0.632	0.483	0.486	0.522
VAR 25	0.264	0.223	0.662	0.485	0.512	0.560
VAR 26	0.183	0.159	0.451	0.304	0.247	0.340
VAR 27	0.238	0.247	0.570	0.382	0.429	0.523
VAR 28	0.181	0.149	0.402	0.288	0.311	0.447
VAR 29	0.281	0.213	0.467	0.286	0.392	0.421
VAR 30	0.236	0.195	0.598	0.466	0.460	0.437
VAR 31	0.260	0.228	0.394	0.254	0.298	0.362

	VAR 13	VAR 14	VAR 15	VAR 16	VAR 17	VAR 18
VAR 13	1.000					
VAR 14	0.503	1.000				
VAR 15	0.583	0.594	1.000			
VAR 16	0.593	0.558	0.670	1.000		
VAR 17	0.631	0.615	0.592	0.660	1.000	
VAR 18	0.559	0.480	0.491	0.540	0.564	1.000
VAR 19	0.495	0.494	0.551	0.568	0.541	0.438
VAR 20	0.415	0.466	0.545	0.514	0.488	0.364
VAR 21	0.529	0.543	0.688	0.651	0.562	0.442
VAR 22	0.488	0.384	0.508	0.561	0.479	0.361
VAR 23	0.529	0.491	0.593	0.612	0.565	0.427
VAR 24	0.567	0.550	0.686	0.634	0.608	0.469
VAR 25	0.624	0.557	0.677	0.652	0.594	0.442
VAR 26	0.349	0.345	0.406	0.384	0.349	0.230
VAR 27	0.516	0.457	0.547	0.602	0.541	0.333
VAR 28	0.433	0.368	0.365	0.437	0.458	0.268
VAR 29	0.478	0.416	0.459	0.524	0.516	0.296
VAR 30	0.534	0.489	0.589	0.629	0.566	0.393
VAR 31	0.431	0.354	0.377	0.398	0.446	0.241

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	VAR 19	VAR 20	VAR 21	VAR 22	VAR 23	VAR 24
VAR 19	1.000					
VAR 20	0.624	1.000				
VAR 21	0.749	0.751	1.000			
VAR 22	0.676	0.653	0.734	1.000		
VAR 23	0.734	0.752	0.863	0.771	1.000	
VAR 24	0.779	0.795	0.888	0.746	0.900	1.000
VAR 25	0.780	0.700	0.840	0.743	0.824	0.857
VAR 26	0.568	0.506	0.606	0.520	0.593	0.612
VAR 27	0.634	0.585	0.745	0.653	0.715	0.757
VAR 28	0.519	0.440	0.555	0.491	0.582	0.584
VAR 29	0.601	0.580	0.693	0.580	0.633	0.687
VAR 30	0.709	0.647	0.812	0.681	0.755	0.809
VAR 31	0.509	0.458	0.610	0.516	0.549	0.583

	VAR 25	VAR 26	VAR 27	VAR 28	VAR 29	VAR 30
VAR 25	1.000					
VAR 26	0.703	1.000				
VAR 27	0.764	0.593	1.000			
VAR 28	0.609	0.515	0.690	1.000		
VAR 29	0.619	0.498	0.655	0.505	1.000	
VAR 30	0.814	0.660	0.736	0.542	0.766	1.000
VAR 31	0.603	0.522	0.645	0.482	0.722	0.670

	VAR 31
VAR 31	1.000

Questionnaire

Conflict Management Study

TO ENSURE COMPLETE CONFIDENTIALITY, PLEASE DO NOT WRITE YOUR NAME OR YOUR PRINCIPAL'S NAME ANYWHERE ON THE QUESTIONNAIRE!

- Most questions have eight possible responses. Please answer by circling one of the eight numbers. For example, suppose that the question were:

	Very little		some		Quite a bit		A very great deal	
How much teamwork exists in your school?	1	2	3	4	5	6	7	8

- If you think that there is "quite a bit" of teamwork, you would circle 5 or 6. You would circle 5 if you think that the situation is closer to "some." You would circle 6 if you think that the situation is closer to "a very great deal."

- If you do not find the exact answer that fits your needs, use the one that is closest to it. If the question is not applicable to your situation, please omit answering that question.

---

1. How would you describe your school district?

   Rural Suburban City

2. How many years have you worked with your principal?

   _____ years

For questions 3 - 10 think of lesson plans, student learning, athletic achievements, community projects, instruction, art & music programs, new curricula, teacher-parent meetings, etc. as educational "products" and "services" produced by teachers.

		Very little		Some		Quite a bit		A very great deal	
3.	Of the various things produced by the teachers you know in your school, how much are they producing?	1	2	3	4	5	6	7	8
		Very poor		Poor		Good		Very good	
4.	How good is the quality of the products or services produced by the teachers you know in your school?	1	2	3	4	5	6	7	8
5.	How good a job do the teachers in your school do in coping with emergencies and disruptions?	1	2	3	4	5	6	7	8

6.	To what extent do the teachers in your school prevent or minimize the effect of anticipated problems?	Very little		Some		Considerable		Very great
		1	2	3	4	5	6	7 8
7.	To what extent do the teachers in your school get maximum output from the available resources (money, staff, equipment, etc.)?	Very little		Some		Considerable		Very great
		1	2	3	4	5	6	7 8
8.	To what extent are the teachers in your school informed about innovations that could affect the way they do their work?	Very little		Some		Considerable		Very great
		1	2	3	4	5	6	7 8
9.	When changes are made in the methods, routines, and equipment, how quickly do the teachers in your school accept and adjust to the changes?	Very slowly		Slowly		Quickly		Very quickly
		1	2	3	4	5	6	7 8
10.	How many of the teachers in your school readily accept and adjust to the changes	Very few		Few		Quite a few		Great many
		1	2	3	4	5	6	7 8

For questions 11 - 20 think of some conflict or conflicts regarding school-related activities that have occurred between you and your principal. Conflicts can result from differing philosophies, attitudes, and values about educational matters. They may also result from competition over scarce resources such as money, space, and equipment. To be in conflict your goal, position, or value must have been in direct opposition to that of your principal's and you must have tried to achieve your goal or win support for your position or value.

Please respond to the way it is and the way it should be as regards the way your principal interacts with you in conflict situations. Read item 1 below and indicate by circling the number of the <u>is</u> section how often you think this actually happens. Reread the same item and circle the number of the <u>should be</u> section which indicates how often you think this should happen. Then proceed to read and respond in the same manner to each of the other items listed below. Circle an <u>is</u> and <u>should be</u> number for each item.

11. When something goes wrong that affects you and your principal he/she searches with you for a solution that fits both of you.

	I don't know	Almost never		Sometimes		Very often		Almost always
Is	0	1	2	3	4	5	6	7 8
Should be	0	1	2	3	4	5	6	7 8

12. Your principal tries hard not to change you when he/she has differences in attitudes, opinions, and/or values from your own.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

13. When your principal finds out you did something you were not supposed to do, he/she tells you why he/she must do something before taking action.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

14. Your principal lets you know about his/her feelings when you interact on a problem of concern to both of you.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

15. Your principal notices when you have a problem and gives you a chance to talk about it.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

16. When somebody in authority does something or makes a rule that affects you in a negative way, your principal follows authority but does what he/she can do to protect you or change the action or rule.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

17. Before your principal makes a judgement or decision based upon his/her personal beliefs, values, and/or goals he/she has an honest concern for its fairness to you.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

18. When you come to your principal for help with a problem he/she helps you find and do something about the basic cause of the problem.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

19. When somebody in authority makes a rule or policy your principal carries it out in a way that helps you do your job better.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

20. Your principal helps make you aware of your feelings when you interact with him/her.

	I don't know	Almost never		Sometimes		Very often		Almost always	
Is	0	1	2	3	4	5	6	7	8
Should be	0	1	2	3	4	5	6	7	8

For the remaining questions, continue to indicate how your principal responds to you.

	Suppression		Win-Lose confrontation		Bargaining negotiation compromise		Problem solving	
21. What methods of resolving conflicts does your principal use?	1	2	3	4	5	6	7	8

	Very little		Some		Quite a bit		A great deal	
22. How much does your principal try to understand your point of view?	1	2	3	4	5	6	7	8
23. How much does your principal seek to use joint problem solving to develop innovative solutions satisfactory to both parties?	1	2	3	4	5	6	7	8
24. How much does your principal strive to discover and state explicitly the integrating goals and common interests that they share?	1	2	3	4	5	6	7	8

	Rarely		Sometimes		Often		Very often	
25. How candid and unguarded is the communication and interaction between you and your principal?	1	2	3	4	5	6	7	8

	Very little		Some		Considerable		Very great	
26. To what extent does your principal attempt to deceive you?	1	2	3	4	5	6	7	8
27. To what extent does your principal make efforts to build channels of communication, and interaction between opposing parties?	1	2	3	4	5	6	7	8
28. To what extent are innovative, mutually acceptable solutions being sought?	1	2	3	4	5	6	7	8
29. To what extent does your principal strive to gain power over you?	1	2	3	4	5	6	7	8
30. To what extent does your principal strive to seek mutually satisfying solutions?	1	2	3	4	5	6	7	8

31. To what ertent does your principal use a third party to help find a mutually acceptable solution?	1	2	3	4	5	6	7	8
32. To what ertent do the solutions reached result in favorable cooperative attitudes between you and your principal?	1	2	3	4	5	6	7	8
33. To what ertent are the channels for the flow of interaction and influence between you and your principal effective?	1	2	3	4	5	6	7	8
	Not well		Somewhat well		Quite well		Very well	
34. How well can your principal state clearly and with understanding your point of view,or your preferred solution?	1	2	3	4	5	6	7	8
35. When solutions are reached how well do you accept them?	1	2	3	4	5	6	7	8
36. When solutions are reached how well do you implement them?	1	2	3	4	5	6	7	8
	Very few		Few		Quite a few		A great many	
37. How many open channels of communication are there for flow of information and influence between you and your principal?	1	2	3	4	5	6	7	8
	Very little		Some		Considerable		Very great	
38. To what ertent has your principal helped you receive the kind of professional training you desire?	1	2	3	4	5	6	7	8
39. To what ertent is your principal willing to give you individual assistance?	1	2	3	4	5	6	7	8
40. To what ertent does your principal offer you more resources to help you do your work compared to other teachers in your school?	1	2	3	4	5	6	7	8
41. To what ertent do you think your principal invites you to participate in decision making compared to other teachers in your school?	1	2	3	4	5	6	7	8
42. To what ertent do you think you have greater access to your principal than most other teachers in the school?	1	2	3	4	5	6	7	8
43. When a tough job arises to what ertent does the principal have the "know-how" to get it done?	1	2	3	4	5	6	7	8
44. To what ertent does the principal plan ahead?	1	2	3	4	5	6	7	8
45. When a teacher is having trouble to what ertent does the principal know how to help?	1	2	3	4	5	6	7	8

46. To what extent does the principal know how to deal effectively with conflict?

1 2 3 4 5 6 7 8

47. How often does the principal fail to do a good job because of poor administrative skills?

Rarely Sometimes Often Very often
1 2 3 4 5 6 7 8

48. To what extent do you feel your principal has high self expectations?

Very little Some Considerable Very great
1 2 3 4 5 6 7 8

49. To what extent do you feel your principal is truly committed to the performance goals shared with you?

Very little Some Considerable Very great
1 2 3 4 5 6 7 8

50. To what extent does your principal attempt to implement the goals he or she espouses?

1 2 3 4 5 6 7 8

51. What level of performance goals does your principal seek to have you achieve?

Very low Low High Very high
1 2 3 4 5 6 7 8

52. If you had a chance to teach for the same pay in another school under the direction of another principal, how much would you want to move?

Very little Some Quite a bit A very great deal
1 2 3 4 5 6 7 8

53. If your principal was transferred and only you and you alone in your staff were given a chance to move with your principal (doing the same work at the same pay), how much would you feel like making the move?

1 2 3 4 5 6 7 8

54. Generally speaking how much confidence and trust do you have in your principal?

1 2 3 4 5 6 7 8

55. Principals at times must make decisions which seem to be against the current interests of their subordinates. When this happens to you as a teacher, how much trust do you have that your principal's decision is in <u>your</u> interests in the long run?

1 2 3 4 5 6 7 8

56. How much loyalty do you feel for your principal?

1 2 3 4 5 6 7 8

57. To what extent is your principal the kind of person you really like working for?

Very little Some Considerable Very great
1 2 3 4 5 6 7 8

58. All in all, to what extent are you satisfied with your principal?

1 2 3 4 5 6 7 8

59. About how often is your principal responsible for the mistakes in your school?

Rarely Sometimes Often Very often
1 2 3 4 5 6 7 8