THE PERSONNEL, PROCESSES, AND TECHNIQUES USED BY MONTANA SECONDARY SCHOOL SUPERINTENDENTS WHEN MAKING DECISIONS

by

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The purpose of this study was to survey Montana Secondary School Superintendents to determine the personnel, processes, and techniques used in educational decision-making. The survey was conducted during April and May, 1985. The total population of Montana Secondary School Superintendents were surveyed, with a return rate of 60.1% on the questionnaire.

The study investigated the following areas of educational decision-making: (a) problem recognition; (b) type of decision required; (c) alternative generation; (d) personnel utilization and dependence upon specialists; (e) alternative selection and problem disposition; and (f) feedback mechanisms.

The results of this descriptive survey research lead to the following conclusions concerning the personnel involved in educational decision-making: (a) the building administrator is the most involved individual in the areas of scheduling, budget development, and administrative decisions and (b) the teachers are the most involved in the areas of curriculum planning and materials selection. A rank ordering from "most involved" to "least involved" in all areas of school operation is building administrator, central office staff, teachers, Board of Education, citizens and students.

It was also determined that the greatest amount of job specialization existed in the Class 1 schools.

Finally, it was determined that out of 22 quantitative management science techniques Montana Secondary School Superintendents utilize five of them frequently, six of them occasionally, and eleven of them are not used.
CHAPTER I

INTRODUCTION

Few people can deny the importance of having a good educational system in our society. Former Secretary of Education Terrel Bell (1984) commented that:

I am absolutely convinced that education is the promise of America. It is the only alternative to lives of poverty, ignorance, and frustration. It's the key to individual and national well-being (p. 78).

The quality of education in America is determined by several groups, including school boards, principals, and teachers, who are being held increasingly accountable for the results they obtain. The pressure for this increased accountability is manifesting itself in the form of taxpayers who refuse to support mill levy increases (Caughey, 1983, p. 1), parents who are seeking alternatives to the public school for their children (Naisbitt, 1984, pp. 157-160), and government commissions that give our educational system very poor grades by characterizing it as mediocre and describing it as having "... lost sight of the basic purposes of schooling, and the high
expectations and disciplined effort needed to attain them" (National Commission on Excellence in Education, 1983, p. 1).

Each school district has several individuals responsible for maintaining the quality and purpose of the overall educational program. The superintendent is an important professional who occupies a key and critical position in the school system and educational hierarchy. As the chief executive officer in the school district, the superintendent is in a position to impose a strong influence in all areas of school operation. This influence is a direct result of the superintendent's power of office, access to information, skill in mediation, and influence in analysis and planning (Campbell, Cunningham, Nystrand, & Usdan, 1980, pp. 269-270). Thus, the superintendent's ability to make accurate and timely decisions is a very important factor in assuring the quality of education in America.

The position and duties of the superintendent have evolved through the years in response to a changing school system and the demands that this system imposes upon its members. As the environment surrounding the school has changed politically, socially, and morally, so have the roles performed by the superintendent.

Four stages can be identified in the development of the superintendency. To begin with, the office was essentially a clerical one; board members needed someone to relieve them of minor details. In the second stage, the superintendent was chiefly an educator, often a scholar of some reputation. The third stage... the superintendent became a business manager. At this time, superintendents were budget builders, managers of property, school plant specialists, and directors of elections to pass tax levies and
bond issues. The fourth stage, perhaps still evolving, made the superintendent the chief executive and the chief professional adviser in the school system (Campbell, et al., 1980, pp. 219-220).

The position of the superintendents as advisers in extremely complex organizations greatly prohibits their ability to become specialists in any area, including many areas of school administration, yet they are called upon to make important decisions in these administrative areas everyday.

Line administrators, such as principals and superintendents, not only find it impossible to become specialists in academic subjects, they cannot even be specialists in a single area of administration. These areas may include curriculum development, staff personnel, student personnel, school plant, and finance and business management (Campbell et al., 1980, p. 254).

Ultimately the superintendent becomes a generalist due to the wide range of responsibilities that are part of the operation of the school system.

Superintendents and especially principals by the very nature of their assignments are generalists. Their responsibility is for the entire school system or the entire school. While teaching and learning are the main business of the school, many activities are required to carry out this function. These activities include goal determination, curriculum planning, personnel selection and supervision, organization of students into instructional groups, provisions for physical facilities, financial management, and accounting to the public. Inevitably, the line officer, whether superintendent or principal, has overall responsibility for fitting these pieces together (Campbell et al., 1980, p. 252).
Acting as a generalist it might be assumed that the variety of the superintendent's administrative experiences far exceeds the ability of the superintendent to keep up with new developments and advancements, in so many different fields.

If keeping abreast of developments is difficult for teachers in one field of knowledge, it is next to impossible for the administrator who must deal with several fields of knowledge (Campbell, et al., 1980, p. 252)

This discrepancy between the knowledge of the school superintendent and recent developments in the fields in which the superintendent operates may lead to situations in which school administrators, such as the superintendent, are required to make important decisions with inadequate or outdated knowledge. This process of decision-making under conditions of risk, or uncertainty, may lead to even greater disparities between the known and the unknown when decisions are made involving factors external to the school itself.

Forces outside of the school system also have a great impact upon its functioning. These forces are called the organization's relevant environment:

An organization's relevant environment consists of all factors outside of the system's boundary that are taken into consideration in the decision-making behavior of individuals in the system (Rogers & Agarwala-Rogers, 1976, p. 631).

The highly specialized environment of the school system will require a generalist such as the superintendent to turn to a variety of different resources when making decisions, or solving problems.
The resources relied upon may be personnel employed by, or associated, with the organization as "each generalist must rely on information and insights which only specialists can supply" (Campbell et al., 1980, p. 253). Resources may be techniques such as quantitative analysis which "provides managers with an effective means of examining various alternatives" (Bedeian & Glueck, 1983, p. 273). Finally, resources may be internalized processes, such as qualitative analysis, "based upon managerial experience and judgment" (Anderson, Sweeney, and Williams, 1979, p. 4). Often called intuition, qualitative techniques are as personal and unique as each superintendent.

Summary Statement

The superintendent of schools must make decisions that directly affect the operation of the school system. Due to the broad nature of the decisions made by the superintendent of schools, it is important that this chief executive of the school system develop a sound management and decision-making system which will insure that the best decision possible is implemented.

Statement of the Problem

The increasingly complex and rapidly changing environment of the school system requires the local superintendent of public schools to make numerous decisions daily. These decisions cover a wide range of areas involving parents, teachers, students, and other citizens, and they include such topics as management, finance,
personnel, facilities, and law. The final result of a decision may have a great impact on those groups, or individuals, that are affected by the decision. Although there have been several studies conducted concerning decision-making in the educational system, there has been little research effort directed specifically toward the personnel, processes, and management techniques used by the superintendent of schools when making decisions in a strict management sense. Considering the importance of the superintendent as the chief professional adviser to a school system it is necessary to understand the personnel, processes, and techniques that are used to make decisions or solve problems in the school system.

**Purpose of the Study**

The purpose of the study is to determine the personnel, processes, and techniques used by local superintendents of schools to arrive at decisions while involved as school administrators in the state of Montana.

**Need For the Study**

The review of pertinent literature reveals several studies that have been conducted to determine who is involved in decision-making within the local school system. A nationwide survey of high school principals indicated that teachers and building administrators were the groups most involved in decision-making, with citizens and students being the least involved groups (Tubbs & Beane, 1982, pp. 50-
In New Jersey a study was conducted (Sousa, 1982, p. 53) which indicted that in the majority of schools (65%) the decision-making authority in the school rested solely with the school principal.

Montana is a unique rural setting in that demographic characteristics of its residents are similar to other states in its immediate region but vastly different from other areas of the country with denser populations. Due to the rural nature of Montana it would not be accurate to assume that the findings of parallel studies conducted in other regions of the United States, such as the Tubbs and Beane study (1982), or the Sousa study (1982), would be applicable to school administrators in Montana.

There is a need to conduct a study that will focus upon the Montana school administrator specifically so as to determine the personnel, processes, and techniques, that are relied upon in the Montana educational system to solve problems by arriving at well-informed decisions. This study will assess the conditions of decision-making under the unique circumstances of rural Montana and will examine personnel, processes and techniques involved in decision-making by Montana School Superintendents representing the three (3) class sizes of school districts in Montana.

**Specific Objectives**

1. To determine the personnel who are utilized by Montana school superintendents when making decisions.
2. To determine the processes used by Montana school superintendents to make decisions.

3. To determine the techniques that are used by Montana school superintendents to arrive decisions or solutions for administrative problems.

These objectives will be answered by the responses of Montana school superintendents to the study questionnaire.

Definitions

Decision making conditions

Certainty - the decision maker has complete knowledge of the probability of the outcomes of each alternative.

Uncertainty - the decision maker has absolutely no knowledge of the probability of the outcomes of each alternative.

Risk - the decision maker has some probabilistic estimate of the outcomes of each alternative. Decision-making under risk is probably the most common situation (Gibson, Ivancevich, and Donnelly, 1982, p. 423).

Montana Class 1, 2, 3 School Districts

First Class - a population of more than 6,500 students

Second Class - a population of 1,000 students or more, but less than 6,500 students

Third Class - a population of less than 1,000 students

(Superintendent of Public Instruction, State of Montana, in
Nonprogrammed Decisions - novel and unstructured decisions that arise when there is no definite procedure for handling the problem either because it has not arisen in exactly the same manner before or because it is very important or complex (Simon, 1960, p. 6).

Optimal Solution - the best decision that can be made and implemented in a given situation. Often this type of decision is impossible to make because the decision maker cannot possibly know all available alternatives, the consequences of each, and their probability of occurrence (Gibson et al., 1982, p. 424).

Personnel - the individuals involved in the public school system and its operation.

Process - a particular method of doing something, with all of the steps involved. A continuing development involving many changes (Guralnik, 1971, p. 593). May be qualitative or quantitative.

Programmed Decisions - decisions that occur so frequently they become routine and repetitive, a definite procedure has been developed to handle them (Simon, 1960, p. 5).

Qualitative Analysis - analysis based upon managerial experience and judgment. This type of analysis includes the manager's intuitive 'feel' for the problem and is more an art than a science. This type of analysis is used when the manager has
had previous experience with the problem or when the problem is relatively simple (Anderson, Sweeney, & Williams, 1979, p. 3).

**Quantitative Analysis** - analysis based upon mathematical techniques in which the analyst concentrates on the quantitative facts or data associated with the problem to develop mathematical expressions that describe the objectives, constraints, and relationships that exist in the problem. Then using one or more quantitative techniques the analyst provides a decision recommendation based upon the quantitative analysis. Often used when the manager has had little experience with similar problems, or if the decision problem is important or complex (Anderson et al., 1979, pp. 3-4).

**Satisfactory Solution** - selection of an alternative that meets acceptable standards of acceptance (Gibson et al., 1982, p. 424).

**Superintendent/Administrator** - an individual who has completed the scholastic requirements and work experience necessary to hold the job title of superintendent of schools. This person acts in the capacity of a coordinator for the school management team (Haynes & Garner, 1977, p. 54) and as the chief professional adviser in the school system (Campbell et al., 1980, p. 220). This individual must be currently employed in the capacity of superintendent of schools in the state of Montana. For the purposes of this study only those superintendents in the secondary schools will be surveyed.

**Technique** - the method of procedure (as to practical or formal details) in carrying out a scientific or mechanical operation
Specifically, the use of management science to arrive at solutions or make decisions.

Assumptions

1. It is assumed that all superintendents will have completed the scholastic requirements and work experience necessary to hold the title of the superintendent of public schools in Montana. These requirements are set by the Montana State Board of Education which governs all educational policy for Montana.

2. It is assumed that all superintendents will have held the position of superintendent in their current district of employment long enough to be able to respond to the survey accurately.

Limitations

1. This study will be limited to those individuals who are currently employed in the position of school superintendent in the state of Montana.

2. This study will be limited to the personnel, processes, and techniques used to arrive at solutions or decision recommendations when school superintendents are confronted a need for a decision.
Summary

Due to the importance of the position of the school superintendent as the chief executive in the school system, decisions made by individuals in this position will have a profound effect upon the school system. The successful operation of the school system depends in large part upon the quality of decisions rendered by the superintendent. Due to the fact that Montana differs from many other areas of the United States, it is important to examine the personnel, processes, and techniques used by Montana school superintendents to arrive at decisions.
CHAPTER II

THE REVIEW OF THE RELATED LITERATURE

**Introduction**

The administration of public schools in America is an extremely important task. The importance of this task is recognized by Campbell, Corbally, and Nystrand (1983) who state "... that sustaining the democratic way of life is the primary challenge for education administration" (p. 243). In order to insure that this challenge is met it is necessary for the school administrator to deal with numerous people and groups. According to Campbell et al. (1983), "... school officials may stand alone among administrators in the great number of publics to whom they feel responsible" (p. 256). Included among these populations that the school administrator must deal with are members of the community, school board, educational staff, and student body. When fulfilling the role of chief executive officer in the school system the school administrator faces many uncertainties.
superintendents still have the challenge of the executive function. Can the superintendent and his or her staff develop an adequate instructional program? Can they secure competent personnel and mold them into an effective organization? Can they accurately project the financial needs of the district? Can they efficiently expend the available funds and account for them? Can they appraise effectiveness and assure efficiency in the use of resources? Can they effectively represent the school to others (Campbell et al., 1983, p. 258).

To answer these questions the superintendent must successfully utilize many leadership skills including decision-making which "... is the key to leadership." according to Gore and Silander (1959, p. 97).

An Historical Overview

The study of management, of which decision-making is a part, began about one hundred years ago. In 1886 Henry R. Towne presented a paper to the American Society of Mechanical Engineers suggesting the importance of management as a field of study, equal to that of engineering (Bedeian & Glueck, 1982, p. 13). This challenge to approach management from a different perspective led to the publication of Fredrick W. Taylor's "The Principles of Scientific Management" in 1911. Taylor was the first to look at management as, "... a true science of managing, complete with clearly stated laws, rules, and principles" (Bedeian and Glueck, 1982, p. 13).

The philosophy of Taylor, when combined with the works of other industrial researchers such as Henry L. Gantt, Harrington Emerson, and
Frank and Lillian Gilbreth, began the foundations of modern management science (Bedeian & Glueck, 1983, p. 14). Although management science has undergone numerous changes since the days of Taylor, there is little dispute that a common body of management know-how exists which can be adapted to any circumstances, including the area of educational administration and school management.

The twentieth century has seen research and technological development spurt ahead with such impact that organizational identity could hardly be maintained. Faced with swift and startling developments, management has had to question whether it had an existence above and beyond the products it made or the services it offered. The answer was affirmative. A fundamental core of management know-how was indeed transferable . . . which permitted management people to shift from one organization to another (Miller & Starr, 1967, p. 9).

The ability to transfer from one organization to another, and still be able to perform the necessary functions of management, requires the manager to possess certain skills and capabilities that can be brought to bear in any of the situations encountered by the manager. This is especially true for school administrators who may find themselves in several districts over the span of their careers, requiring them to deal with new staffs, students, and communities.

The solution to modern management's problems was the development of the executive-generalist. Such administrators could maintain the company's existence no matter what product was made. They could develop abstract organizational forms which were independent of the individuals who at any time happened to compose the management group. They could coordinate the contributions of all of the specialists of an organization. Their task
required the ability to employ structure before content in coping with the extreme diversity of information produced by the organization (Miller & Starr, 1967, pp. 9-10).

Miller and Starr (1967, pp. 9-10) make an important point when they refer to the ability of executive-generalist to utilize the structure of a situation, rather than the content of its elements, when dealing with the complex and diverse information generated by the organization. It is this ability of the school's executive-generalist to recognize common elements that compose different problems, then seek useful solutions, that allows the school administrator to deal with the varied situations that are encountered on a day to day basis, no matter who composes the management team.

For example, one aspect of school administration is business management. The individual working in this area would be working in conjunction with other members of the management team and lend his/her expertise to the problems that confront the entire team. This cooperative functioning of the management team is noted by Candoli, Hack, Ray, and Stollar (1984) who claim:

As a planner, the business administrator lends unique creativity and expertise to the team by creating, structuring, leading, and participating in planning the school business administration function, and relating this planning to the several other structures developed by fellow administrators (p. 11).

School administrators, such as the superintendent, are required to be generalists due to the demands placed upon them by the school organization.
Superintendents and especially principals by the very nature of their assignments are generalists. Their responsibility is for the entire school system or the entire school (Campbell et al., 1980, p. 252).

Therefore, as noted previously by Candoli, Hack, Ray, and Stoller (1984, p. 252), if the executive-generalist, or superintendent, must deal with the structure of a situation rather than the content of the information, then the superintendent will be able to deal with a wider range of situations including:

- goal determination, curriculum planning, personnel selection and supervision, organization of students into instructional groups, provisions for physical facilities, financial management, and accounting to the public. Inevitably, the line officer, whether superintendent or principal, has overall responsibility for fitting these pieces together (Campbell et al., 1980, p. 52).

As the superintendent handles each situation that occurs a definite process will be followed resulting in some type of disposition or resolution of the situation. This problem resolution will affect the school organization in some manner due to the fact that the school organization is a system composed of interacting parts and, when something changes one of the elements in the system, other elements within the system, and even the system itself, will change. As noted by Barwind, Barwind, and Miller (1976) "Each part of a system is inherently related to each other part so that change in one part affects the whole" (pp. 1-2).

This effect in which the school manager changes the school system by changing the elements of the system is referred to as organizational design. Gibson, Ivancevich, and Donnelly (1982)
Organizational design refers to the process by which managers create a structure of tasks and authority. The process is decision-making through which managers evaluate the relative benefits of alternative tasks and authority structures. This process may be explicit or implicit ... it may be done by a single manager or a team of managers (p. 189).

Due to the fact that administrative decision-making has such great impact upon the educational system and its relevant environment, it is important to consider certain aspects of the decision-making process in general.

The Decision-Making Process

While it may be open to debate as to what constitutes the most critical skill for a school superintendent to possess, there can be little argument that the ability to make a decision is among the most important. Gore and Silander (1959) continue this trend of thought by indicating that "It has been said that administration is the critical organizational process ... that leadership is the heart of administration; and that decision-making is the key to leadership" (p. 97).

The interdisciplinary study of the decision making process is not a recent development, but has been going on for many years:

In the last three decades, the systematic analysis of decision-making has become known as decision theory. Decision theory is firmly rooted in the fields of statistics and the
behavioral sciences and has as its goal to make decision making less of an art and more of a science. Since World War II operations researchers, statisticians, computer scientists and behavioral scientists have sought to identify those elements in decision-making which are common to all decisions and thus provide a framework for decision makers to enable them to more effectively analyze a complex situation containing numerous alternatives and possible consequences (Gibson et al., 1982, p. 418).

The literature indicates that there are two primary classifications of decisions which are widely accepted by decision theory specialists. In 1960 Herbert Simon first suggested classifying decisions as either programmed or nonprogrammed decisions, and differentiated between the two in the following manner.

In discussing how executives now make decisions, and how they will make them in the future, let us distinguish two polar types of decision. I shall call them programmed decisions and nonprogrammed decisions, respectively. Having christened them, I hasten to add that they are not really distinct types, but a whole continuum, with highly programmed decisions at one end of that continuum and highly unprogrammed decisions at the other end. We can find decisions of all shades of gray along the continuum, and I use the terms programmed and nonprogrammed simply as labels for the black and the white of the range (Simon, 1960, p. 5).

It is important to look closely at the characteristics of each type of decision.

**Programmed Decisions**

Decisions are programmed to the extent that they are repetitive and routine, to the extent that a definite procedure has been worked out.
for handling them so that they don't have to be treated de novo each time they occur. The obvious reason why programmed decisions tend to be repetitive, and vice versa, is that if a particular problem recurs often enough, a routine procedure will usually be worked out for solving it (Simon, 1960, p. 5).

**Nonprogrammed Decisions**

Decisions are nonprogrammed to the extent that they are novel, unstructured, and consequential. There is no cut-and-dried method for handling the problem because it hasn't arisen before, or because its precise nature and structure are elusive or complex, or because it is so important that it deserves a custom-tailored treatment (Simon, 1960, p. 6).

The discussion by Simon indicates that both classifications of decision arise from a problem that is confronting the decision maker, who then determines a procedure, or method, to follow which will result in some type of solution to the problem. The major distinction between the programmed decision and the nonprogrammed decision appears to be the frequency of occurrence.

Decision-making situations, or problems, that arise often may be handled by a definite procedure that has been worked out and proven to be satisfactory, resulting in a programmed decision. A decision-making situation which is unique, or too complex to be handled by standard methods or procedures, will have to be solved in an exclusive manner, resulting in a nonprogrammed decision.

As noted earlier the focus of decision theory has been on identifying the common elements which comprise the framework for
decision-making. The literature refers to numerous sequences that attempt to describe the decision-making process.

The sequences presented in the literature contain four to nine steps, most of which are deemed essential and which must be accomplished in a definite order. It is assumed that everyone who follows the sequence of steps will arrive at a very similar conclusion (Lundberg, 1960, p. 165).

These proposed sequences for the decision-making process vary in length and terminology but include some of the various sequences which follow.

The first sequence is a five step model that was suggested by Daniel E. Griffiths in *Administrative Theory* (Griffiths, 1959, p. 94):

1. Recognize, define, and limit the problem
2. Analyze and evaluate the problem
3. Establish criteria or standards by which solutions will be evaluated or judged as acceptable and adequate to the need
4. Collect data
5. Formulate and select the preferred solution

The second sequence, a five step model as well, was proposed by Edward E. Litchfield in the *Administrative Science Quarterly* (Litchfield, 1956, pp. 13-14)

1. Definition of the issue
2. Analysis of the existing situation
3. Calculation and delineation of alternatives
4. Deliberation
5. Choice

Litchfield's model is similar to this final sequence which was offered by management specialist Peter Drucker in *Management Science*
(Drucker, 1955, pp. 115-118)

1. Defining the situation
2. Determining what is relevant
3. Determining the scope and validity of factual knowledge
4. Developing all the alternative solutions
5. The chosen solution has to be made effective in action

As precise as these sequences seem to be, not all experts in the area of decision-making agree that they accurately describe the decision-making process. According to Craig Lundberg "These sequences always seem to be too full or complex" (Lundberg, 1960, p. 165) Lundberg goes on to suggest that it is possible to limit the decision-making process to three behaviors.

In the broadest sense we can identify three general classes of behavior which repeatedly appear in our cases, and which logically seem to be comprehensive of a total decisioning cycle. These three behaviors are (a) problem recognition and awareness, (b) doing something with information, and (c) choice. Note this sequence of behaviors implies a definite order, even though each 'behavior' may itself be more fully elaborated (Lundberg, 1960, p. 165).

As Lundberg suggests, some of the proposed models are too complex and should be reduced to those behaviors or actions that could be said to be the actual decision-making process.

If there is an attempt to reduce the number of steps, or elements, in the decision-making process, it is possible to expose a set of actions that truly describe the actions that occur when a decision is rendered. Because there are so many different decision-
making models, it is possible to select only a few for examination in detail.

**Decision-Making Models**

Figure 1 illustrates a rather complex model suggested by Gibson et al. (1982) which describes the development of the process used by the decision maker.

In this model the decision maker starts with a set of objectives and a predetermined method for measuring the results which the decision maker hopes to attain. The second element in this model concerns identification of a problem situation which confronts the decision maker. The next three elements are related in that they deal with alternative solutions to the problem confronting the decision maker. First, the decision maker must develop alternatives that will help solve the problem, bearing in mind the goals that have been set in the first step, then the alternatives will be evaluated using these goals, and finally the alternative that will work best is selected. This decision is then implemented and evaluated to determine if it is working satisfactorily. If the results that are measured are not in accordance with the desired results set in step one, then the feedback loop can be used to revise the process until actual results are similar to desired results.
Figure 1. The Decision-Making Process.

Other management authorities do not agree that all of the steps suggested by Gibson et al. (1982, p. 421) are elements of the decision-making process. Bedeian and Glueck (1983, p. 251) propose the Planning Process Model, which can be seen in Figure 2. This model contains many of the elements of the decision-making process shown in Figure 1, however, it consolidates the steps that could actually be called the decision-making process into three succinct steps which are (a) Identify alternative courses of action, (b) Evaluate alternative courses of action in light of planning premises, and (c) Select a course of action.

This particular classification removes steps which are very essential to planning but are not necessarily part of the decision-making process itself, such as planning, implementation, evaluation, and controlling. A model such as the one proposed by Bedeian and Glueck (1983, p. 251) in Figure 2 provides a focus upon the decision-making process itself rather than a number of complex and intricate management functions that may accompany the decision-making process.

In the first step of Phase 3 of The Planning Process Model the decision maker must identify alternative courses of action that are available as solutions to the problem. The identification of various alternatives would include some sort of analysis of the problem situation, as pointed out earlier by both Griffiths (1959, p. 94) and Litchfield (1956, pp. 13-14) in their more complex decision-making sequences.
Figure 2. The Planning Process Model.

During the analysis step the decision-maker must break down the problem into its component parts so that each may be considered in terms of importance and its relationship to the whole problem.

Quantitative and Qualitative Analysis

According to Anderson et al. 1979, p. 4), the analysis of the problem situation by the administrator will take on two distinct identities, as seen in Figure 3. These two very different approaches to problem analysis are called Quantitative Analysis and Qualitative Analysis.

Quantitative analysis is based upon scientific and mathematical models created by the decision maker in an attempt to describe, define, and forecast probable outcomes for any given situation. This approach to decision-making could frequently be used in situations that are unfamiliar or extremely complex, such as nonprogrammed decisions.

The manager using quantitative analysis as a process to solve decisions would follow a five step procedure to arrive at an effective decision alternative. This five step procedure would be (a) problem definition, (b) model development, (c) data preparation, (d) model solution, and (e) report generation (Anderson et al., 1979, pp. 6-14).
Figure 3. The Decision-Making Process.

Managerial Problem

→ Qualitative
Analysis Based
Upon Managerial Experience
Judgement

→ Summary and
Evaluation

→ Decision

Quantitative
Analysis Based
Upon Mathematical Techniques

Qualitative analysis is based upon the judgement and personal experience of the decision maker to recognize the existing structure in a problem and evaluate alternatives based upon similarity with previously encountered problems. Often referred to as intuition, qualitative analysis will be based upon feelings or hunches rather than models that are developed by the decision maker. This management approach is performed through "... the manager's intuitive feel for the problem and is more an art than a science" (Anderson et al., 1979, p. 3). According to Anderson et al. (1979) qualitative analysis will be used "If the manager has had experience with similar problems or if the problem is relatively simple, heavy emphasis may be placed upon qualitative analysis and the final decision made accordingly" (p. 3).

The quantitative and qualitative approaches to decision-making are not necessarily exclusive of each other. A school administrator may use both quantitative and qualitative processes in any given situation to arrive at alternatives.

Both the qualitative and quantitative analysis of a problem provide important information for the manager or decision maker. In many cases a manager may draw upon both sources and, through a comparison and evaluation of the information, make a final decision (Anderson et al., 1979, p. 4).

After the administrator has arrived at several alternatives which may be used to satisfy the problem, it is time to evaluate the merits of each alternative to see which one will provide the most satisfactory solution. It is during this element in the process that
each of the alternatives developed in the analysis step is evaluated in regard to its advantages and disadvantages.

The final step of Phase 3 in the Planning Process Model is shown in Figure 2, this is where the decision maker must select a course of action based upon the evaluation of alternatives. As previously noted by Anderson et al. (1979, p. 4) in Figure 3 this last act is the culmination of the process and results in a decision being rendered by the school administrator.

The Decision-Making Process In Education Administration

The decision-making process takes on unique characteristics when considered in the setting of the public education system, due to the numerous publics served and the legal and financial constraints that confine the administrators' alternatives.

The school superintendent must first determine where the decision boundaries lie. As Wiles and Bondi (1983) indicate:

'It is important for the school administrator to determine the decision boundaries because... This shows him when decisions are within the power of the local administrator (autonomous) and when they are a mere formality (endorsement) (p. 323).

Once the decision boundaries have been determined the school administrator will be faced with a decision that falls into one of three categories: institutional, strategy, or administrative behavior.

The institutional decision is one of the more important because the quality of the decision made will have an impact on the
quality of the school system. Campbell et al. (1983) conclude that:

... the greatest number of decisions an educational administrator is called upon to make are decisions related to the school or school district and to educational programs. These decisions are in a real sense what educational administration is all about (p. 109).

Strategy decisions, the second category of educational decision, are important because they determine the strategy or tactics that the school administrator uses to implement the institutional decisions that have been made. These decisions are quite complex due to the many variables that confront the school administrator when making a strategy decision. Continuing this thought Campbell et al. (1983) point out:

... Strategy decisions require an understanding of personal abilities and style; of the abilities and attitudes of those involved; of the environment (history, traditions, resources, and the like); and the priorities and training considerations involved in the move (p. 109).

A separate category of decisions are those in the area of administrative behavior. These decisions are of a personal nature and require the school administrators to know themselves.

Closely related to strategy are decisions about our behavior as administrators ... the person and personality influence administrator behavior ... As administrators, we are faced with career choices about which decisions must be made, and within a given plan or strategy we must make a variety of behavioral choices. In general, how can we communicate best with various groups of people? How much communication with specific groups will be
undertaken? What tone will we take with various groups (Campbell et al., 1983, p. 110).

When decisions are made in any of the previous categories the school administrator may follow a four step sequence to arrive at the final decision according to Campbell et al. (1983, pp. 110-116):

1. Sense of purpose
2. Existence of a need for a decision
3. Reviewing alternatives
4. Selecting a course of action

This sequence is quite similar to those presented earlier, except for the first step which is a sense of purpose. In many of the sequences presented this step is taken for granted, as it is common practice to assume that the decision maker is a rational entity with a sense of direction and a sense of priority.

As the school administrator progresses through the preceding decision-making sequence as outlined by Campbell et al. (1983, pp. 110-116), it is important that he or she continues to consider the costs that are associated with the process. The cost of decisions may be divided into two categories. Campbell et al. (1983) state that, "There are costs of defining and studying alternatives and there are the costs of the results of a choice" (p. 122),

Campbell et al. (1983, pp. 120-123) continue their discussion of the decision-making process in an educational setting by pointing out some of the special problems that confront school administrators, such as the conflict and stress that may result from the participation of numerous populations including teachers, students, and citizens,
especially when there is ambiguity or confusion about roles and responsibilities. In addition to the problems caused by conflict the authors also mention the impact that deadlines may have on decision-making — whether the deadlines are self imposed or forced upon the school administrator by the surrounding environment. These deadlines may include such things as the beginning of the school year or mill levy elections for example.

A final problem confronting the school administrator relates to the information that the school administrator must deal with. While the school's "accounting system is the major quantitative information system" (Hentschke, 1975, p. 32) other types of information may be less objective and thus more difficult to use when predicting outcomes of various alternatives.

The variables involved in most decisions are both numerous and not easily controlled. While the business executive can use economic models to predict costs of production, profit margins, and the like, the predictions of learning outcomes, voter behavior, or teacher effectiveness are not exact (Campbell et al, 1983, p. 121).

Summary

The educational setting presents some unique perspectives for the study of decision-making. Like all administrators confronted with a problem, the school administrator must generate usable alternatives, evaluate the alternatives using quantitative and qualitative techniques, and finally select the alternative that will best solve
the problem.

While there are many models that attempt to describe the decision-making process as being much more elaborate than the three step process presented in this review of literature, they tend to include many steps that should be considered necessary management functions but not necessarily part of the decision-making process.
CHAPTER III

METHOD OF PROCEDURE

Introduction

The purpose of this study was to collect data from a total population sampling of Montana school officers, specifically the school superintendents, in an attempt to determine the personnel, processes, and techniques used by these school administrators to reach decisions, regarding school operations. The results of this study can be used by the state offices, college educators, and the administrators themselves to better understand the complex and diverse elements that compose the decision-making process. This chapter will identify the procedure followed and the method used to gather and interpret the information obtained from the survey questionnaire.

Review of The Literature

The review of the literature completed for this study was of particular significance. Due to the interdisciplinary nature of the research subject, many different sources and authors were included.
Decision science, management science, and education administration were the disciplines studied to provide information necessary to develop the questionnaire and conduct the study. In addition to conventional documents such as books, magazines, and newspaper articles, a computer search of ERIC was conducted by the Montana State University Renne Library to provide the most up-to-date research available concerning decision-making in an educational setting.

The review focused primarily upon the science of decision-making and how it has been adapted to the public school system, as well as research projects and studies recently conducted in the field of education to examine administrative decision-making. The development of a questionnaire was greatly facilitated by the adaptation of several survey instruments and the ideas encountered in the literature. Authors to be noted for their research into educational and managerial decision-making are the following: Tubbs and Bean (1982), Rebore (1982), Ledbetter and Cox (1977), and Mathews (1973).

Selection of the Population

This study was conducted using a total population sample of Montana school superintendents. This population was further broken down into three groups that represent the classifications of Montana schools as distinguished by the Montana Code Statute 20-6-201. The breakdown into class one, two, and three school districts was done in order to make comparisons between the three school-district size
groups based on data collected.

The total population numbered 163 with each class breakdown as follows: class one-17, class two-85, and class three-61.

The most important criterion for selection of the study population was that individuals selected occupy the position of the school superintendent and be listed as such in the 1984 - 1985 Directory of Montana Schools published by the Office of Public Instruction.

Development of the Questionnaire

The data generated for this study were gathered using one questionnaire (see Appendix A), consisting of five sections, which was distributed to the members of the population selected. The first page of the questionnaire was a cover letter explaining the purpose of the study and seeking the cooperation of the individual superintendent. The five parts of the questionnaire corresponded to the three objectives of the research project. Section one of the survey instrument consisted of a matrix on which respondents were asked to rate involvement of several groups of people that are associated with the school system, in order that the school system can continue to function properly. Section two consisted of a diagram of the personnel in a typical school system and the respondent was instructed to identify those individual positions and/or functions that are fulfilled by individuals in their school district. Section three was a list of twenty-seven questions that asked the respondent to express
his/her feelings in the areas of: (a) problem recognition, (b) type of decision required, (c) alternative generation, (d) personnel utilization and dependence upon specialists, (e) alternative selection and problem disposition, and (f) feedback mechanisms. Section four was a list of quantitative decision-making techniques that may or may not be used in school administration, and the superintendent was asked to identify any of the scientific management techniques of which he/she was aware. The final section was an open-ended response page that enabled the respondent to express any comments or concerns about the questionnaire.

A blank index card was enclosed with each questionnaire. This index card was to be used by the respondent to indicate if he/she desired to obtain a copy of the results of the study. The respondent was to place his/her name and address on the card which could then be separated from the questionnaire insuring anonymity.

**Data Collection**

The information used in this study was gathered by following a definite set of steps developed to insure that the most efficient and effective method of procedure was used.

1. During the time period of February 1, 1985, until April 15, 1985, the questionnaire was developed. This survey instrument was reviewed and refined by two Joliet, Montana, school administrators Gregg Lundberg and James McLaughlin respectively, which provided input invaluable to its final form. After the population was selected the
final draft of the questionnaire, along with a return envelope, was packaged and addressed to the intended recipients during the period of April 16, 1985, through April 23, 1985.

2. The finished survey instrument which included the cover letter, questionnaire, return envelope, and index card was mailed to the members of the population on April 23, 1985.

3. The individuals selected for the survey were given until May 7, 1985, to return the questionnaires. Each return envelope was number coded for identification on a master list of respondents. Individuals not responding by May 10, 1985, were randomly selected and telephoned to determine if they desired to complete and return the questionnaire. The ten individuals contacted declined to respond and further attempts to contact others were abandoned.

Data Tabulation

The results of the data obtained from this research project are tabulated and presented in Chapter IV of this study.

Summary

The methodology utilized in the completion of this interdisciplinary study facilitated the measurement of the personnel, processes, and techniques used to make decisions by Montana school superintendents. The procedure followed represents a concerted effort to address the three objectives of the study.
CHAPTER IV

PRESENTATION OF THE DATA

The purpose of this study relates to three major objectives stated earlier. These objectives are:

1. To determine the personnel who are utilized by Montana school superintendents when making administrative decisions.
2. To determine the processes used by Montana school superintendents to make administrative decisions.
3. To determine the techniques that are used by Montana school superintendents to make decisions or arrive at the solutions for administrative problems.

The data collected and presented in this chapter relates directly to these objectives.

Development of The Instrument

The population surveyed for this study consisted of all of the school superintendents in the state of Montana. These individuals represent the executive officers of all Class 1, Class 2,
and Class 3 school districts in the state of Montana. A complete listing of all superintendents surveyed appears in Appendix C.

The reasons for selecting this particular population include:
1. The duties of the superintendent place him/her in a position to accurately respond to the survey questions.
2. The importance of the superintendent's position can enhance the value of the results to the Office of Public Instruction and others involved in, and affected by, educational administration.

There was no statistical analysis of the data performed, other than descriptive measures such as mean, range, and frequency. All data shown represent the responses provided by the school superintendents based upon their perceptions in relation to the personnel, processes, and techniques used by Montana school school superintendents when making decisions.

Presentation of the Data

The data will be presented in this chapter in the same sequence that it was presented in the questionnaire sent out to the school superintendents (see Appendix B). The presentation of this data will begin on Table 3, which corresponds to Figure One of the survey questionnaire.

As explained previously in the Methodology chapter of this paper the questionnaire corresponded directly to the three major objectives of this study in that Figure One, Part I, and Figure Two, Part II,
were used to determine the personnel involved in decision making. Part III was used to determine the process followed by the school superintendents to arrive at decisions, and Part IV was used to examine the decision making techniques utilized by school superintendents. Because of the unique nature of the data sought in each of the sections of the questionnaire there is very little overlap, and each section can be considered as separate from the others.

**Results of the Questionnaire**

The total number of survey questionnaires sent out numbered 163, and a breakdown of the return results can be seen in Table 1.

<table>
<thead>
<tr>
<th>Class Size</th>
<th>No. Sent</th>
<th>No. Returned</th>
<th>% of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17</td>
<td>12</td>
<td>70.6</td>
</tr>
<tr>
<td>2</td>
<td>85</td>
<td>47</td>
<td>55.3</td>
</tr>
<tr>
<td>3</td>
<td>61</td>
<td>39</td>
<td>63.9</td>
</tr>
<tr>
<td>Total (1,2,3)</td>
<td>163</td>
<td>98</td>
<td>60.1</td>
</tr>
</tbody>
</table>

With 60% of the surveys returned it will be possible to examine the data to determine if it accurately represents the population of superintendents as a whole in Montana.
As the data show in Table 1, 98 of the 163 superintendents responded to the survey with the highest percentage of returns, 70.6%, coming from Class 1 schools and the lowest percentage of returns, 55.3%, coming from the Class 2 schools.

**Part I of the Survey Questionnaire - Personnel Involvement**

Part I of the questionnaire was used to determine the involvement of various groups in activities considered essential to the successful operation of a school district. The groups considered were the Board of Education, the Building Administrator, the Central Office Staff, the Teachers, the Students, and the Citizens. The tasks that the superintendents were asked to rate these groups involvement in included curriculum planning, scheduling, budget development, materials selection, and administrative decisions. The results of Part I can be seen by referring to Tables 2 through 8.

Table 2. Task Involvement of the Board of Education.

<table>
<thead>
<tr>
<th>BOARD OF EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRICULUM PLANNING</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>(R) 1 2 3 4 5</td>
</tr>
<tr>
<td>(f) 7 41 36 7 4</td>
</tr>
<tr>
<td>N = 95</td>
</tr>
</tbody>
</table>

| \( \bar{X} = 2.58 \) | \( \bar{X} = 1.72 \) | \( \bar{X} = 3.095 \) | \( \bar{X} = 2.25 \) | \( \bar{X} = 2.37 \) |

Tables 2-7 will be presented using the following format: Title of Table, Group Under Consideration, Tasks to be Performed, Rating Scale (R) in which 1 = Least Involvement and 5 = Most Involvement, Range and Frequency of Responses (f), Total Number of Respondents (N) and Mean (X) Computed using 1-5.
As indicated in Table 2, the highest level of involvement by the Board of Education is in the area of budget development. The mean value of 3.095 shows that on a scale of 1 - 5 the Board of Education is located almost in the exact middle. The next highest level of involvement by the Board of Education is in the area of curriculum planning, here a mean value of 2.58 indicates some involvement in the task but less involvement than in the area of budget development. The third highest mean 2.37 is in the area of budget decisions, here again the Board of Education has some involvement in the task area but less so than in other areas.

The last two areas displayed on Table 2 are scheduling and materials selection, the mean values in these areas are 1.72 and 2.25 respectively, and seem to indicate relatively low involvement of the Board of Education in these two task areas.

Table 3. Task Involvement of the Building Administrator.

<table>
<thead>
<tr>
<th>BUILDING ADMINISTRATOR</th>
<th>CURRICULUM PLANNING</th>
<th>SCHEDULING</th>
<th>BUDGET DEVELOPMENT</th>
<th>MATERIALS SELECTION</th>
<th>ADMINISTRATIVE DECISIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R)</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(F)</td>
<td>4 5 17 54 15</td>
<td>6 2 4 41 42</td>
<td>5 6 32 32 20</td>
<td>11 22 61 0 1</td>
<td>5 6 6 49 29</td>
</tr>
<tr>
<td>N = 95</td>
<td>N = 95</td>
<td>N = 95</td>
<td>N = 95</td>
<td>N = 95</td>
<td>N = 95</td>
</tr>
</tbody>
</table>

| X  = 2.695              | X  = 4.17           | X  = 3.59  | X  = 2.56          | X  = 3.96            |

(R) Rating Scale in which 1 = Least Involvement and 5 = Most Involvement  
(F) Range and Frequency of Responses  
(X) Mean
As evidenced in Table 3, the Building Administrator has a relatively high level of involvement in many task areas with two of the mean values close to or above the 4.00 level. The highest mean shown for the Building Administrator is in the area of scheduling, 4.17. A mean value of 3.96 would also tend to indicate a high level of involvement by the Building Administrator in the area of administrative decisions. A mean value of 3.59 shows a high level of involvement in budget development although lesser than the areas of scheduling and administrative decisions.

The building administrator seems to have the least involvement in the areas of curriculum planning and materials selection which have a mean value of 2.695 and 2.56 respectively.

Table 4. Task Involvement of the Cental Office Staff.

<table>
<thead>
<tr>
<th>CENTRAL OFFICE STAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRICULUM PLANNING</td>
</tr>
<tr>
<td>(R)</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(f) 23 11 22 22 6</td>
</tr>
<tr>
<td>N = 84</td>
</tr>
<tr>
<td>X = 2.73</td>
</tr>
</tbody>
</table>

(R) Rating Scale in which 1 = Least Involvement and 5 = Most Involvement
(f) Range and Frequency of Responses
(X) Mean
Data in Table 4 have two noteworthy points. First, the task involvement of the Central Office Staff in the five areas of operation indicates that the area of budget development is the most important area of involvement with a mean value of 3.28. The second highest mean is in the area of administrative decisions, with a value of 3.20, and well behind this is the third highest mean, 2.73, in the area of curriculum planning.

The lowest means are only separated by a value of .01 of a point, with the area of scheduling at 2.64 and the area of materials selection at 2.63.

The second noteworthy point which data in Table 4 indicate, involves the value of N for each of the categories listed in that Table. For this category approximately 10 fewer responses were provided than for the other groups. It may be inferred from several responses written on the questionnaire matrix itself that several of the smaller districts do not have a Central Office Staff in their district.
Table 5. Task Involvement of the Teachers.

<table>
<thead>
<tr>
<th>TEACHERS</th>
<th>CURRICULUM PLANNING</th>
<th>SCHEDULING</th>
<th>BUDGET DEVELOPMENT</th>
<th>MATERIALS SELECTION</th>
<th>ADMINISTRATIVE DECISIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R) 1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4</td>
<td>5 1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>(f) 3 4 24 49 16</td>
<td>5 27 41 17 4</td>
<td>18 44 18 9 6</td>
<td>4 5 17 52</td>
<td>18 29 41 17 4 3</td>
<td></td>
</tr>
<tr>
<td>N = 96</td>
<td>N = 94</td>
<td>N = 95</td>
<td>N = 96</td>
<td>N = 94</td>
<td></td>
</tr>
</tbody>
</table>

\[
\bar{X} = 3.74 \quad \bar{X} = 2.87 \quad \bar{X} = 2.38 \quad \bar{X} = 2.74 \quad \bar{X} = 2.05
\]

(R) Rating Scale in which 1 = Least Involvement and 5 = Most Involvement

(f) Range and Frequency of Responses

(X) Mean

As shown by data in Table 5, Teachers have their highest level of involvement in the area of curriculum planning with a mean value of 3.74. The second highest mean is in the area of scheduling which has a mean value of 2.87. Materials selection follows scheduling as the third highest mean value shown with a 2.74.

The lowest area of involvement for the teachers is the area of administrative decisions with a mean value of 2.05 indicating a low incidence of teacher involvement in making administrative decisions.
Table 6. Task Involvement of Students.

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>CURRICULUM PLANNING</th>
<th>SCHEDULING</th>
<th>BUDGET DEVELOPMENT</th>
<th>MATERIALS SELECTION</th>
<th>ADMINISTRATIVE DECISIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(R) 1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>(f)</td>
<td>N = 94</td>
<td>N = 95</td>
<td>N = 94</td>
<td>N = 94</td>
<td>N = 94</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 2.17 )</td>
<td>( \bar{X} = 1.95 )</td>
<td>( \bar{X} = 1.48 )</td>
<td>( \bar{X} = 1.70 )</td>
<td>( \bar{X} = 1.63 )</td>
</tr>
</tbody>
</table>

(R) Rating Scale in which 1 = Least Involvement and 5 = Most Involvement
(f) Range and Frequency of Responses
(R) Mean

Based upon the data in Table 6 it is apparent that students have very low levels of involvement in most of the areas under consideration. The highest mean value indicating task involvement by students is in the area of curriculum planning where Students received a mean value of 2.17.

The lowest areas of task involvement for the Students are in administrative decisions, with a mean of 1.63, and budget development, with a mean value of 1.48. These values indicate an extremely low level of student involvement in school administrative matters.
Table 7. Task Involvement of Citizens.

<table>
<thead>
<tr>
<th>CITIZENS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRICULUM PLANNING</td>
</tr>
<tr>
<td>(R) 1 2 3 4 5</td>
</tr>
<tr>
<td>(f) 16 51 21 43</td>
</tr>
<tr>
<td>N = 95</td>
</tr>
</tbody>
</table>

\[ \bar{X} = 2.23 \quad \bar{X} = 1.64 \quad \bar{X} = 1.93 \quad \bar{X} = 1.75 \quad \bar{X} = 1.74 \]

(R) Rating Scale in which 1 = Least Involvement and 5 = Most Involvement
(f) Range and Frequency of Responses
(\bar{X}) Mean

As with Students, the Citizens were not rated high as to their involvement in decision-making by superintendents. The highest mean value is in the area of curriculum planning, where they were given a mean value of 2.23. Ranked very close together were the means for materials selection and administrative decisions, which were 1.75 and 1.74, respectively. The lowest mean indicating little task involvement for the citizens is in the area of scheduling with a mean value of 1.64.

Tables 2 through 7 presented the task involvement of each group in the tasks indicated. Now it will be important to see the relative task involvement of each of the groups when compared to the task involvement of the other groups. The means of each group in the various tasks performed in the school system are presented in Table 8.
Table 8. Comparison of Means (\(\bar{X}\)) to Show Relative Task Involvement.

<table>
<thead>
<tr>
<th></th>
<th>Curriculum Planning</th>
<th>Scheduling</th>
<th>Budget Development</th>
<th>Materials Selection</th>
<th>Administrative Decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of Education</td>
<td>2.58</td>
<td>1.72</td>
<td>3.095</td>
<td>2.25</td>
<td>2.37</td>
</tr>
<tr>
<td>Building Administrator</td>
<td>2.695</td>
<td>4.17</td>
<td>3.59</td>
<td>2.56</td>
<td>3.96</td>
</tr>
<tr>
<td>Central Office Staff</td>
<td>2.73</td>
<td>2.64</td>
<td>3.28</td>
<td>2.63</td>
<td>3.2</td>
</tr>
<tr>
<td>Teachers</td>
<td>3.74</td>
<td>2.87</td>
<td>2.38</td>
<td>2.74</td>
<td>2.05</td>
</tr>
<tr>
<td>Students</td>
<td>2.17</td>
<td>1.95</td>
<td>1.48</td>
<td>1.7</td>
<td>1.63</td>
</tr>
<tr>
<td>Citizens</td>
<td>2.23</td>
<td>1.64</td>
<td>1.93</td>
<td>1.75</td>
<td>1.74</td>
</tr>
</tbody>
</table>

All numbers represent the mean value (\(\bar{X}\)) for each category of task involvement. The mean was computed using 1 = the group is not involved in the task and 5 = the group is the only one involved in the task.

As can be seen in Table 8, no group seems to have consistently high mean values in all of the tasks, however, the Building Administrator seems to be the leader in terms of task involvement in the areas of scheduling, budget development, and administrative decisions. Teachers appear to be the most involved in the areas of curriculum planning and materials selection.
Summary of Part I

Based upon the results of Part I of the questionnaire when decisions must be made in an educational setting the most involved groups are the Building Administrators, followed by the Central Office Staff, and Teachers, with the least involved groups being the Board of Education followed by the Students and Citizens.

Part II of the Survey Questionnaire – Personnel Requirements of Different Class Size Schools

The data in this section was gathered using Part II of the survey questionnaire and is presented in Table 9. The superintendents were provided with an organizational chart (see Appendix B) that listed the job title positions that would be found in a typical school district and asked to indicate which of those positions were filled by an individual in their school district.
Table 9. School System Personnel Requirements Based on Class Size of School.

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Class 1 (N=12)</th>
<th>Class 2 (N=47)</th>
<th>Class 3 (N=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assistant Superintendent for Personnel</td>
<td>5 (42%)</td>
<td>2 (4.3%)</td>
<td>0 ---</td>
</tr>
<tr>
<td>2. Director of Affirmative Action</td>
<td>0 ---</td>
<td>5 (10.6%)</td>
<td>2 (5.3%)</td>
</tr>
<tr>
<td>3. Assistant Superintendent for Secondary Education</td>
<td>3 (25%)</td>
<td>2 (4.3%)</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>4. Assistant Superintendent for Elementary Education</td>
<td>2 (16.7%)</td>
<td>0 ---</td>
<td>0 ---</td>
</tr>
<tr>
<td>5. Director of Public Relations</td>
<td>2 (16.7%)</td>
<td>1 (2.1%)</td>
<td>0 ---</td>
</tr>
<tr>
<td>6. Director of Staff Development</td>
<td>3 (25%)</td>
<td>1 (2.1%)</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>7. Director of Employee Relations</td>
<td>1 (8.3%)</td>
<td>1 (2.1%)</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>8. Secondary School Principals</td>
<td>12(100%)</td>
<td>44(93.6%)</td>
<td>18(47.4%)</td>
</tr>
<tr>
<td>9. Elementary School Principals</td>
<td>11(91.7%)</td>
<td>43(91.5%)</td>
<td>14(36.8%)</td>
</tr>
<tr>
<td>10. Assistant Superintendent for Administrative Services</td>
<td>6 (50%)</td>
<td>2 (4.3%)</td>
<td>0 ---</td>
</tr>
<tr>
<td>11. Secondary Teachers</td>
<td>12(100%)</td>
<td>42(89.4%)</td>
<td>32(84.2%)</td>
</tr>
<tr>
<td>12. Elementary Teachers</td>
<td>11(91.7%)</td>
<td>40(85.1%)</td>
<td>30 (79%)</td>
</tr>
<tr>
<td>13. Business Manager</td>
<td>9 (75%)</td>
<td>22(46.8%)</td>
<td>10(26.3%)</td>
</tr>
<tr>
<td>14. Director of Food Service</td>
<td>7 (58.3%)</td>
<td>19(40.4%)</td>
<td>11 (29%)</td>
</tr>
<tr>
<td>15. Director of Transportation</td>
<td>8 (66.7%)</td>
<td>17(36.2%)</td>
<td>8(21.1%)</td>
</tr>
<tr>
<td>16. Assistant Superintendent for Instructional Services</td>
<td>1 (8.3%)</td>
<td>3 (6.4%)</td>
<td>0 ---</td>
</tr>
<tr>
<td>17. Cafeteria Workers</td>
<td>8 (66.7%)</td>
<td>34(78.7%)</td>
<td>29(76.3%)</td>
</tr>
<tr>
<td>18. Bus Drivers</td>
<td>8 (66.7%)</td>
<td>33(70.2%)</td>
<td>26(68.4%)</td>
</tr>
<tr>
<td>19. Director of Federal Programs</td>
<td>5 (41.7%)</td>
<td>6 (12.8%)</td>
<td>2 (5.3%)</td>
</tr>
<tr>
<td>20. Subject Matter Coordinator</td>
<td>2 (16.7%)</td>
<td>1 (2.1%)</td>
<td>0 ---</td>
</tr>
<tr>
<td>21. Director of Community and Adult Education</td>
<td>6 (50%)</td>
<td>10(21.3%)</td>
<td>3 (7.9%)</td>
</tr>
<tr>
<td>22. Director of Pupil Personnel Services</td>
<td>1 (8.3%)</td>
<td>4 (8.5%)</td>
<td>1 (2.6%)</td>
</tr>
<tr>
<td>23. Director of Special Education</td>
<td>9 (75%)</td>
<td>13(27.7%)</td>
<td>4 (10.5%)</td>
</tr>
<tr>
<td>24. Director of Maintenance and Custodial Services</td>
<td>7 (58.3%)</td>
<td>18(32.3%)</td>
<td>6 (15.8%)</td>
</tr>
<tr>
<td>25. Maintenance Staff</td>
<td>9 (75%)</td>
<td>32(68.1%)</td>
<td>17(44.7%)</td>
</tr>
<tr>
<td>26. Custodians</td>
<td>11(91.7%)</td>
<td>38(80.9%)</td>
<td>31(81.6%)</td>
</tr>
<tr>
<td>27. Other (for personnel not listed on diagram)</td>
<td>2 (16.7%)</td>
<td>3 (6.4%)</td>
<td>2 (5.3%)</td>
</tr>
</tbody>
</table>
The results indicate that with the exception of four positions including: Director of Affirmative Action, Cafeteria Workers, Bus Drivers, and Director of Pupil Personnel Services, in the larger (Class 1) school districts there are a greater number of specialists occupying these educational positions than in the smaller school districts. The opposite is also true for the smaller (Class 2 and Class 3) school districts where there are fewer specialists that occupy these job titles and fulfill the duties of the position.

One comment that appeared on several of the questionnaires indicated that while there may not be an individual that is actually filling the position indicated by title there is someone that must perform the duties.

Summary of Part II

Based upon the data received from Part II of the survey questionnaire, the greatest amount of task specialization exists in the Class 1 schools.

Part III of the Survey Questionnaire

The Decision-Making Process in Montana Education Administration

The third part of the survey questionnaire was designed to measure the decision-making process followed by Montana school superintendents when making administrative decisions. Part III consisted of 27 separate questions belonging to six major categories.
The questions were randomly presented in Part III of the questionnaire so that no group of questions were together. For the purposes of data presentation the 27 questions have been regrouped into their original six categories. The categories of questions include the following topics:

1. Problem Recognition
2. Type of Decision Required
3. Alternative Generation
4. Personnel Utilization and Dependence Upon Specialists
5. Alternative Selection and Problem Disposition
6. Feedback Mechanisms

The resulting data from Part III of the questionnaire appear in Tables 10 through 15.

The redundancy built into the questionnaire by asking the same type of question several different ways can be seen in Table 10, items 2 and 7. The mean value for question 2, which is 2.81, indicates that the respondents were leaning towards disagreement on this particular question. Question 7 which follows has a mean value of 3.10, which indicates that the respondents are closer to agreement with this statement.

Data from question 22 seem to indicate that many schools have mechanisms for dealing with problems before they reach the attention of the school superintendent (N=53), while a number of schools do not have such a mechanism (N=34).

As noted in the Review of the Literature a very important aspect of decision making is to determine whether the problem is one that can be handled in a routine manner, or if it must be handled as a unique
Table 10. Problem Recognition.

<table>
<thead>
<tr>
<th>Item Number on Questionnaire</th>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td>Many potential problems are discovered by studying the school’s accounting reports.</td>
<td>2</td>
<td>27</td>
<td>25</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N = 96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\bar{X} = 2.81$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7)</td>
<td>Few problems are identified through the use of the school’s accounting system.</td>
<td>5</td>
<td>35</td>
<td>25</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N = 96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\bar{X} = 3.10$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(22)</td>
<td>There are many mechanisms in this organization to resolve problems before they come to my attention.</td>
<td>4</td>
<td>49</td>
<td>8</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N = 95</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\bar{X} = 3.2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 10-15 will be presented using the following format: Title of Table, Item Number and Statement as they appeared in Part III of the survey questionnaire, Attitudinal Rating Scale used where SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, and SD = Strongly Disagree, Range and Frequency of Responses (f), Total Number of Respondents (N), and Mean ($\bar{X}$) computed using SA = 5, A = 4, N = 3, D = 2, and SD = 1.
situation. These two types of decisions, programmed and nonprogrammed, respectively, were measured using the questions presented in Table 11.

Questions 5 and 12 asked the superintendents if the problems that confronted them were routine in nature and could be handled by routine methods. The high mean value of question 5 which is 4.17, and question 12 which is 3.83, indicates that many of the problem situations that confront superintendents are routine and repetitive in nature and can be handled through routine measures.

Questions 10, 17, and 25 were reworded to check the responses given for questions 5 and 12 and the results tend to be consistent with each other. When asked if the problems that confront them are novel or unique and must be solved in a unique manner the superintendents indicated that this was not the case as all of the means computed show general disagreement with the statements presented in question 10, where the mean value is 2.27, question 17, where the mean value is 2.5, and question 25, where the mean value is 2.88.

The data that have resulted from these questions indicate that the majority of decisions made by Montana school superintendents are programmed decisions in response to a routine or repetitive problem situation.

Data represented in Table 12 examines the second step in the decision-making process in which the decision maker must generate alternatives that can be used as solutions to the problem. The first two questions focus upon the ability of the superintendent to find information necessary to arrive at a decision. Question 3 indicates mild agreement by the superintendents that necessary information can
Table 11. Type of Decision Required.

<table>
<thead>
<tr>
<th>Item Number on Questionnaire</th>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5)</td>
<td>Many of the problems that confront me can be handled in a routine manner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22</td>
<td>68</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10)</td>
<td>Most of the problems I encountered are unique and must be solved in a unique manner.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>7</td>
<td>13</td>
<td>67</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>96</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>2.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(12)</td>
<td>Many of the problems I encounter are routine and repetitive.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>74</td>
<td>7</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>96</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>3.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(17)</td>
<td>I constantly deal with novel problems and unique situations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>12</td>
<td>14</td>
<td>61</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>94</td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(25)</td>
<td>Many of the problems I encounter are unique and must be handled in a unique way.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>36</td>
<td>13</td>
<td>41</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>95</td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
always be found. This response had a mean value of 3.21. Question 13 indicates strong disagreement with the statement that the superintendent never has access to necessary information and had a mean value of 1.75.

Questions 8 and 18 look at the use of qualitative and quantitative processes by the school superintendent. The mean for question 8, which is 2.05, shows that the superintendents disagree with the statement and may follow intuition in situations where the quantitative techniques used were discouraging. In contrast to this statement the mean value for 18, which is 2.096, seems to indicate that while superintendents follow intuition in some situations they do not follow it in all situations.

The last question presented in in Table 12 has a mean value of 3.68 indicating that many superintendents scrutinize each of the elements of a problem situation before making a decision.

Data in Table 13 can be considered similar to those in Table 14 in that both look at alternative generation to a certain extent. Data in Table 12 focus specifically on alternative generation while data in Table 13 look at the utilization of school personnel and specialists which can be considered to be sources of alternative generation through the opinions and advice they provide.
Table 12. Alternative Generation.

<table>
<thead>
<tr>
<th>Item Number on Questionnaire</th>
<th>Statement</th>
<th></th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(3)</td>
<td>I can always find the information necessary to render a decision.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA</td>
<td>7</td>
<td>44</td>
<td>12</td>
<td>28</td>
<td>5</td>
<td>N = 96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>3.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(13)</td>
<td>I never have the information I need to render a decision.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>69</td>
<td>25</td>
<td>N = 95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>1.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8)</td>
<td>I never trust intuition, if the numbers don't work right then I forget it.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA</td>
<td>1</td>
<td>3</td>
<td>20</td>
<td>59</td>
<td>12</td>
<td>N = 96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>2.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(18)</td>
<td>When making a decision I always do what my intuition tells me (...follow my 'gut' feelings).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>73</td>
<td>6</td>
<td>N = 94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>2.096</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(27)</td>
<td>I carefully scrutinize each of the elements that comprise a problem before offering a solution.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA</td>
<td>5</td>
<td>63</td>
<td>17</td>
<td>9</td>
<td>0</td>
<td>N = 94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>3.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13. Personnel Utilization.

<table>
<thead>
<tr>
<th>Item Number on Questionnaire</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4)</td>
<td>I always ask for other opinions when making a decision.</td>
</tr>
<tr>
<td></td>
<td>SA   A   N     D    SD</td>
</tr>
<tr>
<td></td>
<td>f = 0 15  20  46 15</td>
</tr>
<tr>
<td></td>
<td>N = 96</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 3.64 )</td>
</tr>
<tr>
<td>(9)</td>
<td>I seldom ask for other opinions when making a decision.</td>
</tr>
<tr>
<td></td>
<td>SA   A   N     D    SD</td>
</tr>
<tr>
<td></td>
<td>f = 1  1   4  66 24</td>
</tr>
<tr>
<td></td>
<td>N = 96</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 1.84 )</td>
</tr>
<tr>
<td>(14)</td>
<td>I never ask for other opinions when making a decision.</td>
</tr>
<tr>
<td></td>
<td>SA   A   N     D    SD</td>
</tr>
<tr>
<td></td>
<td>f = 0  0   2  63 31</td>
</tr>
<tr>
<td></td>
<td>N = 96</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 1.72 )</td>
</tr>
<tr>
<td>(19)</td>
<td>I seldom seek the advice of others on problems which have occurred before.</td>
</tr>
<tr>
<td></td>
<td>SA   A   N     D    SD</td>
</tr>
<tr>
<td></td>
<td>f = 1  3   2  74 14</td>
</tr>
<tr>
<td></td>
<td>N = 96</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 2.07 )</td>
</tr>
<tr>
<td>(23)</td>
<td>I solicit the opinions of others prior to making a decision even if I have confronted similar problems in the past.</td>
</tr>
<tr>
<td></td>
<td>SA   A   N     D    SD</td>
</tr>
<tr>
<td></td>
<td>f = 3 49  22  20  0</td>
</tr>
<tr>
<td></td>
<td>N = 94</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 3.37 )</td>
</tr>
<tr>
<td>(26)</td>
<td>I rely heavily upon the advice of specialists in the problem area when making a decision.</td>
</tr>
<tr>
<td></td>
<td>SA   A   N     D    SD</td>
</tr>
<tr>
<td></td>
<td>f = 3  3  29  31  1</td>
</tr>
<tr>
<td></td>
<td>N = 95</td>
</tr>
<tr>
<td></td>
<td>( \bar{X} = 3.04 )</td>
</tr>
</tbody>
</table>
Based upon the responses given in questions 4, 9, and 14 it would appear that Montana school superintendents rely upon the opinions of others when making decisions. The mean value of 3.64 for question 4 shows agreement with the statement that others are sought for their opinions prior to a decision being rendered. This is supported by the mean value of question 9, which is 1.84, and question 14, which is 1.72. Both of these means indicate strong disagreement with the idea that other opinions are seldom, or never, solicited prior to making decisions. Questions 19 and 23 carry this concept of using the opinions of others one step further when they ask if opinions are sought for decisions that have occurred in the past. Based upon the mean value for 19, which is 2.07, and 23, which is 3.37, it would appear that Montana school superintendents rely upon the opinions of others as solutions to problems even if similar problems have occurred in the past.

Question 26 relating to the use of specialists in decision-making resulted in a rather neutral response with a mean value of 3.04, although the N=31 figure indicates specialists are not relied upon heavily in about 1/3 of the school districts.

The three questions which appear in Table 14 deal with the final step of the decision-making process — that of alternative selection and problem disposition. The mean value for question 15, which is 2.04, and question 20, which is 3.695, indicate that the superintendents polled will consider several alternatives before making a decision rather than selecting the first usable one that comes along.
Table 14. Alternative Selection and Problem Disposition.

<table>
<thead>
<tr>
<th>Item Number on Questionnaire</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>(15)</td>
<td>I usually select the first usable alternative when making a decision.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td>f = 0</td>
<td>0    3   9    73    11</td>
</tr>
<tr>
<td>N = 96</td>
<td>2.04</td>
</tr>
<tr>
<td>(20)</td>
<td>I always consider numerous alternatives when making a decision.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td>f = 9</td>
<td>9    66  12    8    0</td>
</tr>
<tr>
<td>N = 95</td>
<td>3.695</td>
</tr>
<tr>
<td>(24)</td>
<td>I always make decisions based upon clearly defined objectives.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td>f = 3</td>
<td>3    26  16    50    0</td>
</tr>
<tr>
<td>N = 95</td>
<td>2.81</td>
</tr>
</tbody>
</table>

The final question in Table 14 asks the superintendents if they make decisions based upon clearly defined objectives. The aggregate data had a mean value of 2.81, which indicates that occasionally the school superintendents must make decisions based upon objectives that are unclear.

Data described in Table 15 represents data concerning an area related to but excluded from the decision-making process. As
discussed in the Review of Related Literature earlier the feedback mechanism, or cybernetic system, of an organization is not part of the decision-making process itself, however, it is a very important factor in monitoring the effectiveness of the decisions made. In order to insure that decisions are effective an objective and critical feedback mechanism should be considered. This section of the questionnaire looked at the feedback systems that the school superintendent uses to monitor the effectiveness of his/her decisions.

The first statement in Table 15 relates to the speed at which the superintendent learns of ineffectual decisions. The mean value of 2.79 indicates that the school superintendents surveyed disagree with the statement perhaps feeling that they are not the first to know when a decision is not working in some circumstances.

The mean computed for question 6, which is 3.77, is close to agreement with the statement that the school superintendents try to always monitor the effectiveness of the decision they have made.

Questions 11 and 16 cross check each other, meaning a high mean value for one should correspond to a low mean value for the other. These two questions correspond well as the mean for question 11, which is 4.25, suggests strong agreement for the superintendents willingness to revise past decision if they are not working properly, and the mean value for question 16, which is 2.16, indicates that the superintendents disagree with the statement and would change a decision that was not working, even if they felt it was correct.
The final question in Table 15 concerns whether or not someone in the organization is responsible for evaluating the success, or failure, of every decision in the organization. The mean value of question 17, which is 3.29, leans toward agreement with the statement indicating that in many of the districts there is someone responsible for monitoring decisions that are made. This is further supported by the number of respondents that agreed with the statement.

**Summary of Part III**

Part III of the questionnaire measured the decision-making process as it applies to Montana school superintendents. This section of the questionnaire examined the areas of (a) Problem Recognition, (b) Type of Decision Required, (c) Alternative Generation, (d) Personnel Utilization and Dependence Upon Specialists, (e) Alternative Selection, and (f) Feedback Mechanisms.
Table 15. Feedback Mechanisms.

<table>
<thead>
<tr>
<th>Item Number on Questionnaire</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>I am always the first to know when a decision is not working.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td></td>
<td>( f = 2 )  30  13  46  4</td>
</tr>
<tr>
<td></td>
<td>( N = 95 )  ( \bar{X} = 2.79 )</td>
</tr>
<tr>
<td>(6)</td>
<td>I always monitor past decisions I have made to see how satisfactorily they work.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td></td>
<td>( f = 17 )  52  15  12  0</td>
</tr>
<tr>
<td></td>
<td>( N = 96 )  ( \bar{X} = 3.77 )</td>
</tr>
<tr>
<td>(11)</td>
<td>I am always willing to revise past decisions I have made if they are not working properly.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td></td>
<td>( f = 22 )  70  3  1  0</td>
</tr>
<tr>
<td></td>
<td>( N = 96 )  ( \bar{X} = 4.25 )</td>
</tr>
<tr>
<td>(16)</td>
<td>Under no circumstances would I change a decision I feel is correct.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td></td>
<td>( f = 1 )  12  10  48  22</td>
</tr>
<tr>
<td></td>
<td>( N = 93 )  ( \bar{X} = 2.16 )</td>
</tr>
<tr>
<td>(21)</td>
<td>There is someone responsible for evaluating the success, or failure, of every decision that is made in this organization.</td>
</tr>
<tr>
<td></td>
<td>SA  A  N  D  SD</td>
</tr>
<tr>
<td></td>
<td>( f = 10 )  39  16  26  3</td>
</tr>
<tr>
<td></td>
<td>( N = 94 )  ( \bar{X} = 3.29 )</td>
</tr>
</tbody>
</table>
Part IV of the Survey Questionnaire

Use of Scientific Management Techniques by School Superintendents

Part IV of the survey questionnaire (see Appendix B) was used to determine the scientific management techniques that the Montana school superintendents were familiar with. The survey instrument consisted of a list of 22 scientific management techniques which are listed in Table 16 and the school superintendents were asked to identify the techniques they were familiar with and indicate how frequently they used the techniques based on the following scale:

A  I am familiar with the technique and use it frequently
B  I am familiar with the technique and use it occasionally
C  I am familiar with the technique but do not use it
D  I am unfamiliar with the technique

The results of the survey can be seen in Table 16.

The superintendents surveyed were asked to indicate their familiarity with the following scientific management techniques by using the following four responses.

- A. I am familiar with the technique and use it frequently.
- B. I am familiar with the technique and use it occasionally.
- C. I am familiar with the technique but do not use it.
- D. I am unfamiliar with the technique.

<table>
<thead>
<tr>
<th>Management Science Technique</th>
<th>Mean (X)</th>
<th>(using A=4, B=3, C=2, and D=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistical Analysis</td>
<td>X = 2.76</td>
<td></td>
</tr>
<tr>
<td>Probability Theory</td>
<td>X = 2.05</td>
<td></td>
</tr>
<tr>
<td>Regression Analysis</td>
<td>X = 1.68</td>
<td></td>
</tr>
<tr>
<td>Exponential Smoothing</td>
<td>X = 1.45</td>
<td></td>
</tr>
<tr>
<td>Statistical Sampling</td>
<td>X = 2.56</td>
<td></td>
</tr>
<tr>
<td>Tests of Hypothesis</td>
<td>X = 2.30</td>
<td></td>
</tr>
<tr>
<td>Simulation</td>
<td>X = 2.23</td>
<td></td>
</tr>
<tr>
<td>Linear Programming</td>
<td>X = 1.61</td>
<td></td>
</tr>
<tr>
<td>Inventory Theory</td>
<td>X = 1.58</td>
<td></td>
</tr>
<tr>
<td>Network Models</td>
<td>X = 1.81</td>
<td></td>
</tr>
<tr>
<td>Program Evaluation &amp; Review (P.E.R.T.)</td>
<td>X = 2.09</td>
<td></td>
</tr>
<tr>
<td>Critical Path Method (C.P.M.)</td>
<td>X = 1.60</td>
<td></td>
</tr>
<tr>
<td>Dynamic Programming</td>
<td>X = 1.31</td>
<td></td>
</tr>
<tr>
<td>Nonlinear Programming</td>
<td>X = 1.30</td>
<td></td>
</tr>
<tr>
<td>Queueing</td>
<td>X = 1.43</td>
<td></td>
</tr>
<tr>
<td>Heuristic Programming</td>
<td>X = 1.21</td>
<td></td>
</tr>
<tr>
<td>Projection</td>
<td>X = 2.41</td>
<td></td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>X = 2.47</td>
<td></td>
</tr>
<tr>
<td>Planning, Programming, Budgeting System</td>
<td>X = 2.99</td>
<td></td>
</tr>
<tr>
<td>Cost Benefit Analysis</td>
<td>X = 2.83</td>
<td></td>
</tr>
<tr>
<td>Management By Objectives</td>
<td>X = 2.98</td>
<td></td>
</tr>
<tr>
<td>Decision Trees</td>
<td>X = 1.80</td>
<td></td>
</tr>
</tbody>
</table>
The results listed in Table 16 indicate several things. First, it would appear that each of the scientific management techniques has an application in the area of education administration as each one is listed as being used frequently in at least one school district. Second, some of the scientific management techniques have very unique or specialized uses as indicated by the small number of districts that use them, and third, the breakdown of the means into smaller groups can be easily done along certain lines to provide a better picture of the frequency of use for the scientific management techniques listed.

To illustrate this third point, the mean values computed in Table 16 have been broken down into three distinct groups along the following lines. Those scientific management techniques that have a mean value between 3.0 and 2.51 have been listed in Table 17 and will be considered the most frequently utilized management science techniques. The scientific management techniques that have a mean value between 2.50 and 2.01 have been classified as occasionally utilized management techniques and are listed in Table 18. Finally, those management science techniques that have a computed mean value of less that 2.0 have been listed in Table 19 as least frequently utilized management science techniques. For the purpose of display in Tables 17, 18 and 19, the range of occurrences has been reduced to three—frequently, occasionally and not used—and the frequency of response has been changed to the percentage of N that the frequency equals.
Table 17. Most Frequently Utilized Management Science Techniques.

<table>
<thead>
<tr>
<th>Technique Used</th>
<th>Frequency of Use in Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequently</td>
</tr>
<tr>
<td>Planning, Programming, Budgeting System</td>
<td>31.6</td>
</tr>
<tr>
<td>Management By Objectives</td>
<td>24.0</td>
</tr>
<tr>
<td>Cost Benefit Analysis</td>
<td>21.1</td>
</tr>
<tr>
<td>Statistical Analysis</td>
<td>5.1</td>
</tr>
<tr>
<td>Statistical Sampling</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Tables 17-19 will be presented using the following format: Title of Table, Scientific Management Technique Used, and the Percentage of all Montana school superintendents that utilize the technique frequently, occasionally, or not at all.

Data in Table 17 present the most frequently utilized management science techniques by Montana school superintendents. The most frequently used technique, Planning, Programming, Budgeting System, is a financial/budgeting technique. The next most frequently used technique is Management by Objectives, an objective oriented management planning tool. The third most frequently used technique is cost benefit analysis, a rational economic decision making strategy. Finally, statistics are listed as the fourth and fifth most frequently used scientific management techniques by Montana school superintendents.

Data in Table 18 present those management science techniques that are occasionally utilized by Montana school superintendents including Management Information Systems, an information gathering system that
may or may not be computer based, which supplies necessary information to the administrators. Projection which is used to forecast possible future conditions in the relevant environment ranked second on this list, followed by Tests of Hypothesis, another statistical application.

Table 18. Occasionally Utilized Management Science Techniques.

<table>
<thead>
<tr>
<th>Technique Used</th>
<th>Frequency of Use in Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequently</td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>14.3</td>
</tr>
<tr>
<td>Projection</td>
<td>11.7</td>
</tr>
<tr>
<td>Tests of Hypothesis</td>
<td>5.5</td>
</tr>
<tr>
<td>Simulation</td>
<td>3.2</td>
</tr>
<tr>
<td>Program Evaluation and Review Technique (P.E.R.T.)</td>
<td>6.5</td>
</tr>
<tr>
<td>Probability Theory</td>
<td>2.2</td>
</tr>
</tbody>
</table>

The fifth highest ranking scientific management technique in Table 18 is Simulation, which uses models to represent various decision outcome possibilities. Following Simulation is P.E.R.T., a network model planning technique that requires the planner to anticipate various events that need to occur to accomplish a given task. The lowest ranked technique among those scientific management techniques that are occasionally used in education administration by Montana school superintendents is Probability Theory, a statistical tool used to anticipate possible outcomes for a decision situation.
Data in Table 19 present the least frequently utilized management science techniques by Montana Secondary School Superintendents. Even though these techniques are not used by most administrators, a small percentage of school superintendents find them useful.

Network Models appear at the top of the list and would include two techniques listed separately on the list, P.E.R.T and C.P.M., as well as Program Evaluation Procedure or P.E.P.. Second on the list are Decision Trees which look like tree branches when drawn out with each 'limb' representing a different alternative leading to a different outcome.

### Table 19. Least Frequently Utilized Management Science Techniques.

<table>
<thead>
<tr>
<th>Technique Used</th>
<th>Frequency of Use in Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequently</td>
</tr>
<tr>
<td>Network Models</td>
<td>4.7</td>
</tr>
<tr>
<td>Decision Trees</td>
<td>3.2</td>
</tr>
<tr>
<td>Regression Analysis</td>
<td>8.8</td>
</tr>
<tr>
<td>Linear Programming</td>
<td>3.3</td>
</tr>
<tr>
<td>Critical Path Method (C.P.M.)</td>
<td>1.1</td>
</tr>
<tr>
<td>Inventory Theory</td>
<td>1.1</td>
</tr>
<tr>
<td>Exponential Smoothing</td>
<td>5.5</td>
</tr>
<tr>
<td>Queuing</td>
<td>8.5</td>
</tr>
<tr>
<td>Dynamic Programming</td>
<td>1.1</td>
</tr>
<tr>
<td>Nonlinear Programming</td>
<td>1.1</td>
</tr>
<tr>
<td>Heuristic Programming</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Third on the list is Regression Analysis, a statistical application, followed by Linear Programming which is a mathematical technique used
to help administrators arrive at decisions. The fifth ranked scientific management technique displayed in Table 18 is a network modelling technique that is used to predict resource and time commitments called C.P.M.. The sixth ranked scientific management technique in Table 19 is Inventory Theory which is used to compute the expenses involved in maintaining a large inventory as opposed to the costs (consequences) that can result from maintaining an inadequate inventory. This is followed by Exponential Smoothing, another statistical application. Eighth ranked is Queueing, a probability technique used to estimate waiting lines and traffic movement. Dynamic Programming, a mathematical technique for decision-making, follows Queueing. Nonlinear Programming, another mathematical technique for decision-making, ranks tenth on the list and is followed by the scientific management technique least frequently used by Montana school superintendents. This technique, Heuristic Programming, is a quantitative management technique.

Summary of Part IV

Of the twenty-two management techniques on the survey questionnaire, Montana school superintendents frequently utilize five of them, occasionally use six of them and seldom use eleven of them.
Most of the survey questionnaire administered was structured and required a specific response to the question, Part IV was left open for the general responses of the Montana school superintendents. Not all of the comments were related to the objectives of the study. Appropriate comments have been organized into three groups which are (a) Class 1 School District comments, (b) Class 2 School District comments, and (c) Class 3 School District comments.

Open Comments Presented According To School District Classification

Class 1 School Districts

-We use a systems approach to management planning based upon effective school research and accompany the systems approach in program budgeting. The management team concept is incorporated with decision making based on systematic research of relevant data.

-Mr. Saint...

I found your questionnaire interesting—Figure one is in need of clarification—I am a firm believer in total staff involvement in curriculum revision, innovation, and scope-sequence planning. However, I feel as strong, the building administrator is the final decision-maker and this one point is paramount in being recognized as a leader.
Class 2 School Districts

- This is the 8th one this year----
- Figure two is appropriate only for large school systems. In a small system, the superintendent or principal fill most of these positions, it is unclear as to how a small district would answer.
- Looks as if I use too much common sense to run this school, as I have not used or heard of 90% of your management techniques on the last page.
- Decision making is based on the size of the system and the length of tenure in the system.
- I believe the best decision process is to find the available facts and make a decision.
- I do not believe an effective administrator can change these decisions frequently. Wrong decisions should be changed only when it is clear that it is not working well.
- The poorest school I taught in was one in which the superintendent was so concerned about the effects of a wrong decision that we had no policy to work on. Daily major decisions were changed. Seldom do we make the best or worst decision, more frequently we make a decision that works fairly well but not perfect. These decisions should be used until one can see clearly a better way. Many schools are harmed by the "will of the wisp, pursuit of perfection."
Class 3 School Districts

-In a class C district management theory becomes too time consuming to be of practical use. When you wear five to ten different hats, it is difficult to stay on a critical task without involvement with statistical analysis.

-A few of these questions are irrelevant to very small schools. Most smaller schools such as this have 1 person that functions as several with all responsibility. It would be nice to spread around the jobs, but economically impractical.

-Figure 2 - Some positions with an X are filled by the same person.

-In a district this small there is not the time or manpower to use all of the "proper" tools of planning and management. There is too much routine to be done to do much more than the minimum required by the various levels of government and the teachers' master agreement.

-We are a small school and I am the only administrator and principal. We have an excellent school system with some high proven results. I feel that many schools have too many administrators, and not enough people to do the work it takes to make a program successful. Administrators are a small part of a good program. The teachers you put in the position are going to make the program so that is where I put my money, trust, and faith.

-After 14 years experience as superintendent in 4 different small, class "C" schools, in both the eastern flatlands and
the western mountains: I have found that I was totally unprepared for the job of superintendent.

- When one person is "the" administrator for all 12 grades, he/she does not have the time, money, or support to do all of the "Theoretical" junk we were taught in graduate school. We spend 50% of our time on transportation and athletics, and 50% of our time on discipline, and the last 50% of our time just surviving.

- Administrative training should be at least equivalent to an ED.S., with the additional hours dealing with: how to deal with, and get along with teachers and community members; Paper work (state and federal forms); State requirements and guidelines for superintendents and Trustees duties; and finally how to keep your sense of humor.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of Chapter V is to report the findings of a study which was conducted during the period of March - July 1985. The study used a total population sample of Montana school superintendents for the survey. A four part questionnaire was sent out to the members of the population asking for their opinions about the personnel, processes, and techniques used by Montana school superintendents to make decisions concerning educational administration. Ninety-eight out of 163 survey questionnaires were returned, representing a 60.1% rate of return.

Summary of Study

During the process of educational decision-making, school administrators such as the superintendent must rely on a variety of
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Summary of Study

During the process of educational decision-making, school administrators such as the superintendent must rely on a variety of
sources to find information and reach a decision. These sources of information include personnel associated with the school system, scientific management techniques designed to assist the administrator in the search for, and selection of, alternatives, as well as the intuition and abilities of the administrator himself/herself.

Although several studies have been conducted to examine the decision-making process in education the unique rural nature of Montana and the educational system that operates in this region may result in conditions which are different from those found in the parallel studies. Because of the different conditions that exist in Montana it was important to specifically examine the personnel, processes, and techniques that a decision-making executive-generalist, such as the Montana school superintendent, would use in the process of arriving at a decision.

Statement of the Problem

The increasingly complex, and rapidly changing environment of the school system requires the local superintendent of public instruction to make numerous decisions daily. These decisions cover a wide range of areas involving parents, teachers, students, and other citizens, and they include such topics as management, finance, personnel, facilities, and law. The final result of a decision may have a great impact on those groups or individuals, that have been affected by the decision. Although there have been several studies conducted concerning decision-making in the educational system, there has been
little research directed specifically toward the personnel, processes, and management techniques used by the superintendent of schools when making decisions in a strict management sense. Considering the importance of the superintendent as the chief professional adviser to a school system it is necessary to understand the personnel, processes, and techniques that are used to make decisions or solve problems in the school system.

**Purpose of the Study**

The purpose of the study was to determine the personnel, processes, and techniques used by local superintendents of schools to arrive at decisions while involved as a school administrators in the state of Montana.

**Objectives**

This study focused upon three objectives which were:

1. To determine the personnel who are utilized by Montana school superintendents when making decisions.
2. To determine the processes used by Montana school superintendents to make decisions.
3. To determine the techniques that are used by Montana school superintendents to arrive at the solution for decisions, or administrative problems.
Conclusions

An analysis of the data that has been received and examined has resulted in the following conclusions:

1. In the Montana educational system the individual that is the most involved in the areas of scheduling, budget development, and administrative decisions is the building administrator, while the teachers are the most involved group in the areas of curriculum planning and materials selection.

The central office staff plays an important role in school operations. As a whole the central office staff was listed as the second most important group when it came to the areas of curriculum planning, budget development, materials selection, and administrative decisions, and third most important group when it came to scheduling.

2. There are many mechanisms in the school organization to resolve problems before they reach the Superintendent, but primarily Montana school superintendents:

   A. Deal with programmed, or routine, decisions.
   B. Carefully scrutinize all of the elements that compose a problem.
   C. Gather information necessary for decision-making.
   D. Do not select the first workable alternative to a problem.
   E. Solicit opinions of others prior to making a decision.
   F. Trust their intuition in certain circumstances.
   G. Carefully monitor the results of a decision with a
willingness to change the decision if it becomes evident that it is not working, even if they feel that it is the correct decision.

3. There are five scientific management techniques primarily used by the Montana school superintendents, they are:
   a. Planning, Programming, Budgeting System
   b. Management by Objectives
   c. Cost Benefit Analysis
   d. Statistical Analysis
   e. Statistical Sampling

In addition, of those remaining scientific management techniques presented in the questionnaire, six techniques were occasionally used and eleven are not utilized in educational decision-making.

Recommendations

- Recommendations as a result of this study are:

1. Methods should be determined to get additional input and participation in the school system from students and citizens.
2. A greater emphasis should be placed upon public information systems to inform the community of the objectives and actions of the school system.
3. The superintendents should be recognized for their
development of a strong feedback system that monitors decisions which have been made in an attempt to evaluate their success or failure.

4. Greater emphasis should be placed upon some of the management science techniques needed for the operation of the school.

Implications

1. The implications of this study for Industrial Arts educators include:
   A. Recognize the groups and individuals involved in the complex area of educational decision-making and how the performance of these duties can influence the area of Industrial Arts Education and other disciplines within the school.
   B. Recognize the relevant environment and complexity of the interdisciplinary nature of education in the decisions affecting the area of Industrial Arts.

2. Implications for the school system include:
   A. A better understanding of the groups that influence and change the field of education;
   B. A clearer understanding of the group interactions that influence policy decisions in education;
   C. An awareness of the use of management science in education.
3. Implications for Montana school superintendents include:
   A. A better understanding of how they operate as professionals in a complex system:
   B. An increased knowledge of the personnel that are most influential in educational decision-making in Montana;
   C. An increased knowledge of the scientific management techniques, and their applications, in the area of education administration.

4. An implication for the Office of Public Instruction:
   - a better understanding of how the Montana school superintendents make decisions.

Recommendations For Further Study

1. Breaking down the results into Class 1, Class 2, and Class 3 schools for all parts of the questionnaire to assess the differences in responses as related to school size;
2. Repeating the study in other states to compare the results obtained there with the results obtained in the Montana study.
3. Validating the role of teachers and other groups in educational decision-making through the administration of similar questionnaires.


Dear Superintendent:

The following questionnaire is being sent to school superintendents throughout the state of Montana as part of the Masters Professional Paper requirements for Danny L. Saint a graduate student in education at Montana State University.

The purpose of the study is to examine the personnel, management techniques, and decision making processes used by school superintendents to make decisions relevant to the operation of the school system.

There are four parts to the survey, each part having a separate set of directions. The last page is open for any responses you may wish to make after completion of the questionnaire. If, after completing the questionnaire, you would like a copy of the results please write your name, address, and school on the enclosed card and the results will be sent to you.

I realize that your schedule is an extremely busy one and much of your time is allocated to the many tasks that confront you each day. However, it would be greatly appreciated if you could spare about fifteen minutes from your busy day to respond to the parts of the questionnaire. Please have this returned by May 7, using the enclosed envelope.

Sincerely

Danny L. Saint
Graduate Student
Department of Agricultural and Industrial Education

Dr. Robert Thibeault
Academic Adviser
DIRECTIONS: PART I

The matrix in Figure One is used in completing this portion of the questionnaire. Listed along the left edge of the matrix are groups or individuals responsible for the operation of the school system. Listed along the top of the matrix are tasks which must be completed in order that the school system can continue to function properly. Considering one to represent no involvement in the task and five to indicate that the group or individual is the only one involved in the task, use the matrix to identify the level of participation for each of the groups, or individuals, in each task by placing an "x" over the number that best describes the level of participation. (example X 2 3 4 5)

DIRECTIONS: PART II

Figure Two represents the formal administrative structure of a typical school district. Place an "x" over any position listed that is occupied by someone in your school district. Since each district has a school board and a superintendent the first two positions have been marked as examples.

WHEN YOU HAVE COMPLETED PART I AND PART II YOU MAY DISCARD THE COVER LETTER AND THESE DIRECTIONS. PLEASE DO NOT RETURN THIS PAGE WITH THE QUESTIONNAIRE.
APPENDIX B

QUESTIONNAIRE
<table>
<thead>
<tr>
<th></th>
<th>Curriculum Planning</th>
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<th>Budget Development</th>
<th>Materiel Selection</th>
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<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
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<td>1 2 3 4 5</td>
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<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

**FIGURE ONE**

- Board of Education
- Superintendent of Schools
- Asst. Supt. for Personnel
- Dir. of Staff Development
- Dir. of Employee Relations
- Asst. Supt. for Administrative Services
- Dir. of Affirmative Action
- Asst. Supt. for Secondary Education
- Secondary School Principals
- Teachers
- Asst. Supt. for Elementary Education
- Elementary School Principals
- Teachers
- Asst. Supt. for Instructional Services
- Dir. of Subject Matter
- Program Coordinator
- Adult Personnel Education (ex. math, reading, etc.)
- Dir. of Public Relations

**FIGURE TWO**
DIRECTIONS: PART III
Respond to each of the statements below by placing a dark circle around the appropriate letter(s) that most accurately describes your feelings about the statement. (Mark only one answer per question)

1. I am always the first to know when a decision is not working. SA A N D SD
2. Many potential problems are discovered by studying the school accounting reports. SA A N D SD
3. I can always find the information necessary to render a decision. SA A N D SD
4. I always ask for other opinions when making a decision. SA A N D SD
5. Many of the problems that confront me can be handled in a routine manner. SA A N D SD
6. I always monitor past decisions I have made to see how satisfactorily they work. SA A N D SD
7. Few problems are identified through the use of the school's accounting system. SA A N D SD
8. I never trust intuition, if the numbers don't work right then I forget it. SA A N D SD
9. I seldom ask for other opinions when making a decision. SA A N D SD
10. Most of the problems I encounter are unique and must be solved in a unique manner. SA A N D SD
11. I am always willing to revise past decisions I have made if they are not working properly. SA A N D SD
12. Many of the problems I encounter are routine and repetitive. SA A N D SD
13. I never have the information I need to render a decision. SA A N D SD
14. I never ask for other opinions when making a decision. SA A N D SD
15. I usually select the first usable alternative when making a decision. SA A N D SD
16. Under no circumstances would I change a decision I feel is correct. SA A N D SD
17. I constantly deal with novel problems and unique situations. SA A N D SD
18. When making a decision I always do what my intuition tells me [...follow my 'ut' feelings]. SA A N D SD
19. I seldom seek the advice of others on problems which have occurred before. SA A N D SD
20. I always consider numerous alternatives when I make decisions. SA A N D SD
21. There is someone responsible for evaluating the success, or failure, of every decision that is made in this organization. SA A N D SD
22. There are many mechanisms in this organization to resolve problems before they come to my attention. SA A N D SD
23. I solicit the opinions of others prior to making a decision even if I have confronted similar problems in the past. SA A N D SD
24. I always make decisions based upon clearly defined objectives. SA A N D SD
25. Many of the problems I encounter are unique and must be handled in a unique way. SA A N D SD
26. I rely heavily upon the advice of specialists in the problem area when making a decision. SA A N D SD
27. I carefully scrutinize each of the elements that comprise a problem before offering a solution. SA A N D SD
DIRECTIONS: PART IV

Using the four classifications listed below indicate your experience with the following quantitative management techniques by placing a dark circle around the appropriate letter.

A. I am familiar with the technique and use it frequently.
B. I am familiar with the technique and use it occasionally.
C. I am familiar with the technique but do not use it.
D. I am unfamiliar with the technique.

A B C D Statistical Analysis
A B C D probability theory
A B C D regression analysis
A B C D exponential smoothing
A B C D statistical sampling
A B C D tests of hypothesis
A B C D Simulation
A B C D Linear Programming
A B C D Inventory Theory
A B C D Network Models
A B C D Program Evaluation and Review Technique (P.E.R.T.)
A B C D Critical Path Method (C.P.M.)
A B C D Dynamic Programming
A B C D Nonlinear Programming
A B C D Queuing
A B C D Heuristic Programming
A B C D Projection
A B C D Management Information Systems
A B C D Planning, Programming, Budgeting System
A B C D Cost Benefit Analysis
A B C D Management By Objectives
A B C D Decision Trees
PLEASE USE THIS PAGE TO LIST ANY CONCERNS, COMMENTS, OR OTHER INFORMATION PERTINENT TO THE CONTENT OF THE QUESTIONNAIRE.
APPENDIX C

LIST OF MONTANA SECONDARY SCHOOL SUPERINTENDENTS
# LIST OF MONTANA SECONDARY SCHOOL SUPERINTENDENTS

## CLASS 1 SCHOOLS

<table>
<thead>
<tr>
<th>School</th>
<th>Superintendent</th>
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<tbody>
<tr>
<td>Anaconda</td>
<td>Daniel Marinkovich</td>
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<tr>
<td>Billings</td>
<td>Dr. William Poston Jr.</td>
</tr>
<tr>
<td>Bozeman</td>
<td>Dr. Keith Chambers</td>
</tr>
<tr>
<td>Butte</td>
<td>Jeff Satterly</td>
</tr>
<tr>
<td>Columbia Falls</td>
<td>Dennis Kimzey</td>
</tr>
<tr>
<td>Glasgow</td>
<td>Gary Martin</td>
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<td>Glendive</td>
<td>Calvin McRae</td>
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<tr>
<td>Great Falls</td>
<td>Jerry Weast</td>
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<tr>
<td>Havre</td>
<td>Dr. Russell Carlson</td>
</tr>
<tr>
<td>Helena</td>
<td>Roger Eble</td>
</tr>
<tr>
<td>Kalispell</td>
<td>William Cooper</td>
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<tr>
<td>Lewistown</td>
<td>Dr. Ronald Mattson</td>
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<tr>
<td>Libby</td>
<td>Robert Pratt</td>
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<tr>
<td>Livingston</td>
<td>Gaylord Lasher</td>
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<td>Miles City</td>
<td>Paul Stengel</td>
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<tr>
<td>Missoula Co.</td>
<td>Dr. Dennis Kraft</td>
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<td>Robert Kinna</td>
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## CLASS 2 SCHOOLS

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<td>Gile Mitchell</td>
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<td>Harry Erickson</td>
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<td>Belt</td>
<td>Gene Combs</td>
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<tr>
<td>Big Fork</td>
<td>Tom Doohan</td>
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<tr>
<td>Big Sandy</td>
<td>Boyd Romine</td>
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<td>Boulder</td>
<td>Robert Laumeyer</td>
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<tr>
<td>Bridger</td>
<td>Larry Regnier</td>
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<td>Broadwater Co.</td>
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<td>Broadus</td>
<td>Sam Sears</td>
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<tr>
<td>Browning</td>
<td>Tom Thompson</td>
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<td>Cascade</td>
<td>John Dallum</td>
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<td>James Webster</td>
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<td>Robert Chuilicek</td>
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<td>Chinook</td>
<td>Walter Scott</td>
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Choteau
Ervin Ketterling
Circle
James Anderson
Colstrip
Harold Tokerud
Columbus
Conrad Robertson
Conrad
Phillip Whaley
Corvallis
Leo McDermott
Culbertson
Dr. Patrick Stuber
Cut Bank
T. C. Mattocks
Darby
Lyle Barringer
Dutton
Rich Wilson
Ennis
Tom Warwick
Powell Co.
Floyd Larkin
Fairfield
C. John Kinna
Fairview
Kenneth Avison
Florence
Robert Lukes
Fort Benton
Craig Brewinton
Forsythe
David Lloyd
Garfield Co.
John Baule
Geraldine
Walter Pippo
Frenchtown
Robert Banks
Hamilton
Clifford Johnson
Hardin
Rodney Svee
Harlem
Richard Heath
Harlowtown
Melvin Vossler
Hot Springs
Gerald Sowden
Hysham
Andrew Veis
Laurel
Robert Singleton
Lincoln Co.
James Foster
Lodge Grass
Larry LaCounte
Malta
Robert Rust
Manhattan
Dale Moore
Medicine Lake
Calvin Moore
Nashua
Robert Barnes
Opheim
Ernie Jean
Philsipsbury
Carl McCallum
Plains
K. William Harvey
Plentywood
Robert Richards
Polson
Dr. Lee Christensen
Popular
Bert Corcoran
Red Lodge
David Peters
Ronan
Bob Halgren
Roundup
Robert Krogh
Rudyard
Calvin Spangler
Sand Coulee
Jim Moulds
Scobey
Bill Stone
Sheboy
Dr. Dale Zorn
Sheridan
Robert Sindelar
Sidney
Larry Kieckbusch
Simms-Ft. Shaw
Jack Adkins
St. Ignatius
Fay Lesmeister
Harold McPherson
Stanford  Larry Biere
Stevensville  Tony Tognetti
Sunburst  Alan Ryan
Superior  William Donahue
Sweetgrass Co.  Richard Webb
Terry  Daniel Nelson
Thompson Falls  Gener Ostwald
Three Forks  Charles Ansley
Troy  Richard Hill
Twin Bridges  Phil Waber
Valier  Richard Sirokman
Victor  Ivan Hernandez
Whitefish  Leroy Key
Whitehall  Gene Dillman
White Sulphur Springs  Frank Nelson
Wibaux  Michael Micosia
Worden-Huntley Project  Joe McCracken

**CLASS 3 SCHOOLS**

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<tr>
<th>School</th>
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<tbody>
<tr>
<td>Absarokee</td>
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<td>Alberton</td>
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<td>John Hargrove</td>
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<td>Box Elder</td>
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<td>Brady</td>
<td>John Hebnes</td>
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<tr>
<td>Broadview</td>
<td>Stanley Perkins</td>
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<tr>
<td>Brockton</td>
<td>Donald Wolslagel</td>
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<td>Clyde Park</td>
<td>Ed Barich</td>
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<tr>
<td>Custer</td>
<td>William Colter</td>
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<tr>
<td>Denton</td>
<td>K. C. Blackburn</td>
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<td>Dodson</td>
<td>Ric Floren</td>
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<td>Drummond</td>
<td>Dale Huhtanen</td>
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<td>Ekalaka</td>
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<td>Flaxville</td>
<td>James Shehein</td>
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<td>Frazer</td>
<td>Rich Shaffer</td>
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<td>Froid</td>
<td>Rand Bradley</td>
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<td>Richard Moe</td>
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<td>Harrison</td>
<td>Joe Brott</td>
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<td>Hobson</td>
<td>Wendell Rafter Jr.</td>
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<td>Gregg Lundsberg</td>
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Joplin-Inverness  
Judith Gap  
Kremlin-Gilford  
Lambert  
Lavina  
Lima  
Lincoln  
Lelstone  
Moore  
Noxon  
Outlook  
Park City  
Plevna  
Peerless  
Power  
Pryor  
Rapelje  
Reedpoint  
Richey  
Roberts  
Rosebud  
Roy  
Ryegate  
Saco  
Savage  
St. Regis  
Turner  
Westby  
West Yellowstone  
Whitewater  
Willow Creek  
Wilsall  
Winifred  
Winnett  

Joseph Fahn  
Patricia Price  
Paul Preeshl  
Dan Haugen  
David Knoechny  
Robert D. Smith  
Terry Loveland  
Robert Otheim  
Richard Hughes  
Duane Scott  
Steve Gaub  
Ron Hatcher  
David Huether  
Ed Zabrocki  
Larry Lehman  
Ivan Small  
W. H. Ed Warner  
Robert Klein  
Glenn Williams  
Ron Marshall  
Todd Taylor  
Robert Joscelyn  
Ronald Blomquist  
Mickie Lowe  
John McNeil  
J. Oliver Gordon  
Bernard Rosling  
Richard Rossignol  
Glenn Sorensen  
Roger Britton  
Mike Korich  
Garret Franks  
Carroll Lindsey  
John H. Lee