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THE RELATIONSHIP OF SCHOOL EFFECTIVENESS TO ADMINISTRATIVE STRUCTURE, PROFESSIONAL ROLES AND WORK INTERACTION OF TEACHERS

By

MARGERY ELEANOR ROURKE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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Date: October 11, 1983

ABSTRACT

The purpose of the study was to determine the relationship among teachers' ratings of their school's effectiveness, their professional role orientation, the administrative structure of their schools and their professional work interaction.

Mintzberg's (1979) model of a professional bureaucracy, supplemented by theoretical literature, served as the conceptual framework for the study. Mintzberg (1979) suggested that because professionals want control over their work processes, they prefer low bureaucratic structure in their organizations. This low structure may result in work coordination problems.

The population consisted of the principals and all of the classroom teachers of the twenty-one largest elementary schools, kindergarten to year eight, in the Saskatoon School Division, Number 13. Three hundred and forty-four teachers completed a questionnaire in May and June of 1982 which consisted of sections on school effectiveness, professional role orientation and professional work interaction. To provide data for the measures of administrative structure, the twenty-one principals were interviewed using the modified Aston Interview Schedule.

Of the variables examined, this study found that one dimension of professional role orientation, knowledge, and one dimension of administrative structure, functional specialization, accounted for the most variance in teachers' ratings of school effectiveness. Knowledge refers to the teachers' belief in the importance of a professional knowledge

base for educators. Functional specialization is the delegation of duties and the distribution of them among staff.

Four out of the five dimensions of professional role orientation were more closely related to teachers' ratings of school effectiveness than any of the other variables studied except for functional specialization.

Of the structure variables, functional specialization was the most closely related to teachers' ratings of school effectiveness. After teachers' professional role orientations were taken into account, standardization, autonomy and size also were significantly related to effectiveness. However, the variation accounted for in school effectiveness ratings by these structure variables was much less than that accounted for by four dimensions of professional role orientation.

After teachers' professional role orientations were taken into account, principal-teacher interaction on professional topics was significantly related to teachers' ratings of their school effectiveness. The frequency of professional interaction among teachers and the total interaction time were not related significantly to teachers' school effectiveness ratings.

Teachers with high professional role orientation scores tended to rate their schools as more effective, to interact more with the principal, and to interact more with each other than teachers with low professional role orientation scores.

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CHAPTER ONE

INTRODUCTION

In the face of declining enrolment, decreased resources and a more vocal public, school administrators are challenged to meet the demands for increasing school effectiveness (Reller, 1974:78). To accomplish this, the principal, who is charged with organizing and maintaining an effective school, must identify factors related to school quality (Tomlinson, 1981:375). But school evaluation is difficult; neither the factors that constitute an effective school nor the measurement of them are easily determined. In addition, for the outcome of the assessment of a school's effectiveness to be useful, consideration should be given to the relationships between the accomplishment of a school's goals and the organizational attributes that contribute to their achievement (Tomlinson, 1981:375). School administrators are expected to decide what effective schools are, how they can influence factors that will facilitate them, and how to measure that effectiveness. Because of the complexity of the task, principals turn to the most readily available knowledgeable sources of information, the teaching staff.

The staffs provide a collective body of expertise for school evaluation. The professional judgments that teachers make about how well schools are carrying out their mandates are based on standards that are inculcated during university training, internship and later inservice (Hrynyk, 1966). However, these standards vary among individuals in the teaching profession (Nixon, 1975). In accepting the teachers' evaluations of their schools' effectiveness, school administrators must decide

what effect the teachers' own professional role orientations have on their perception of their schools.

As teachers examine their school, they may believe the administrative structure of the school either impedes or facilitates the education of students. The structure provides the framework for decision making; it determines who makes what decisions, identifies what is to be delegated and specifies what is to be done in a standardized way (Hall, 1877:102). Scott (1981:222) writes that there is a difference in the optimal structures of organizations, depending on whether or not they are staffed by professionals. Because teachers as professionals demand autonomy, some administrative structures can be dysfunctional in schools (Scott, 1981: 222). However, within the teaching body, individuals may differ in their opinions about the effectiveness of the same school structure as they filter their expectations through their own understanding of a teacher's role.

It is unlikely that teachers will perceive the school in a positive way unless they are given opportunities to express their professionalism (Hall, 1977:168). But professional standards are multi-dimensional, for while professionals demand autonomy where skilled judgments are needed, they respect each other's expertise and feel a sense of colleagueship (Hrynyk, 1966). Even though much of a teacher's work day is spent in isolation from other professionals, there are opportunities to engage in joint decision making and problem solving (Wynne, 1981). Willingness to coordinate educational tasks may arise from the teachers' commitments to the education of children, which is furthered by utilizing their colleagues' technical competence in a particular area.

It has been suggested that teachers' ratings of the effectiveness of their schools are related to their own professional role orientation, to the nature of the administrative structure of their schools that facilitates opportunities to express their professionalism, and to opportunities for professional interaction in their schools. This study has investigated those relationships.

I. The Study

Purpose

The purpose of the study was to examine selected factors which influenced teachers' ratings of their school's effectiveness. These factors were: (1) the professional role orientations of the teachers, (2) the administrative structure of the school, and (3) the amount and frequency of the professional work interaction in the school. The study has provided research on the association between teachers' professional role orientation and selected organizational factors within each school.

General Perspective of the Study

In determining the effectiveness of the school as an organization, the complex relationships between the professional employees and the design of the organization need to be examined. The structure of the traditional bureaucratic organization is established to limit the influence of the individual on the organization so that employees can resign or rebel without seriously reducing the efficiency of the organization (Perrow, 1979:4). In an organization employing professionals there is an inherent conflict between the organizational structures that do not provide for role discretion or decentralization of decision making

and the autonomy of the professional (Hall, 1977:170). However, Hall (1977:171) states that such conflicts are not inevitable; there are "organizational structures that are compatible with the degree of professionalism in their members."

Embodied in Hall's (1977:171) statement is the assumption that professionalism is a continuous variable to be found in different degrees among a profession's members. In his own research, more fully explained in Chapter Two, Hall (1968:102) found an inverse relationship among five bureaucratic structural dimensions and aspects of professionalism. Based on his research findings, Hall (1977:171) stated that administrative structures could be arranged to facilitate rather than to hinder the professional.

If the administrative structure is designed to encourage delegation of decision making and professional discretion, coordination of work may become a problem. In bureaucratic organizations, decentralization is frequently accompanied by increased formalization (Hall, 1977:184). In schools this would seem to defeat the purpose of decentralized decision making. As a result strategies may have to be developed by the professionals involved to ensure that students benefit from collaborative interaction among the staff.

When teachers evaluate their school, they are viewing the organization from their own professional stance. Differences in teachers' professional role orientation may be related to their different reactions to the administrative structure and to their work interaction. It is from the perspective of viewing the school as an organization while investigating the relationships between personal and organizational

characteristics that this study was conducted.

II. Statement of the Problem

Problem

What are the relationships among teachers' ratings of the effectiveness of their schools and their professional role orientation, their school's administrative structure and their professional work interaction?

Sub-Problems

From the main problem several sub-problems may be defined. Answers to the following sub-problems were sought:

1. Are teachers' ratings of school effectiveness related to professional role orientation?
2. Are teachers' ratings of school effectiveness related to the administrative structure of their school?
3. Are teachers' ratings of school effectiveness related to their professional work interaction?
4. Is there a relationship between the professional work interaction of teachers and the administrative structure of their schools?
5. Is there a relationship between teachers' professional role orientation and their professional work interaction?
6. Is there a relationship between teachers' professional role orientation and the administrative structure of their schools?
7. Are teachers' ratings of school effectiveness associated with the interrelationships among the teachers' professional role orientation, their schools' administrative structure and their professional work interaction?

III. Conceptual Framework

A Professional Bureaucracy

Professionals are employed in an organization where the work is sufficiently complex that difficult procedures must be used, yet stable enough that workers' skills can become standardized (Mintzberg, 1979:336). Because professionals demand autonomy and decision making discretion, the structure of such an organization is highly decentralized. Ideally, coordination is achieved through standardization of skills and knowledge so professionals know what to expect from their colleagues. Mintzberg (1979) classified this type of organization as a professional bureaucracy, a structural configuration which includes schools, hospitals and social work agencies.

The activities of an organization are linked together through flows of authority, work material and information (Mintzberg, 1979:35). The traditional bureaucratic view of organizations provides for the formal regulated flows while the informal communication blends the formal and informal relationships in organizations. Both processes are necessary for an organization to operate efficiently (Mintzberg, 1979:53). However, the design of positions influences both the coordination and control strategies. In a professional bureaucracy, the formal control system changes as training replaces organizational rules as a standard for decision making (Mintzberg, 1979:349).

To warrant the autonomy that is accorded to professionals, they are expected to comply with the conditions that their profession requires. Mintzberg (1979:349-351) describes professionals in the following way: (1) Professionals have several years of training from a university

or special institution. (2) A lengthy period of internship by professionals is expected in order to complete the indoctrination process of skills, knowledge and values that their profession has acquired. (3) A professional association usually controls entry into the profession, so professionals must pass this barrier. (4) The problems professionals solve are unique, requiring discretion and judgment in the application of learned skills. (5) Professionals are expected to upgrade their expertise as new knowledge is generated and new skills develop. (6) Professionals expect autonomy and control of their own work.

Within the professional bureaucracy there are workers who vary in their degrees of professionalism, including their skills, knowledge and attitudes. In discussing the problems in a professional bureaucracy, Mintzberg (1979:373) writes that "no two professionals are equally skilled." While he tends to describe extreme states of professional competence, either the competent or incompetent worker, rather than varying degrees, Mintzberg (1979:373) points out that a professional bureaucracy does not deal easily with professionals who are incompetent or not conscientious. The discretion allowed professionals enables them to ignore the needs of the client as well as the organization. Particular problems cited by Mintzberg (1979:373-374) are professionals (1) who do not update their skills; (2) who care more about their reimbursement than the service they give their client; (3) who become so enamored with a particular method or program that they rely on just one program rather than using their diagnostic skills and knowledge to solve clients' problems; and (4) who won't cooperate with other professionals so that the total organization can serve the client. Mintzberg (1979) has described differences

in role orientation that he believes are found among any group of professionals.

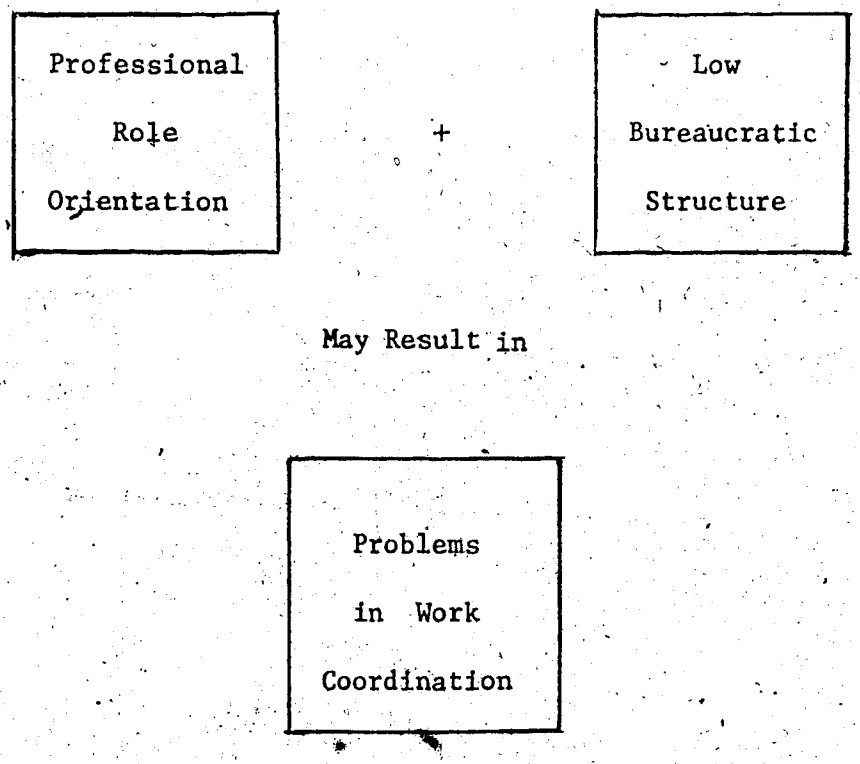
Although much of the professionals' work is done in isolation from their colleagues, coordination is necessary. Some of this coordination occurs without much joint planning because of the standardization of teachers' skills and knowledge achieved during university training. Professionals in education assume that they know what programs and methods their colleagues are using. In schools, as long as the subject matter remains standard, teachers know "more or less what the other teaches" (Mintzberg, 1979:349). But coordination of work is necessary to ensure that the students receive well rounded and continuous programs as they proceed through their education. When reliance is placed on the standardization of skills and knowledge as the main coordinating device, problems arise because it is such a loose coordinating mechanism (Mintzberg, 1979: 372), as illustrated in Figure 1. A basic conflict exists between professionals' desire for autonomy and their need to coordinate their work so that the client is given the best possible service (Mintzberg, 1979:374).

The evaluation of effectiveness is difficult in a professional bureaucracy because: (1) goals are nebulous and problematical, (2) professionals control their own work to a great extent, and (3) methods for serving clients have not been agreed upon by professionals (Mintzberg, 1979:374-76). In schools this is particularly true. Mintzberg (1979: 374) elaborates, "When no one has been able to measure the learning that takes place in the classroom, how can it be demonstrated with reliability that lectures are better or worse than seminars, or, for that matter, than staying home and reading." As a result the administrators recognize

FIGURE 1

PROBLEMS IN A PROFESSIONAL BUREAUCRACY

IDENTIFIED BY MINTZBERG



Source: Adapted from

Mintzberg, 1979:373

the knowledge of their fellow professionals and respect their judgments about how effective their schools are.

Criticism has been made of the concept of the school as a professional bureaucracy. Howsam (1979:22), although contending that teaching is by its nature a profession, argues that it will remain a semi-profession until the hierarchical structure in schools is changed and teachers are accepted as the equals of administrators in policy making and implementation. Scott (1981:222) describes two types of professional bureaucracies. The first is the autonomous professional organization, such as universities or hospitals, where the organizational officials delegate responsibilities for goal setting and standards. The second type is the heteronomous professional bureaucracy where professionals are clearly subordinate to the administrative framework, such as in schools, social work agencies or libraries. The complex and uncertain tasks are delegated to professional participants who operate under a structure of general rules. However, the lines are blurred between the two types in any school, depending on the role orientation of the teachers and the principal as well as their professional training.

The model presented has not been chosen because it is a perfect fit for the study but because it best illustrates the complex relationships that underlie the question being investigated. Although it does identify some of the problems associated with the evaluation of an organization, an adequate framework is not drawn for the determination of effectiveness in a professional bureaucracy. Elaboration is given in Chapter Two in the literature on effectiveness to provide the base for the selection of an appropriate measure of effectiveness in schools.

In this study Mintzberg's (1979) model of a professional bureaucracy was applied to elementary schools, as illustrated in Figure 2. The difficulty in determining performance measures of the school, because of problems identified by Mintzberg (1979) and others (Scott, 1981; Weick, 1979), has resulted in reliance in this study on teachers' professional perception of their schools' effectiveness. Both administrative structure and the teachers' professional role orientation were measured. Coordination of work through standardization of skills is cited as one of the troublesome areas of a professional bureaucracy by Mintzberg (1979:372), so coordination through an informal exchange of ideas about professional problems was also evaluated.

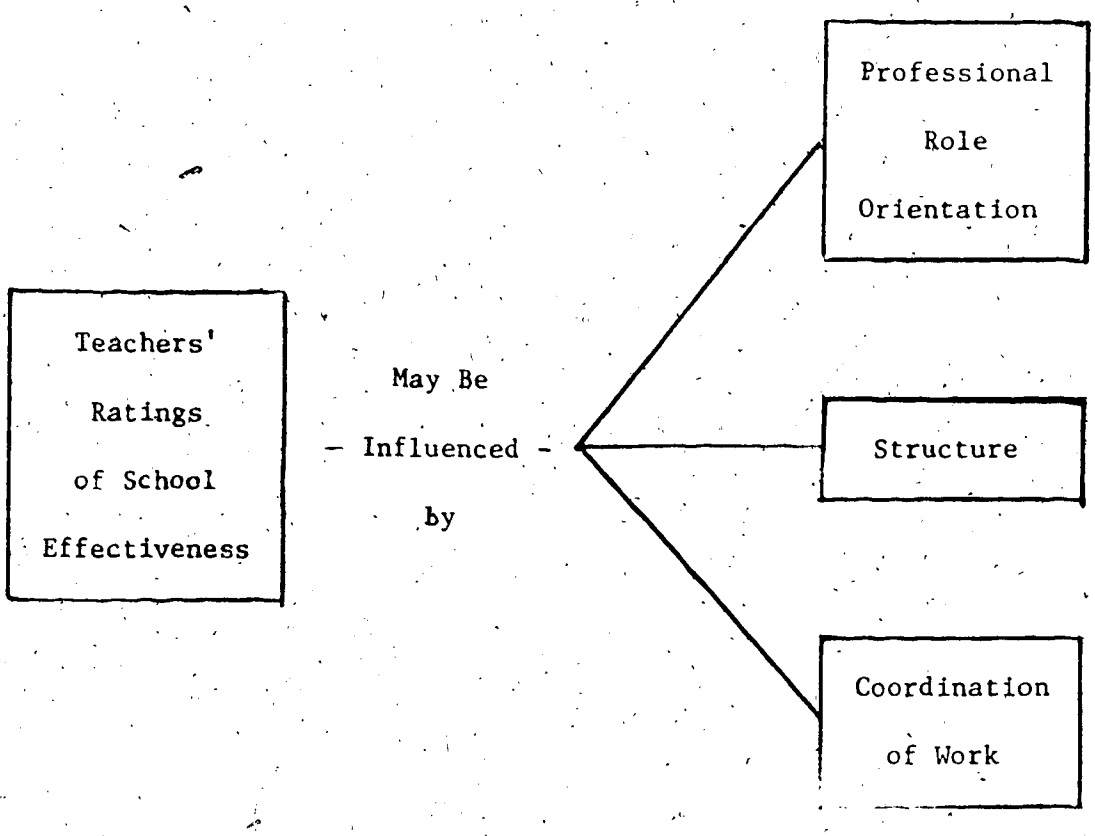
From the base of Mintzberg's (1979) model and previous studies (Hall, 1968; Palumbo, 1969) which found structure inversely related to professionalism, it was inferred that teachers with high P.R.O. scores would desire lower structure. This low structure would lead to more work interaction as teachers made decisions at the school level. It was extrapolated that teachers with high professional role orientation, working in schools with low administrative structure and high work related interaction, would rate their school as effective. In a similar way, teachers with low professional role orientation would rate schools with high structure and low interaction as effective.

IV. The Significance of the Problem

The pressure on schools to increase their effectiveness throughout North America and in Saskatchewan in particular results from a combination of declining enrolments in school systems and decreasing resources at a

FIGURE 2

FACTORS THAT MAY INFLUENCE EFFECTIVENESS RATINGS OF A PROFESSIONAL BUREAUCRACY



Source: Adapted from Mintzberg, 1979

time when schools are charged with educating a broader population of children (Saskatchewan Education Annual Report, 1979). The visually and hearing impaired, the learning disabled, and the physically and mentally handicapped have been integrated into Saskatchewan public schools (Education Act, 1979). School principals are responsible for providing more programs and services without proportionate additional staff and resources.

For principals who rely on their staffs' opinions of their schools' effectiveness to provide information so that organizational inefficiencies can be corrected, awareness is needed of what factors influence those perceptions. If there is a relationship between teachers' professional role orientation and their ratings of school effectiveness, this knowledge may help principals to understand teachers' perceptions. If administrative structure is related to teachers' ratings of school effectiveness, this information should assist principals to establish appropriate structures. Additionally, if work interaction is related to teachers' perceptions of school effectiveness, strategies to facilitate that interaction may need to be devised by the principal and the staff.

It is important to know why teachers rate their schools as effective, whether the ratings of effectiveness are influenced by the teachers' knowledge and beliefs or by the variables within the school. Resources expended on inservice to increase teachers' professional knowledge may be well spent if they result in more effective schools. Possibly principals' time can be allocated more efficiently with more information about the administrative structures teachers regard as most effective. It is hoped that the relationships investigated in this study may assist in the deter-

mination of how educational funds and administrative time can be most efficiently utilized.

V. Assumptions, Limitations and Delimitations

Assumptions

The major assumptions were that:

1. The replies given by teachers to the questionnaire items provided indications of their attitudes, beliefs and knowledge.
2. The interview schedule used to determine the administrative structure was suitable for elementary schools.

Limitations

The limitations of the study were inherent in the methods used to gather and analyze the data. In the data gathering, the principal drawback to the questionnaires was that the same question may have had different meanings for different people. The structured interview form restricted the information respondents could give. The statistical nature of the data analysis limited the inferences that could be made. Additionally, the multivariate analysis only "mirrors the actual complexity of behavioral reality" (Kerlinger, 1973:602).

Delimitations

The study was delimited to elementary schools in Saskatoon School Division Number 13 with staffs of fourteen or more professionals. Vice-principals and teachers who were employed in programs that served the

school system rather than their home schools were not included. Because their role orientation and professional work interaction differed from classroom teachers it seemed preferable to exclude them from the population being studied.

VI. Definitions of Terms Used

School Effectiveness

The criteria used to measure effectiveness were taken from Mott's (1972) study. A school is effective if it is productive, adaptable and flexible. This includes the quality, quantity and efficiency of educational services, the adjustment of teachers to different conditions and the response of teachers to a temporary work overload. Operationally defined, it is the score the school receives when teachers rate it on the school effectiveness questionnaire.

Professional Role Orientation (P.R.O.)

This is the degree to which teachers rate their professional beliefs as they are measured on the P.R.O. scale. In this study teachers' P.R.O.'s were their total scores on the scales.

Administrative Structure

The definition of administrative structure and the dimensions of structure are paraphrased from definitions found in Pugh et al. (1976:48) and Sackney (1976:40). The administrative structure of an organization is a pattern of internal activities which occur regularly and change slowly. In this study administrative structure is defined by six variables: functional specialization, formalization, centralization,

autonomy, standardization and size. Each of these components of structure is measured separately; there is no composite score for administrative structure.

Functional Specialization

This is the division of labour in organizations and the system of distribution of official duties among positions. The operational definition for the present study was a determination of (1) whether a given activity was performed; (2) whether it was specifically delegated; and (3) the extent to which the activity was delegated to individuals or groups.

Formalization

This is the degree to which rules, procedures and instructions are written down and filed. The degree of formalization was assessed in two ways:

1. Documents - the extent to which documents were used that provided general information about the school and prescribed the roles for school professionals.
2. Recording of Role Performance - the degree to which teachers were required formally to record their performance by regularly submitting such written articles as lesson plans.

Standardization

A school is standardized to the extent that it has rules or procedures which purport to cover all circumstances and are legitimized by the school. Schools with high standardization scores had more

procedures which controlled more areas of their operations.

Centralization

This is the extent to which the locus of decision making authority is concentrated at or near the top of the organizational hierarchy. A school's centralization score was determined by assigning various decision weights from zero to five. Zero was given for decisions made by teachers, and correspondingly through vice-principals, principals, superintendents and school boards, to five for decisions made by the Department of Education.

Autonomy

This is the degree to which decisions are made within the school. The autonomy score for an individual school was decided by allocating a weight of zero for each type of decision made by teachers and a weight of one to each type of decision made by principals.

Size

School size was determined by the number of professional teachers and administrators employed on a school staff. The staff size is regulated by the school system staffing policy according to the pupil-teacher ratio.

Work Interaction

This was the communication which was involved in professional collaboration or problem solving. It included the amount of time professionals spent working together and the frequency of work related communication between teachers or between the teachers and the principal.

VII. Organization of the Thesis

Chapter One provides a background for the study, presents the problem statement and the conceptual framework. Chapter Two reviews the related literature on organizational effectiveness, professional role orientation, administrative structure and professional work interaction in schools.

In Chapter Three the research design of the study is given, including the method of the collection of the data, the instruments used and the treatment of the data. In Chapter Four the findings related to the research hypotheses are presented. Chapter Five contains a summary of the results of the study, from which conclusions are drawn, followed by a discussion of implications for research and for practice.

CHAPTER TWO

REVIEW OF THE LITERATURE

In this chapter the literature on organizational effectiveness as it applies to schools, professional role orientation, administrative structure and work interaction is reviewed. The research cited establishes the conceptual underpinnings for the study.

I. Effectiveness of the School as an Organization

The problems associated with both defining and determining organizational effectiveness are applicable to schools when they are viewed as organizations. In this section an overview of the perspectives on organizational effectiveness, various constructs of it and the related research are presented.

Perspectives on Organizational Effectiveness

The two main approaches to evaluating organizational effectiveness are based on either a goals or a natural systems perspective. In a goals approach the evaluator determines effectiveness in terms of the degree to which an organization attains its goals (Price, 1972:101). To appraise effectiveness by a systems approach, the performance of an organization is measured in regard to inputs, transformations, outputs and feedback (Evan, 1975:19). By contrasting the goals and systems approaches, Campbell (1976:3) attempts to clarify the differences in the two organizational viewpoints. He writes that the goal oriented people would begin by seeking out goals from the decision makers, compare the stated

goals to those that are operationalized, and then set the standards for effectiveness. Natural systems researchers would have a conception of an effective organization, and then ask questions to discern the overall viability of the organization being investigated. However, as soon as goal evaluators analyze why the organization scores the way it does on the criteria, they are led to system variables. When systems researchers consider how the characteristics affect the task performance, they are led to the goals of the organization (Campbell, 1976:32).

Despite the rationality apparent in evaluating effectiveness on the basis of organizational goals, the concept is fraught with pitfalls. Whether or not an organization's goal statements represent what will happen, or even what is intended to happen, is a political as well as a rational question. Weick (1979:239) sums up the arguments against evaluating efficiency on the basis of goals. "Goals are sufficiently diverse, the future is sufficiently uncertain and the actions on which goal statements could center are sufficiently unclear that goal statements explain a relatively small portion of the variance of the action." By evaluating only stated goals of an organization, the researcher may miss many of its important aspects.

According to a systems theory perspective, organizations differ in their ability to attain inputs, transform them by using social and physical technology, channel outputs to clients and obtain feedback (Evan, 1976:19). Researchers emphasize different aspects. Yuchtman and Seashore (1967:898) seem to define effectiveness in terms of inputs; an organization is effective "in terms of its bargaining position, in either absolute or relative terms, to exploit its environment in the acquisition of scarce

and valued resources." Process and output criteria are emphasized by Jackson and Morgan (1978:321) who state that "an organization is effective as long as it uses its resources in an efficient manner and contributes to the larger system." Within the systems theory perspective, researchers have differing opinions about what constitutes an effective organization.

Specific problems are inherent in evaluating effectiveness in each area of the systems model. Although one of the ways organizations differ is in the inputs they garner, according to Yuchtman and Seashore (1967), in a service organization the standardization inherent in bureaucratic tradition prohibits public funding agencies from significantly favoring one unit over another. As well, the relationship between the amount of fiscal input into a service organization and the attendant outcome is tenuous at best (Benson, 1978:200). Typically service organizations such [redacted] do not control their client selection, so they do not want to [redacted] countable for those input characteristics. For these reasons, [redacted] inputs to outputs does not seem a satisfactory method for [redacted] ing schools.

[redacted] The major weakness of process indicators, the lack of measure of the go[redacted] and services produced, is only a concern if the ends and means of a[redacted] rganization become disconnected (Scott, 1981:330). If the organiza[redacted] ion has an adequate feedback provision, this should be avoided; however, sc[redacted] oling critics such as Illich claim that process and substance are confused in education today (Scott, 1981:330). A typical process indicator in schools would be the quality of the teaching. In evaluating this, assumptions are made that the quality of students' learning is affected by it. If the processes of work in a school are directly related to desired

outcomes, and if those processes are expertly quantified and evaluated in an unobtrusive way, process measures should provide indicators of effectiveness.

Outcome indicators focus attention on the product of the organization, either goods or services. In schools, test scores are outcome indicators; in hospitals, changes in patient health meet this criterion. Scott (1981:327) warns that outcome indicators are not pure indicators of performance; they reflect not only the quality of the production but also the current state of the technology and the characteristics of the inputs and outputs.

Steers (1977:5) argues that the goals and systems perspectives can be complementary because of the combination that could emphasize both factors in the organization and the environment (Steers, 1977:5). Observing that there have been two major approaches to effectiveness, Young (1979:3) suggests that "most recent theorizing partially has subsumed the goals in the natural systems approach."

Different conceptualizations of organizations are not the only basis of differences in criteria chosen to determine organizational effectiveness. Other sources of diversity include the time frame, the level of analysis and the reliance on either subjective or objective criteria. The criteria for effectiveness change, depending on whether you are considering a short or long range viewpoint. Steers (1975:553) noted that current effectiveness in production can be maximized at the expense of investment in research and planning that lead to future profitability. Criteria may also change depending on the organization's position in its life cycle (Scott, 1981:320). In addition, the level of analysis dictates whether

criteria are considered that emphasize the organization's impact on the individual, or that are used to scrutinize the entire organization, or that discern the impact of the organization on the environment (Scott, 1981:321). Also, Campbell (1976:39) warns that searching for objective measures is futile; the standards of an objective criterion have been set with subjective judgments.

To summarize, the researcher's preference for criteria with which to assess effectiveness depends first on whether a goals or natural systems perspective is assumed. If a systems approach is taken, decisions must then be made about whether to use input, process or output measures. In addition, consideration of the time frame, the level of the organization to be evaluated and the use of subjective or objective criteria must be considered. The decisions made will form the base of a construct of effectiveness.

Difficulties in Measuring Effectiveness in Schools

The difficulties in choosing criteria for measuring organizational effectiveness identified previously also apply to schools. Added to these are the evaluation problems generated in a professional bureaucracy: the nebulous goals, the difficulty in controlling the effect of input characteristics on the output, the disagreement about methodology, and the lack of standardization of outputs (Mintzberg, 1979). These obstacles have resulted in a reliance on standardized test scores or multiple criterion measures as indicators of effectiveness.

Using Standardized Test Scores as Outcome Measures

In an effort to determine school effectiveness through objective

criteria, standardized test scores have been utilized. While test scores are a factor in assessing school quality, in a study such as this the use of them as one of the main indicators of school effectiveness has three major problems: (1) standardized tests lack instructional validity; (2) controlling for input differences in schools and their population is very difficult; and (3) they do not measure overall school goals. Instructional validity refers to the provision of students with instruction in the skills and knowledge measured by the test. Popham and Lindheim (1981:19) remind us of "the fundamental injustice of testing students on what they have not been taught." In addition to this, the differences in the populations of school children, even after controlling for intelligence, has been illustrated (Greenfield, 1966). These differences among schools have precluded such investigators as Goodlad (1980) and Wynne (1981) from using test scores in their longitudinal studies of school effectiveness. Finally, while competence in basic skills is part of most schools' goals, schools are expected to provide more comprehensive outcomes, such as those associated with social values.

To derive an overall effectiveness score, standardized test scores are sometimes used as effectiveness indicators. However, lack of consistency in the findings of studies leads to confusion in defining which schools are effective. Larson (1982) and Myberg (1982) describe approaches that predict future test scores from a base of past performance for a cohort of students, and then use the residual scores as indicators of effectiveness. Both studies showed that there is little agreement on which schools are effective year after year, and the low correlation between school effectiveness indicators derived from successive cohorts is not explained

by pretest scores. Also, different schools are considered effective depending on whether mathematics or reading test scores are used. While this is acceptable if the purpose is to ascertain in which area the student population is more skilled at a particular time, it does not determine the more global construct of school effectiveness. Frechtling (1982), comparing district supervisor's ratings of school effectiveness with test scores, found that expert ratings provided a very different selection of effective schools.

A major study, funded by the National Institute for Education in the U.S.A., employing statistical methods to control for differences in parental background, utilized test scores as one criterion for effective schools. "Public and Private Schools" is part of a larger study of American high schools directed by James Coleman. In contrast to his 1966 study, Coleman (1981) concludes that schools do make a difference to the achievement of students. The major differences were attributed to differences in discipline, academic demands and in student behavior (Coleman, (1981). Ravich (1981:719) writes, "The most important finding in the new Coleman report is that, after family background is taken into account, there remain significant educational policies." However, the organizational characteristics which lead to the formation of those policies were not examined.

While the Coleman (1981) study did utilize test scores, the scale and funding of it allowed for some control of the problems indicated earlier. On the other hand, statistical methods cannot control for lack of fit between curriculum and tests. By broadening the study beyond test scores, they ameliorated the problem of examining narrow goals.

Because they are output indicators which seem to be based on objective criteria, standardized test scores are tempting for the researcher to use as effectiveness measures. However, because they evaluate only a narrow portion of the curriculum, and the scores may be dependent on previous learning or learning that takes place outside of school, usually they are considered only as partial descriptors of effectiveness.

Constructs of Organizational Effectiveness

Because of the complexity of organizations, effectiveness is usually defined as a multi-dimensional construct. As a construct it can be operationalized only by deciding what model should be used to identify the kinds of variables measured and how these variables are inter-related (Campbell, 1976:30).

Hall (1977:96) concludes that effectiveness is best understood in terms of goal achievement. The key decision makers set operational goals, according to priorities. To be effective in attaining them, the organization must deal with the environment through the structure and processes it establishes. The criteria for effectiveness therefore become the operational goals of the organization, because the purposes in structuring a viable organization are related to those goals.

Steers (1977:4-6) proposed a "process model" of effectiveness which consists of three interrelated dimensions: (1) goal optimization, which evaluates the attainment of goals while taking into account the constraints of available resources; (2) a systems perspective, where both the environment and the organization are examined as they affect the goals; and (3) a

behavioral emphasis which ascertains how individual behavior enhances or detracts from goal achievement. Steers (1977:7-10) outlines four areas for analysis: (1) organizational characteristics, which include technology and structure; (2) environmental characteristics, both external and internal, which he equates with climate; (3) employee characteristics, which are divided into organizational attachment and job performance; and (4) managerial policies and practices.

The model of effectiveness constructed by Mott (1972) to measure divisions of government agencies and a mental hospital relates characteristics of organizational processes and structure such as decision making, organizational and individual needs and leadership to organizational effectiveness. The basic question Mott (1972) pursues is how an organization "mobilizes its centers of power for action-production and adaptation." His measures include (1) productivity, which denotes the quality, quantity and efficiency with which goods and services are produced, (2) adaptability, which is divided into recognizing problems, knowing new technologies, and adapting behavior, and (3) flexibility, in which the centers of the organization manage a temporary work overload. Mott (1972:25) found an overall effectiveness rating for each person, with a divisional score arrived at by averaging individual scores. He concludes that the workers' subjective scores give a fairly valid measure of effectiveness (Mott, 1972:21).

In summary, the models discussed above are multivariate constructs with the major advantage of unifying several variables under one framework. The disadvantage with the multiple criteria approach is that some of the criteria chosen may be only distantly related to each other. For

example, Steers (1975:552) cites a study which uses both productivity and satisfaction, yet research (Porter and Lawler, 1968) indicates that these variables are not closely related. At times the organization may pressure workers to increase productivity which may potentially result in decreased satisfaction (Steers, 1975:553).

Mott's (1972) model has the advantage of using related criteria, being behaviorally based, taking into account factors which will determine both present and future effectiveness, and of being useful to organizations in either growth or decline stages. It uses both outcome and process measures, although these are subjective. Designed for service organizations, it utilizes the expert judgment of workers in evaluating how well they are performing. On this basis it has been selected as the construct for effectiveness in this study.

II. Professional Role Orientation

Teachers bring divergent professional attributes and personal competencies to their teaching tasks. Their educational and experiential qualifications differ. Dedication and motivation vary; among any group of teachers there are those who are more involved in their profession, who find more of their life satisfaction from their jobs. These different characteristics result in variance in their perceptions of their professional roles. In this section the literature is reviewed on professional role orientation and the effect it has on workers' preferences for structure.

Dimensions of a Professional Role

Although there are differences in the literature about the qualities

of a professional role, there is a common emphasis on its complexity. Hall (1972:144) postulates that there are two attributes to a professional model: structure and attitude. The structural characteristics are those of formal education, a professional association and a code of ethics. A sense of vocation and the use of a colleague reference group characterizes the professional's attitudinal attributes. Professional autonomy is classed as both structural and attitudinal. Similar characteristics are identified by Corwin (1965), Coughlan (1969), Greenwood (1972) and Mintzberg (1979).

After considering the literature, Hrynyk (1966) devised a professional model that included five areas. The following description of those areas is paraphrased from Hrynyk's (1966:22-25) explanation.

The knowledge dimension is based on the belief that the work of a professional is intellectual in character, grounded in theory and uses professional skills to diagnose and solve the problems of others. Formal training and licensing are required. Professionals are expected to maintain their competence as well as contribute to the knowledge in their field.

The service dimension is grounded in the belief that the profession has an unique mission in society, offering an impartial, indispensable public service. The professional member is committed to a lifetime career of providing service whenever the need arises, regardless of the conditions.

The core-organization dimension refers to the professional organization which enforces standards of conduct, codes of ethics and tries to control licensing and admittance to the profession. It plays a dual

role of protecting society from the unscrupulous practitioners and protecting practitioners from the interference of society. The professional organization speaks for its members and provides for opportunities for professional growth.

The colleague-professional dimension refers to a feeling of closeness among professionals. There is a professional unity stemming from an identification with the profession that leads to group loyalty not usually found in occupational groups. The colleagueship contributes to the social status and exclusiveness of the profession.

The client-autonomy dimension is based on the judgment and discretion in the use of professional skills to solve client problems. Reciprocal client-professional relationships based on trust and faith are established. The professional demands autonomy over decisions, seeing each case as unique. This autonomy gives the professional power over the client. The client, frequently not able to judge the competence or value of the professional's services, usually agrees to pay a fixed price for it.

Using the five components, Hrynyk (1966) constructed a Professional Role Orientation Scale. He found that male teachers scored higher than female teachers (Hrynyk, 1966:14). Teachers occupying higher status positions also scored higher than those in lower positions (Hrynyk, 1966:210)

Nixon (1975) also used the Professional Role Orientation Scale to measure matched and random groups of women teachers and administrators. Nixon's (1975:165) findings supported Hrynyk's in that higher scores on the Professional Role Orientation Scale were found among administrators.

However, administrators did not score significantly higher than the matched teacher group where years of education and teaching experience were controlled (Nixon, 1975:171). In both the Hrynyk (1966) and Nixon (1975) studies, the scale distinguished among groups of teachers as well as between individual teachers.

Other studies contrast teachers' professional role orientation to other work values. Coughlan (1969:53) devised an instrument to investigate his belief that teachers could hold personal work values that were either professional, organizational or social, or a combination of all three. Professional values are held by teachers who identify through knowledge and specialization with the goals of the profession. Organizational values are supported by teachers who identify with the goals and values of the bureaucracy, conform to system policy and work toward supervisory positions. Social work values are held by those who identify mainly with primary and secondary group memberships. Although Coughlan (1969) was able to identify about half the sample of teachers he used according to one value system, the other half possessed mixed values. Charters (1973:99), building on the work of Corwin (1965), identified teachers with two role orientations, professional and employee, but like Corwin could not show that these were conclusively opposite ends of a continuum, although he did find a negative correlation between the two. These studies indicate that role orientation varies among teachers, and although all teachers have some professional training, teachers work values may be more or less professional.

Professional Role Orientation and Structure

Studies have been conducted that indicate a relationship between

professional role orientation and a preference for structure. In an investigation of how professionally oriented nurses and non-professional sanitary workers performed under varying structures, Palumbo (1969:244) found that professionalism was inversely related to centralization and formalization. For nurses, less centralization was positively related to morale, while for the sanitarians, the opposite was true. He suggested that high structure and low degree of professionalism in a role lead to high morale, whereas low structure and high professionalism lead to high morale. Palumbo (1969:244) concluded that the relationships among role specificity, structure and morale tend to change under different conditions.

The relationships among bureaucratic structure, teachers' work values and a sense of powerlessness were examined by Isherwood and Hoy (1973). They measured the structure of schools and discerned two main types: a collegial school bureaucracy and an authoritarian bureaucracy. The collegial school was low in authority from the hierarchy; decisions were based on professional knowledge. In the authoritarian structured school, power was centralized in the hierarchy. Teachers' values were measured on Coughlan's (1969) scale, professional, organizational or social. As hypothesized, teachers with professional values experienced a greater sense of powerlessness in authoritarian structures, but those with organizational values felt that way in collegial structures (Isherwood and Hoy, 1973:135).

Hall's (1968:92-104) study of the relationships between structure and professionalism was conducted with physicians, nurses, accountants, teachers, lawyers, social workers, librarians, engineers, personnel

managers and advertising account executives. He measured five dimensions of professionalism: professional organization reference, belief in service, belief in self regulation, sense of calling to the field and a feeling of autonomy. He then ranked each occupation according to the degree of professionalism found. The bureaucratic structural variables of hierarchy of authority, division of labour, rules, procedures, impersonality and technical competence were determined for each organizational unit where the professionals worked. The average scores for each occupation were matched with the bureaucratic scores in a rank-order correlation.

The findings of the study indicated that professionalism was inversely related to bureaucratic structure, although in some areas this relationship was stronger than in others. Strong inverse relationships were found in the areas of division of labour, procedural specifications and impersonality. Hall (1968:102-104) interprets these results as suggesting that professionals dislike minute specialization of tasks, standardization of organizational procedures and an impersonal emphasis in organizations. Weaker inverse relationships were found between structure and the variables of hierarchy of authority and presence of rules. Hall (1968:103) suggests that rigidity of authority and the presence of rules does not have much effect on a professional if they are seen as legitimate. The exception to the inverse relationships was a strong positive relationship between technical competence and all dimensions of professionalism.

Parsons (1971), assessing schools in British Columbia, found a direct relationship between professionalism of teachers and emphasis on specialization, technical competence and impersonality in schools. He also noted that males scored lower than females in preference for rules

for teachers, procedural specification and impersonality in schools.

These studies indicate that variables related to role orientation affect professionals' reactions to structure. They lay the foundation for this study which goes on to look at the relationship between those factors and others in teachers' perceptions of school effectiveness.

III. Structure

Bureaucratic structure has been a recurring concept in organizational analysis since Weber's (1947) conception of bureaucracy when he analyzed the structure and functioning of organizations. Included in this section is a review of the concept of structure, the Aston methodology for its determination and the research related to the study of structure in schools.

The Concept of Structure

In analyzing organizations, Weber specified the hierarchy of offices, with each higher level controlling a lower one. He stated that bureaucracy gives rise to a division of labour based on expertise and specialized training, and the division of labour specified the responsibilities, authority and power of each role holder (Perrow, 1979:56).

Early studies on bureaucracy regarded it as a unitary concept. One approach compared organizations to a bureaucratic ideal type for closeness of fit (Pugh and Hickson, 1976:25). Merton (1952) noted the dysfunction that bureaucratic rules led to rigidity while Gouldner (1954) stated that bureaucracy reduced performance levels to minimum acceptable standards.

Weber (1947) defines bureaucracy by listing twenty-six of its

chara[redacted]tics. Other writers such as Hall (1963) have reformulated the [redacted]tics in different ways. Pugh and Hickson (1976:26) writ[redacted]literature has lacked empirical studies of bureaucracy [redacted] str[redacted]variables in analyzing organizations. This led to the [redacted]rk o[redacted] Aston researchers in developing a multidimensional analysis [redacted] the [redacted]ructural variables in organizations (Pugh et al, 1963:292).

T[redacted]on Studies

[redacted]t the University of Aston, in Birmingham, England, a group of res[redacted]chers began a long term investigation to develop the study of orga[redacted]ations into three conceptually different levels: "(1) organizati[redacted]l structure and functioning, (2) group composition and interaction, and (3) individual personality and behavior" (Pugh et al, 1963:292). This study draws on the work of the first level they studied, organi[redacted]nal structure. They identified five variables that will be used [redacted] this study. They are described in the following way by Pugh and Hickson (1976:30-34):

(1) Specialization involves the division of labour within an organization. The differentiation of activities and the distribution of duties determine the degree of role specialization.

(2) Standardization is the standardization of procedures and roles.

(3) Formalization is the extent to which communications and procedures are written down and filed.

(4) Centralization denotes the locus of authority to make decisions affecting the organization.

(5) Configuration is the "shape" of the organization described by three measures: percentage of clerks, percentage of non-workflow personnel

and percentage of superordinates.

To measure the structure of organizations, the Aston researchers developed an interview schedule with a sixty-four item scale (Pugh and Hickson, 1976:46). Data were collected on fifty-two Birmingham area organizations which varied widely in their purposes and size. Then a principal components analysis was carried out which defined four factors of organization structure (Pugh and Hickson, 1976:61):

(1) Structuring of activities. This included standardization, formalization, specialization and vertical span.

(2) Concentration of authority. This encompassed organizational autonomy centralization, percentage of workflow superordinates and standardization of promotion procedures.

(3) Line of workflow control. This encompassed subordinate ratio, formalization of role recording of performance, percentage of workflow superordinates and standardization of procedures for selection and advancement.

(4) Relative size of the supportive component. This included percentage of clerks, vertical span, and the percentage of non workflow personnel.

When Pugh et al (1968:82) analyzed the variables, they found that there was a positive relationship between the number of specialists and an increasing supportive hierarchy, with more standardization of routines and regulatory procedures. Centralization had a negative relationship with specialization and formalization (Pugh et al, 1968:84). Organizations which achieved high scores on specialization, formalization and standardization would probably have quite highly structured activities (Pugh et al, 1968:84).

Studies Using an Abbreviated Form of the Aston Scales

Inkson and his colleagues (1970) developed a short form of the Aston scales to examine structure and context. The short form uses the two strongest structural dimensions, structuring of activities and concentration of authority. Macmillan et al. (1970), Hinnings and Lee (1971) and Child (1972) used the abbreviated form in their studies. The findings of Macmillan et al. (1970) and Hinnings and Lee (1971) replicated previous work. However, Child (1972) noted that centralization was negatively related to other structural aspects. Mansfield (1973), reanalyzing the Aston data, agreed with Child, concluding that the increased size of an organization forces managers to create rules to govern behavior so that their own workload was kept manageable yet they did not lose overall control.

Studies in Education Using the Aston Methodology

A group of Alberta researchers, Newberry (1971), Heron (1972), Kelsey (1973) and Sackney (1976) used the Aston methodology with Inkson's (1973) revisions to study the structures of educational institutions. Kelsey (1973) and Sackney (1976) conducted their research in secondary schools, unlike the other investigators who used the methodology in post secondary institutions.

Important to this study are the conclusions of Holdaway et al. (1975:53) that (1) the Aston approach is appropriate for determining organizational structures of small institutions that serve similar purposes, and (2) educational institutions may vary on continuums of the degree of bureaucratic control and the number of administrators in the organization separately.

Kelsey's (1973) instrument was adapted by Sackney (1976). Sackney (1976:126-129) drew several conclusions. First, structure reflects and accounts for much of the behavior of organizational members. Second, there were three factors: dispersion of authority, standardization, and non-workflow proportion present in the structure of secondary schools studied. This disagreed with the original Aston factors. Sackney (1976:126) argued that the factors varied because of the unit's dependence on a higher authority and the socio-cultural environment. Third, there was a close connection between the structuring of activities and centralization, and their role in describing administrative control. This agreed with Holdaway and his colleagues (1975). Fourth, size was positively related to centralization.

Studies in Education Using Other Methodology

Bureaucracy in schools, defined in various ways, has been measured on different instruments. One of the most common is the six dimensional questionnaire designed by Hall (1963), and refined by MacKay (1964). However, Punch (1969) reduced the six dimensions to two more general factors, authority and expertise. Regardless of the instrument used, some schools in the following studies were more highly structured than others on each variable.

MacKay (1964), examining Alberta schools, assessed the relationship between organizational structure and teacher performance which was measured by pupil achievement. He found an inverse relationship between centralized decision making and both teacher satisfaction and pupil achievement. Punch (1969), studying Ontario elementary schools, determined

two main loci of organizational authority, the hierarchial administration and the professional authority of staff. In schools where the authority is concentrated in the administrative positions, decision making is centralized, more rules are created to solve problems and clearly defined expectations for teachers exist. In schools where the professional expertise of the staff prevails, decision making is based on expertise, rules will be viewed as only guides, and professional skills are used to solve problems. Punch (1969) stated a direct relationship between authoritarian leadership behavior of principals and the level of school bureaucracy.

James Anderson (1968), in a study of junior high schools in the United States, assessed four dimensions in the structuring of schools, and found that several variables were related to bureaucratic school structure. Size was directly related on all dimensions; socio-economic level of students was related directly to impersonality and goal displacement but inversely to rules and teacher dissatisfaction with administrative policies; different disciplines preferred different degrees of structure; and the professional status and the sex of the teacher affected their tolerance for bureaucratic structure, with men of high professional status accepting more bureaucracy than females of lower status.

A combination of methodologies was used by Sousa and Hoy (1981) who used both the Hall (1963) and Aston approaches to investigate fifty-five secondary schools. The two measures correlated significantly on two dimensions, organizational control and functional specialization. Two additional factors, system centralization and formalization of routine, were derived exclusively from the Aston data. They concluded that schools

may be bureaucratic in any combination of these four factors (Sousa and Hoy, 1981:36).

Ratsoy (1973), reviewing studies of bureaucracy in schools, concluded that there was evidence of change in decision making structure, with schools moving away from highly structured organizational patterns to a more participatory approach to decision making. Ratsoy (1973:169) suggested that there was a relationship between the effectiveness of schools and their organizational structure. His review cites studies that indicate an inverse relationship between the effectiveness variables of teacher satisfaction, supervisory effectiveness and student achievement and schools with a hierarchical structure. Ratsoy (1973:169) encouraged the continued investigation of the relationship of differing degrees of structure and the overall effectiveness of schools, noting also the importance of taking into account the situational factors and the personnel characteristics.

The following three studies are presented to show a contrast in their findings. In the first two the researchers concluded that both the schools and the school system were more effective when the structure was changed to meet the demands of new work loads; in the study by Miskel and his associates, work processes were not directly related to school structures.

Applying the contingency theory of Lawrence and Lorsch (1967) to school systems, Derr and Gabarro (1972) reported two studies, both of which used the criterion of adaptability as an effectiveness indicator. In Gabarro's (1972:29) study of two small urban school systems that were trying to meet demands of increasing minority enrolments, he found that schools which had changed their structures to achieve higher rates of differentiation and integration were more effective. Derr (1972:31),

examining the Boston School Department, postulated that any organization has three distinct subsystems corresponding to three distinct external environments: a planning and research subsystem to keep it knowledgeable about new developments, an externally oriented subsystem to relate the organization to the outside world and a production subsystem. Derr's (1972:33) analysis showed relatively little differentiation among the three departments, and minimal work related integration; he concluded that the organization had not adapted adequately to demands for diversity.

A study of organizational structures measured with an adaptation of the Hall instrument, school processes measured by Likert's Profile of a School, and the effectiveness indicators of adaptability, flexibility, productivity, teacher loyalty and job satisfaction, was conducted by Miskel et al.(1979). Miskel and his colleagues did not find support for their hypothesis concerning the negative relationship between perceived effectiveness and school organizational structure. They stated that structures and processes had different effects on performance indicators (Miskel et al., 1979:115).

In summary the early studies of school bureaucratic structure (Hall, 1963; MacKay, 1964; Punch, 1969) reported an inverse relationship between some of the factors of bureaucratic structure and effectiveness measures. However, Ratsoy's (1973) literature review noted a change in the degree of centralization of decision making in schools. This may indicate that with increased professional freedom, teachers feel less restricted by administrative structure. In contrast to the earlier research, Miskel's (1979) study found that the hypothesized inverse

relationships between structure and effectiveness indicators were not evident. The present study conducts a further investigation of those relationships, also taking into account personnel characteristics and selected work processes.

IV. Work Interaction

Most of the work a teacher performs is done away from other adults, but improved methodology often is learned from other professionals through contacts outside the classroom. Interaction among teachers provides for the coordination of the work of the total school, facilitating the development of breadth and continuity in the students' programs. In this section literature on professional work interaction in schools and the related research is reviewed.

Work Interaction Among Professionals in Schools

The study of work interaction among teachers seems appropriate in the 1980's because of the legacy of earlier innovation such as differentiated staffing, team teaching and open space schools. A recent review of the research in these areas suggests that there are more than architectural design and staffing allocation factors involved in the action of teachers (Marshall, 1981). In addition, participation in decision making has become expected of teachers, although they are not always willing to become involved (Alutto and Belasco, 1972). The organizational conditions that foster interaction and the outcome of it in terms of effectiveness for the school are not clear or well researched.

There are collaborative instructional and organizational decisions

to be made that are pertinent to all teachers, or only to those teaching a particular division or grade. Rogers (1975:187-188) stated that involvement in decision making should be based on characteristics of the decision: its complexity, the initiative from subordinates, the information from which the problem was formed, the specialized training needed to make the decision and the actor who was to implement it. The willingness of teachers to be involved together in decision making will depend on the purpose and type of decision to be made.

Work interaction in schools goes beyond a group meeting, making decisions and moving back into isolation and separateness. Coordination of work among professionals involves both a commitment by teachers to work together whenever the best interests of children are served and the teaching skills to recognize when to call in another professional. Teachers' professional role orientations(Hrynyk, 1966) lead them to value the knowledge that other professionals have. They feel obligated to diagnose and solve student problems in the best possible way. The specific decisions about how to coordinate work, such as those which need to be made in team teaching, longitudinal and cross sectional grouping of students, and planning for continuous progress draw on the knowledge of the professionals most expert in the area (Braun and Giles, 1978:7-11).

Sergiovanni and Carver (1980:115-117) classify teachers with a more professional role orientation as motivation seekers and those with less professional commitment as hygiene seekers. They describe professional tasks which require work interaction that the motivation seeker is challenged by and interested in, but which will not attract the hygiene seeker (Sergiovanni and Carver, 1980:158). Motivation seekers are

willing to make the personal commitment needed in such areas as long-range planning, creative problem solving and curriculum development.

The model designed by Mintzberg (1979:198) of professionals using their skills to solve coordination problems emphasizes the need for a decentralized structure. He suggests direct supervision is the most highly structured coordination mechanism in contrast to standardization of skills, which is one of the least structured. Mintzberg (1979:183) states that decentralization gives creative and intelligent people room to maneuver. Sergiovanni and Carver (1980:152) add that the decentralization in a professional bureaucracy is accompanied by the programming of low level tasks while leaving teachers free "to express themselves in the complexities of the school's instructional system."

There is limited research dealing specifically with relationships between role orientation and work interaction. Charters (1973) compared two elementary schools to determine the differences between a school implementing differentiated staffing and one that was not, including the difference in work interaction. Charters and his colleagues (1973:23) believed that teachers who held professional orientations would be more inclined to work together than ones who did not. When they measured the staffs in the two schools, they found one staff higher than the other on professional orientation and lower in employee orientation. By observing communication behavior, they ascertained the interaction among teachers, and between the teachers and the principal. Charters and his colleagues (1973:56-61) found that teachers in both schools spent more time talking about non-teaching tasks than about work. Task related conversations were comparatively infrequent, approximately once a week. There were some

definite differences between the open and closed space school, such as discussions about problems concerning scheduling. The principal of one school was more involved in instruction than the other, but the communication about instruction with the principal was minimal in both schools. There were more frequent principal-teacher communication on non-teaching topics. However, Charters (1973:61) concluded that although one school was open space and the other was not, the similarities between staff communication were greater than the dissimilarities. Although there were differences between the two staffs on professional role orientation, these did not appear to relate directly to work interaction.

Work Interaction and Effectiveness Research

Bridges and Hallinan (1978) employed Charters' concept of work interaction in their study of absenteeism. They adapted Charters' questionnaire on communication and devised an additional measure of staff interaction, the Staffing Pattern Inventory. They added a measure of group cohesiveness, believing that group cohesiveness and task interaction reinforce each other. They concluded that task interaction reduced absenteeism but that group cohesiveness did not affect it (Bridges and Hallinan, 1978:37).

Bridges (1980) continued to use the concept of work interaction in his study on job satisfaction and teacher absenteeism. To measure work interaction, he used a ratio of time spent interacting with other teachers to time spent away from other adults, rather than a questionnaire on the frequency of interaction about professional topics. Controlling for sex, age, travel time to work, size of school, salary and a notification of absence policy, he found that the amount of variance explained by the

control variables was considerably higher under conditions of moderate work interaction. The relationship between job satisfaction and absenteeism was tenuous, but moderate work interaction was a mediating variable (Bridges, 1980:53-54).

Miskel and McDonald (1982) investigated relationships between work interaction and effectiveness in a study on structural coupling in schools. Drawing partially from the work of Bridges and Hallinan (1978) seven interaction variables were examined: (1) work system interdependence, (2) teacher-teacher communication, (3) teacher-principal communication, (4) discipline procedures, (5) teacher-learning disability specialist communication, (6) teacher-learning disability specialist interdependence, and (7) teacher isolation. Four criteria for organizational effectiveness were set; the first two were based on Mott's (1972) model: (1) perceived adaptability, (2) perceived goal attainment, (3) teacher job satisfaction, and (4) student attitudes.

For data collected in the spring, all seven of the interaction measures were significantly correlated with adaptability and goal attainment, with correlation coefficients ranging from .20 to .46. Six of the seven interaction variables related significantly to job satisfaction, with a correlation coefficient range from .17 to .32. Five interaction variables related positively to student attitudes. Miskel and McDonald (1982:23) concluded that schools with greater interaction, described as more tightly coupled, tended to be more effective.

The work of Charters (1973) has shown that work interaction is based on more than staffing arrangements and that aspects of it differed in the two schools he studied. Bridges (1980) and Bridges and Hallinan (1978)

demonstrated that work interaction is a mediating variable between absenteeism and job satisfaction. Miskel and McDonald (1982) found positive relationships between work interaction and four effectiveness indicators. Further research is needed to ascertain how work interaction is related to professional role orientation, administrative structure and teachers' ratings of the effectiveness of their schools.

V. Research Indicating Relationships Among School Effectiveness, Professional Role Orientations, Structure and Work Interaction

Two major longitudinal studies recently conducted by Goodlad (1980) and Wynne (1981) in the U.S.A. used teams of researchers to act as observers and interviewers to gather information. The first study is reported for two reasons. First, it illustrates how the work values that teachers bring to their jobs influence their perceptions of schools; second, it identifies some of the attributes that Goodlad, et al. (1982) associated with effective schools. Wynne's (1981) study, although it only alluded to teachers' role orientation, identified several factors in effective schools that are related to both administrative structure and work interaction.

Goodlad, et al. (1980:394-397) investigated teachers' perceptions of schools. They classified teachers according to which single schooling function--social, intellectual, personal or vocational development--(1) received the most attention in their school, and (2) should merit the most emphasis. If the latter two factors were similar, they formed a "congruent" group; if not they were labelled "incongruent." When teachers personal preferences were met, they expressed more satisfaction

with their jobs.

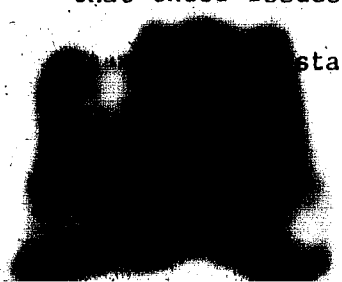
In the elementary school sample, the teachers reacted more strongly than secondary teachers did to questions about cohesiveness. The more satisfied teachers were with their work, the more favorably they replied to such questions as "Is there a great deal of cooperative effort among staff members?" (Goodlad and his associates, 1980:396).

In a recent paper, Goodlad (1982) stated that the school's ability to renew itself should be the critical focus in assessing school effectiveness. In reviewing his findings, Goodlad (1982) suggested that teachers from effective schools realized there were problems but that they were coping. In ineffective schools, teachers had a bleak outlook; problems were recognized but the staff felt that they couldn't change the situation. Effective schools had cohesive staffs, adequate resources, problem solving attitudes, principal leadership and "took care of business"; they did what needed to be done. Goodlad (1982), like Wynne (1981), noted that when a school is in trouble in one area, it is in trouble in many places, so change and renewal must focus on more than one variable at a time.

From 1970 to 1980 Wynne(1981) supervised a team of students in a study of Chicago schools to discern the characteristics of "good" schools. Because of the variability in the schools, public and private, suburban and inner city, elementary and secondary, he chose not to use test scores as an indicator of quality. From an analysis of the reports, Wynne (1981:377) decided that "coherence" was the key characteristic of a good school. This concept is one of predictable relationships among school activities; the vitality of the total "good" school overcame ineffi-

ciencies as they appeared. Some of the specific factors Wynne (1981) identified were: (1) industrious staff members who realized their jobs went beyond the classroom; (2) delegation of authority by the principal; (3) clear ideas about performance standards by both staff and students; (4) strong pupil discipline and good school spirit; (5) a good communication system; and (6) teachers who worked together in groups. "Coherence" was not successfully maintained unless people were well informed. Staff wrote reports and documents. Supervisors made many brief classroom visits. Principals monitored the learning and behavior of students. They also communicated with the staff by writing appropriate memos, daily bulletins and procedural outlines. Assisting in the flow of information was the work interaction of teachers. "Good schools tended to create vital subgroups of teachers" (Wynne, 1981:379). While the exact form of the subgroups varied, they had clear, plausible goals such as planning and evaluating curricula, shaping homework policies, redesigning report cards or analyzing student problems. The exchange of information and plans for action were linked.

There are similarities between Wynne's (1981) study and the one that is reported here. In Wynne's (1981) study both structure and work interaction components are noted as being related to school effectiveness. The structural dimensions of delegating of authority and formalization of communications and decision making procedures are described. The work interaction of teachers in subgroups is clearly stated; the statement that teachers were in agreement about school goals and discipline suggest that these issues have probably been decided jointly. The performance staff may allude partly to professional orientation.



Wynne (1981) did not attempt to specify the interrelationships among the factors he related to effectiveness, unlike the study being reported, other than to state that "coherence" resulted from the combination of variables. This study employed a difference methodology to attempt to ascertain interrelationships among some of the factors identified by Wynne (1981).

VI. Hypotheses

The literature on school effectiveness, professional role orientation, administrative structure and professional work interaction has been reviewed. Arising from this literature are the research problems and sub-problems of this study. The sub-problems are restated below as hypotheses. Preceding each group of sub-problems is a summary statement of the position underlying the study.

Hypothesis Concerning Effectiveness and Professional Role Orientation

It has been suggested in the literature that professional role orientation differs among teachers. As professionals, teachers' ratings of their school's effectiveness may vary according to their role orientation.

Hypothesis 1. There are significant relationships between teachers' ratings of their school's effectiveness and their professional role orientation.

Hypothesis Concerning Effectiveness and Structure

In the literature it has been suggested that administrative structure may influence teachers' ratings of school effectiveness. Early studies (Hall, 1963; MacKay, 1964; Punch, 1969) found an inverse relationship between some structure variables and effectiveness measures. A recent study by Miskel and his associates (1979)did not verify these findings. The present study has conducted a further investigation of the relationships between effectiveness and structure.

Hypothesis 2. There are significant relationships between teachers' ratings of their school's effectiveness and the administrative structure of their schools.

Hypotheses Concerning Professional Work Interaction

It has been suggested in the literature that professionals using their skills to solve coordination problems need a decentralized administrative structure (Mintzberg, 1979:198).

Hypothesis 3. There are significant relationships between teachers' ratings of their school's effectiveness and their professional work interaction.

Hypothesis 4. There are significant relationships between professional work interaction and the administrative structure of schools.

Hypothesis 5. There are significant relationships between professional work interaction and professional role orientation.

Hypothesis Concerning Professional Role Orientation and Structure

Studies cited in the literature indicate that professional role orientation affects professionals' reaction to structure. This hypothesis was developed on that premise.

Hypothesis 6. There are significant relationships between professional role orientation and the administrative structure in schools.

Hypothesis Concerning Effectiveness, Professional Role Orientation, Structure and Professional Work Interaction

The hypothesis was developed from the literature which suggested that teachers with a high professional role orientation would prefer a low administrative structure, and that combination would stimulate professional work interaction. Teachers in schools where the structure and interaction suited their professional role orientation would rate the schools as effective.

Hypothesis 7. There are significant relationships among teachers' ratings of their school's effectiveness, their professional role orientation, the administrative structure of their school and their professional work interaction.

VII. Conclusion

This review of the literature on school effectiveness, professional role orientation, structure and work interaction has presented selected studies to illustrate the state of the research in each area. As well,

the extent to which relationships among these variables have been investigated was shown. The research hypotheses developed from the literature were stated.

The research on school effectiveness is at the stage of trying to define both the construct and the related criteria. Difficulties in the comparison of research on school effectiveness arise because of problems such as the variance in the organizational perspective taken, the selection of multiple effectiveness criteria which may be only distantly related, or differences in research methodology.

Studies were cited to illustrate the dimensions of professional role orientation and how this affected preferences for organizational structure. Early studies (Hall, 1968; Palumbo, 1969; Isherwood and Hoy, 1973) agreed in their findings of inverse relationships between components of structure and professional role orientation. However, a change in professional decision making was noted (Alutta and Belasco, 1972; Ratsoy, 1973). As decision making becomes more decentralized, teachers' attitudes towards their school structure may also be changing. A more recent study by Miskel and associates (1979) did not verify an inverse relationship. There is a need to investigate the relationships between school structure and professional role orientation, and to discern if a relationship is found, whether or not it affects the teachers' ratings of the effectiveness of their school.

The relationships among professional work interaction and other variables in schools are not well researched. It is recognized that work interaction among staff members is necessary for the coordination of their work (Charters, 1973; Bridges and Hallinan, 1978; Mintzberg, 1979).

However, the effect that various degrees of work interaction may have on teachers' ratings of their schools, or the relationships between work interaction and structure, or between work interaction and teachers' professional values, has not been thoroughly investigated.

This study is concerned with the evaluation of school effectiveness by teachers who may see their roles in various ways and who work together within differing school structures. The main research problem is the ascertainment of relationships among teachers' ratings of school effectiveness, their professional role orientation, the structure of their school and the professional work interaction in that school.

CHAPTER THREE

METHODOLOGY

This chapter includes four sections: (1) a brief discussion of the research perspective taken, (2) a description of the sources of and the procedures for collecting the data, (3) a discussion of the two instruments used, and (4) an explanation of the treatment of the data collected.

I. The Research Perspective

This study was based on quantitative measures of the variables examined. Subjective responses to questionnaires and to the interview schedule were the main sources of the data.

Objectivity was attempted through the use of an interview schedule which allowed a minimum of interpretation by the researcher; the methodology used to gather information on structure was that of the Aston studies (Pugh and associates, 1963). Other data were gathered through the use of questionnaires which precluded interaction between the researcher and the subjects. Null hypotheses were stated and tested statistically at a predetermined level of significance.

II. Sources of Collection of Data

The data for the study were collected in May and June of 1982. In February, 1982, an outline of the proposed study was presented to the senior administrators of the Saskatoon School District, Number 13, in Saskatoon, Saskatchewan. Permission was granted to approach the

principals and teachers of the twenty-one largest elementary schools in the district.

The Population

The population consisted of all the principals and classroom teachers employed in the twenty-one largest elementary schools in Saskatoon School Division Number 13. All of these schools employed between fourteen and thirty-two professionals as of September, 1981. The school population, for kindergarten through year eight, ranged from two hundred pupils in the smallest school to seven hundred seventy-three students in the largest.

The restriction to large schools was made because of the Aston methodology used which had been originally designed for large firms employing two hundred fifty people or more. Subsequently, it has been shown that it is useful with a much smaller population, but previous researchers suggested that it did not discriminate well among small schools (Sackney, 1976).

The initial contact with principals was made in an oral presentation at a principals' meeting in March, 1982, at which time the purpose and design of the research was explained. All the principals in the population agreed to be interviewed and to support the study.

All teachers who were employed as home-room teachers in the participating schools were asked to complete the questionnaire. This delimitation excluded teachers based in a school who were designated as teaching school system programs rather than local school programs, i.e. itinerant teachers, home economics teachers, and industrial arts teachers. Also,

vice-principals, whose roles were partly administrative, and principals, were excluded.

Data Collection

The interviews with principals, conducted in May and June, ranged from one to two and a half hours in length. Information supplied was recorded on the interview form and simultaneously tape recorded. Principals were asked to provide copies of handbooks, policy statements, school calendars, job descriptions and other similar materials that had been in use during the past year. Following the interviews all tapes were replayed so that they could be used to check the notes taken for accuracy.

The teacher questionnaire was introduced to the staff during a meeting arranged by the principal. The questionnaires were completed by the teachers, given to the school secretary and returned to the researcher.

Tables I and II illustrate the staff sizes and percentages of returns for the teacher questionnaire. Overall, from 384 staff members an 89.86 percentage of questionnaires were returned.

III. Instrumentation

Interview Schedule

The short form of the Aston interview form to ascertain administrative structure designed by Inkson and associates (1970) was adapted by Kelsey (1973) and Sackney (1976) to make it more applicable to the study of secondary schools. Some additional language adaptations were

TABLE I

STAFF SIZE AND QUESTIONNAIRES RETURNED

School	Staff Size	Questionnaires
1	20	19
2	12	12
3	25	21
4	20	13
5	30	29
6	25	21
7	16	16
8	18	18
9	29	29
10	10	10
11	12	9
12	12	11
13	14	12
14	14	14
15	10	10
16	26	23
17	18	16
18	21	18
19	14	11
20	23	22
21	15	10
Total	384	344

TABLE II

PERCENTAGE OF QUESTIONNAIRES RETURNED

Questionnaires	344
Total Staff	384
Percentage of Questionnaires Returned	89.58

made in this study to refine the schedule further for use in elementary schools.

Information was requested on functional specialization, formalization, standardization, centralization, autonomy and size. Since configuration, the percentage of clerks and non-workflow personnel, was controlled in the Saskatoon School Division by size, a measure of size was substituted for the configuration variable.

A fixed alternative format required respondents to use objective data for reply. Feelings and experiences were not examined; written documentation was requested where it was available.

School Effectiveness: Questionnaire, Part A

The School Effectiveness section of the questionnaire was based on Mott's (1972:21-24) questionnaire on organizational effectiveness. The language of the items was modified so that they applied specifically to schools; for example, "organization" was changed to "school" in the question "What portion of the people in your school readily accept and adjust to changes?"

The School Effectiveness section of the questionnaire sought information on productivity, adaptability and flexibility. Each item had a five category scale which was weighted from one to five.

Professional Role Orientation: Questionnaire, Part B

The Professional Role Orientation questionnaire was designed by Hrynyk (1966). It required teachers to respond to items about the importance of professional knowledge, service, beliefs in a core-organ-

ization, colleagueship, and autonomy. It was composed of Likert-type items with the response categories of (1) agree strongly, (2) agree, (3) undecided, (4) disagree and (5) disagree strongly. The categories were weighted from one to five. Some of the items were reverse scored.

Work Interaction: Questionnaire, Part C

The Work Interaction questionnaire was composed of two parts. The first section collected information regarding the frequency of teacher-teacher and teacher-principal communication about curricula, instruction and students. This section consisted of weighted Likert-type items with the response categories of (1) never, (2) once or twice a year, (3) once a month, (4) once a week, (5) several days a week, and (6) daily. The second section was the total amount of time teachers spend in the school working with other professionals, determined by the ratio between the total time in the school and the number of hours worked in isolation.

The first section of the Work Interaction questionnaire was a revision of an instrument developed by Charters (1973). This revision involved deleting two items dealing with social interaction and replacing them with three work related items.

Reliability of the Instruments

Reliability is the consistency of measurement provided by an instrument.

Interview Schedule

The reliability of the revised Aston scales was determined by Kelsey (1973) through the use of item analysis which "measured the good-

ness of fit of an item as a correlation between the item response and the total scores" (Kelsey, 1973:79). Because Kelsey (1973:79) did not assume a normal distribution of his study's population, he chose the Brogden biserial coefficient to enable him to determine which items to reject so he could improve the approximation to a Guttman scale. This same coefficient was used by the Aston researchers (Pugh and associates, 1963). Kelsey (1973:79) noted that the logic of the Brogden coefficient was that, "if an item discriminates well between high and low scoring organizations, then the mean score of all organizations which endorse the item will be higher than the mean score of those that do not."

In Kelsey's (1973:82) study, he followed the Aston researchers' standard so that items with less than a 0.40 coefficient were rejected. In addition, any set of items was accepted only if the mean coefficient exceeded 0.63, which was also the lowest mean coefficient acceptable to the Aston researchers (Kelsey, 1973:82).

Following the methodology of Kelsey's (1973) work, Sackney (1976:57) determined the reliability of the revised Aston scale through item analysis and scaling. The Brogden coefficient was used to determine goodness of fit. Mean items analysis values ranged from .65 to .75. Sackney (1976:57) stated that the instrument was reliable.

School Effectiveness: Questionnaire, Part A

Mott (1972) provides correlations of the results of several studies using the effectiveness questionnaire, Part A, in this study. He concluded that the effectiveness questionnaire was a reliable instrument. Miskel, Fevurly and Stewart (1979:105) modified the language for school

settings. On the items designed to measure productivity, their estimates of reliability were alpha coefficients of .77 for the first data set and .85 for the second. For items designed to measure adaptability, the alpha coefficients were .80 for the first sample set and .86 for the second.

Professional Role Orientation: Questionnaire, Part B

Scharf (1967:128) computed the reliability of the P.R.O. scale by using split-half reliability testing, finding a correlation coefficient of .64 and an estimated whole test reliability of .78.

Work Interaction: Questionnaire, Part C

Bridges and Hallinan (1978:30) report an alpha coefficient of 0.88, their estimate of the reliability of the Work Interaction Questionnaire which appears in Part C of the questionnaire used in the present study.

Miskel and McDonald (1982:17) gave alpha coefficients from two samples using the questionnaire as 0.80 and 0.83.

Validity

Kerlinger (1973:456) wrote that the most common definition of validity was embodied in the question "Are we measuring what we think we are measuring?" Content validity was established by having others examine the instruments used. Predictive and construct validity for the interview schedule were established by the Aston researchers, for the effectiveness questionnaire by Mott (1972), for the P.R.O. by Scharf (1967), and for the work interaction questionnaire by Charters (1973) and Bridges and Hallinan (1978).

Nixon (1974:55) noted the problem of establishing trust, stating that trust was crucial to the validity of a study where respondents were being asked to supply information about their personal attitudes and beliefs. To establish this trust the following procedures were used:

1. Principals were contacted as a group and individually.
2. During a meeting with the teachers from each school before the questionnaire was completed, teachers had an opportunity to question the researcher.
3. All potential respondents were assured that information would be used only for the outlined purposes.
4. Teachers were assured that individual questionnaire responses would be anonymous.
5. Staffs were promised that the results of the questionnaire on effectiveness would be returned to them within two weeks.

IV. Treatment of Data

Data from the interviews and questionnaires were punched onto computer cards.

Scoring Procedures

Scoring of the Aston Selected Organization Level Information Interview Schedule. Kelsey (1973:101) and Sackney (1976:60) described in detail the method of scoring that they used. For each school the responses were scored to obtain scale scores for each of the structural variables. The functional specialization scale was computed by determining: (1) if a certain activity were performed; (2) if it were speci-

fically and exclusively delegated to one or more staff members; and (3) the extent to which the activity was delegated to individuals or groups. The formalization score was calculated by adding the documents and recording of role performance scores. Standardization scores were the sum of the positive responses. The scores for centralization and autonomy were derived from a section of the instrument that dealt with concentration of authority. The total score indicated the degree of centralization, specifying the average level of decision making. The autonomy score was derived from the total number of decisions that could be made at the school level. Size was measured by the number of teachers employed in the school.

More detailed scoring procedures are found in Appendix A.

Scoring the School Effectiveness Questionnaire. School effectiveness was measured by asking teachers to complete eight Likert-type items whose five response categories were weighted from one to five. A total school effectiveness score was calculated by summing the weighted scores for all eight items. The possible range of scores was 8 to 40.

Scoring the Professional Role Orientation Questionnaire. A Professional Role Orientation score for each teacher was obtained by adding the weighted scores of the twenty-nine items. Each respondent's scores on the five dimensions of professionalism were calculated also by summing the scores for the appropriate items.

Scoring directions for the questionnaire which specify the item, the subscale of which it is part and the directional weighting of it are found in Appendix A.

Scoring the Work Interaction Questionnaire. The Work Interaction Questionnaire collected information on three variables: teacher-principal interaction, teacher-teacher interaction, and total interaction time. Teachers were first asked to respond to each of eight items about the frequency with which they communicated with, (1) their principal, and (2) other teachers: daily, several days a week, once or twice a month, once or twice a year, or never. The weights assigned to these response categories ranged from 5 to 0, with 5 assigned to daily, and the other categories numbered correspondingly through 0 for the last category. Thus, two scores were computed, one for principal-teacher interaction and the other for teacher-teacher interaction.

Information was collected to compute a third score based on the hours spent in the school each week and the hours worked in isolation from other professionals. This third score, a measure of the amount of time teachers spend in a school working with other professionals, was determined by the ratio between the two hourly figures provided.

Statistical Procedures

The focus of the study was on finding the relationships among teachers' ratings of school effectiveness, their professional role orientation, the administrative structure of their school and their professional work interaction. The data were analyzed in three ways: first, data from each school were aggregated to form school scores; second, the schools were divided at the mean to form two categories, the more and the less effective; and third, individual teacher scores were grouped according to high or low school structure scores.

In analyzing the data, means, ranges, standard deviations and Pearson product moment correlation coefficients were computed. Stepwise multiple regression was used to order the dependent variables of P.R.O., structure and work interaction in relation to the independent variable, effectiveness, and to each other.

Multiple regression analysis was selected to examine the relationships among the variables because it estimates the magnitude of the influence of the independent variables on the dependent. Kerlinger (1973:631) wrote, "multiple regression analysis is an efficient and powerful hypothesis-testing and inference-making technique." He noted that multiple regression analysis was a refined method of controlling variance, and so assisted the researcher in explaining the phenomenon represented by the dependent variable (Kerlinger, 1973:631). The stepwise multiple regression program allowed the computer to select the independent variable which had the highest correlation with school effectiveness. It then selected the second variable which accounted for the next highest amount of variance in school effectiveness. Next, it tested the contribution that the first variable would have made if it had been entered in second place. If this contribution was not significant statistically, the variable was not included. The process continued until the variable examined did not contribute significantly to school effectiveness (Kerlinger, 1973:654).

In the second data analysis, the unit of analysis became the individual teacher scores. The school scores for each of the six structure variables and the teacher scores for P.R.O. were the basis of assigning scores for four categories; namely, (1) high structure, high P.R.O., (2) high structure, low P.R.O., (3) low structure, high P.R.O., and (4) low structure, low P.R.O. Means for teachers' ratings of school effectiveness and professional work interaction were calculated for each group.

One way analysis of variance was used to identify possible differences among groups. Null hypotheses concerning the relationships among the groups were tested by the t and F tests and by the Scheffe multiple comparison of means. In testing the hypotheses the level of significance was set a priori for the t and F tests at .05 and for the Scheffe comparison of means it was set at .10. Hypotheses were rejected or not rejected at the .05 level of significance for the t and F tests, and at the .10 level for the Scheffe comparison of means. Kerlinger (1973:227) has noted that where it is not necessary to measure the strength of the relationship, but simply to find out if there is a significant relationship, the t and F tests are useful inferential tests.

The population, which included all classroom teachers in all schools over the size of fourteen teachers, met the requirements for the t and F tests for normal distribution. The interval measurement requirements

had been met. Kerlinger (1973:288) sums up the importance of the parametric t and F tests by stating, "...unless variances are so heterogeneous as to be readily apparent...the effect on the F tests will probably be negligible." He suggests that in most cases, even when the assumptions of normality and homogeneity have been violated, parametric tests are more effective and safer than nonparametric tests (Kerlinger, 1973:288).

In cases where F ratio was significant beyond the .05 level, the relationship was examined further by the use of the Scheffé method of comparison of means. This method tests the differences between all possible pairs of means. Ferguson (1971:271) notes that the Scheffé procedure is not seriously affected by problems associated with the assumption of normality or homogeneity. Ferguson (1971:271) has stated that the Scheffé method is very strong in respect to alpha errors where the null hypothesis is true but it is rejected. Because the procedure is more rigorous than other multiple comparison methods, Ferguson (1971:271) has suggested that the level of significance be set at .10. This procedure was followed.

Summary

In this chapter, the research perspectives taken were explained and the data sources, instrumentation used and data collection procedures were discussed. In the final section of the chapter the statistical procedures used in the treatment of the data were described.

CHAPTER FOUR

ANALYSIS OF THE DATA

Teachers are a diverse group, with differing values, who are employed in schools that vary in administrative structure and in communication about education. As professionals, teachers tend to make decisions about the effectiveness of their schools. This study has been conducted to discern relationships among teachers' ratings of their school's effectiveness, their professional role orientation, the structure of their school and the interaction about work in that school.

Principals were interviewed to provide data about the administrative structures of their schools. Data were collected from teachers through the use of questionnaires that sought information about school effectiveness, professional role orientation and work interaction.

The results of the analysis of the interview data collected from principals and the questionnaire data gathered from teachers are presented in this chapter. The responses of the two groups are described in the first section. In the second section the data concerned with the hypotheses of the study are examined. The findings are discussed in the conclusion of the chapter.

I. Description of Principal and Teacher Responses

As explained in the previous chapter, the data were gathered from the principals and teachers of the twenty-one largest elementary schools, kindergarten to year eight, in the Saskatoon School Division Number Thirteen.

Principal Interview Data

When the means, ranges and standard deviations were calculated, variations in the administrative structure components of the twenty-one schools were found. The greatest differences among schools were in functional specialization, with a mean of 14.36, a range of 18.55 and a standard deviation of 5.20, and in size, with a mean of 18.74, a range of 21.00 and a standard deviation of 6.69. The differences among schools in autonomy, standardization and formalization were smaller. These data are illustrated in Table III.

The results of this analysis appear to reinforce Kelsey's (1973:238) conclusion that it is difficult to analyze school structure without also analyzing the structural elements of the local school district. Although the local schools are in charge of some decision making, several of the structure variables studied here are controlled by the policies of the Saskatoon Board of Education. The influence of Board policies on the structure variables is reflected in the similarities among the scores. The dimensions of structure that were more controlled by Board policies, autonomy, centralization, standardization and formalization, tended to have scores that clustered closer to the mean. The dimension where the most decisions were made at the school level, functional specialization, has a larger standard deviation than any other factor except size.

Teacher Questionnaire Data

Considerable variation was found among teacher respons[illegible] questionnaires. Table IV illustrates the means, ranges an[illegible]

TABLE III

DISTRIBUTION OF ADMINISTRATIVE STRUCTURE COMPONENTS

(N = 21)

Structural Component	Mean	Range	S.D.
Functional Specialization	14.36	18.55	5.20
Formalization	12.81	16.00	3.72
Standardization	23.43	15.00	3.70
Centralization	58.95	16.00	4.09
Autonomy	7.29	7.00	1.52
Size	18.74	21.00	6.69

TABLE IV

DISTRIBUTION OF 344 TEACHER RESPONSES TO QUESTIONNAIRE

Variable	Mean	Range	S.D.
Effectiveness	30.36	25.00	4.29
P.R.O. (total score)	96.30	54.00	8.04
Knowledge	3.28	3.00	.57
Service	2.88	3.63	.57
Core Organization	3.27	2.71	.48
Colleagueship	3.30	2.80	.46
Autonomy	3.81	2.33	.45
Principal-Teacher Interaction	20.60	35.00	5.47
Teacher-Teacher Interaction	29.34	38.00	7.03
Work-Interaction Time	3.01	39.16	3.65

deviations of the responses of 344 teachers on school effectiveness, the five dimensions of professional role orientation, and the three factors of work interaction. Table V gives the means and standard deviations of the teacher responses for the same variables as Table IV, but the data are grouped according to twenty-one schools.

The teacher scores, whether considered individually or grouped to yield average school scores, provided similar results. The mean score of the teachers' ratings of their school's effectiveness as a total group of 344 teachers was 30.36, while the mean score from twenty-one schools was 30.38. Similarly, the mean score of the total group of teachers on the P.R.O. was 96.30, while the mean school score was 96.54. Work interaction means also differed little between the total group of teachers and teachers grouped by schools.

The range of the P.R.O. scores was 54.0 for the 344 teachers. This is similar to the range of 48.0 found by Nixon (1975:75) who used the same instrument with a group of Alberta teachers.

By grouping the teachers' responses according to schools, as shown in Table V, the standard deviation from the mean of the scores on each variable is less than when the replies are considered individually, as illustrated in Table IV. However, the advantage of grouping the scores according to schools is that it allows comparisons of groups of teachers working within the same school structure to other groups teaching in different administrative structures. For this reason the school was chosen as the main unit of analysis. The analyses of the data in this chapter were based on the school as the unit, except for data included in the last hypotheses. To examine the last hypotheses, indi-

TABLE V

DISTRIBUTION OF TEACHER RESPONSES FROM 21 SCHOOLS TO QUESTIONNAIRE

Variable	Mean	S.D.
Effectiveness	30.38	1.91
P.R.O.	96.54	2.47
Knowledge	3.29	.17
Service	2.91	.17
Core Organization	3.27	.12
Colleagueship	3.31	.12
Autonomy	3.81	.15
Principal-Teacher Interaction	20.89	2.46
Teacher-Teacher Interaction	29.09	2.04
Total Interaction Time	2.83	1.09

vidual teacher data also was used to determine the relationships among selected variables and teachers' ratings of their school's effectiveness.

The individual teacher scores were used as the unit of analysis for testing the last hypothesis. The school scores on each of the structure variables were divided, followed by a division of the teachers' P.R.O. scores, to form four quadrants for each of the structure variables, for example, high centralization, high P.R.O., high centralization, low P.R.O., low centralization, high P.R.O. and low centralization, low P.R.O. Tables describing the data are found following Hypothesis 7.

II. Testing the Hypotheses

On the basis of the original hypotheses, the null hypotheses were formed. In testing an individual null hypothesis, operationally a number of specific null hypotheses were being tested. In some instances, where one or more of these specific hypotheses were rejected, the wording that was used in this study was one of partial support for the hypothesis.

Hypothesis Concerning Effectiveness and Professional Role Orientation

Hypothesis 1

The first hypothesis stated:

There are no significant relationships between teachers' ratings of their school's effectiveness and their professional orientation.

This hypothesis was extended to include the components of P.R.O. Pearson product moment correlations showed school effectiveness was not

significantly related to professional role orientation as a whole but was significantly related to components of P.R.O., the knowledge and colleagueship dimensions, as illustrated in Table VI. The correlations of .43 between effectiveness and knowledge, and .38 between effectiveness and colleagueship, demonstrated that in those areas there was a relationship between perceived school effectiveness and dimensions of teachers' professional role orientation. Teachers who are higher in the knowledge component of the P.R.O., which states that the work of a professional is intellectual in character and grounded in theory, were more likely to consider their school effective than those who were not. Colleagueship was related to effectiveness slightly, indicating that as teachers rated their schools more effective, they were more inclined to see themselves as part of a professional group. Therefore, the hypothesis was only partly supported.

Hypothesis Concerning Effectiveness and Structure

Hypothesis 2

The hypothesis stated:

There are no significant relationships between teachers' ratings of their school's effectiveness and the administrative structure of their schools.

Pearson product moment correlations showed that school effectiveness was significantly related to only one aspect of administrative structure, functional specialization, with a coefficient of .40, as illustrated in Table VII. The other dimensions of administrative structure, formalization, standardization, centralization, autonomy and size did not relate significantly to teachers' ratings of school effectiveness. The hypothesis was partly supported.

TABLE VI

CORRELATIONS BETWEEN EFFECTIVENESS AND PROFESSIONAL ROLE ORIENTATION AND ITS COMPONENTS

Variable	Effectiveness N = 21
Total Professional Role Orientation	.26 (N.S.)
Knowledge	.43
Service	.02 (N.S.)
Core-Organization	.26 (N.S.)
Colleagueship	.38
Professional Freedom	-.20 (N.S.)

N.S. Not significant at the .05 level or beyond.

TABLE VII

CORRELATIONS BETWEEN EFFECTIVENESS AND ADMINISTRATIVE STRUCTURE

Variable	Effectiveness N = 21
Functional Specialization	.40
Formalization	.03 (N.S.)
Standardization	.00 (N.S.)
Centralization	-.24 (N.S.)
Autonomy	.10 (N.S.)
Size	-.09 (N.S.)

N.S. Not significant at the .05 level or beyond.

Hypotheses Concerning Professional Work Interaction

Hypothesis 3

This hypothesis stated:

There are no significant relationships between teachers' ratings of their school's effectiveness and their professional work interaction.

In testing this hypothesis, the three components of work interaction, namely, teacher interaction, principal-teacher interaction and total interaction time, as well as teachers' evaluations of their school's effectiveness, were examinined. Pearson product moment correlation coefficients were computed, none of which were significant at the .05 level, as illustrated in Table VIII. When teachers rated the effectiveness of their schools, apparently neither the frequency of professional interaction nor the total interaction time played a significant part in their ratings. The hypothesis was supported.

Hypothesis 4

This hypothesis stated:

There are no significant relationships between professional work interaction and the administrative structure of schools.

To test this hypothesis the three dimensions of work interaction stated previously were examined along with the six dimensions of structure mentioned above. The statistical procedure used was Pearson product moment correlation. The results of this analysis are displayed in Table IX.

On the eighteen relationships tested, only six were significant at the .05 level or beyond. A significant inverse correlation of -.39 between work interaction time and centralization was found. There was

TABLE VIII

CORRELATIONS BETWEEN PROFESSIONAL WORK INTERACTION AND SCHOOL EFFECTIVENESS

Variable	Effectiveness N = 21
Teacher-Teacher Interaction	-.13 (N.S.)
Principal-Teacher Interaction	.05 (N.S.)
Total Interaction Time	-.03 (N.S.)

N.S. Not significant at .05 or beyond.

TABLE IX

CORRELATIONS BETWEEN PROFESSIONAL WORK INTERACTION AND STRUCTURE

Variable N = 21	Teacher-Teacher Interaction	Principal-Teacher Interation	Total Interaction Time
Functional Specialization	-.25 (N.S.)	-.03 (N.S.)	-.09 (N.S.)
Formalization	-.06 (N.S.)	-.26 (N.S.)	.07 (N.S.)
Standardization	.25 (N.S.)	.29 (N.S.)	.25 (N.S.)
Centralization	-.32 (N.S.)	-.08 (N.S.)	-.39
Autonomy	.45	-.11 (N.S.)	.49
Size	.40	-.43	.61

N.S. Not significant at .05 and beyond.

a correlation coefficient of .45 between teacher interaction time and autonomy, and a .49 correlation between total interaction time and autonomy.

The size of the school was related inversely to the frequency of principal-teacher interaction on work related topics with a correlation coefficient of -.43, but positively related both to teacher work related interaction and total interaction time with coefficients of .40 and .61, respectively.

Total work interaction time was significantly related to the structure variables of size, centralization and autonomy. The hypothesis was partly supported.

Hypothesis 5

This hypothesis stated:

There are no significant relationships between professional work interaction and professional role orientation.

To examine this hypothesis Pearson product moment correlation coefficients were computed between the three dimensions of professional work interaction and the five dimensions of P.R.O., along with the total P.R.O. score, as shown in Table X . Of the eighteen relationships tested, only the .39 correlation between service and principal-teacher interaction was significant at the .05 level. The hypothesis was supported except for the relationship between service and principal-teacher interaction.

Hypothesis Concerning Professional Role Orientation and Structure

Previous research cited (Hall, 1968; Palumbo, 1969) stated inverse

TABLE X

CORRELATIONS BETWEEN PROFESSIONAL WORK INTERACTION AND P.R.O.

Variable N = 21	Teacher-Teacher Interaction	Principal-Teacher Interaction	Total Interaction Time
P.R.O.	-.07 (N.S.)	-.16 (N.S.)	.04 (N.S.)
Knowledge	.24 (N.S.)	-.14 (N.S.)	.19 (N.S.)
Service	.01 (N.S.)	.39	-.01 (N.S.)
Core-Organization	-.23 (N.S.)	-.18 (N.S.)	.00 (N.S.)
Collegueship	-.31 (N.S.)	-.06 (N.S.)	-.15 (N.S.)
Professional Freedom	.09 (N.S.)	-.22 (N.S.)	.08 (N.S.)

N.S. Not significant at .05 and beyond.

relationships between professional role orientation and structure in organizations. The following hypothesis was derived from this base.

Hypothesis 6

This hypothesis stated:

There are no significant relationships between professional role orientation and the administrative structure in schools.

To examine the relationships among the dimensions of teachers' professional role orientation and the administrative structure of their schools, Pearson product moment correlation coefficients were computed, as shown in Table XI . Only two significant coefficients were found and both of them were negative. There was a -.44 correlation coefficient calculated between centralization and knowledge. A -.41 coefficient was found between the size of the school and service. Analysis of the data on other dimensions of the P.R.O. and administrative structure showed that they did not yield significant Pearson product moment correlation coefficients.

Hypothesis Concerning Effectiveness, Professional Role Orientation, Structure and Professional Work Interation

The following hypothesis was derived for the investigation of relationships between school effectiveness and selected teacher and school variables.

Hypothesis 7

This hypothesis stated:

There are no significant relationships among teachers' ratings of their school's effectiveness, their professional role orientation, the administrative structure of their school and their professional work interaction.

TABLE XI

CORRELATIONS BETWEEN PROFESSIONAL ROLE ORIENTATION AND STRUCTURE

Variable	Total P.R.O.	Knowledge	Service	Core-Organization	Colleagueship	Professional Freedom
Functional Specialization	.09 (N.S.)	-.07 (N.S.)	-.04 (N.S.)	.26 (N.S.)	.15 (N.S.)	.09 (N.S.)
Formalization	.02 (N.S.)	.05 (N.S.)	-.18 (N.S.)	-.02 (N.S.)	-.08 (N.S.)	-.23 (N.S.)
Standardization	.06 (N.S.)	.10 (N.S.)	.05 (N.S.)	-.05 (N.S.)	.14 (N.S.)	-.01 (N.S.)
Centralization	-.29 (N.S.)	-.44*	-.30 (N.S.)	.26 (N.S.)	-.26 (N.S.)	-.17 (N.S.)
Autonomy	.15 (N.S.)	.21 (N.S.)	.11 (N.S.)	-.23 (N.S.)	.16 (N.S.)	.16 (N.S.)
Size	-.23 (N.S.)	-.11 (N.S.)	-.41*	-.13 (N.S.)	-.15 (N.S.)	.04 (N.S.)

* Significant at .05 and beyond.

In order to find the relationship between the dependent variable effectiveness, and the independent variables, a step wise multiple regression equation was computed, as shown in Table XII. Seventy-five percent of the variance in the teachers' ratings of their school's effectiveness was accounted for by variables in the study, with thirty-six percent accounted for by the first two listed. These are the component of professional role orientation labelled knowledge, and the component of administrative structure labelled functional specialization. The first five variables, four of which were dimensions of professional role orientation, resulted in fifty-six percent of the variance.

Principal-teacher interaction, the sixth variable to be entered in the equation, was responsible for an additional five percent of the variance. The first six variables accounted for sixty-one percent of the total variance accounted for in the regression analysis.

The administrative structural variables of standardization and autonomy entered the equation at the seventh and eighth steps, accounting at those points for eleven percent of the teachers' ratings of school effectiveness. The size of the school added a further one percent, entering the equation as the ninth variable.

The last five variables to enter the multiple regression equation were not significant at the .05 level. Two work interaction components, total interaction time and interaction among teachers, explained only a very small amount of the variance, as did the P.R.O. component of core-organization and the structure components of formalization and centralization.

TABLE XII

STEPWISE REGRESSION OF THE RELATIONSHIPS AMONG EFFECTIVENESS, ROLE ORIENTATION, WORK INTERACTION AND ADMINISTRATIVE STRUCTURE

Dependent Variable = Effectiveness

Step Number	Independent Variable Entered	R Square	R Square Change	P	B	Beta
1	knowledge	.18	.18	.05	12.24	1.10
2	functional specialization	.36	.18	.02	.20	.55
3	professional freedom	.47	.11	.01	.21	.02
4	service	.51	.04	.02	-2.45	-.22
5	colleagueship	.56	.05	.02	7.31	.47
6	principal-teacher interaction	.61	.05	.02	.14	.18
7	standardization	.69	.08	.01	-.16	-.32
8	autonomy	.71	.02	.02	.45	.36
9	size	.72	.01	.04	-.13	-.46
10	total work interaction time	.73	.01	.07 (N.S.)	.23	.13
11	core-organization	.74	.01	.11 (N.S.)	-2.02	-.13
12	formalization	.75	.01	.39 (N.S.)	.40	-2.64
13	teacher-teacher interaction	.75	.00	.27 (N.S.)	-.84	-.09
14	centralization	.75	.00	.40 (N.S.)	-.24	.30

To test this hypothesis further, the structure component scores of the schools were divided into two groups. The mean for the individual teacher's P.R.O. scores for each of the two groups was calculated so that four groups were formed: (1) high structure, high P.R.O., (2) high structure, low P.R.O., (3) low structure, high P.R.O., and (4) low structure, low P.R.O. To test for differences in effectiveness ratings among the groups, an F test for one-way analysis of variance was conducted. Where the F ratio was significant, the Scheffé procedure for comparison of means was conducted. The groups were tested with the same statistical procedures used for differences in the professional work interaction dimensions.

Table XIII shows the summary data for the comparison of the four groups, arranged according to school functional specialization scores and individual P.R.O. scores, for the teachers' ratings of their school's effectiveness. The high functional specialization, high P.R.O. group's mean effectiveness score of 31.86 was significantly higher than the low functional specialization, low P.R.O. group's mean effectiveness score of 28.85. When the means were compared, only one of the possible six comparisons revealed significant differences.

Table XIII also illustrates the means for the three interaction variables for the same groups. For principal-teacher interaction, the mean of 21.65 for the high functional specialization, high P.R.O. group was significantly higher than the 19.51 mean for the low functional specialization, low P.R.O. group. For interaction among teachers, the mean of 31.31 for the low functional specialization, high P.R.O. group was higher than the 27.65 for the high functional specialization, low

TABLE XIII

SUMMARY DATA FOR EFFECTIVENESS AND INTERACTION IN GROUPS DIVIDED BY FUNCTIONAL SPECIALIZATION AND P.R.O.

	Group 1 Hi. Funct. Spec., Hi. P.R.O.	Group 2 Hi. Funct. Spec., Low P.R.O.	Group 3 Low Funct. Spec., Hi. P.R.O.	Group 4 Low Funct. Spec., Low P.R.O.
Mean Effectiveness Rating	31.86*	30.42	30.33	28.85*
Mean Principal-Teacher Interaction	21.65*	19.80	21.53	19.51*
Mean Teacher-Teacher Interaction	29.22	27.65**	31.31**	29.29
Mean Total Interaction Time	2.91	2.87	3.30	2.99

* Group 1 is significantly different from Group 4 at the .10 level.

** Group 2 is significantly different from Group 3 at the .10 level.

For additional data, see Appendix B.

P.R.O. group. For both principal-teacher interaction and interaction among teachers, when group comparisons were made, only one of the possible six comparisons revealed significant differences. A comparison of the means of the groups on total interaction time did not show any significant differences among the groups.

Table XIV presents the summary data for the comparisons of the four groups, categorized according to school formalization scores and individual P.R.O. scores, for the teachers' ratings of their school's effectiveness. The low formalization, high P.R.O. group's mean score of 31.75 was significantly higher than the high formalization, low P.R.O. group's mean score of 29.90. There was a significant difference also between the low formalization, high P.R.O. group's mean score of 31.75 and the low formalization, low P.R.O. score of 29.21. Of the six possible comparisons of the means, two yielded significant differences.

The means of the three interaction dimensions also were compared for the formalization, P.R.O. groups, as shown in Table XIV. For principal-teacher interaction three of the possible six comparisons yielded significantly different results. The high formalization, high P.R.O. group's mean of 21.43 was significantly higher than the high formalization, low P.R.O. group's mean of 18.81. The low formalization, high P.R.O. group's mean of 21.89 was significantly higher than the high formalization, low P.R.O. group's mean score of 18.81. The low formalization, low P.R.O. group's mean score of 21.26 was significantly higher than the 18.81 of the high formalization, low P.R.O. group. On the dimension of interaction among teachers, the low formalization, high P.R.O. group's mean score of 31.28 was significantly higher than the 27.89 mean of the low formalization, low P.R.O. group, the only comparison to yield

TABLE XIV

SUMMARY DATA FOR EFFECTIVENESS AND INTERACTION IN GROUPS DIVIDED BY FORMALIZATION AND P.R.O.

	Group 1 Hi. Formalization, Hi. P.R.O.	Group 2 Hi. Formalization, Low P.R.O.	Group 3 Low Formalization, Hi. P.R.O.	Group 4 Low Formalization, Low P.R.O.
Mean Effectiveness Rating	30.74	29.90***	31.75****	29.21****
Mean Principal-Teacher Interaction	21.42*	18.81***	21.89***	21.26**
Mean Teacher-Teacher Interaction	29.76	28.74	31.28****	27.89****
Mean Total Interaction Time	3.21	2.94	2.90	2.90

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

*** Group 2 is significantly different from Group 3 at the .10 level.

**** Group 3 is significantly different from Group 4 at the .10 level.

For additional data, see Appendix B.

significantly different results. On the dimension of total interaction time, there were no significant differences among the groups.

Table XV illustrates the summary data for the comparison of four groups based on school centralization scores and individual teacher's P.R.O. scores on their ratings of school effectiveness. Teachers who had high P.R.O. scores in schools with low centralization scores gave their school's a mean effectiveness rating of 31.58, significantly higher than the 29.43 of the high centralization, low P.R.O. group, and the 29.90 of the low centralization, low P.R.O group.

Table XV also shows the summary data for the centralization, P.R.O. groups on the three interaction variables. The highest principal-teacher interaction was in the low centralization, high P.R.O. group, with a mean score of 21.80, which differed significantly only from the high centralization, low P.R.O. group's mean score of 19.39. The only significant difference among the teacher interaction comparisons was between the 30.51 mean score of the high centralization, high P.R.O. group and the 27.72 mean score of the high centralization, low P.R.O. group. The means of the groups on the dimension of total interaction time did not differ significantly.

Table XVI displays the summary data for the ratings of their schools' effectiveness of groups arranged by school standardization scores and individual teacher's P.R.O. scores. With a mean score of 31.19 the teachers with High P.R.O. scores in schools with low standardization scores rated their schools as significantly more effective than did the teachers with low P.R.O. scores in schools with high standardization with a mean score of 29.18. The high standardization,

TABLE XV

SUMMARY DATA FOR EFFECTIVENESS AND INTERACTION IN GROUPS DIVIDED BY CENTRALIZATION AND P.R.O.

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 High Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low Centralization Low P.R.O.
Mean Effectiveness Rating	30.52	29.43*	31.58***	29.90***
Mean Principal-Teacher Interaction	21.35	19.39*	21.80*	19.94
Mean Teacher-Teacher Interaction	30.51**	27.73**	30.07	29.19
Mean Total Interaction Time	3.40	2.64	2.85	3.23

* Group 2 is significantly different from Group 3 at the .10 level.

** Group 1 is significantly different from Group 2 at the .10 level.

*** Group 3 is significantly different from Group 4 at the .10 level.

For additional data, see Appendix B.

high P.R.O. group's mean effectiveness score of 31.00 was also significantly higher than the 29.18 of the high standardization, low P.R.O. group.

The means of the three interaction dimensions for the groups arranged by standardization and P.R.O. scores are also included in Table XVI . For principal-teacher interaction, the high standardization high P.R.O. group's mean score of 21.66 was significantly higher than the 19.61 of the low standardization, low P.R.O. group's score. The high standardization, high P.R.O. group's mean score of 30.89 for interaction among teachers was also significantly higher than the low standardization, low P.R.O. group's mean score. However, the highest total interaction mean score was, by the high standardization, low P.R.O. group with a score of 3.66, significantly higher than the 2.20 of the low standardization, low P.R.O. group. The high standardization, high P.R.O. group's mean score of 3.66 also was significantly higher than the 2.20 mean score of the low standardization, low P.R.O. group.

The summary data displayed in Table XVII gives teacher's ratings of their school's effectiveness according to groups arranged by school autonomy scores and individual teacher's P.R.O. scores. The only significant difference was found between the high autonomy, high P.R.O. group's mean score of 31.61, the highest score of the groups, and the low autonomy, low P.R.O.'s score of 29.21.

Table XVII also showed the summary data for the three interaction variables. The highest principal-teacher interaction mean score was 21.64 for the low autonomy, high P.R.O. group, which was significantly higher than the 19.05 score of the high autonomy, low P.R.O. group.

TABLE XVI

SUMMARY DATA FOR EFFECTIVENESS AND INTERACTION IN GROUPS DIVIDED BY STANDARDIZATION AND P.R.O.

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
Mean Effectiveness Rating	31.00***	29.18****	31.19****	30.14
Mean Principal-Teacher Interaction	21.66*	19.70	21.50	19.61*
Mean Teacher-Teacher Interaction	30.89*	29.80**	29.49	27.09**
Mean Total Interaction Time	3.56*	3.66**	2.50	2.20**

* Group 1 is significantly different from Group 4 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

*** Group 1 is significantly different from Group 3 at the .10 level.

**** Group 2 is significantly different from Group 3 at the .10 level.

For additional data, see Appendix B.

TABLE XVII

SUMMARY DATA FOR EFFECTIVENESS AND INTERACTION IN GROUPS DIVIDED BY AUTONOMY AND P.R.O.

	Group 1 High Autonomy, Hi. P.R.O.	Group 2 High Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
Mean Effectiveness Rating	31.61***	30.11	30.45	29.21***
Mean Principal-Teacher Interaction	21.54*	19.05**	21.64**	20.26
Mean Teacher-Teacher Interaction	30.84***	29.05	29.59	27.85***
Mean Total Interaction Time	3.32	3.27	2.83	2.59

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 3 at the .10 level.

*** Group 1 is significantly different from Group 4 at the .10 level.

For additional data, see Appendix B.

The high autonomy, high P.R.O. group's mean score was 21.54, significantly higher than the mean score of 19.05 for the high autonomy, low P.R.O. A significant difference was only found between two groups on the variable of teacher-teacher interaction. The high autonomy, high P.R.O. mean score of 30.84 was significantly higher than the 27.85 mean score of the low autonomy, low P.R.O. score. There were no significant differences found among the mean scores of the groups on total interaction time.

Table XVIII illustrates the summary data for the comparison of teachers' ratings of their school's effectiveness by four groups arranged according to school size and individual teachers' P.R.O. scores. High P.R.O. teachers in small schools gave their schools a mean effectiveness rating of 31.26, significantly higher than the mean score of 29.08 of low P.R.O. teachers in small schools. High P.R.O. teachers in large schools allotted their schools a mean effectiveness score of 31.00, significantly higher than the 29.08 of low P.R.O. teachers in small schools.

Table XVIII displays the means for the three interaction variables for the same groups. Principal-teacher interaction differed significantly on three of the six possible comparisons. In large schools teachers with low P.R.O. scores had a mean principal interaction score of 18.88, significantly less than the 21.13 mean score of low P.R.O. teachers in small schools, or the 21.06 mean score of high P.R.O. teachers in large schools, or the 22.70 mean score of high P.R.O. teachers in small schools. Interaction of teachers was significantly higher in large schools among teachers with high P.R.O. scores, wtih a

TABLE XVIII

SUMMARY DATA FOR EFFECTIVENESS AND INTERACTION IN GROUPS DIVIDED BY SIZE AND P.R.O.

	Group 1 Hi. Size, Hi. P.R.O.	Group 2 Hi. Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
Mean Effectiveness Rating	31.00****	29.97	31.26*****	29.08*****
Mean Principal-Teacher Interaction	21.06*	18.88***	22.70***	21.13**
Mean Teacher-Teacher Interaction	30.50****	29.18	29.80	27.05****
Mean Total Interaction Time	3.49****	3.41	2.26	2.04****

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

*** Group 2 is significantly different from Group 3 at the .10 level.

**** Group 1 is significantly different from Group 4 at the .10 level.

***** Group 3 is significantly different from Group 4 at the .10 level.

For additional data, see Appendix B.

mean interaction score of 30.50, than among low P.R.O. teachers in small schools who had a mean score of 27.05. The mean for total interaction time of 3.49 was significantly higher for high P.R.O. teachers in large schools than the 2.04 time for low P.R.O. teachers in small schools.

To summarize, the means for effectiveness ratings and interaction were compared for groups based on structure and P.R.O. variables. The highest effectiveness rating in each analysis was given by a group that had high P.R.O. scores. The frequency and amount of interaction varied with the different combinations of structure and P.R.O. scores. This data analysis only partly supports the null research hypothesis.

III. Discussion

Because of the difficulties in evaluating effectiveness in schools, frequently reliance is placed on teachers' judgments of their school's effectiveness. These judgments may be influenced by the teacher's personal values and beliefs about their work which are expressed in their professional role orientation. Teachers with varying professional role orientations may want different types of administrative structure. Some studies (Hall, 1968; Palumbo, 1969) found inverse relationships between professionalism and structure. Mintzberg (1979) has stated that professionals demand low bureaucratic structure, but that low structure results in problems in work coordination. This study has investigated the relationships among teachers' judgments of their schools' effectiveness, their professional role orientation, their school's

administrative structure and the work interaction in their schools to determine whether or not teachers' ratings of school effectiveness are associated with these variables.

Hypothesis Concerning Effectiveness and Role Orientation

The development of the hypothesis on school effectiveness and professional role orientation was centered around the premise that teachers' professionalism would be related to the way they viewed their school's productivity, adaptability and flexibility. The hypothesis included the components of role orientation so that the strengths of the relationships of each of the dimensions of the P.R.O. to effectiveness could be discerned.

This statistical analysis of the data yielded no significant relationships between teachers' ratings of their school's effectiveness and their total P.R.O. scores for the group of twenty-one schools. The null hypothesis was supported for the total P.R.O. score.

The calculation of Pearson product moment correlation coefficients between each of the P.R.O. dimensions and effectiveness scores produced two significant coefficients. There was a .43 coefficient computed between knowledge and effectiveness and .38 correlation coefficient between colleagueship and effectiveness.

The knowledge dimension of the P.R.O. is based on the concept that the work of the professional is intellectual in character, is based on a body of knowledge, requires knowledge and skills that are acquired

through a long period of schooling and is sufficiently complex to require continuous up-dating of the professional's skills and knowledge (Hrynyk, 1968:12). Although the correlation coefficient of .43 does not indicate a strong relationship between these beliefs and teachers' ratings of their school's effectiveness, it may indicate that teachers who have high scores on knowledge dimensions apply that knowledge, and recognize the resulting higher effectiveness of their schools.

The colleagueship dimension of the P.R.O. stresses identification and affiliation with the members of a profession (Hrynyk, 1968:24). There is a fairly small but significant correlation coefficient of .38 between colleagueship and effectiveness.

The service dimension of the P.R.O. is grounded in the belief that a professional has a commitment to the lifetime career of service to society, giving this service whenever the need arises. This dimension did not relate significantly to effectiveness when Pearson product moment correlation coefficients were computed. The belief that teachers have a mission in society does not seem to be related directly to their ratings of their school's effectiveness.

Professional freedom, a feeling of professional autonomy, did not relate significantly to effectiveness when Pearson product moment coefficients were calculated. These findings differ from Mintzberg's (1979:358) model of a professional bureaucracy where Mintzberg

states that professionals demand control of their own work. The expected finding of a significant relationship between effectiveness and professional freedom was not found in this analysis.

The core-organization dimension refers to the importance the teacher places in affiliation with the professional organization which enforces standards of conduct and codes of ethics, in this case the Saskatchewan Teachers' Federation. The statistical procedures of calculating Pearson product moment correlation coefficients failed to discern any significant relationship between the core-organization dimension of the P.R.O. and school effectiveness. This lack of relationship may indicate that teachers do not see their affiliation with the Saskatchewan Teachers' Federation as affecting the productivity, adaptability and flexibility of their schools. Scharf (1967:31) noted that the core-organization dimension reflects the teachers' willingness to be oriented to the organization rather than the professional movement it serves, except where the two coincide.

In summary, the null hypotheses were supported for the relationships between effectiveness and: (1) the total P.R.O. scores, (2) service, and (3) core-organization. It was not supported for the relationships between effectiveness and: (1) knowledge, (2) collegueship, and (3) professional freedom.

Hypothesis Concerning Effectiveness and Structure

In the conceptual framework chapter of this study, Mintzberg's (1979:358) contention that professionals demand low structure was noted. From the base described in the literature it was extrapolated that there would be a relationship between the administrative structure of schools and teachers' ratings of school effectiveness. The null hypothesis concerning relationships between effectiveness and structure was formed for the investigation of this premise.

The statistical analysis of the data yielded a significant Pearson product moment correlation coefficient of .40 between effectiveness and functional specialization, the only component of structure to relate significantly to effectiveness. With the exception of size, functional specialization was the structural dimension with the largest variation among the scores of the twenty-one schools studied. Less variation in the scores for the other dimensions of structure than that found by Kelsey (1973) and Sackney (1976) may have been partly the result of this study's school population being drawn from one district, so that all the schools examined operated under restrictions imposed by similar board policies and regulations. Sackney (1976:131) noted that there was a tendency for the scores for schools within the same district to be fairly similar.

In this study, the concept of delegation was used for the measurement of functional specialization. The Aston researchers (Pugh et al, 1963) used the concept of specialization, defined as whether a task was performed by one or more persons full-time, to measure functional

specialization. Kelsey (1973:94) realized that many activities performed in schools could not be done on a full-time basis by people who had teaching responsibilities. He adapted the Aston instrument so that functional specialization included the measurement of activities that were specifically and exclusively delegated to one or more staff members. This specific and extensive adaptation to the school setting of an instrument originally designed to measure structure in manufacturing organizations also may account for some of the greater range in scores found. Greater sensitivity to the school as an organization on this section of the Aston instrument may have resulted in findings that teachers could relate more readily to their school's effectiveness.

The dimensions of structure that did not relate significantly to effectiveness were formalization, standardization, centralization, autonomy and size. In his study of the relationships between structure and teacher behavior in secondary schools, Sackney (1976:127) observed that high scores on functional specialization, formalization and autonomy tended to characterize schools high in morale. These variables did not cluster in the same way when relationships to school effectiveness were tested in this study.

The formalization dimension of structure consisted of a measure of the extent to which rules, procedures, instructions and communications were written down (Kelsey, 1973:108). The number of documents that originated in the central office of the school system as well as the local school documents were scored in this dimension. Because the population of schools studied was chosen from one district, the first part of the formalization score did not reflect the differences Sackney

(1976:127) found in his study of secondary schools in several systems. Also, the lower formalization scores may indicate a tendency for elementary schools to have fewer formal documents than secondary schools, for example, not all elementary schools in the study had handbooks which explained rules and procedures to teachers, parents and students. The very small, non-significant coefficient of .03 between formalization and effectiveness indicates that despite school differences in the number of documents present, teacher did not think that they were significantly related to the effectiveness of the school.

There was a zero order correlation coefficient between effectiveness and standardization, which is the measure of standardization of procedures for the selection of personnel and for operating procedures. Sackney (1976:127) found an inverse relationship between standardization and morale, with staff disengagement increasing with greater standardization. The statistical analysis for this study did not find a similar negative relationship between standardization and effectiveness. Because many of the recruitment and selection procedures measured, as well as some of the operating procedures, are controlled by the policies and regulations of the Board of Education, teachers may regard them as not closely connected with the factors they consider in rating school effectiveness. The inference could be made that standardization of administrative procedures that are not closely related to the work of the classroom are not important to teachers' ratings of their school's effectiveness. This inference is in agreement with Mintzberg's (1979: 363) statement that teachers, as professionals, believe it is the administrators' job to organize the school in such a way that teachers do not

have to spend much time on functions that are related only indirectly to the classroom. It could be speculated that measurement of standardization of procedures that had a closer relationship to classroom practices may have produced different results.

Centralization and autonomy represent structural factors dealing with the concentration of authority. Centralization scores represent the average level of decision making while autonomy scores indicate the number of decisions that are made at the school level. The Pearson product moment correlation coefficient calculated between effectiveness and centralization was not significant at -.24, while the .10 coefficient found between effectiveness and autonomy also was not significant. These coefficients were too low to indicate support for Mintzberg's (1979:358) contention that professionals want freedom of decision making, not only in their own work but in the administrative decisions that affect them. It could be speculated that decision making on such matters as the number of teachers in the school, the dismissal of teachers and the purchasing procedures for materials has been beyond the school level during the tenure of many teachers in the study, so that as long as the school operates without serious disruption in these areas, they are not considered by many teachers when they rate their school's effectiveness.

The size of the school was delimited in the study to schools employing fourteen or more professionals. The insignificant Pearson product moment correlation of -.09 between size and effectiveness indicated that when size was the only variable considered, it was not significantly related to effectiveness.

When the variables of structure were considered in relation to effectiveness, functional specialization was the only dimension of structure with a significant relationship to effectiveness. The null hypothesis was supported with the exception of this dimension.

Hypotheses Concerning Professional Work Interaction

Results of previous research and Mintzberg's (1979) theory of organizations have illustrated that interaction among staff members is necessary for the coordination of their work (Charters, 1973; Bridges and Hallinan, 1978; Mintzberg, 1979; Wynne, 1981). Wynne (1981:379) found that in the schools that his researchers rated as effective, teachers worked together in groups. The hypotheses concerning professional work related interaction and its relationships to school effectiveness, administrative structure and teachers' professional role orientation were based on the literature.

The findings in the present study revealed no significant relationship between effectiveness and the three components of work interaction: interaction among teachers, principal-teacher interaction and the total interaction time. The teachers in the study did not appear to relate communication with each other or with their principal to effectiveness in their schools. These results do not concur with those of Miskel and McDonald (1982:22) who found positive relationships between the first two dimensions measured in a similar way and effectiveness. On the third dimension Miskel and McDonald (1982:22) found inverse relationships between effectiveness and total interaction time for data gathered in the spring. They suggested that teachers equated interaction time

with time spent away from the classroom, so that classroom time was equated with positive school outcomes. In this research, while there was a negative correlation coefficient of -.03 between total interaction time and effectiveness for data also gathered in the spring, a similar conclusion cannot be justified because of the lack of strength and significance of the coefficient.

The data gathered for work related interaction did not distinguish between communication imposed by the formal organization of the school, such as that arising from work on committees or team teaching, and communication stemming from the informal organization. Further refinement of the purposes and type of interaction data collected may yield results which reveal a closer relationship to school effectiveness.

Mintzberg (1979:374) contended that innovation was a major problem in professional bureaucracies because innovation requires cooperation and communication throughout the organization. Adaptability and flexibility, concepts that are associated closely with innovation, were part of the measure of effectiveness in this study. It could be inferred that greater communication in a school would increase adaptability and flexibility, which would be characteristics of successful innovation. The lack of relationships found between effectiveness and interaction did not provide support for Mintzberg's (1979:374) ideas when they were extended in this way. It could be speculated that if work related interaction had been restricted to that which took place through the formal organization, teachers may have perceived it as more closely related to adaptability and flexibility. The null hypotheses concerning the relationship between professional work related interaction and teachers'

ratings of school effectiveness were supported.

There were some statistically significant relationships found between components of professional work related interaction and dimensions of structure. The negative Pearson product correlation coefficient of -.39 between total interaction time and centralization appears to indicate that when decisions are centralized beyond the local school level, teachers spend less time interacting with each other about work.

Because the autonomy score represents the number of decisions made by either the principal or the teachers at the school level, the correlation of .49 between autonomy and the total work interaction time seems to indicate that more interaction time is spent when educational decisions are made by the staff in the school. A similar coefficient of .45 for the relationship between autonomy and frequency of teacher interaction indicates that when teachers have the responsibility of making decisions that affect the staff, more teacher interaction occurs.

An expected finding was that the size of the school was inversely related to principal-teacher interaction, illustrated by the correlation coefficient of -.43. As the school increases in size, more teachers are employed so the principal does not have time to interact as frequently with each one. The correlation coefficient of .40 between teacher interaction and school size suggests that as the school increases in size, there tends to be greater interaction among teachers. The size of the school appears to relate to work interaction to indicate that as teachers interact less with the principal they interact more frequently with their colleagues. The correlation coefficient of .61 between size and total interaction time seems to support the indication that profes-

sional staff interact more about work related topics in large schools. The null hypothesis was supported for the structural variables of functional specialization, formalization and standardization but not for centralization, autonomy and size.

The investigation into the relationships between professional role orientation, its dimensions and work interaction did not yield significant correlation coefficients except for the .39 coefficient between principal-teacher interaction and the service dimension of the P.R.O. This indicated a positive relationship between the frequency of principal-teacher interaction and teachers' belief that the teaching profession has a unique mission in society. Possibly teachers with a strong belief in service find reinforcement for that belief and aid in fulfilling perceived needs of others through interaction with the principal.

When the total school scores were considered, the lack of significant relationships between professional role orientation, its dimensions and work interaction tends to reinforce Mintzberg's(1979:373) theory that work coordination can become a problem because professionals tend not to communicate with each other about their work. Mintzberg(1979:372) writes that professionals are "a collection of individuals who join to draw on the common resources and support services but otherwise want to be left alone."

The null hypothesis concerning relationships between work interaction and professional role orientation was supported except for the positive relationship between principal-teacher interaction and service.

Hypothesis Concerning Professional Role Orientation and Structure

The analysis of the data yielded statistically significant correlation coefficients between only two dimensions of professional role orientation and structure. Centralization of decision making in the higher levels of the educational hierarchy was inversely related to knowledge with a -.44 correlation coefficient. Schools with lower centralization scores tended to have teachers with higher scores on professional knowledge. This finding agreed with Palumbo (1969:244) whose study showed that professionalism was inversely related to centralization, and with Isherwood and Hoy (1973) who found that in schools where power was centralized in the hierarchy, teachers with professional values felt a sense of powerlessness.

The inverse relationship between size and service, where a -.41 correlation coefficient was computed, suggests that in larger schools teachers tend to express less strong service beliefs. They are less willing to state that the profession has a unique mission in society, offering indispensible public service, and that a professional member is committed to a lifetime career than are teachers in small schools.

Other researchers (Hall, 1968; Palumbo, 1969) have found inverse relationships between several dimensions of professional role orientation and structure. This study found fewer significant relationships. The null hypothesis was supported except for the relationships of centralization to knowledge and size to service.

Hypothesis Concerning Effectiveness, Professional Role Orientation, Structure and Work Related Interaction

In the theoretical base underlying this hypothesis, it was the

contention that professional role orientation would act as the mediating variable between teachers' ratings of their school's effectiveness and their preference for structure. Their work related interaction would be associated with their professional characteristics and the administrative structure in their school. The analysis of the data showed that the hypotheses were only partly supported.

The findings from the multiple regression analysis illustrated that the amount of variance contributed by the independent variables to the dependent variable of effectiveness was seventy-five percent. An examination of professional role orientation and administrative structure showed that one dimension of each contributed eighteen percent, a total of almost half of the variance accounted for. The relationships to effectiveness of the knowledge dimension of the professional role orientation scale and the functional specialization dimension of structure indicated that in schools rated as more effective, the teachers' tendency to believe that their role was grounded in theory and based on knowledge was accompanied by their preference for school tasks to be designated clearly and widely distributed among the staff.

The results of the multiple regression analysis indicated that functional specialization contributed more to the effectiveness ratings than the other structure variables. Standardization, autonomy and size contributed significantly while formalization and centralization did not make a significant contribution. From the data analysis, it would appear that five of the six variables of structure did not account for a large amount of the variance when teachers rated the effectiveness of their schools.

In the multiple regression analysis, four of the five dimensions of professional role orientation related significantly to effectiveness when they were considered with other variables. The dimensions of knowledge, professional freedom, service and colleagueship were among the first five variables to enter the regression equation, accounting for thirty-eight percent of the variance. The amount of variance accounted for supports the premise that the dimensions of professional role orientation are related to teachers' ratings of their school's effectiveness. Only knowledge and colleagueship related significantly to effectiveness when Pearson product moment correlations were computed between dimensions of P.R.O. and effectiveness. Multiple regression analysis, which included the variables of structure and work interaction as well, revealed further significant relationships to effectiveness on the P.R.O. dimensions of professional freedom and service.

The P.R.O. dimension of core-organization was the eleventh variable to enter the regression equation, not contributing significantly to effectiveness. This finding was similar to the insignificant Pearson product moment correlation coefficient of .26 computed between effectiveness and the variable of core-organization that was discussed previously.

Neither the frequency of teacher interaction nor the total time spent interacting with other professionals in the school related significantly to effectiveness in the multiple regression analysis. Principal-teacher interaction accounted for five percent of the variance in effectiveness ratings. Although frequency of principal-teacher interaction was not significantly related to effectiveness when the Pearson product moment coefficient was calculated, in the multiple regression

analysis it showed as more closely related to effectiveness than either teacher interaction or total interaction time. Mintzberg (1979:363) noted that professionals need administrators to obtain materials, resolve conflicts and buffer the demands of outsiders. Perhaps this need is reflected in the inclusion of principal-teacher interaction among the first six variables in the multiple regression equation which had effectiveness as the dependent variable.

Further analysis of the data by grouping them according to structure variables and individual teacher scores yielded some significant results when the means of the groups were compared for effectiveness and for interaction. Because high P.R.O. teachers in schools with high functional specialization rated their schools as more effective than did teachers with low individual P.R.O. scores in schools with low functional specialization, both the attributes of high P.R.O. and high functional specialization appeared to contribute to the effectiveness ratings assigned by teachers to their schools. Similarly, with significant differences in principal-teacher interaction between the same two groups, both functional specialization and P.R.O. appeared to contribute to the interaction scores. The higher scores on teacher interaction by the low functional specialization, high P.R.O. group compared to the high functional specialization, low P.R.O. group could be speculated to indicate that when duties are less clearly delegated to the high P.R.O. group, they interact more, or it may indicate that less functional specialization results in the high P.R.O. teachers turning more to each other for professional discussion rather than to the principal.

For both centralization and formalization, teachers with high

P.R.O. scores in schools low on those structure dimensions rated their schools as more effective than did teachers with low P.R.O. scores in either high or low structured schools. The teachers' ratings of effectiveness appeared more closely related to P.R.O. scores than to structure. However, the combination of a high P.R.O. score and a low score on centralization or formalization resulted in those groups giving their schools significantly higher effectiveness ratings than two of the other three groups.

The interaction with the principal by the low formalization, high P.R.O. group was greater than by the high formalization, low P.R.O. group. The least interaction with the principal was in schools with high formalization by teachers with low P.R.O. scores. This was significantly less than for any of the other groups, again revealing the importance of the teachers P.R.O. scores when considering the amount of interaction that takes place within varying administrative structures. The interaction between staff members was significantly higher for the low formalization, high P.R.O. group, reinforcing the importance of teachers' professional beliefs as a contributing factor to the amount of interaction they have with other professionals.

The analysis to investigate the interaction of the groups categorized according to centralization and P.R.O. scores demonstrated that the low centralization, high P.R.O. group interacted more with the principal than the high centralization, low P.R.O. group. However, contrary to the position taken as part of the base of this study, the low centralization, high P.R.O. group did not interact more with each other as professional teachers than did the other groups. The greatest teacher

interaction was among high P.R.O. teachers in schools with high centralization and the least among teachers with low P.R.O. scores in schools with high centralization. When P.R.O. scores are combined with school centralization scores, the differences between the groups appear more closely related to the P.R.O. scores than to the centralization variable.

When the structure variable of standardization was investigated along with teachers' P.R.O. scores and their ratings of school effectiveness, the two groups with high P.R.O. scores differed significantly from the high standardization, low P.R.O. score group, illustrating that when this structure variable was considered, teachers' high P.R.O. scores were also important for a school to receive high effectiveness ratings. The low standardization, high P.R.O. group had the highest mean effectiveness score, but this only differed significantly from one other group, the high standardization and low P.R.O. group.

An unexpected finding was that the greatest amount of interaction with the principal was by the high standardization, high P.R.O. group. Perhaps standardization of procedures led to more professional discussions with the principal rather than clarifying of routine matters. Greater interaction was also found among the same group of teachers. However, the most total interaction time spent with other professionals was among the high standardization, low P.R.O. group, although this only differed significantly from the low standardization, low P.R.O. group. High standardization did appear to facilitate discussion.

The combination of high autonomy and high P.R.O. appeared to be related to effectiveness. This group rated their schools highest in effectiveness and interacted more with the principal than the high

autonomy, low P.R.O. group. The finding that the low autonomy, high P.R.O. group also interacted more with the principal than the high autonomy, low P.R.O. group emphasizes the importance of the teachers' professional beliefs when consideration is given to why teachers interact more with the principal within differing administrative structures. An expected finding was that teachers with high P.R.O. scores in schools with high autonomy interact more than teachers with low P.R.O. scores in schools with low autonomy. School based decision making appears to facilitate interaction among highly professional teachers.

When teachers in schools of either large or small size rated their schools for effectiveness, the ratings appeared more closely related to the teacher's P.R.O. scores than to school size; for example, high P.R.O. teachers in small schools gave their schools higher effectiveness rating[illegible].R.O. teachers in small schools. The least principal-teache[illegible] was in large schools by teachers with low P.R.O. scores, [illegible]st was in small schools by teachers with high P.R.O. scores. [illegible]nding reaffirms the previous discussion based on an inverse rel[illegible]ship between size and principal-teacher interaction, while also reinf[illegible]ng the importance of teacher's role orientation when teacher in[illegible]action is assessed.

Two f[illegible]dings support the inference that both school size and teacher's [illegible].O. scores appear to be related to the amount of teacher interaction in a [illegible]chool. First, teacher interaction was greater by teachers with high P.R.O. scores in large schools than by teachers with low P.R.O. scores in small schools. Second, the total interaction time varied in the same way between the same two groups.

In brief, when the highest effectiveness ratings for groups based on different structure variables and P.R.O. scores were ascertained, the common dimension was high P.R.O. scores. For each group the highest effectiveness score was given to their schools by high P.R.O. teachers. The same finding resulted from the analysis of the differences among the interaction means. Both for principal-teacher interaction and for teacher-teacher interaction, the highest interaction was by high P.R.O. teachers. The interaction comparisons revealed that the highest frequency of interaction between the principal and teachers and among the teachers was not always by the same groups. The structure variables appeared to be related to the frequency of interaction.

In summary, the multiple regression analysis revealed that some dimensions of professional role orientation were significantly related to effectiveness. This finding was reinforced by the differences in the effectiveness means among groups based on P.R.O. and structure, where the common dimension for a high school effectiveness rating was a high P.R.O. score by teachers. Functional specialization was the second variable to appear in the multiple regression equation. After most of the dimensions of P.R.O. were taken into account in the regression analysis, the structure variables of standardization, autonomy and size also were related significantly to effectiveness. The regression analysis showed principal-teacher interaction significantly related to effectiveness. In the groups based on P.R.O. and structure, the high P.R.O. teachers had the most principal-teacher interaction.

Frequency of teacher interaction and total interaction time did not show a significant relationship to effectiveness, although the most frequent teacher interaction was also among high P.R.O. teachers. Considering all the variables in the study, the factors that were most closely related to teachers' ratings of their school's effectiveness were the knowledge dimension of the P.R.O. and functional specialization, a dimension of structure. The null hypothesis was partly supported.

Summary

In this chapter the interview and questionnaire data were presented, analyzed and discussed. Hypotheses were stated concerning the relationship among teachers' ratings of school effectiveness and their professional role orientation, their school's administrative structure and their professional work interaction.

Hypothesis one, concerning effectiveness and professional role orientation, was based on the premise that teachers' professional role orientations would be related to their opinions of their school's effectiveness. The analyses of the data on effectiveness and school professional role orientation scores found no significant relationships between effectiveness and the total professional role orientation scores, or between effectiveness and the dimensions of service and core-organization. The P.R.O. dimensions of knowledge and colleagueship were related to effectiveness. Professional freedom scores did not relate significantly to effectiveness. The null hypothesis was partly supported.

Hypothesis two concerned the investigation of the relationship

between effectiveness and structure. The only component of structure to relate significantly to effectiveness was functional specialization, with a Pearson product moment correlation coefficient of .40. With the exception of size, functional specialization was the structure dimension with the largest variation among the scores of the twenty-one schools studied.

In hypotheses three, four, five and six the analyses of the data concerning professional work interaction yielded no significant Pearson product moment correlations to effectiveness. An inverse coefficient was found between total interaction time and centralization, supported by a significant relationship between total work interaction time and autonomy. School size was related inversely to the frequency of principal-teacher interaction, but directly to both teacher interaction and total interaction time. The only significant relationship between work interaction and the dimensions of the professional role orientation scale was between principal-teacher interaction and service. Possibly teachers with a strong belief in service tended to find reinforcement for that belief by interacting with their principal. The null hypotheses were partly supported.

There were significant relationships between work interaction and structure. Total interaction time was related inversely to centralization of decision making. Frequency of teacher interaction and total interaction time were related to autonomy. Frequency of principal-teacher interaction was related inversely to size while teacher interaction was related directly to size. These relationships indicate that as decisions are made further up the educational hierarchy, interaction

time tends to decrease, but as more decisions are made at the school level frequency of interaction and total interaction time tend to increase. As the school increases in size it appears that principal-teacher interaction decreases and teachers tend to communicate more with each other. The null hypothesis was partly supported.

In the investigation of relationships between professional role orientation and structure for hypothesis six , two significant negative Pearson product moment correlation coefficients were found. Knowledge was related inversely to centralization. Schools with lower centralization scores tend to have teachers with high knowledge scores. An inverse relationship was found also between service and size. As schools increased in size, teachers tended to express less belief in the concept that their work was dedicated to a lifetime of service to society. The null hypothesis was partly supported.

To test hypothesis seven multiple regression analysis of relationships between the independent variable of effectiveness and the dependent variables of professional role orientation, structure and work related interaction ordered the dependent variables' relationships to effectiveness in the order of the strength of the relationship. Of the seventy-five percent of the variance of effectiveness accounted for, one dimension of professional role orientation, knowledge, and one dimension of structure, functional specialization, each contributed eighteen percent, for a total of thirty-six percent. The first five variables accounted for fifty-six percent of the variance. They included the structure dimension of functional specialization and four out of the five dimensions of the professional role orientation scale: knowledge, professional

freedom, service and colleagueship. The first nine variables were all significantly related to effectiveness. In total they accounted for seventy-two percent of the variance. The first five were listed above; the other four significantly related variables were: principal-teacher interaction, standardization, autonomy and size.

To test further the relationships among the variables, four groups were formed on the basis of individual teacher's P.R.O. scores and structure variables. The highest effectiveness scores were given to their schools by teachers with high P.R.O. scores. Both for principal-teacher interaction and teacher-teacher interaction, teachers with high P.R.O. scores interacted more than teachers with low P.R.O. scores. The inclusion of the structure variables in the formation of the groups appeared to change the interaction frequency in some cases; for example, in schools with low formalization, low P.R.O. teachers interacted more than in schools with high formalization.

Not all the comparisons of the mean effectiveness ratings and interaction scores revealed significant differences. Only nine of the variables were significantly related to effectiveness when the data were analyzed in a multiple regression equation. Therefore, the null research hypothesis was partly supported.

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

In the first section of this chapter there is provided a statement of the problem, a summary of the conceptual framework and a brief review of the methodology section of the study. The results of the study are summarized in the second section. In the final section some conclusions are presented along with a discussion of the implications of the study for further research and for practice.

I. Problem, Conceptual Framework and Methodology

The Problem

The purpose of the study was to determine the relationships among teachers' ratings of the effectiveness of their schools, their professional role orientation, the administrative structure of their schools and their professional work interaction.

To facilitate the investigation, seven sub-problems were specified with null hypothesis formulated for each of them. Hypothesis 1 stated: There are no significant relationships between school effectiveness as perceived by teachers and their professional role orientation. Hypothesis 2 predicted: There are no significant relationships between teachers' ratings of their school effectiveness and the administrative

structure of their school. Hypothesis 3 predicted: There are no significant relationships between teachers' ratings of their school's effectiveness and their professional role interactions. Hypothesis 4 was: There is no significant relationship between professional work interaction and the administrative structure of schools. Hypothesis 5 stated: There is no significant relationship between professional work interaction and professional role orientation. Hypothesis 6 stated: There is no significant relationship between professional role orientation and the administrative structure of schools. Hypothesis 7 predicted: There are no significant relationships among teachers' ratings of their school's effectiveness, their professional role orientations, the administrative structure of their school and their professional work interaction.

Conceptual Framework

The Mintzberg (1979) model of a professional bureaucracy, supplemented by theoretical literature, served as the conceptual framework for the study. Mintzberg's (1979) description of a professional bureaucracy stated that professionals, because they demand control over their work processes, insist on low bureaucratic structure in their organizations. This low structure may result in problems in work coordination. Evaluation is difficult because professionals control their own work to a great extent, methods are not agreed upon, and goals are nebulous.

Literature on organizational effectiveness, professional role orientation, administrative structure and professional work interaction in schools was drawn on to complete the conceptual framework. Because of

the difficulty in evaluating professional bureaucracies, teachers' ratings of their school's effectiveness were selected as the appropriate measure, based on the work of Mott. It was inferred from the literature received that teachers' perceptions of their school's effectiveness were influenced by their professional role orientation. Their professional role orientation may act as a mediating variable between their effectiveness ratings and their work related interaction. It was extrapolated that schools that were rated as more effective by teachers with high professional role orientations would have low structure and greater work interaction. In the same way, a school that was staffed with teachers who had low professional role orientations would be rated as effective if it had high structure and low work interaction.

Methodology

Population. The population consisted of the principals and all the classroom teachers in the twenty-one largest elementary schools, kindergarten to year eight, in the Saskatoon School Division, Number 13.

Data Collection. The principals were interviewed using the Aston Interview Schedule of Selected Organization-Level Information, revised by Sackney (1976). Twenty-one principals were interviewed in May and June of 1982. Responses were taped and transcribed. Three hundred forty-four teachers completed questionnaires in the same two months. The three part questionnaire consisted of a section on effectiveness, (Mott, 1972), a Professional Role Orientation Scale, (Hrynyk, 1966) and a Professional Work Interaction Scale (Charters, 1973).

Statistical Treatment. The data were analyzed in three ways. First, the data from all twenty-one schools were subjected to a multivariate analysis. Means, ranges, standard deviations and Pearson product moment correlations were computed. Stepwise multiple regression was used to order the dependent variables of professional role orientation, structure and professional work interaction in relation to the dependent variable, effectiveness.

Second, the scores of the structure variables were used to divide the schools into two groups for each variable, schools with either high and low structure. The professional role orientation scores for the high and low structure schools were computed, forming four groups for each structure variable, for example: (1) high centralization, high professional role orientation, (2) high centralization, low professional role orientation, (3) low centralization, high professional role orientation, and (4) low centralization, low professional role orientation. Means for effectiveness ratings and for the three dimensions of professional work interaction were calculated for each group. Hypotheses were tested by the use of t or F tests. Where the F test proved to be significant beyond the .05 level, the Scheffé method of multiple comparison of means was applied. In the statistical analysis the level of significance used as a basis for accepting or rejecting the null hypothesis was set a priori at .05, except for the Scheffé comparison which was set at .10.

II. Results and Discussion

Hypotheses one concerned relationships between school effectiveness and teachers' professional role orientation. Null hypothesis one predicted no significant relationships between effectiveness and teachers' professional role orientation. While no significant relationships were found between effectiveness and the total professional role orientation scores, the dimensions of knowledge and colleagueship were related to effectiveness, yielding Pearson product moment coefficients of .43 and .38 respectively. The null hypothesis was partly supported.

Hypothesis two stated that there was no significant relationship between school effectiveness as perceived by teachers and the administrative structure of their schools. When Pearson product moment correlation coefficients were computed, the only dimension of structure to relate significantly to effectiveness was functional specialization with a coefficient of .40. One way analysis of variance revealed that the mean scores of functional specialization were significantly higher in high effectiveness schools. The systematic distribution and wide delegation of tasks that were performed in the school was associated more closely with effectiveness than the other variable of structure. The positive relationship between effectiveness and functional specialization, combined with relationships that were not significant between other variables of structure and effectiveness, led to the partial support of the null hypothesis.

Hypotheses three, four and five were concerned with a dimension of professional work related interaction. Hypothesis 3 stated:

There are no significant relationships between teachers' ratings of school effectiveness and professional work interaction. The computation of Pearson product moment correlation coefficients yielded no coefficients which were significant at the .05 level. When teachers rated their school's effectiveness, teacher interaction, principal-teacher interaction and total interaction time, it did not relate in a significant way to these ratings. The null hypothesis was supported.

Hypotheses four predicted no significant relationship between professional work related interaction and administrative structure. The computation of Pearson product moment correlation coefficients revealed an inverse relationship of -.39 between total work interaction time and centralization. A coefficient of .45 was found between total work interaction time and autonomy. The finding of an inverse relationship between total interaction time and centralization of decision making was reinforced by the positive correlation coefficient between total interaction time and autonomy, illustrating that in schools where the structure allows more decision making at the school level, more interaction time is spent among professionals. The size of the school was related inversely to the frequency of principal-teacher interaction by a correlation coefficient of -.43, but positively related both to teacher interaction and total interaction time with coefficients of .40 and .61 respectively. As the school increases in size, it would seem that the principal has less time to interact with each teacher; however, in large schools teachers apparently tend to interact more with each other. The null hypothesis was partly supported.

Hypothesis five stated: There is no significant relationship

between professional work interaction and professional role orientation. The only significant relationship identified was a correlation of .39 between principal-teacher interaction and the service dimension of the professional role orientation scale. Teachers appeared to find some support to their professional belief that teachers had a lifetime mission of service to society to perform by interacting with their principals.

Hypothesis six stated: There are no significant relationships between professional role orientation of teachers and the administrative structure in schools. When Pearson product moment correlation coefficients were computed, only two significant coefficients were identified and both of them were negative. Between centralization and knowledge a -.44 coefficient indicated that schools lower in centralization of decision making tended to have teachers with higher knowledge scores. A -.41 correlation coefficient between the size of the school and service indicated that in larger schools teachers have a tendency to express less belief in the idea of the profession of education as a lifetime mission of service to the community. The null hypothesis was partly supported.

Hypothesis seven predicted no significant relationships among teachers' ratings of their school's effectiveness, their professional role orientation, the administrative structure of their school and their professional work interaction. The first nine variables ordered in a multiple regression analysis related significantly to school effectiveness: knowledge, functional specialization, professional freedom, service, colleagueship, principal-teacher interaction, standardization, autonomy and size. The first two variables accounted for thirty-six

percent of the seventy-five percent of the variance in effectiveness accounted for in the analysis. Four of the first five variables were dimensions of professional role orientation, which account for thirty-eight percent of the variance, or slightly more than half the total variance accounted for.

Further analysis of the data by comparing the means for both effectiveness and work interaction for groups arranged by structure and individual teacher's professional role orientation scores revealed that the highest effectiveness scores were given to their schools by teachers with high professional role orientation scores. Both for principal-teacher interaction and interaction among teachers, teachers with high professional role orientation scores interacted more than teachers with low professional role orientation scores.

In the multiple regression equation computed for testing hypothesis eight, only nine of the variables were related significantly to effectiveness. All the comparisons of the mean effectiveness ratings and interaction scores did not reveal significant differences. The null research hypothesis was partly supported.

The analysis of the data for hypothesis seven summarizes the findings for the main problem. After most of the professional role orientation dimensions and functional specialization were taken into account in teachers' ratings of their school's effectiveness, three other structure variables made significant contributions, as did principal-teacher interaction.

III. Conclusions and Implications of the Study

The major c[illegible]and their implications are summarized in two areas: theoreti[illegible]thodological conclusions with the implications for furth[illegible]esea[illegible]some additional conclusions that may have practice i[illegible]cati[illegible]for school administrators. It should be noted that only t[illegible]at[illegible]answers can be inferred from the present study so that general[illegible]o other situations must be done with extreme care.

Theoretical a[illegible]ethodological Conclusions and Implications for Further [illegible]earch

From the r[illegible]lts of the study, the following conclusions and their implications wer[illegible]rawn.

1. The model of a professional bureaucracy was useful in studying school organizatio[illegible] because it emphasized the complicated relationships between the admini[illegible]rative structure of the school and the professional role of the teach[illegible]s well as the difficulty in assessing the effectiveness of the [illegible]as an organization.

The model took into account the control the professional required in dealing with students, yet recognized the desire for some administrative structure to facilitate the efficient operation of the total school. This recognition of the need for structure was important to the study.

Another dimension of the model was the description of the professional as someone who wanted to be left alone. Mintzberg's (1979) conclusion was that the resulting lack of communication would create coordination problems. In that way the model provided a purpose for the study of work interaction. The results of the study indicate that the lack of association of work related interaction with the effectiveness of schools was congruent with the model.

The utility of the model for education could be extended by research that delineated characteristics of effectiveness in a professional bureaucracy. Following this research, the particular criteria for school effectiveness viewed from the perspective of the school as a professional bureaucracy need to be determined. The use of Mintzberg's (1979) model would assist the researcher to be aware of school evaluation problems, such as those associated with nebulous goals, that Mintzberg (1979) cites.

2. The dimensions of structure appropriate for studying manufacturing organizations may not be the most appropriate dimensions for analyzing a professional bureaucracy.

The dimensions of structure examined in this study were adapted from the research on manufacturing organizations. The analysis of relationships among these structure variables, teachers' professional role orientation and school effectiveness, pointed to very little association between teachers' ratings of school effectiveness and several dimensions of administrative structure.

The structure of manufacturing organizations usually is designed to provide bureaucratic control. The model of a professional bureaucracy provides for awareness of teachers' desire to control their own work processes while still needing an administrative structure to resolve problems and to coordinate education at the school, school system and community levels. A professional bureaucracy also makes provision for standardization of skills to replace standardization of procedures and centralization of decision making. Discerning the dimensions of structure that are associated with the coordination of education in the school, and with teachers' perceptions of school effectiveness may be

done more readily by using an instrument designed specifically for professional bureaucracies.

3. Because of the number of items on the Aston interview schedule that fall within the jurisdiction of central authority beyond the school, it is not particularly well suited to studying schools within one system.

It is difficult to analyze the administrative structure of schools without examining the structure of the school system to which the schools belong. The use of the Aston methodology in this study has pointed to the need for identifying those dimensions of administrative structure at the school system level which control the structure variables of the school. When comparative studies of individual schools are conducted, the controls exercised by the school system and by the Department of Education need to be recognized so that the research can focus on those characteristics of structure that can vary significantly from school to school.

4. The frequency and amount of professional work interaction among teachers, although related to some dimensions of school structure, were not related to school effectiveness.

Previous studies (Wynne, 1981; Goodlad, 1980) have identified teacher interaction as a characteristic of an effective school. In the present study the position was taken that administrative structure was related to the behavior of professionals in a school, and therefore would affect their ratings of school effectiveness. While the structural element of centralization was inversely associated with total work interaction time and autonomy was positively related to total work interaction time, no significant relationships between interaction and effectiveness were revealed.

The charcteristics of work interaction measured were those largely under the individual teacher's control, such as discussion with others about students and cuurricula. No attempt was made to measure interaction among teachers in committees established by the principal to solve school problems. In the future, studies that include the interaction necessitated by the formal organization may discern relationships among structure, work interaction and effectiveness.

Conclusions and Implications for Practice

1. The frequency of professional work interaction between the principal and teachers with high professional role orientations is associated positively with school effectiveness.

This study was based on the theoretical position that teachers with high professional role orientations would interact more both with principals and each other in schools with low administrative structure. The research findings revealed positive relationships among teachers' ratings of school effectiveness, high professional role orientation, high functional specialization and high principal-teacher interaction.

The relationships among high professionally oriented teachers' ratings of school effectiveness, principal-teacher interaction and functional specialization may reinforce Mintzberg's (1979:63) contention that the administrator's task is to smooth the way for the professional by obtaining resources and coordinating the work of the staff. For teachers to ensure that their needs are met, they may turn to the principal as the person who is able to control the availability of resources.

The finding that high professionally oriented teachers rate schools

with high functional specialization as effective implies that by establishing a fairly high degree of structure in that area, the administrator establishes a clear framework, leaving the teachers more time to concentrate on teaching. By determining the number of duties staff are responsible for, and by sharing the duties equitably among the staff, the administrator reduces the amount of time each staff member must spend on duties outside the classroom.

There are two implications for the allocation of principals' time. First, it is important that the principal is readily available to teachers so that interaction can be encouraged. Second, the establishment of a high level of functional specialization is the responsibility of the principal or his designate. Duties outside the classroom need to be clearly designated and equitably distributed for high professional role orientation teachers to perceive the school as effective.

2. Because professional role orientation is multi-dimensional, some facets of teacher values and beliefs are more closely related to school effectiveness than others.

The analysis of the data showed that the knowledge dimension of professional role orientation made a considerably larger contribution to the prediction of school effectiveness than other dimensions. The implication is that the teacher values professional knowledge and skills because of the service they provide to students. The provision of that service increases the effectiveness of the school. Awareness of the relationship of the teacher's professional knowledge to their rating of effectiveness in schools may encourage school administrators to foster teachers' attendance at university or in-service sessions, thereby, in the long run, increasing both the teachers' knowledge and the school's

effectiveness.

Because of the contribution of four of the five variables of professional role orientation to teachers' ratings of school effectiveness, principals may wish to encourage the development of professional values in staff members. They may wish to reinforce beliefs in service and colleagueship while providing a climate suitable for professional freedom.

Examination of the data revealed that teachers' support for the Saskatchewan Teachers' Federation as a core organization had almost no relationship to their ratings of school effectiveness. This finding may have implications for principals and teachers who are particularly involved in the activities of the Saskatchewan Teachers' Federation. It may be useful for them to analyze whether they are serving the needs of the Federation or of the teaching profession. One of the goals of the Federation is to assist teachers to increase their professional skills. If this goal is being accomplished, it would seem that teachers should perceive a closer relationship between membership in the Saskatchewan Teachers' Federation and school effectiveness. If principals and teachers are aware of the lack of perceived relationship between membership in the Saskatchewan Teachers' Federation and school effectiveness, they may be able to influence the Federation to provide activities in the future that will assist more teachers in professional growth.

3. The dimensions of administrative structure measured that were controlled by school district policy were less closely related to teachers' ratings of school effectiveness than the structure variables controlled by the school.

The advantage of the Aston methodology was that it strives to use

objective data and avoids confusing classroom processes with administrative structure. However, many of the items included on the interview short form were controlled by school district policy. The exception to this was the dimension of functional specialization, the variable that was most closely related to teachers' ratings of their school's effectiveness. Structure variables under the control of central office may not have a significant bearing on the effectiveness of individual schools and on teachers' ratings of school effectiveness.

Support for this stance can be drawn from Mintzberg's (1979) model of a professional bureaucracy. Teachers working within an organizational structure have come to expect control over certain functions in education to be concentrated at different levels of the educational hierarchy. As professionals they have defined certain areas over which they wish to exert control, such as the instructional system, the choice of education programs, co-curricular programs and direct interaction with students. They accept the bureaucratic administrative structure of the school system as long as it does not impinge on the professional areas of their work because the administrative structure makes provision for the resources, including the support services they need. (Mintzberg, 1979:357). A process of mutual adjustment between the administrative structure of the school system, the school's administrative structure and the professional in the classroom seems to be allowing each level to perform the work required with a minimum of dysfunction.

Teachers appear to have expectations for the establishment of school structure in which routine tasks are categorized and systemati-

cally dealt with or delegated. They expect to be protected from disturbances in the environment. When teachers rate the effectiveness of their school, among other things, they may be rating the administrative structure for the efficiency with which it fulfills those expectations.

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APPENDIX A

INSTRUMENTS

cc
1 - 4

SCHOOL EFFECTIVENESS School ----\----------

Questionnaire - Part A

Please check the statement that best represents your opinion.

All workers produce something in their work. It may be a product or a service. Below are listed some of the products and services produced in a school system.

instruction	information for parents
student evaluation	extra curricular activities
typed pages	recommended policies and procedures
new programs	staff papers and studies

1. These are just a few of the things being produced. We would like you to think carefully of the things produced by the people who work in your school. Thinking now of the various things produced by the people you know in your school, how much are they producing?

Check one: 5

____ 1. Their production is very low
____ 2. It is fairly low.
____ 3. It is neither high nor low.
____ 4. It is fairly high.
____ 5. It is very high.

2. How good would you say is the quality of the products or the services produced by the people you know in your school? 6

Check one:

____ 1. Their quality is poor.
____ 2. Their quality is not too good.
____ 3. Their quality is fair.
____ 4. Their quality is good.
____ 5. Their products or services are of excellent quality.

3. Do the people in your school seem to get maximum output from the resources (money, people, etc.) they have available? How efficiently do they work? 7

Check one:

____ 1. They do not work efficiently at all.
____ 2. Not too efficiently.
____ 3. Fairly efficiently.
____ 4. They work very efficiently.
____ 5. They work extremely efficiently.

4. How good a job is done by the people in your school in anticipating problems that may come up in the future and preventing them from occurring or minimizing their effects? 8

Check one:

____ 1. They do a poor job in anticipating problems.
____ 2. Not too good a job.
____ 3. A fair job.
____ 4. They do a very good job.
____ 5. They do an excellent job of anticipating problems.

	cc
5. From time to time newer ways are found to organize work, and newer equipment and techniques are found with which to do the work. How good a job do the people in your school do in keeping up to date with these changes that could affect their work? Check one: ____ 1. They do a poor job of keeping up to date. ____ 2. Not too good a job. ____ 3. A fair job. ____ 4. They do a good job. ____ 5. They do an excellent job of keeping up to date.	9
6. When changes are made in routines or equipment, how quickly to the people in your school accept and adjust to these changes? Check one: ____ 1. Most people accept and adjust to them very slowly. ____ 2. Rather slowly. ____ 3. Fairly rapidly. ____ 4. They adjust to them very rapidly, but not immediately. ____ 5. Most people accept and adjust to them immediately.	10
7. What portion of the people in your school readily accept and adjust to these changes? ____ 1. Considerably less than half accept and adjust to these changes readily. ____ 2. Slightly more than half do. ____ 3. The majority do. ____ 4. Considerably more than half do. ____ 5. Practically everyone accepts and adjusts to these changes readily.	11
8. From time to time emergencies arise, such as crash programs, schedules moved ahead, or non-English speaking children enrol. When these emergencies occur they cause work overload for many people. Some work groups cope with these emergencies more readily and successfully. How good a job do the people in your school do in coping with these situations? Check one: ____ 1. They do a poor job of handling emergency situations. ____ 2. They do not do very well. ____ 3. They do a fair job. ____ 4. They do a good job. ____ 5. They do an excellent job of handling these situations.	12

PROFESSIONAL ROLE ORIENTATION

Questionnaire-Part B.

Please indicate the degree to which you agree or disagree with each statement on the following page by circling the appropriate category. As your first reactions are important, please respond to each item swiftly.

There are five possible responses for each statement:

strong agree	(SA)		
agree	(A)	disagree	(D)
undecided	(U)	strongly disagree	(SD)

Please respond to every item

							cc
1.	It is vital to his/her effectiveness that the teacher possess a thorough knowledge of the subject matter.	SA	A	U	D	SD	13
2.	Persons should be evaluated primarly on the basis of their ability to communicate knowledge.	SA	A	U	D	SD	14
3.	Persons should be allowed to teach in Saskatchewan even if their total education is less than a B.Ed.	SA	A	U	D	SD	15
4.	In case of a dispute between the Saskatchewan Teachers' Federation and another provincial authority, the teacher owes prime loyalty to the S.T.F.	SA	A	U	D	SD	16
5.	Teachers' practices should be based primarily on their acquaintance with educational literature and research.	SA	A	U	D	SD	17
6.	Knowledge of educational theory is vital for effective teaching.	SA	A	U	D	SD	18
7.	Teachers should not be expected to give after-hours instruction to pupils who are not doing well in their school work.	SA	A	U	D	SD	19
8.	I would rather teach than do anything else for a living.	SA	A	U	D	SD	20
9.	Because of what I am able to do for society, I would continue to teach even if I could earn more money at another vocation.	SA	A	U	D	SD	21
10.	Teachers should be prepared to devote the whole of their working lifetime to the occupation of teaching.	SA	A	U	D	SD	22
11.	Teachers should encourage as many of their students as possible to enter teaching as a vocation.	SA	A	U	D	SD	23
12.	Teachers should promote what they deem to be needed social changes through their contact with studnts in school	SA	A	U	D	SD	24

							cc
13.	Membership in the Saskatchewan Teachers' Federation should be more important to teachers than membership in most other organizations to which they belong.	SA	A	U	D	SD	25
14.	I do not feel that I am a real integral part of the provincial S.T.F.	SA	A	U	D	SD	26
15.	Only the S.T.F. should speak for all teachers on professional matters.	SA	A	U	D	SD	27
16.	The Saskatchewan Teachers' Federation is the best body to oversee the enforcement of a code of ethics for teachers.	SA	A	U	D	SD	28
17.	Teachers should try to live up to what they think are the standards of the profession even if the administration or the community does not seem to respect these same standards.	SA	A	U	D	SD	29
18.	The degree of respect that it commands from other teachers around the province is not a major criterion of a good school.	SA	A	U	D	SD	30
19.	Teachers should subscribe to and read the major professional journals.	SA	A	U	D	SD	31
20.	Teachers should not try to put what they believe to be standards and ideals of good teaching into practice if the procedures of the school prohibit them.	SA	A	U	D	SD	32
21.	A teacher should be a member of at least one specialist council and should take an active part in it.	SA	A	U	D	SD	33
22.	A teacher should not tive more consideration to the views of other teachers than to those of the public.	SA	A	U	D	SD	34
23.	Unless teachers are satisfied that it is best for the student, teachers should not do anything which someone else tells them to do.	SA	A	U	D	SD	35
24.	Teachers should not do anything that may jeopardize the interests of their students, regardless of who gives the directive or what school rules state.	SA	A	U	D	SD	36

		cc
25.	Small matters should not have to be referred to someone higher up for a final answer. SA A U D SD	37
26.	The ultimate authority over the major educational decisions should be exercised by qualified teachers. SA A U D SD	38
27.	Decisions concerning textbooks, references and courses of study should be made by teachers or groups of teachers and not by the Department of Education. SA A U D SD	39
28.	Teachers should not be any more concerned than they are at present, about the adequacy of the schools' programs for all students. SA A U D SD	40
29.	If I had the choice, I would not belong to the Saskatchewan Teachers' Federation at the provincial level. SA A U D SD	41

WORK INTERACTION

Questionnaire-Part C

Please indicate the frequency of your communication by circling the appropriate number.

There are six possible responses for each item:

1. never
2. once or twice a year
3. once a month
4. once a week
5. several days a week
6. daily

				cc
I.	How often do you talk to your principal about:			
	1. General curriculum plans for the class.	1 2 3 4 5 6		42
	2. The schedule of teaching activities.	1 2 3 4 5 6		43
	3. Student reactions to a particular lesson.	1 2 3 4 5 6		44
	4. Evaluation of students.	1 2 3 4 5 6		45
	5. Learning needs of a particular student.	1 2 3 4 5 6		46
	6. Social or emotional needs of students.	1 2 3 4 5 6		47

		CC
7. Getting teaching resources or supplies.	1 2 3 4 5 6	48
8. Attending in-service.	1 2 3 4 5 6	49

There are six possible responses for each item:

1. never
2. once or twice a year
3. once a month
4. once a week
5. several days a week
6. daily

II. How often do you talk to other teachers about:

1. General curriculum plans for the class.	1 2 3 4 5 6	50
2. The schedule of teaching activities.	1 2 3 4 5 6	51
3. Student reactions to a particular lesson.	1 2 3 4 5 6	52
4. Evaluation of students.	1 2 3 4 5 6	53
5. Learning needs of a particular student.	1 2 3 4 5 6	54
6. Social or emotional needs of students.	1 2 3 4 5 6	55
7. Getting teaching resources or supplies.	1 2 3 4 5 6	56
8. Attending in-service.	1 2 3 4 5 6	57

III. Please indicate:

1. The total number of hours you spend in the school each week, including lunch hour if you spend it at school. (There are 32.5 hours from 9:00 - 3:30, including lunch).	_____	58
2. The number of hours you work in isolation from other teachers during the week. (Please do not include working with teacher aides.)	_____	59

WORK INTERACTION SCORING PROCEDURES

Part I

Interaction Between the Principal and Teacher. For each of the eight items, assign a score corresponding to the number circled. Sum the scores.

Part II

Interaction Between Teachers. For each of the eight items, assign a score corresponding to the number circled. Sum the scores.

Part III

Total Interaction Time. Calculate a ratio between the total number of hours the teacher spent in the school each week and the number of hours worked in isolation from other teachers during the week.

SCHOOL EFFECTIVENESS SCORING PROCEDURES

For each of the eight items, assign a score corresponding to the number circled. To obtain a total effectiveness score, sum the weighted scores for all eight items.

PROFESSIONAL ROLE ORIENTATION SCALE SCORING PROCEDURES

Item No.	Subscale	Directional Weighting
1	Knowledge	Positive
2	Knowledge	Positive
3	Knowledge	Reflected
4	Core-Org.	Positive
5	Knowledge	Positive
6	Knowledge	Positive
7	Service	Reflected
8	Service	Positive
9	Service	Positive
10	Service	Positive
11	Service	Positive
12	Service	Positive
13	Core-Org.	Positive
14	Core-Org.	Reflected
15	Core-Org.	Positive
16	Core-Org.	Positive
17	Colleague-Prof.	Positive
18	Colleague-Prof.	Reflected
19	Colleague-Prof.	Positive
20	Colleague-Prof.	Reflected
21	Colleague-Prof.	Positive
22	Colleague-Prof.	Positive
23	Professional Freedom	Positive
24	Professional Freedom	Positive
25	Professional Freedom	Positive
26	Professional Freedom	Positive
27	Professional Freedom	Positive
28	Professional Freedom	Reflected
29	Core-Org.	Reflected.

For each of the twenty-nine items assign a score according to the number circled and the direction given in the folloiwng procedures. Note that some of the items are reverse scored. To obtain a total P.R.O. sum the scores for each item.

DEPARTMENT OF EDUCATIONAL ADMINISTRATION

UNIVERSITY OF ALBERTA

INTERVIEW SCHEDULE

OF

SELECTED ORGANIZATION-LEVEL INFORMATION

Name of School _____

Address _____

Phone Number _____

Principal _____

Date _____

Pupil Enrolment _____

Teacher Allocation _____

Adapted from the Interview Schedule developed at the Industrial Administration Unit, University of Aston in Birmingham, England.
Revised for secondary schools by G. Kelsey and L. Sackney.
Adjusted for elementary schools by E. Rourke.

I. FUNCTIONAL SPECIALIZATION

I shall mention a number of activities which may or may not be performed in the school. For each activity, please tell me:

a. Whether it is performed in the school.
b. Whether it has been specifically and exclusively delegated to one person or group.
c. Who that person is.(may be a person, or an office or a group)
d. Whether the person or group delegated performs that activity full-time. (i.e., performs no other activity in the school)

Activity	Performed	Delegated: Yes/No	to Whom	Code
Activity #1 (Develop, legitimize and symbolize the organization's charter)				
1. Publicity, fund-raising functions, arranging appeals, etc.	____ ____	____ ____	. . . . .	1
2. Producing a school newspaper	____ ____	____ ____	. . . . .	2
3. Employing a school advisory committee.	____ ____	____ ____	. . . . .	3
4. Utilizing volunteer services.	____ ____	____ ____	. . . . .	4
5. Holding open house, career days, etc.	____ ____	____ ____	. . . . .	5
6. Offering courses, workshops, seminars, etc., after school hours.	____ ____	____ ____	. . . . .	6
7. Producing a school newsletter.	____ ____	____ ____	. . . . .	7
Activity #2 (Dispose of, distribute and service the output)				
8. Co-ordinating the presentation of collegiate advice to students	____ ____	____ ____	. . . . .	8
9. Conducting follow-up studies of graduates.	____ ____	____ ____	. . . . .	9
10. Liaison with institutes of further education.	____ ____	____ ____	. . . . .	10
11. Acting as a clearing-house for collegiate placement.	____ ____	____ ____	. . . . .	11

Activity #3 (Carrying outputs and resources from place to place)	Performed	Delegated: Yes/No	To Whom	Code
12. Co-ordinating transportation for field trips, athletics, and other outside trips.	____ ____	____ ____	. . . . .	12
Activity #4 (Acquiring and allocating human resources)				
13. Hiring teaching staff.	____ ____	____ ____	. . . . .	13
14. Hiring non-teaching staff.	____ ____	____ ____	. . . . .	14
15. Allocating staff to broad areas of work.	____ ____	____ ____	. . . . .	15
Activity #5 (Developing and transforming human resources)				
16. Co-ordination of in-service training or staff development services (other than staff meetings and departmental meetings)	____ ____	____ ____	. . . . .	16
Activity #6 (Maintaining human resources and promoting their identification with the organization)				
17. Co-ordination of staff welfare, social or sports activities.	____ ____	____ ____	. . . . .	17
18. Operating school lunch or cafeteria services.	____ ____	____ ____	. . . . .	18
Activity #7 (Obtaining and controlling materials and equipment)				
19. Buying materials and equipment.	____ ____	____ ____	. . . . .	19
20. Stock control.	____ ____	____ ____	. . . . .	20
Activity #8 (Maintaining and erecting buildings and equipment)				
21. Operating custodial services.	____ ____	____ ____	. . . . .	20
22. Maintenance of general school building and equipment.	____ ____	____ ____	. . . . .	22
Activity #9 (Recording and controlling financial resources)				
23. Performing business or accounting functions	____ ____	____ ____	. . . . .	23

Activity #10 (Controlling the workflow)	Performed	Delegated: Yes/No	to Whom	Code
24. Time-tabling and curriculum co-ordination.	____ ____	____ ____	. . . . .	24
25. Co-ordinating overall discipline procedures.	____ ____	____ ____	. . . . .	25
26. Co-ordinating curriculum content progress.	____ ____	____ ____	. . . . .	26
Activity #11 (Controlling the quality of materials, equipment and outputs)				
27. Co-ordinating student advancement from grade or from one level to the next.	____ ____	____ ____	. . . . .	27
28. Co-ordinating student testing (e.g. aptitude, interest inventories)	____ ____	____ ____	. . . . .	28
Activity #12 (Assessing and devising ways of producing the output)				
29. Devising or assessing new ways of time-tabling existing courses or programs.	____ ____	____ ____	. . . . .	29
30. Specialized activities to evaluate courses, teaching methods, etc.	____ ____	____ ____	. . . . .	30
Activity #13 (Devising new outputs, equipment and processes)				
31. Planning new teaching programs or courses.	____ ____	____ ____	. . . . .	31
32. Devising new teaching methodologies, groups, etc.	____ ____	____ ____	. . . . .	32
Activity #14 (Developing and operating new administrative procedures)				
33. Operating record keeping or filing systems for student records.	____ ____	____ ____	. . . . .	33
Activity #15 (Acquiring information on the operational field)				
34. Conducting surveys to assess the needs of the community and institutions of further education.	____ ____	____ ____	. . . . .	34
Activity #16 (Concerning legal and insurance requirements)				
35. Handling legal or insurance affairs.	____ ____	____ ____	. . . . .	35

II. FORMALIZATION

Documents

In this section I would like to ask about some documents which may or may not be used in the school. If possible, I would like to borrow copies of any which may be available.

1. Does the school have any general information booklets or manuals (e.g., policy manuals, rules and procedures booklets, calendars)?

Name of Document	School only	System wide	Distribution to
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .
. . . . .	___	___	. . . . .

2. Does the school have an organization chart? ___

If so, is it distributed to the principal only ___

to the principal plus assistant principal ___

to above plus department heads/coordinators ___

all staff ___

all staff and students ___

3. Are written terms of reference, job descriptions or operating instructions provided for any of the staff categories below? If so, are they applicable to this system only or to all schools in the school system?

	School only	System wide
Principal	___	___
Assistant principal, Department heads	___	___
Teaching staff	___	___
Non-teaching professional staff (counsellors, librarians, etc.)	___	___

Item No. for scoring purposes

1. No of system documents
2. Distribution of system documents.
8. No. of school documents.
9. Distribution of school documents.
3. System chart and distribution.
10. School chart and distribution.
4. No. of categories for whom system documents exist.

	School only	System wide	Item no. for scoring purposes
Secretarial staff/teacher aides	___ ___	___ ___	11. No. of categories for whom school documents exist?
Janitors/caretaking staff	___ ___	___ ___	
Transportation staff	___ ___	___ ___	
4. Is there a procedures or regulations manual? Yes/No	___ ___	___ ___	5. System manual 12. School manual
5. Is there a policy manual? Yes/No	___ ___	___ ___	6. System policies 13. School policies
6. Is there a written activities calendar for the school year? Yes/No	___ ___	___ ___	7. System calendar 14. School calendar
7. Does the school have any of the following?			
Written school rules?	___ ___	___ ___	15.
Written minutes of staff meetings?	___ ___	___ ___	16.
Written reports from standing committees?	___ ___	___ ___	17.
A written program for in-school research?	___ ___	___ ___	18.
Written agenda for staff meetings?	___ ___	___ ___	19.
Regular written administrative bulletins?	___ ___	___ ___	20.

Recording of Role Performance

1. Are teachers required to submit monthly curriculum reports? Yes/No	___ ___	___ ___	1.
2. Are there forms for requisitioning supplies? Yes/No	___ ___	___ ___	2.
3. Do teachers take daily class attendance? Yes/No	___ ___	___ ___	3.
4. Are there petty cash vouchers? Yes/No	___ ___	___ ___	4.
5. Is there a sickness (absence) record? Yes/No	___ ___	___ ___	5.
6. Record of instructor's performance Yes/No	___ ___	___ ___	6.
7. Record of maintenance work done? Yes/No	___ ___	___ ___	7.

III. STANDARDIZATION

In this section of the interview I am concerned with the standardization of procedures for recruitment, selection and operation utilized by your school. I would like to borrow copies of any reports, forms, memos, etc., which may be available.

			Aston no.	Item No. for scoring purposes
1.	Staff establishment are set by enrollment? YES NO		5	1
2.	What are your recruitment procedures?		8	2
	No standard procedures	0		
	Procedures for some positions	1		
	Procedures for all positions	2		
3.	How are staff selected? Who interviews?		10	3
	by faculty committee	0		
	by mixed committee (teachers and admin.)	1		
	by administration	2		
	by superintendent	3		
	by school board	4		
4.	How are principals selected? Who interviews?		11	4
	by selection board (teachers, board & Admin.)	0		
	by superintendent/board	1		
	by superintendent	2		
5.	Do you have a centralized interviewing procedure?		12	5
	not centralized	0		
	centralized	1		
6.	Do you have a centralized recruitment procedure?		13	6
	not centralized	0		
	centralized	1		
7.	Do staff members attend appropriate conferences?		26	7
	None	0		
	Irregular	1		
	Regular	2		
8.	Are there standard dismissal procedures? YES NO		41	8
9.	Materials and equipment ordering procedures are		44	9
	Ad hoc	0		
	By production plan (enrollment)	1		
	Stock on hand	2		
	Administrative approval	3		

			Aston no.	Item No. for scoring purposes
10.	Do you have a procedure for notifying purchases to Division office?	NO	49	10
	No procedure exists	0		
	There is a procedure	1		
11.	What is the itensity of inspection of teacher performance?		52	11
	None	0		
	As required for tenure	1		
	Irregular	2		
	Regular	3		
12.	Scheduling pace is determined by		57	12
	Individual instructors	0		
	Agreement among instructors	1		
	Specified by chairman, committee or administration	2		
13.	Communication-decision seeking: On which basis does one obtain a decision from the administration?		60	13
	Ad hoc	0		
	Procedure for some circumstances	1		
	Standard procedure	2		
	Submit a case in written form	3		
14.	Communication-decision conveying: On what basis are administrative decisions conveyed?		61	14
	Ad hoc	0		
	Sometimes a procedure is used	1		
	Always a procedure is used	2		
15.	Do teachers submit progress reports?		59	15
	No progress reports required	0		
	Irregular progress reports required	1		
	Regular progress reports required	2		
16.	Student evaluation is a result of		64	16
	Personal evaluation by the instrcutor	0		
	Across grade evaluation through common exams	1		
	Submission of marks to chairman/committee	2		
	Submission of marks to administration	3		

		Aston no.	Item No. for scoring purposes
17.	Tasks of instructors are defined by	67	17
	Intuition and experience of instructor 0 Instructions by Division Chairman 1 Orientation by administration 2 Written instructions specifiying tasks 3 All of the above		
18.	Obtaining ideas - Conference attending:	71	18
	There is no standard procedure to enable members of the organization's staff to attend conferences relevant to their work 0 There is a standard procedure to enable staff to attend 1		
19.	Obtaining ideas - Conference reporting:	72	19
	No standard procedure exists for staff to report back on conferences they have attended 0 There is a reporting-back procedure 1		

IV. CENTRALIZATION (AUTHORITY)

In this section of the interview I am concerned with the levels at which formal decision-making authority rests.

Who has the authority to decide? Authority means that action can be taken on the decision even though the decision may be subject to routine ratification at a later time. Others may ratify the decision, but its intentions will not be altered.

A list of decisions will be presented, please tell me, for each decision, who decides. Please answer in terms of the following categories.

0. TEACHER
1. DEPARTMENT HEAD OR VICE PRINCIPAL
2. PRINCIPAL
3. SUPERINTENDENT
4. SCHOOL BOARD
5. DEPARTMENT OF EDUCATION

		Item no. for scoring purposes
Who decides:		
1.	The number of teachers in the school	1
2.	The number of division heads in the school	2
3.	The appointment of a division head	3
4.	The appointment of a teacher	4
5.	The amount of allowance for division chairmen	5
6.	To spend unbudgeted or unallocated funds	6
7.	The type or brand of new equipment	7
8.	The introduction of a new program	8
9.	The introduction of a new course or subject	9
10.	Which employment or further education opportunities shall be presented to the students	10
11.	What shall be costed (i.e., to what the costing system, if any, shall be applied)	11
12.	What aspects of the school's operation shall be evaluated	12
13.	The promotion of students	13
14.	To dismiss a teacher	14
15.	To dismiss or demote a department head	15
16.	Lay down buying procedures	16
17.	Decide which supplier or materials will be used	17
18.	Responsibilities and/or area of work of teaching staff	18
19.	Responsibilities of caretakers	19
20.	What and how many staff welfare facilities are provided	20
21.	Create a new department (Functional specialist or line)	21
22.	To create a new job	22

V. CONFIGURATION

1.	Pupil enrolment		_____
2.	Number of teachers	full time	_____
		part time	_____
3.	Number of other professional staff (librarians, counsellors, etc.)	full time	_____
		part time	_____
4.	Number of professional administrative staff (principal, vice-principal, coordinators) .	full time	_____
		part time	_____
5.	Total number of professional staff		_____
6.	Number of clerical staff	full time	_____
		part time	_____
7.	Number of caretaking staff	full time	_____
		part time	_____
8.	Other employees (technicians, cooks, etc.) (specify categories)	full time	_____
		part time	_____
9.	Total employees (full time equivalents) . .		_____

INTERVIEW SCHEDULE SCORING PROCEDURES

Specialization

- Sum the number of activities performed (i).
- Sum the number of activities delegated (a).
- Determine the number of different delegates (b).

Score = $b^2/ai \times 100$.

Formalization

- Sum all scores on Documentation and Recording of Role Performance.

Documentation

- For item 1, Score = number of booklets.
- For items 2, 3, 4, 5, 6, 7, Score Yes = 1, No = 0, for school items only.
- Sum scores of all items.

Recording of Role Performance

- For items, Score Yes = 1, No = 0.
- Sum scores of all items.

Standardization

- For items 1, 5, 6, 8, 10, 18, 19, Score Yes = 1, No = 0.
- For items 2, 3, 4, 7, 9, 11, 12, 13, 14, 15, 16, 17, Score 0, or 1, or 2, or 3, or 4 depending on response.

Centralization

- Scale each item on a six point scale.
- 0 = teacher, 1 = Department Head, 2 = Principal, 3 = Superintendent, 4 = Board, 5 = Department of Education.
- Sum scores of all items.

Autonomy

- For all items, score each item with a 3, or 4, or 5 = 0, all other items = 1.
- Sum scores of all items.

APPENDIX B

SUPPLEMENTARY TABLES

TABLE XIX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY FUNCTIONAL SPECIALIZATION, P.R.O. GROUPS

	Group 1 Hi. Funct. Spec., Hi. P.R.O.	Group 2 Hi. Funct. Spec., Low P.R.O.	Group 3 Low Funct. Spec., Hi. P.R.O.	Group 4 Low Funct. Spec., Low P.R.O.
N	83	91	85	85
Mean	31.86*	30.42	30.33	28.85*
S.D.	3.51	4.45	4.20	4.42
Source	d.f.	s.s	m.s	F
Between Groups	3	380.50	126.83	7.29 (.0001)
Within Groups	340	5918.15	17.41	
Total	343	6298.65		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY FUNCTIONAL SPECIALIZATION, P.R.O. GROUPS

	Group 1 Hi. Funct. Spec., Hi. P.R.O.	Group 2 Hi. Funct. Spec., Low P.R.O.	Group 3 Low Funct. Spec., Hi. P.R.O.	Group 4 Low Funct. Spec., Low P.R.O.
N	83	91	85	85
Mean	21.65*	19.80	21.53	19.51*
S.D.	5.84	5.48	5.45	4.80

Source	d.f.	s.s.	m.s.	F
Between Groups	3	324.73	108.24	3.70 (.012)
Within Groups	340	9937.69	29.23	
Total	343	10262.43		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XXI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY FUNCTIONAL SPECIALIZATION, P.R.O. GROUPS

	Group 1 Hi. Funct. Spec., Hi. P.R.O.	Group 2 Hi. Funct. Spec., Low P.R.O.	Group 3 Low Funct. Spec., Hi. P.R.O.	Group 4 Low Funct. Spec., Low P.R.O.
N	83	91	85	85
Mean	29.22	27.65*	31.31*	29.29
S.D.	6.69	7.18	7.37	6.47

Source	d.f.	s.s.	m.s.	F
Between Groups	3	590.34	196.78	4.08 (.007)
Within Groups	340	16382.46	48.18	
Total	343	16972.79		

* Group 2 is significantly different from Group 3 at the .10 level.

TABLE XXII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE-COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY FUNCTIONAL SPECIALIZATION, P.R.O. GROUPS

	Group 1 Hi. Funct. Spec., Hi. P.R.O.	Group 2 Hi. Funct. Spec., Low P.R.O.	Group 3 Low Funct. Spec., Hi. P.R.O.	Group 4 Low Funct. Spec., Low P.R.O.
N	81	90	82	81
Mean	2.91	2.87	3.20	2.99
S.D.	2.93	2.82	3.57	4.99

Source	d.f.	s.s.	m.s.	F
Between Groups	3	9.36	3.12	.23 (.87)
Within Groups	330	4423.39	13.40	
Total	333	4432.75		

TABLE XXIII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY FORMALIZATION, P.R.O. GROUPS

	Group 1 Hi. Formalization, Hi. P.R.O.	Group 2 Hi. Formalization, Low P.R.O.	Group 3 Low Formalization, Hi. P.R.O.	Group 4 Low Formalization, Low P.R.O.
N.	111	115	57	61
Mean	30.74	29.90*	31.75**	29.21**
S.D.	3.91	4.38	3.95	4.71

Source	d.f.	s.s.	m.s.	F
Between Groups	3	231.73	77.24	4.33 (.005)
Within Groups	340	6066.93	17.84	
Total	343	6298.66		

* Group 2 is significantly different from Group 3 at the .10 level.

** Group 3 is significantly different from Group 4 at the .10 level.

TABLE XXIV

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY FORMALIZATION, P.R.O. GROUPS

	Group 1 Hi. Formalization, Hi. P.R.O.	Group 2 Hi. Formalization, Low P.R.O.	Group 3 Low Formalization, Hi. P.R.O.	Group 4 Low Formalization, Low P.R.O.
N	111	115	57	61
Mean	21.43*	18.81**,***	21.39***	21.26**
S.D.	5.56	4.49	5.81	5.28
Source	**d.f.**	**s.s.**	**m.s.**	**F**
Between Groups	3	568.25	189.42	6.64 (.000)
Within Groups	340	9694.17	28.51	
Total	343	10262.42		

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

*** Group 2 is significantly different from Group 3 at the .10 level.

TABLE XXV

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY FORMALIZATION, P.R.O. GROUPS

	Group 1 Hi. Formalization, Hi. P.R.O.	Group 2 Hi. Formalization, Low P.R.O.	Group 3 Low Formalization, Hi. P.R.O.	Group 4 Low Formalization Low P.R.O.
N	111	115	57	61
Mean	29.76	28.74	31.28*	27.89*
S.D.	6.90	6.91	7.42	6.82

Source	d.f.	s.s.	m.s.	F
Between Groups	3	404.54	134.85	2.77 (.041)
Within Groups	340	16568.17	48.73	
Total	343	16972.70		

* Group 3 is significantly different from Group 4 at the .10 level.

TABLE XXVI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFE MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY FORMALIZATION, P.R.O. GROUPS

	Group 1 Hi. Formalization, Hi. P.R.O.	Group 2 Hi. Formalization, Low P.R.O.	Group 3 Low Formalization, Hi. P.R.O.	Group 4 Low Formalization, Low P.R.O.
N	109	110	54	61
Mean	3.21	2.94	2.90	2.90
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	6.06	2.02	.15 (.93)
Within Groups	330	4426.69	13.41	
Total	333	4432.75		

TABLE XXVII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low Centralization, Low P.R.O.
N	79	90	89	86
Mean	30.52	29.43*	31.58**	29.90**
S.D.	3.77	4.53	4.03	4.47
Source	d.f.	s.s.	m.s.	F
Between Groups	3	231.20	77.07	4.32 (.005)
Within Groups	340	6067.47	17.85	
Total	343	6295.67		

* Group 2 is significantly different from Group 3 at the .10 level.

** Group 3 is significantly different from Group 4 at the .10 level.

TABLE XXVIII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low Centralization, Low P.R.O.
N	79	90	89	96
Mean	21.35	19.39*	21.80*	19.94
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	341.94	113.98	3.91 (.009)
Within Groups	340	9920.50	29.18	
Total	343	10262.44		

* Group 3 is significantly different from Group 2 at the .10 level.

TABLE XXIX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low centralization, Low P.R.O.
N	79	80	89	86
Mean	30.51*	27.73*	30.07	29.19
S.D.	5.95	6.52	8.01	7.19

Source	d.f.	s.s.	m.s	F
Between Groups	3	388.99	129.63	2.66 (.05)
Within Groups	340	16583.86	48.78	
Total	343	16972.74		

* Group 1 is significantly different from Group 2 at the .10 level.

TABLE XXX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low Centralization, Low P.R.O.
N	76	86	87	85
Mean	3.40	2.64	2.84	3.23
S.D.	3.21	2.94	3.30	4.82

Source	d.f.	s.s.	m.s.	F
Between Groups	3	31.31	10.44	.782 (.50)
Within Groups	330	4401.44	13.36	
Total	333	4432.75		

TABLE XXXI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFE MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	31.00*	29.18**	31.19**	30.14
S.D.	3.67	4.75	4.28	4.20

Source	d.f.	s.s.	m.s.	F
Between Groups	3	215.91	71.97	4.02 (.008)
Within Groups	340	6082.78	17.89	
Total	343	6297.69		

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 3 at the .10 level.

TABLE XXXII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	21.66*	19.70	21.50	19.61*
S.D.	5.94	5.05	5.26	5.28

Source	d.f.	s.s.	m.s.	F
Between Groups	3	321.71	107.24	3.67 (.013)
Within Groups	340	9940.75	29.24	
Total	343	10262.46		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XXXIII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	30.89*	29.80**	29.49	27.09**
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	691.84	230.61	4.82 (.003)
Within Groups	340	16280.93	47.89	
Total	343	16972.77		

* Group 1 is significantly different from Group 4 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

TABLE XXXIV

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	3.56*	3.66**	2.50	2.20*,**
S.D.	3.84	5.04	2.18	2.37

Source	d.f.	s.s.	m.s.	F
Between Groups	3	138.45	46.15	3.55 (.015)
Within Groups	330	4294.30	13.01	
Total	333	4432.75		

* Group 1 is significantly different from Group 4 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

TABLE XXXV

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O..	Group 4 Low Autonomy, Low P.R.O.
N	92	87	76	89
Mean	31.61*	30.11	30.45	29.21*
S.D.	3.53	4.31	4.32	4.65

Source	d.f.	s.s.	m.s.	F
Between Groups	3	266.19	88.73	5.00 (.002)
Within Groups	340	6032.47	17.74	
Total	343	6298.65		

* Group 1 differed significantly from Group 4 at the .10 level.

TABLE XXXVI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
N	92	87	76	89
Mean	21.54*	19.05**	21.64**	20.26
S.D.	5.44	4.90	5.89	5.34

Source	d.f.	s.s.	m.s.	F
Between Groups	3	385.40	128.47	4.42 (.005)
Within Groups	340	9877.07	29.05	
Total	343	10262.46		

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 3 at the .10 level.

TABLE XXXVII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
N	92	87	76	89
Mean	30.84*	29.05	29.59	27.85*
S.D.	7.49	7.23	6.58	6.49

Source	d.f.	s.s.	m.s	F
Between Groups	3	415.05	138.35	2.84 (.038)
Within Groups	340	16557.73	48.70	
Total	343	16972.78		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XXXVIII

SUMMARY DATA AND ANALYSIS OF VARIANCE FOR TOTAL INTERACTION TIME BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
N	91	85	72	86
Mean	3.32	3.27	2.83	2.59
S.D.	3.77	4.97	2.49	2.67

Source	d.f.	s.s.	m.s.	F
Between Groups	3	32.39	10.80	.81 (.49)
Within Groups	330	4400.37	13.33	
Total	333	4432.76		

TABLE XXXIX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	114	115	54	61
Mean	31.00*	29.97	31.26**	29.08***
S.D.	4.01	4.23	3.82	4.94

Source	d.f.	s.s.	m.s.	F
Between Groups	3	207.91	69.30	3.87 (.01)
Within Groups	340	6090.79	17.91	
Total	343	6298.70		

* Group 1 is significantly different from Group 4 at the .10 level.

** Group 3 is significantly different from Group 4 at the .10 level.

TABLE XL

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERATION BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	114	115	54	61
Mean	21.06*	18.88** ***	22.70***	21.13**
S.D.	5.52	4.81	5.76	5.49

Source	d.f.	s.s.	m.s.	F
Between Groups	3	621.40	207.13	7.31 (.000)
Within Groups	340	9641.04	28.36	
Total	343	10262.44		

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

*** Group 2 is significantly different from Group 3 at the .10 level.

TABLE XLI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	114	115	54	61
Mean	30.50*	29.18	29.80	27.05*
S.D.	7.16	7.09	7.01	6.26
Source	d.f.	s.s.	m.s.	F
Between Groups	3	487.63	162.54	3.35 (.019)
Within Groups	340	16485.09	48.49	
Total	343	16972.72		

TABLE XLII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	112	111	51	60
Mean	3.49*	3.41	2.26	2.04*
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	128.51	42.84	3.28 (.031)
Within Groups	330	4304.24	13.04	
Total	333	4432.75		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XLIII

SUMMARY DATA OF PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS

	Effectiveness	Professional Role Orientation	Knowledge	Service	Core-Organization	Colleagueship	Professional Freedom	Principal-Teacher Interaction	Teacher-Teacher Interaction	Total Interaction Time	Size	Functional Specialization	Formalization	Standardization	Centralization	Autonomy
Effectiveness	1.00	.26	.43	.27	.26	.38	-.20	.05	-.12	-.03	-.09	.40	.03	.00	-.24	.10
P.R.O.	.26	1.00	.80	.51	.56	.43	.50	-.16	-.07	.04	-.24	.09	.02	.06	-.30	.15
Knowledge	.43	.80	1.00	.36	.38	.22	.32	-.14	.24	.19	-.11	-.07	.05	.10	-.44	.21
Service	.03	.51	.36	1.00	.01	.26	-.04	.40	.00	-.01	-.41	-.04	-.18	.05	-.30	.11
Core Org.	.26	.56	.38	.01	1.00	.08	.01	-.18	-.23	.00	-.13	.26	-.02	-.05	.26	-.22
Colleagueship	.38	.43	.22	.26	.08	1.00	-.06	-.06	-.31	-.15	-.15	.15	-.08	.14	-.26	.16
Prof. Freedom	-.20	.50	.32	.04	.01	-.06	1.00	-.22	.09	.08	.04	-.09	.23	-.01	-.17	.16
Prin./Teacher Interaction	.05	-.16	-.14	.39	-.18	-.06	-.22	1.00	-.04	-.10	-.43	-.03	-.27	.29	-.09	-.11
Teacher-Teacher Interaction	-.12	-.07	.24	-.01	-.22	-.31	.09	-.04	1.00	.63	.40	-.25	-.06	.25	-.32	.45
Total Inter. Time	-.03	.04	.19	-.01	.00	-.15	.08	-.10	.63	1.00	.61	-.09	.07	.25	-.39	.49
Size	-.09	-.24	-.11	-.41	-.13	-.15	.04	-.43	.40	.61	1.00	.18	.36	.17	-.27	.59
Functional Specialization	.40	.09	-.07	-.04	.26	.15	-.09	-.03	-.25	-.09	.18	1.00	.32	.26	.06	.03
Formalization	.03	.02	.05	-.18	-.02	-.08	.23	-.27	-.06	.07	.36	.32	1.00	.21	.08	.10
Standardization	.00	.06	.10	.05	-.05	.14	-.01	.29	.25	.25	.17	.26	.21	1.00	-.13	.27
Centralization	-.24	-.29	-.44	-.30	.26	.26	-.17	-.09	-.32	-.39	-.27	.26	.08	-.13	1.00	-.64
Autonomy	.10	.15	.21	.11	-.23	.16	.16	-.11	.45	.49	.59	.03	.10	.27	-.64	1.00

Correlation coefficients of .38 and greater are significant at .05 and beyond with an N of 21.

APPENDIX C

LETTERS

To the Teacher:

On the following pages is a questionnaire which is part of a study of some of the elementary schools in Saskatoon. The purpose of the study is to investigate the relationships between the administrative structure of the school, characteristics of professional personnel, the work interaction of teachers and teachers' evaluation of their schools. The study has been approved by the administration of the Saskatoon Public School District. The research findings will be used as a part of a graduate thesis.

The questionnaire includes behaviors or conditions which have been found typical of many schools. Please indicate the extent to which each of these items characterizes your school.

Please be frank with your answers. Individual responses will be completely confidential. Each questionnaire will be given a code number. The responses on it will be transferred to computer cards so that complete anonymity in the analyses of the data and the final report is assured.

So that a biased sample is not received it is important that all questionnaires are returned. Please place your completed form in the provided envelope, seal it, and return it to your school secretary.

Thank you for cooperation. Without it this study would not be possible.

Eleanor Fouke

31 Kirk Crescent
Saskatoon, Saskatchewan
S7H 3B1

February 16, 1981

Dr. D. Hicks
Superintendent of Planning, Development and Research
Saskatoon Board of Education,
Saskatoon, Saskatchewan

Dear Dr. Hicks:

I would like to request permission to conduct a study on teachers' ratings of school effectiveness, professional role orientation, administrative structure and work interaction in Saskatoon Elementary Schools with teachers allocations of more than 14.0 professional staff. This would include twenty-one schools.

To collect the appropriate data, I would need to interview each principal for approximately one hour, using the interview form from the Aston scales on administrative structure. Teachers would be asked to fill in a questionnaire on the amount of time spent working with other teachers and their perceptions about instruction, including their interactions with their principals and co-workers in that area.

Upon the attainment of your permission to conduct the study, I shall contact the principal of each school to arrange an appropriate time. I hope to begin to collect the data at the end of March, continuing until the end of May if necessary.

I would be pleased to request permission from the principals as a group if that is desirable. Following the data analysis, the outcomes will be shared with principals.

Sincerely,

Eleanor Kaweske

TABLE XXVI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFE MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY FORMALIZATION, P.R.O. GROUPS

	Group 1 Hi. Formalization, Hi. P.R.O.	Group 2 Hi. Formalization, Low P.R.O.	Group 3 Low Formalization, Hi. P.R.O.	Group 4 Low Formalization, Low P.R.O.
N	109	110	54	61
Mean	3.21	2.94	2.90	2.90
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	6.06	2.02	.15 (.93)
Within Groups	330	4426.69	13.41	
Total	333	4432.75		

TABLE XXVII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low. Centralization, Hi. P.R.O.	Group 4 Low Centralization, Low P.R.O.
N	79	90	89	86
Mean	30.52	29.43*	31.58**	29.90**
S.D.	3.77	4.53	4.03	4.47
Source	d.f.	s.s.	m.s.	F
Between Groups	3	231.20	77.07	4.32 (.005)
Within Groups	340	6067.47	17.85	
Total	343	6295.67		

* Group 2 is significantly different from Group 3 at the .10 level.

** Group 3 is significantly different from Group 4 at the .10 level.

TABLE XXVIII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low Centralization, Low P.R.O.
N	79	90	89	96
Mean	21.35	19.39*	21.80*	19.94
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	341.94	113.98	3.91 (.009)
Within Groups	340	9920.50	29.18	
Total	343	10262.44		

* Group 3 is significantly different from Group 2 at the .10 level.

TABLE XXIX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low centralization, Low P.R.O.
N	79	80	89	86
Mean	30.51*	27.73*	30.07	29.19
S.D.	5.95	6.52	8.01	7.19

Source	d.f.	s.s.	m.s	F
Between Groups	3	388.99	129.63	2.66 (.05)
Within Groups	340	16583.86	48.78	
Total	343	16972.74		

* Group 1 is significantly different from Group 2 at the .10 level.

TABLE XXX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY CENTRALIZATION, P.R.O. GROUPS

	Group 1 Hi. Centralization, Hi. P.R.O.	Group 2 Hi. Centralization, Low P.R.O.	Group 3 Low Centralization, Hi. P.R.O.	Group 4 Low Centralization, Low P.R.O.
N	76	86	87	85
Mean	3.40	2.64	2.84	3.23
S.D.	3.21	2.94	3.30	4.82

Source	d.f.	s.s.	m.s.	F
Between Groups	3	31.31	10.44	.782 (.50)
Within Groups	330	4401.44	13.36	
Total	333	4432.75		

TABLE XXXI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFE MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Stand-ardization, Hi. P.R.O.	Group 2 Hi. Stand-ardization, Low P.R.O.	Group 3 Low Stand-ardization, Hi. P.R.O.	Group 4 Low Stand-ardization, Low P.R.O.
N	94	88	74	88
Mean	31.00*	29.18**	31.19**	30.14
S.D.	3.67	4.75	4.28	4.20

Source	d.f.	s.s.	m.s.	F
Between Groups	3	215.91	71.97	4.02 (.008)
Within Groups	340	6082.78	17.89	
Total	343	6297.69		

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TABLE XXXII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	21.66*	19.70	21.50	19.61*
S.D.	5.94	5.05	5.26	5.28

Source	d.f.	s.s.	m.s.	F
Between Groups	3	321.71	107.24	3.67 (.013)
Within Groups	340	9940.75	29.24	
Total	343	10262.46		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XXXIII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	30.89*	29.80**	29.49	27.09*,**
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	691.84	230.61	4.82 (.003)
Within Groups	340	16280.93	47.89	
Total	343	16972.77		

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** Group 2 is significantly different from Group 4 at the .10 level.

TABLE XXXIV

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY STANDARDIZATION, P.R.O. GROUPS

	Group 1 Hi. Standardization, Hi. P.R.O.	Group 2 Hi. Standardization, Low P.R.O.	Group 3 Low Standardization, Hi. P.R.O.	Group 4 Low Standardization, Low P.R.O.
N	94	88	74	88
Mean	3.56*	3.66**	2.50	2.20**
S.D.	3.84	5.04	2.18	2.37

Source	d.f.	s.s.	m.s.	F
Between Groups	3	138.45	46.15	3.55 (.015)
Within Groups	330	4294.30	13.01	
Total	333	4432.75		

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** Group 2 is significantly different from Group 4 at the .10 level.

TABLE XXXV

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O..	Group 4 Low Autonomy, Low P.R.O.
N	92	87	76	89
Mean	31.61*	30.11	30.45	29.21*
S.D.	3.53	4.31	4.32	4.65

Source	d.f.	s.s.	m.s.	F
Between Groups	3	266.19	88.73	5.00 (.002)
Within Groups	340	6032.47	17.74	
Total	343	6298.65		

* Group 1 differed significantly from Group 4 at the .10 level.

TABLE XXXVI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERACTION BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
N	92	87	76	89
Mean	21.54*	19.05**	21.64**	20.26
S.D.	5.44	4.90	5.89	5.34

Source	d.f.	s.s.	m.s.	F
Between Groups	3	385.40	128.47	4.42 (.005)
Within Groups	340	9877.07	29.05	
Total	343	10262.46		

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** Group 2 is significantly different from Group 3 at the .10 level.

TABLE XXXVII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
N	92	87	76	89
Mean	30.84*	29.05	29.59	27.85*
S.D.	7.49	7.23	6.58	6.49

Source	d.f.	s.s.	m.s	F
Between Groups	3	415.05	138.35	2.84 (.038)
Within Groups	340	16557.73	48.70	
Total	343	16972.78		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XXXVIII

SUMMARY DATA AND ANALYSIS OF VARIANCE FOR TOTAL INTERACTION TIME BY AUTONOMY, P.R.O. GROUPS

	Group 1 Hi. Autonomy, Hi. P.R.O.	Group 2 Hi. Autonomy, Low P.R.O.	Group 3 Low Autonomy, Hi. P.R.O.	Group 4 Low Autonomy, Low P.R.O.
N	91	85	72	86
Mean	3.32	3.27	2.83	2.59
S.D.	3.77	4.97	2.49	2.67

Source	d.f.	s.s.	m.s.	F
Between Groups	3	32.39	10.80	.81 (.49)
Within Groups	330	4400.37	13.33	
Total	333	4432.76		

TABLE XXXIX

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR EFFECTIVENESS BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	114	115	54	61
Mean	31.00*	29.97	31.26**	29.08***
S.D.	4.01	4.23	3.82	4.94

Source	d.f.	s.s.	m.s.	F
Between Groups	3	207.91	69.30	3.87 (.01)
Within Groups	340	6090.79	17.91	
Total	343	6298.70		

* Group 1 is significantly different from Group 4 at the .10 level.

** Group 3 is significantly different from Group 4 at the .10 level.

TABLE XL

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR PRINCIPAL-TEACHER INTERATION BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	114	115	54	61
Mean	21.06*	18.88**,***	22.70***	21.13**
S.D.	5.52	4.81	5.76	5.49

Source	d.f.	s.s.	m.s.	F
Between Groups	3	621.40	207.13	7.31 (.000)
Within Groups	340	9641.04	28.36	
Total	343	10262.44		

* Group 1 is significantly different from Group 2 at the .10 level.

** Group 2 is significantly different from Group 4 at the .10 level.

*** Group 2 is significantly different from Group 3 at the .10 level.

TABLE XLI

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TEACHER-TEACHER INTERACTION BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	114	115	54	61
Mean	30.50*	29.18	29.80	27.05*
S.D.	7.16	7.09	7.01	6.26
Source	d.f.	s.s.	m.s.	F
Between Groups	3	487.63	162.54	3.35 (.019)
Within Groups	340	16485.09	48.49	
Total	343	16972.72		

TABLE XLII

SUMMARY DATA, ANALYSIS OF VARIANCE AND SCHEFFÉ MULTIPLE COMPARISON OF MEANS FOR TOTAL INTERACTION TIME BY SIZE, P.R.O. GROUPS

	Group 1 High Size, Hi. P.R.O.	Group 2 High Size, Low P.R.O.	Group 3 Low Size, Hi. P.R.O.	Group 4 Low Size, Low P.R.O.
N	112	111	51	60
Mean	3.49*	3.41	2.26	2.04*
S.D.				

Source	d.f.	s.s.	m.s.	F
Between Groups	3	128.51	42.84	3.28 (.031)
Within Groups	330	4304.24	13.04	
Total	333	4432.75		

* Group 1 is significantly different from Group 4 at the .10 level.

TABLE XLIII

SUMMARY DATA OF PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS

	Effectiveness	Professional Role Orientation	Knowledge	Service	Core-Organization	Colleagueship	Professional Freedom	Principal-Teacher Interaction	Teacher-Teacher Interaction	Total Interaction Time	Size	Functional Specialization	Formalization	Standardization	Centralization	Autonomy
Effectiveness	1.00	.26	.43	.27	.26	.38	-.20	.05	-.12	-.03	-.09	.40	.03	.00	-.24	.10
P.R.O.	.26	1.00	.80	.51	.56	.43	.50	-.16	-.07	.04	-.24	.09	.02	.06	-.30	.15
Knowledge	.43	.80	1.00	.36	.38	.22	.32	-.14	.24	.19	-.11	-.07	.05	.10	-.44	.21
Service	.03	.51	.36	1.00	.01	.26	-.04	.40	.00	-.01	-.41	-.04	-.18	.05	-.30	.11
Core Org.	.26	.56	.38	.01	1.00	.08	.01	-.18	-.23	.00	-.13	.26	-.02	-.05	.26	-.22
Colleagueship	.38	.43	.22	.26	.08	1.00	-.06	-.06	-.31	-.15	-.15	.15	-.08	.14	-.26	.16
Prof. Freedom	-.20	.50	.32	.04	.01	-.06	1.00	-.22	.09	.08	.04	-.09	.23	-.01	-.17	.16
Prin./Teacher Interaction	.05	-.16	-.14	.39	-.18	-.06	-.22	1.00	-.04	-.10	-.43	-.03	-.27	.29	-.09	-.11
Teacher-Teacher Interaction	-.12	-.07	.24	-.01	-.22	-.31	.09	-.04	1.00	.63	.40	-.25	-.06	.25	-.32	.45
Total Inter. Time	-.03	.04	.19	-.01	.00	-.15	.08	-.10	.63	1.00	.61	-.09	.07	.25	-.39	.49
Size	-.09	-.24	-.11	-.41	-.13	-.15	.04	-.43	.40	.61	1.00	.18	.36	.17	-.27	.59
Functional Specialization	.40	.09	-.07	-.04	.26	.15	-.09	-.03	-.25	-.09	.18	1.00	.32	.26	.06	.03
Formalization	.03	.02	.05	-.18	-.02	-.08	.23	-.27	-.06	.07	.36	.32	1.00	.21	.08	.10
Standardization	.00	.06	.10	.05	-.05	.14	-.01	.29	.25	.25	.17	.26	.21	1.00	-.13	.27
Centralization	-.24	-.29	-.44	-.30	.26	.26	-.17	-.09	-.32	-.39	-.27	.26	.08	-.13	1.00	-.64
Autonomy	.10	.15	.21	.11	-.23	.16	.16	-.11	.45	.49	.59	.03	.10	.27	-.64	1.00

Correlation coefficients of .38 and greater are significant at .05 and beyond with an N of 21.

APPENDIX C

LETTERS

To the Teacher:

On the following pages is a questionnaire which is part of a study of some of the elementary schools in Saskatoon. The purpose of the study is to investigate the relationships between the administrative structure of the school, characteristics of professional personnel, the work interaction of teachers and teachers' evaluation of their schools. The study has been approved by the administration of the Saskatoon Public School District. The research findings will be used as a part of a graduate thesis.

The questionnaire includes behaviors or conditions which have been found typical of many schools. Please indicate the extent to which each of these items characterizes your school.

Please be frank with your answers. Individual responses will be completely confidential. Each questionnaire will be given a code number. The responses on it will be transferred to computer cards so that complete anonymity in the analyses of the data and the final report is assured.

So that a biased sample is not received it is important that all questionnaires are returned. Please place your completed form in the provided envelope, seal it, and return it to your school secretary.

Thank you for cooperation. Without it this study would not be possible.

Eleanor Fourie

31 Kirk Crescent
Saskatoon, Saskatchewan
S7H 3B1

February 16, 1981

Dr. D. Hicks
Superintendent of Planning, Development and Research
Saskatoon Board of Education,
Saskatoon, Saskatchewan

Dear Dr. Hicks:

I would like to request permission to conduct a study on teachers' ratings of school effectiveness, professional role orientation, administrative structure and work interaction in Saskatoon Elementary Schools with teachers allocations of more than 14.0 professional staff. This would include twenty-one schools.

To collect the appropriate data, I would need to interview each principal for approximately one hour, using the interview form from the Aston scales on administrative structure. Teachers would be asked to fill in a questionnaire on the amount of time spent working with other teachers and their perceptions about instruction, including their interactions with their principals and co-workers in that area.

Upon the attainment of your permission to conduct the study, I shall contact the principal of each school to arrange an appropriate time. I hope to begin to collect the data at the end of March, continuing until the end of May if necessary.

I would be pleased to request permission from the principals as a group if that is desirable. Following the data analysis, the outcomes will be shared with principals.

Sincerely,

Eleanor Kaweske