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OHIO JOINT VOCATIONAL SCHOOL ADMINISTRATORS’ PERCEPTIONS REGARDING THE IMPORTANCE AND USE OF TOTAL QUALITY MANAGEMENT

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By
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* * * * *

The Ohio State University

1996

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DEDICATION

This dissertation is dedicated to my family, the foundation from which I stand: To Hilbert Henry Capes, Nettie, Robert, June and Ronald Ennis, Charles and Beverly Draper, Jeff Singley, Mildred Kennedy and Kathleen Woehrle.
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CHAPTER I
INTRODUCTION

Appointed, emergent, or elected leaders interact with people to motivate, convince, direct and influence behavior (Bass & Stogdill, 1990). Essentially, leadership is a process by which individuals are directed toward a collective activity which assists in achieving the goals set by the organization (Hollander, 1990). As a result, the perceptions of people in leadership positions are important in influencing the behavior and culture of an organization (Bass & Stogdill, 1990; Hertzke & Olson, 1994; United States Office of Personnel Management [USOPM], 1992;). Leadership's perceptions toward an innovation, such as total quality management (TQM) are critical for the organizational adoption or nonadoption of the innovation (Deming, 1993; National Institute of Standards and Technology [NIST], 1995; Pallandini, 1993; Teigland, 1993). Recently TQM has been introduced into the educational environment and more specifically to vocational education as an innovative management technique used to address quality issues. The attitudes of administrators toward TQM within joint vocational schools (JVS) in Ohio will likely influence the adoption of TQM (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1974, 1975).
Early history of the United States indicates educational leaders wavered between adopting practices of business and industry or adopting philosophies based on a liberal arts education (Barlow, 1965; Brown, 1985; Wirth, 1974). Historically, leadership and educational practices have been viewed as a reflection of society's values toward the individual and their role in society (Brown, 1985; Drucker, 1993). During the industrial revolution, management philosophy reflected the political, economic, social and technological conditions during that time period. The dominant management philosophy was based on an autocratic leadership decision making process. Reflective of the industrial model, workers were told what to do, how to do it, and the expected result of their labor (Arling, 1993). Industry, in both production and service, depended heavily on manual labor without much of a need for feedback from the workers (McDaniel, 1989; Sergiovanni, Burlingame, Coombs, & Thurston, 1992; Wirth, 1974).

Frederick Winslow Taylor, a dominant figure in industrial engineering during the industrial revolution authored two books, Shop Management (1911a) and The Principles of Scientific Management (1911b). The principles and practices presented in his writings provided the framework from which many
organizations were developed and managed. Henry R. Towne, in the foreword to Taylor's *Shop Management* noted:

Dr. Taylor has demonstrated conclusively that, to accomplish this, it is essential to segregate the planning of work from its execution; to employ for the former trained experts possessing the right mental equipment, and for the latter men having the right physical equipment for their respective tasks and being receptive of expert guidance in their performance (pp. 9 - 10).

Drucker (1993) reported that in the nineteenth century it was believed that the expert or leader knew all the answers to common worker and process problems that occurred in the workplace. An organizational division was created between management who would do the thinking, and labor, who would do the physical work.

Holt (1993) reported that Taylor also urged using product specifications to define standards of output performance. The product specifications method viewed raw materials as needing only the correct uniform processes, from which standardization of output performance could be achieved.

Early school reformers including Horace Mann and Henry Barnard lead efforts to reorganize public schools. This reformation included grouping students by age, using a standard curriculum, increasing teacher training requirements and building a hierarchical management system of education (Reese, 1992).
Near the end of the 19th century, educational scholars and school boards began to apply the technical model of bureaucracy proposed by Weber and Taylor's principles of scientific management (Weber, 1946; Taylor, 1911b). Callahan (1962) reported that schools were, in a sense, factories in which children were viewed as raw products needing to be shaped and fashioned into socially desirable products to meet the various demands of life. This factory process required good tools, specialized machinery and continuous measurement to see if the production line was operating according to specifications. Schooling tended to mirror business in its adherence to these qualities. Clarke (1986) observed:

Our current educational system evolved to produce workers for the Industrial Revolution's factory-based economy, for work that requires patience, docility, and the ability to endure boredom. Students learned to sit in orderly rows, to absorb facts by rote, and move as a group through material regardless of individual differences in learning speed (p. 76).

Reflecting on the status of our current educational system, Bonstingl (1992) commented that only recently has it become apparent that the dominant models of organization and administration in education were developed during a historical period when American education was growing rapidly and a great deal of industrial influence existed in the system. These events helped to produce educational systems reflective of society during each respective time period. Although this approach may have worked well for a society of the past, the industrial mode of education has failed to develop the wide range of cognitive,
psychomotor and affective abilities of students needed today (Bonstingl, 1992; Commission on the Skills of the American Workforce, 1990; Goodlad, 1984).

Theories on student intelligence assert that assessments of student intelligence by standardized tests are valid for only one type of documented intelligence (Armstrong, 1994; Gardner, 1983, 1993). The theory of multiple intelligences and learning presented by Gardner (1983) challenged the traditional intelligence paradigms. The current educational system is slow to address these issues and generate plans to develop a greater portion of the cognitive, affective and psychomotor potential of a larger number of students (Armstrong, 1988; Harmin, 1994).

One obstacle to progress has been the adherence to past educational paradigms, which have produced students who view the world in a polar cognitive dimension. Kohlberg identified this right or wrong approach to viewing the world as Stage 4, Social System and Conscience, of a person's moral development (Anderson & Carter, 1990; Crain, 1992). Von Oech (1983) noted:

Much of the educational system is geared toward teaching people the one right answer. By the time the average person finishes college, he or she will have taken more than twenty six-hundred tests, quizzes and exams . . . . Thus, the right answer approach becomes deeply ingrained in our thinking. This may be fine for some mathematical problems where there is in fact only one right answer. The difficulty is that most of life does not present itself this way (p. 21).
Drucker (1993) related that the new knowledge society, the post capitalist society, needs people with process knowledge which is acquired through life long learning. Rather than assume leaders know every detail of a process, their role must be to nurture the growth and performance of individuals and teams (Goldhaber, 1978). People must learn how to continually learn and adapt. High priority should be placed on process knowledge that can be enhanced by teaching group process skills, using teams. Team process skills and the ability to learn and adapt will become more important as the world becomes more complex and dynamic (Lewin, 1978). It is no longer possible to have only a few people learning and making decisions for any organization (Schmoker & Wilson, 1993a; Wirth, 1972). In both education and industry, technological developments have made it impossible for only a few people to know it all (Thurow, 1992). Leadership must use collective knowledge, and encourage and support employees with continual training and retraining. This management approach challenges Taylor's authoritarian management philosophy. Management's new responsibility is to coach learning and support employees in meeting the objectives of an organization, rather than doing all the thinking and telling employees what to do (Hererly, 1991; Schmoker & Wilson, 1993b).

Today's technological and informational-based society, staffed by a diverse workforce often finds it difficult to work with authoritative decision making procedures and processes (Darling-Hammond, 1990; Gary, 1993; Holt, 1993; O'Looney, 1993). Concurrently, as employees seek a greater role in
making decisions related to their work environment, total quality management has gained acceptance by challenging the structure and process of traditional organizations (Gitlow & Gitlow, 1987).

One purpose of the secondary school has been to prepare students to enter the workforce (Carl D. Perkins Vocational and Applied Technology Education Act, 1990; Goals 2000: Educate America Act, 1994; Improving America's Schools Act of 1994, 1994; Job Training Partnership Act, 1982;). If students are to be prepared for employment reflective of the present and future work environments, educators must be knowledgeable about current organizational processes and programs. Bonstingl (1992) reported that, in selected school districts, teachers are using TQM techniques in the classroom and administrators are using it in governing schools. Cross disciplinary TQM teams meet to solve problems, develop organizational goals, and formulate plans to more effectively and efficiently accomplish organizational objectives.

National organizations like the Vocational Industrial Clubs of America (VICA) and the Iowa State University Extension Service, in cooperation with the University of Nebraska-Lincoln Cooperative Extension, have prepared classroom materials to assist educators in implementing TQM education in the classroom (Iowa State University Extension Service & University of Nebraska-Lincoln Cooperative Extension, 1993; Vocational Industrial Clubs of America, 1994). At the middle grades level, Glenwood Middle School in Maryland has actively encouraged small groups of students to work in support teams known as "S-Teams" (a play on the word esteem). S-Team members pledge to support each
other in efforts toward continuous academic and personal improvements through TQM problem solving techniques (Bonstingl, 1992). Students in this program have learned a variety of skills including problem solving, teamwork and interpersonal skills.

A key component in implementing TQM is to consider how change occurs in an organization. The first step in most change processes is to gain administrative understanding, guidance and support. As noted by National LEADership Network Study Group on Restructuring Schools (1993), leadership in an organization does not have to possess complete and total understanding of TQM or its components including the system of profound knowledge and the fourteen principles by which to use it, but they must have an absolute, unshakable commitment to the concept of quality improvement. TQM consists of four foundational knowledge areas called "the body of profound knowledge" which includes theory of knowledge, knowledge of variation, systems thinking, and psychology (Deming, 1993). The four areas must be integrated and interdependent (American Association of School Administrators, 1992; Deming, 1993; Judd, 1994; National LEADership Network Study Group on Restructuring Schools, 1993). Hollander (1990) noted that where TQM is successful, top leadership has been fully committed to supporting the program.

In the educational environment, school boards, superintendents, and directors of a school are in the best position to promote, protect and defend a school district's TQM process (Keese, 1991; Holt, 1993; Hertzke & Olson, 1994). Keese concluded top leadership must be willing to confront behaviors which
weaken the quality and efficiency of a school's quality efforts or the improvement process will not succeed. Holt noted that quality originates from top management. Leaders must demonstrate, by behavior, their commitment to the set of values they are trying to institutionalize. (Bennis & Nanus, 1985; Caldwell & Gould, 1992; Joiner, 1993; Selznick, 1957).

**Problem Statement**

Ohio Joint Vocational Schools (JVSs), administratively governed by school boards and administrators, are charged with providing vocational skill training reflective of current and future workforce environments. Business, manufacturing and service environments are presently using TQM techniques, so it is critical that students are not only aware of TQM, but fluent in its application. Students with marketable skills are not only better able to get and maintain a job for themselves but also contribute to society (Kraska, 1991; Favero, 1992; Florida State Department of Education, 1990).

A few Ohio Joint Vocational Schools are currently implementing the TQM philosophy. According to Ohio Department of Education officials, the best estimate of JVSs implementing TQM ranges from five to 65%. (I. Kershaw and B. Lavin, personal communication, November 9, 1994). As indicated by Hollander (1990), the perceptions of top leadership toward an innovation is a measurement of possible acceptance and adoption. Deming suggested top leadership must be committed to the adoption of TQM as a first step.
However, the perceptions of JVS's administrators, specifically superintendents and directors, regarding the importance and use of TQM are unknown.

**Objectives**

The purpose of the study was to determine the perceptions of Ohio JVS administrators toward the importance and use of TQM. The specific objectives of the study were to:

1. Identify the perceptions of Ohio JVS administrators regarding the importance of TQM.
2. Identify the perceptions of Ohio JVS administrators regarding the use of TQM.
3. Explain the proportion of variance in the level of importance of TQM by selected demographic characteristics (i.e., gender, age, education level, years as an administrator, years as a teacher, number of teachers and programs, and high school and adult students).
4. Explain the proportion of variance in the level of use of TQM by selected demographic characteristics (i.e., gender, age, education level, years as an administrator, years as a teacher, number of teachers and programs, and high school and adults students) and the Sum of Importance.
Significance of the Study

Students in Ohio Joint Vocational Schools, upon graduation, must have technical skills and knowledge of current organization and management practices to survive in a competitive job market (Ohio Department of Education [ODE], 1994). Students who possess problem solving skills, teamwork experiences, technical skills, and people skills characteristic of TQM, will be better able to compete for jobs (Secretary's Commission on Achieving Necessary Skills, 1991).

For teachers to provide realistic TQM experience in a classroom, JVS leadership must be supportive of the TQM philosophy. The role of administrators is critical to implement and maintain a TQM environment (Bonstingl, 1992; Cope & Sherr, 1991; Cornesky, McCool, Byrnes & Weber, 1991; Deming, 1993). To evaluate the potential of TQM implementation in JVSs, the perceptions of school leadership (i.e., school administrators) must be considered. Perceptual information would help guide state department of education personnel, professional associations, and advisory groups in planning educational programming and professional development activities.

This study also provides baseline information regarding the perceptions of the importance and use of TQM in JVSs. Baseline information can be used as a basis for future longitudinal or historical studies.
Definition of Terms

The following definitions are derived from five sources in the field of TQM:


**Benchmarking** - is a process of comparing a given level of performance to an established level of excellence. Benchmarking uses criteria reflective of the quality of a product, service or information (Deming, 1993).

**Body of Profound Knowledge** - was described by Deming as having four major knowledge areas: (a) knowledge of people and group psychology, (b) knowledge of systems and how they interrelate, (c) knowledge of variation and (d) knowledge of knowledge building and problem solving (Deming, 1993).

**Customers** - are considered the end users of a product or service when production and service cycles are broken into their constitutive components. Most organizations have both internal and external customers. Internal customers can be individuals or departments which offer services or products to other individuals or departments within the organization. The external customer is the outside person or organization receiving the product, service or information (Deming, 1993; Hertzke & Olson, 1994).
Joint Vocational School Administrators - are the administrative body of a JVS. The JVS administrators were employed by JVSs that actually provide the majority of on-site vocational training. This definition excludes administrators as part of a compact of schools that send students to a JVS for training.

Process - an event or series that transforms inputs: materials, information, people or methods into outputs, products, or services (ASQC, 1987; Hertzke & Olson, 1994; Regauld, 1993).

Quality - refers to the general nature of something, its attributes and characteristics. Another component of quality refers to the "grade of excellence" which is value and judgement dependent (ASQC, 1987; ASQC, 1995; NIST, 1995; Regauld, 1993).

Total Quality Management - is a management philosophy requiring leadership to develop a collective vision for the organization and to continually improve the processes by which services or products are delivered (Deming, 1993; Regauld, 1993).

Limitations of the Study

The researcher recognized that the study would have the following limitations:

1. The study was limited to the respondents' understanding of the terminology used in the instrument.
2. The study was limited to an investigation of JVS superintendents’ and directors’ perceptions regarding the use and importance of TQM as defined by the Malcolm Baldrige National Quality Award Education Pilot Criteria 1995.

3. The study was limited to the respondents possible varied interpretations of the role of TQM in education.

**Basic Assumptions**

The following assumptions were identified in conducting this study:

1. The respondents truthfully completed the survey with responses reflecting their true perceptions.

2. The *Malcolm Baldrige National Quality Award Education Pilot Criteria 1995,* is a valid list of criteria representative of the core TQM philosophy.

3. The superintendents and directors participating in this study were actively engaged in administering leadership responsibilities in Ohio JVSs.
CHAPTER II
REVIEW OF LITERATURE

To develop an understanding of the perceptions of Ohio JVS administrators toward TQM and to provide a conceptual research framework required a review of three major topics: (a) Vocational Education, (b) Attitude/Perception Assessment, and (c) Total Quality Management in Education. These topics provided a theoretical base for this investigation.

Vocational Education

Apprenticeships transported to the colonies by European craft and business people are usually credited with the first form of vocational education in the United States (Barlow, 1976; Watkins, 1993). The products produced by apprentices were unique; each made separately from handcrafted parts. Each product maintained its distinctiveness even when products made by the same craftsperson were compared. With the arrival of industrialization, mass production was possible. The need for people with a broad range of craft skills, characteristic of apprentices, declined, while the need for persons with the ability to produce large volumes with less variability increased. Mass production
depended on persons with specialized skills. Large factories maximized the economies of scale to produce products faster, increasingly more uniform and at less cost.

As industrialization and the country's demand for goods increased, the federal government was drawn into playing a greater role in supporting vocational education by enacting the Morrill Acts of 1862 and 1890, and the Hatch Act of 1887. These acts provided federal funds and grants of land for the support of institutions offering training in agriculture and the mechanical arts (Barlow, 1976; Hillison, 1995). These acts reflected an increase in the social and political support for vocational training.

From the last quarter of the nineteenth century to the beginning of the twentieth, vocational education, in particular agricultural, mechanical, and home economics education, was increasingly delivered at the high school level. Support for vocational education originated from a unique collection of political, financial and philosophical sources including the National Association of Manufacturers, National Democratic Party, Progressive (Bullmoose) Party, The General Federation of Women's Clubs, Wallace's Farmer and the American Federation of Labor (Hillison, 1995). Support for vocational education culminated with passage of the national Smith-Hughes Act of 1917. The Smith-Hughes Act of 1917 was described as a "plan of cooperation between the federal government and the various states for the payment of salaries of teachers of vocational education subjects and for the training of such teachers"
(Barlow, 1976, p. 58). This legislation reflected strong support for vocational education. (Barlow 1976; Hillison, 1995; Miller, 1985).

Since the Smith-Hughes Act of 1917, vocational education has expanded its mission by broadening the vocational content and the clients served under federal and state legislation. Subsequent legislation has increased funding and enlarged the scope of vocational education to include special populations, including the physical and mentally challenged, the economically and academically disadvantaged, and has promoted programs with the intent of erasing gender discrimination in vocational education. The legislation responsible for these efforts included: the George-Barden Act, the National Defense Education Act, and the Vocational Education Act of 1963 and its related amendments. More recent federal legislation (i.e., The Carl D. Perkins Vocational and Applied Technology Education Act, 1990) has been aimed at increasing both the effectiveness and efficiency of the vocational educational delivery system.

The School-to-Work Opportunities Act of 1994, was oriented toward better preparing students for the transition they encounter when graduating from high school and entering the workforce. This act encouraged local and state partnership formation to drive the planning, implementation and operation of School-to-Work systems. (U.S. Department of Education & U.S. Department of Labor, 1994) As stated by Secretary of Education, Richard W. Riley "By raising education standards, developing partnerships within communities, and establishing a link between school and work, we can help our youth compete in
an increasingly complex global economy" (p.1). The legislation's intent was not to create another federal program but to provide incentive money for local collaborative efforts to better prepare students for employment.

In Ohio, 33.5% of all full-time equivalent secondary vocational education students are provided with vocational education in a Joint Vocational School (JVSs) system (ODE, 1995). These schools have the mission to prepare youth for entry level vocational occupations (ODE, 1994). To accomplish the mission, students must be provided with up-to-date training, not only in the technical skill area but also in current management and organizational practices (ODE, 1994).

Attitude

According to Pratkanis, Beckler, & Greenwald (1989) "attitude is a state of readiness that exerts a dynamic influence upon an individual's responses" (p. 16). Attitudinal researchers have used Allport's 1935 definition as a foundation for further development of both a definition and theory of attitude (Bagozzi & Yi, 1989; Bentler & Speckart, 1979; Pratkanis, Beckler, & Greenwald, 1989).

Ajzen and Fishbein (1980) and Pratkanis, Beckler & Greenwald (1989) proposed that attitudes are comprised not only of affect, but also of cognition and conation. This multicomponent definition of attitude revealed the complexity of defining attitude and opened doors to further investigation primarily in the social psychology field from which it originated.
An early linkage within the construct of attitude, commonly agreed upon, was the relationship of attitudes to expressed behavior. This relationship was thought to present a logical relationship similar to the relationship of a word and its definition. Words are used to represent an understood meaning or verbal behavior. It was understood that a person's attitude can be related to a specific behavior. Just as words have meaning, attitudes have meaning which assist in understanding human social behavior (Pratkanis, Beckler, & Greenwald, 1989).

McGuire (1985) reported the measurement of attitudes is often cited in social psychology research literature as a dynamic construct with many associated theories and definitions. Fishbein and Ajzen (1972) reported finding more than 500 operational definitions of attitudes and found that in 70% of the 200 studies in which attitude was defined, it was defined in more than one way; different results were obtained depending on which definition was cited.

Fishbein and Ajzen's initial survey of attitudes provided a basis for the development of the Theory of Reasoned Action (Fishbein & Ajzen, 1975). The Theory of Reasoned Action was a linear additive model used to explain the attitude-behavior relationship. In this model it was suggested that beliefs, both individual and normative, were linearly connected to the attitude an individual has toward an object. A person's attitude was directly related to their intention to act out a behavior. Fishbein and Ajzen's (1975) Theory of Reasoned Action provided a foundation for later improvements to the theory.
Ajzen (1985) added a third, independent predictor of intentions of attitudes and subjective norms specifically, perceived behavioral control (see Figure 1). Perceived behavioral control was defined as the ease or difficulty of performing the behavior while it assumes the individual reflects on past experiences and anticipated impediments and obstacles (Ajzen, 1985).


Additional research revealed factors which help explain the correlation between attitude and behavior: self-esteem, direct questioning of attitude to action connection, age, personality, effort and peer values and norms (Bagozzi, Yi, & Baumgartner, 1990; Gelfand, 1962; McArthur and Zigler, 1969; McGuire, 1985; Wylie, 1979). Other factors that interacted with attitudes were personality characteristics including self-monitoring, and the need for cognition (Snyder & Swann, 1976). Also influencing the relationship are the experimental base or the confidence that the concept or construct is held (Fazio & Zanna, 1981; Sample & Warland, 1973); circumstances surrounding performance of the behavior, such as level of self awareness in the situation (Carver, 1975); and the nature of the behavior selected to represent the underlying disposition (Fishbein & Ajzen, 1974; Sjoeborg, 1982).
Ajzen’s Theory of Planned Behavior

Figure 1. Ajzen’s 1985 Theory of Planned Behavior explains how beliefs, attitudes and perceptions lead to intention and finally a specific behavior.

Total Quality Management

Total quality management is a management and organizational philosophy known by variant names such as Continuous Quality Assurance, (Peterson, 1993), Quantum Quality, (Thor, 1993), Quality Function Deployment and Campus Commitment to Excellence, (Schauerman, 1993), Total Quality, (Burgdorf, 1992), Continuous Improvement, (Rieley, 1992), and The Deming Management Method, (Cornesky, 1993; Seymour, 1992; Sherr & Teeter, 1991).
These variant names have been grouped under a general heading of quality improvement programs and contain the foundational components developed by W. Edwards Deming and Joseph M. Juran, considered the pioneers of modern TQM practices (Bonstingl, 1992).

Total quality management is an improvement process designed to align the mission, culture and working practices of an organization. Total quality management supports the belief that quality is the result of a system designed to produce it (Deming, 1993). To increase the quality of products or services, the organization must identify how customers define quality. After quality is clearly defined, management must listen to front line personnel to identify obstacles that interfere with providing quality. It is further believed that the effort and attitude of individuals in the organization are in part dependent on the satisfaction they receive both intrinsically and extrinsically, from the organization (e.g. the more a person feels empowered within the workplace, the better they perform) (Bonstingl, 1992; Crain, 1992; Gitlow & Gitlow, 1987; Herzberg, 1966).

The TQM process recognizes that top leadership, with the power to control organizational processes, is ultimately responsible for structuring the environment to produce quality products and services. Deming (1993) noted approximately 90% of both internal and external customer dissatisfaction is caused by problems with the process, not people. Improvement of the process provides a greater chance for the individual to both receive and provide quality services or products (Deming, 1993).
Total quality management principles can be condensed into five general steps: (a) creation of an appropriate climate, (b) focus on the customer, (c) management by data, (d) people-based management, and (e) continuous quality improvement. When all five steps are put into practice, an organization is said to operate utilizing the basic concepts of TQM (Deming, 1993; FEU, 1991; Joiner, 1993).

1. Creation of an Appropriate Climate

A catalyst is required in most organizations to create a need for improvement, which originates from a climate of dissatisfaction with current inputs, processes, performance, or outcomes. Traditionally the catalysts for change have been external factors such as budget cuts, external cultural pressure, evolution of interest, specific events and competition (Eiser, 1980, 1987; Schmoker & Wilson, 1993b; Seymour & Casey, 1991). TQM uses an internal catalyst exemplified in the phrase "continuous improvement" to establish an appropriate climate.

Maintaining the principles and practices of TQM requires a constant examination of processes within the organization to create an appropriate climate. Deming (1993) noted that to create an appropriate environment, fear must be driven out of the organization before TQM can be incorporated into the organization. Employees must not fear being penalized for mistakes that happen more frequently when learning first occurs. When fear exists, employees often discover flaws in the system but do not report them for fear of being reprimanded.
2. Focus on the Customer

The principle of focusing on the customer requires that the customer be consulted and involved in designing the product or service offered to them. Although the task of identifying customers seems simple, some organizations have difficulty in identifying their suppliers and customers. Only after customers have been identified can an organization-wide commitment to continually assessing customer requirements, needs and expectations be met. It is essential to constantly monitor the customer’s present and expected needs to adjust to needs as they arise, and prepare the organization to meet these expectations (Bemowski, 1995; Deming, 1993).

The concept of satisfying customer needs must be applied to processes within the organization (Joiner, 1993). TQM philosophy promotes the concept that everyone in the organization has a customer (Yowell, 1992). Everyone either uses, expects, or receives outputs or outcomes from someone else's work. Accordingly, everyone is at times a supplier and at other times a customer. The internal customer concept applies to all levels within the organization (Deming, 1993; Snee, 1995). Consequently, accountability and responsibility for service must be focused in multiple directions requiring that needs and expectations be clarified, negotiated and clearly understood by everyone in the organization (Bonstingl, 1992; Deming 1993; Further Education Unit [FEU], 1991).
3. Management by Data

Management by data means decisions are based on data rather than solely on assumptions, tradition or past experience. Data results from monitoring performance using a variety of techniques including flow charts, nominal group techniques, cause and effect diagrams, affinity diagrams and force field analysis. These data gathering and analysis techniques are used to support the traditional problem solving method developed by Walter Shewhart and Edwards Deming (Deming, 1993; Regauld, 1993; Shewart, 1931; USOPM, 1992). It is important to accurately determine, rank, quantify, and qualify customer requirements wherever possible while measuring progress in meeting or exceeding customer expectations (FEU, 1991).

Attitude and satisfaction surveys of both internal and external customers are commonly used to measure, evaluate and analyze progress (Joiner, 1993; Snee, 1995). A common TQM technique utilizes surveys to identify common problems and issues. The use and interpretation of surveys and other information gathering techniques should become a common set of front line management and employee problem identification techniques. The data collected from surveys are used to develop action plans for improvement (Joiner, 1992). Initial results are measured against succeeding findings to monitor improvement and determine if further action is needed. It is important to document performance so that patterns can be established to compare with past achievements. This will assist in gaining control over the system while increasing quality (Deming, 1993; FEU, 1991; Gitlow & Gitlow, 1987).
4. People-Based Management

People-based management requires the use of participative techniques, which allow personnel within the organization to share in the management decisions affecting their job. Empowerment of employees aims to improve satisfaction by giving personnel a voice in their work environment. The use of TQM techniques calls for people, individually and in teams, to identify problems, gather data, develop solutions, implement solutions and evaluate the results. This change in the decision making process means that employees learn or rediscover critical skills including: listening, conflict management, negotiation and joint problem solving (Deming 1993; FEU, 1991).

5. Continuous Quality Improvement

The principles of TQM are designed to promote continuous quality improvement. Continuous quality improvement involves directing resources to those activities having the greatest potential to increase quality, rather than using historical precedence, intuition, or territorial boundaries to formulate a solution. The organization must continually strive for improvement, and reward efforts for constant achievement which are aligned with the organizational mission, quality improvement goals, and customer satisfaction.
Deming (1993) proposed 14 specific points to quality, which are similar to the criteria presented by Juran (1993a, 1993b) and Crosby (1994). Bonstingl (1992) translates Deming's 14 points for educational settings:

1. Create a constancy of purpose for improvement of product and service. Schools must focus on helping students maximize their own potential through continuous improvement. Maximization of test scores and assessment symbols is less important than the progress inherent in the continuous learning process of each student.

2. Adopt the new philosophy. School leaders must adopt and fully support the new philosophy of continuous improvement through greater empowerment of teacher-student teams. Cynical application of the new philosophy, with the sole intent of improving district wide test scores, destroys interpersonal trust which is essential to success.

3. Cease dependence on mass inspection. Reliance on tests as the major means of assessment of student production is inherently wasteful and often neither reliable nor authentic. It is too late at the end of a unit to assess students' progress if the goal is to maximize their productivity. Tests and other indicators of student learning should be given as diagnostic and prescriptive instruments throughout the learning process. Learning is best shown by students' performance, (i.e., applying information and skills to real-life challenges).
Students must be taught how to assess their own work and progress if they are to take ownership of their own educational process.

4. End the practice of doing business by the price tag alone. Build relationships of trust and collaboration within the school and between the school and the community. Everyone's roles as supplier and customer must be recognized and honored. Work together whenever possible to maximize the potentials of students, teachers, administrators, and the community.

5. Improve constantly and forever the system of production and service. School administrators must create and maintain in the context in which teachers are empowered to make continuous progress in the quality of their learning and other aspects of personal development, while they learn valuable lessons from temporary failures.

6. Institute programs of training. School leaders must institute programs of training for new employees unfamiliar with the specific culture and expectations of the school. Effective training programs show new teachers how to set goals and assess the quality of their work. Teachers must also institute programs which address student learning, learning effectiveness, and quality of school work.

7. Institute leadership. School leadership consists of working with teachers, parents, students and members of the community as coach and mentor so that the
organizational context in which all students' growth and improvement are valued and encouraged can be maximized by teachers and students, parents, and community members who support the common effort. Leading is helping, not threatening or punishing.

8. Drive out fear.

Fear is counterproductive in school as it is in the workplace. Fear is destructive of the school culture and everything good that is intended to take place within it. Institutional changes must reflect shared power, shared responsibilities and shared rewards.

9. Break down barriers between staff areas.

Teacher and student productivity is enhanced when departments combine talents to create more integrated opportunities for learning and discovery. Create cross-departmental and multi-level quality teams to break down role and status barriers to productivity.

10. Eliminate slogans, exhortations, and targets for the workplace.

Teachers, students, administrators, families and community members may collectively arrive at slogans and exhortations to improve their work together, as long as power, responsibility and rewards are equitably distributed. When educational goals are not met, fix the system instead of fixing blame on individuals.

11. Eliminate numerical quotas

Assignments and tests that focus attention on numerical or letter symbols of learning and production do not fully reflect the quality of student
progress and performance. When the grade becomes the bottom line product, short-term gains replace student investment in long-term learning, and this may prove counterproductive in the long run.

12. Remove barriers to pride and joy of workmanship.

Teachers and students generally want to do good work and feel pride in it. Schools must dedicate themselves to removing the systematic causes of teacher and student failure through close collaborative efforts.

13. Institute a vigorous program of education and retraining.

All of the school's people benefit from encouragement to enrich their education by exploring ideas and interests beyond the boundaries of their professional and personal worlds.

14. Take action to accomplish the transformation. School personnel at all levels, including students, must put this new philosophy into action so it becomes imbedded into the deep structure and culture of the school.

Teachers and students alone cannot put the plan into effect. Constant top-level dedication to full implementation must be supported by a critical mass of school and community people to implement the plan and make it stick (pp. 77-82).

Deming's (1993) 14 points address the functional aspects of TQM business implementation while Bonstingl (1992) offered an educational interpretation and application.
Justification for TQM

Senge (1990) indicated that as the world becomes more complex and dynamic, "work must become more 'learningful'". "It is no longer sufficient to have one person learning for the organization, . . . It's just not possible any longer to 'figure it out' from the top, and have everyone else following the orders of the 'grand strategists'" (p. 4). A true TQM learning organization optimizes its entire system including processes and products by empowering everyone, especially front line workers (students and teachers in the case of schools), to continuously improve their work (Lewin, 1978; Scholtes & et al, 1993).

TQM in Vocational Education

Ohio's JVSs, charged in legislation with the task of preparing students for entry into the workforce, must be cognizant of the changes in the work environment (ODE, 1994). TQM is one change currently being implemented and used in the workforce, of which students must not only have an awareness, but a practicing knowledge (Feigenbaum, 1994; Hertzke & Olson, 1994).

In a comprehensive study determining the applicability of TQM in vocational education at Moore-Norman Vocational Technical School in Norman, Oklahoma, it was determined TQM has applicability in vocational education (Moore-Norman Vo-Tech Center, 1991). Melissaratos & Arendt (1992) and Lankard (1992) indicated all the TQM principles can be applied to education, with some change in vocabulary and emphasis. Furthermore, Holt (1993)
predicted "Demingism is likely to effect a far more significant improvement in the quality of a school's educational program than the outdated remedies currently being recommended at the national level." (p. 383).

**Theoretical Foundation for TQM**

The theoretical foundation on which TQM rests involves an understanding of (a) systems theory, (b) variation theory, (c) learning theory, and (d) human psychology (Kaufman & Zahn, 1993; McNary, 1994). Systems theory examines how organization systems interact and contribute to achieving organizational objectives, and studies how a change in one subsystem affects other subsystems within the organization (Deming, 1993; Gitlow & Gitlow, 1987; Reed & Loughran, 1984). Variation theory contributes an understanding of the behavior of variation in a system. Joiner (1992) indicates that variation is present in all processes. The key is to determine when variation exceeds the allowable limits. Quality is a direct result of controlling variation which has exceeded the allowable limits. Variation is monitored by selectively collecting, organizing and analyzing information, and developing plans to reduce the unacceptable variation. Learning theory describes the ways in which people learn and assimilate new information. All members within an organization must be aware of learning and teaching styles, the amount and time of energy required, and most importantly the costs associated with a non-learning environment (Reed & Loughran, 1984; Deming, 1993). Human psychology
involves understanding how people communicate, handle conflicts, develop social hierarchies, and meet their basic human needs as identified by social and behavioral psychologists Levin, Lorenz, Maslow, and Jung (Deming, 1993). Most conflicts within organizations are caused by human conflicts due to a lack of understanding in this area.

TQM Applied to the Curriculum

Total quality management philosophically integrates other domains, as they apply to the educational curriculum. McNeil (1986) indicated that TQM utilizes four philosophical orientations in which the educational curriculum is developed:

1. The "social reconstructionist curriculum" is used as a vehicle to influence social change. Learning opportunities, especially when working in teams, stress that individuals examine their beliefs and values while cooperating to promote change. The total quality management process requires administrators, teachers and students to reexamine their role in education by offering mutual encouragement, promoting change, and encouraging trial and error in an environment of constant quality improvement.

2. The "technological curriculum" operates on the principle of mastery or competency-based learning. Total quality management utilizes task analyses of work roles to provide a series of measurable performance objectives with which performance can be measured (Wirth, 1974).
3. The "humanistic curriculum" is focused on meeting learners' needs for self-actualization, achievement, individualism, and on the relation of education to the daily lives of students and teachers. Total quality management is philosophically aligned with this approach, which utilizes participatory decision making, and supports individual and group empowerment.

4. The "academic curriculum" focuses on developing skills in the scientific process. This approach is most closely associated with developing basic skills and the problem solving approach, which is a critical component in TQM (Deming, 1993).

Resistance and Obstacles to TQM

Total quality management implementation requires change in the focus and culture of an organization. Total quality management represents change; as in most organizations, change is confronted with obstacles and resistance (Samuel, 1994; Schauerman & Peachy, 1993). Historically, when individuals within an organization are confronted with TQM, they have reacted in very normal ways.

For example in the military "the military hierarchy was not easily accepting of an upward flow of ideas or cooperative problem solving" (Borrus, 1991, p. 134) In city government, as noted by Richard Tracy, Portland City Director of Audits, "Quality is much harder to measure and more threatening, both for management and staff, because it reflects personally on them" (Yang, 1991,
TQM Implementation

Crumrine & Runnels (1991) offer a model for implementing TQM in a vocational-technical school. They identify five phases or categories for implementation and the tasks associated with each category:

1. Develop commitment. Developing commitment involves investigating, evaluating, adopting and obtaining commitment to TQM.

2. Organizational development. Organizational development requires TQM be integrated into key management processes: education, training, and employee support.

3. Customer focus. A customer focus requires work teams to analyze customers needs and develop ways to meet these needs.


5. Continuous improvement. Develop methods for identifying opportunities and integrating the improvement process into daily operations (Crumrine & Runnels, 1991).

Le Tarte (1993) and Cope & Sherr (1991) suggested similar plans for TQM implementation which include educating and gaining commitment from top leadership as the first step.
The Role of Top Leadership in Education

At the school district level Wardlow & Swanson (1991) identified several variables which contribute to school effectiveness and can be directly related to successful TQM implementation:

1. The vision of the head administrator or superintendent and the cohesiveness of central administration staff.

2. Support for school improvement within the contexts of the community's cultural, political, and financial considerations.

3. Support from the school board, citizen groups and the governing body of the organization.

4. A supportive political climate.

5. The history of the organization within the community.

Further TQM research by Wardlow, Swanson & Migler (1992) revealed additional findings:

1. Principals help develop effective schools by creating a sense of vision for the school and by involving teachers in decision making and problem solving processes.

2. Teachers that positively communicate with each other have effective working relationships, participate in school decisions and are generally concerned with students' achievement and welfare.

3. Total quality management organizations have high expectations throughout.

Research provides constant evidence on the importance of top
leadership's role in implementing TQM. The importance and commitment of top leadership should not be underestimated.

The most frequent cause of failure in any quality improvement effort is uninvolved or indifferent top and middle management. Therefore, the active leadership and participation of managers beginning at the top are essential (Unknown).

Further supportive comments include:

.... quality can't be delegated to others. Managers must lead the transformation effort to ensure long-lasting success. They must become leaders instead of bosses, coaches instead of enforcers. They must change their focus from blaming and controlling individuals to preventing and eliminating problems. Only this will lead to constant improvement (Gabor, 1990).

**Malcolm Baldrige Quality Education Pilot Criteria**

Federal support for TQM-based management philosophy was recognized through legislation entitled The Malcolm Baldrige National Quality Improvement Act of 1987. The purpose of this law was to (a) promote awareness of the importance of quality improvement to the national economy; (b) to recognize organizations which have made substantial improvements in products, services and overall competitive performance; and (c) to foster sharing of the "best practices" information among U.S. organizations (NIST, 1995). Since the
A TQM participant in an educational institution stated that viewing the students as customer was the most essential and the most difficult concept (Seymour, 1992). Common objections to applying TQM principles in education included: resistance to seeing students as customers, resistance to the technical language of TQM, inability to see the relevance of a business approach used with faculty and students, and dismissal of TQM as just good management or just another fad (Marchese, 1991). Thor (1993) summarized that TQM has obstacles which include: (a) time, (b) aversion to change, (c) middle management, and (d) attitudes. If TQM is to succeed in any organization the obstacles and resistance issues must be continually addressed (Wolverton, 1993).

**Benefits of TQM**

The benefits of TQM include increased involvement of people, increased listening by staff to customers, increased efficiency, improved climate and attitudes, increased respect for data-based decision making, the breakdown of barriers, improved communication across institutional components, improved focus on institutional mission, reduced redundancies, and improved cost of effectiveness (Joiner, 1993; Seymour, 1991; Yowell, 1992). Research shows that people working in organizations fully committed to TQM commonly reported higher levels of job satisfaction after the program was implemented (Deming, 1993, Cleary & Duncan, 1994; Cornesky, 1993; Farrell, 1991; Gabor, 1990).
inception of the Baldrige Award in 1987, educators on the Award’s Board of Examiners have sought to involve educators and educational organizations. Concurrently with national initiatives such as the Goals 2000: Educate America Act (1994) and a growing consensus that education must improve, a Baldrige Award category for education was proposed. Pilot activities began in 1994 and 1995 to address specific issues related to extending eligibility to education. The National Institute of Standards and Technology (1995) distributed a set of pilot criteria with the intent of:

1. determining the interest and readiness of education organizations to participate in a national level recognition program based upon the ability to demonstrate overall performance improvement;
2. to evaluate the pilot criteria;
3. to determine the capacity of the evaluation system, including volunteer experience, availability, and time commitment;
4. to determine the value of the feedback given to Pilot Program participants;
5. to determine whether or not there should be subcategories of eligibility, taking into account school size and type; and
6. to determine the likely influence of the Award on (a) sharing of best practices information; (b) cross-sector cooperation; and (c) elevation of educational standards (p.1).
The Baldrige Award Criteria were based on the TQM core philosophies (Jasinski personal communication, July 20, 1995; NIST, 1995). The Baldrige Award Criteria represents the first systematic application of TQM philosophies to educational environments on a national scale.
CHAPTER III

METHODOLOGY

This chapter presents the methodology used in conducting this study. The following topics are addressed: type of research, population, instrumentation, variables, data collection and data analysis.

Type of Research

This study examined JVS administrators' perceptions regarding the importance and use of TQM. This study was classified as exploratory, ex post facto research (Campbell & Stanley, 1963; Miller, 1994) since it involved investigating the use of a naturally occurring treatment without manipulation of the independent variable by the researcher (Miller, 1994). The study was exploratory, since no other research studies were found that described JVS administrators' perceptions regarding TQM.

Population

A census of all 143 administrators (i.e., superintendents and directors) from Joint Vocational School Districts in Ohio during the school year 1995-96 was used in this study. The names of administrators were obtained from the
Ohio Department of Education, Division of Information Management Services and the Ohio Educational Directory. These two sources of information represented the most current database of educational personnel in the state. To ensure accuracy of the information, it was checked by calling each JVS administrative office to confirm each name and address.

The population of respondents was described in terms of gender, age, years of experience and academic training (Table 1). The majority of respondents were male (81.3%), with an average age of 49 years (mean = 49.03). The modal level of academic training of the respondents included a masters degree with additional classes (75.61%). The respondents as a group had extensive experience in the schools. The respondents averaged 8.17 years of experience as a teacher and 16.42 years as an administrator.
Table 1

Administrator Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender 0,1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>100</td>
<td>81.3%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>17.1%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Unreported</td>
<td>2</td>
<td>1.6%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Age Act.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28-45 years</td>
<td>23</td>
<td>22.0%</td>
<td>49.03</td>
<td>6.23</td>
</tr>
<tr>
<td>46-49 years</td>
<td>27</td>
<td>26.0%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>50-55</td>
<td>34</td>
<td>32.0%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>56+</td>
<td>15</td>
<td>14.0%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Unreported</td>
<td>6</td>
<td>6.0%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Education Level 0,1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor</td>
<td>1</td>
<td>.89%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Bachelor plus classes</td>
<td>4</td>
<td>3.00%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Master degree</td>
<td>5</td>
<td>4.07%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Master degree plus classes</td>
<td>93</td>
<td>75.61%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>18</td>
<td>14.63%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Unreported</td>
<td>1</td>
<td>1.63%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Years as a Teacher Act.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-6 years</td>
<td>60</td>
<td>48.78%</td>
<td>8.17</td>
<td>5.11</td>
</tr>
<tr>
<td>7-12 years</td>
<td>39</td>
<td>31.78%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>13-19 years</td>
<td>15</td>
<td>12.20%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>20-26 years</td>
<td>7</td>
<td>5.68%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>1.63%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Years as an Administrator Act.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-8 years</td>
<td>17</td>
<td>13.82%</td>
<td>16.42</td>
<td>7.03</td>
</tr>
<tr>
<td>9-16 years</td>
<td>44</td>
<td>35.77%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>17-24 years</td>
<td>40</td>
<td>32.52%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>25-32 years</td>
<td>20</td>
<td>16.26%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>1.63%</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>
The schools were described in terms of number of teachers, number of programs offered, and number of high school and adult students (Table 2). The average number of teachers in each program was 73.92. The average number of programs offered by each joint vocational school was 38.25. The average number of high school students was 848.06 and the average number of adult students was 2455.42.
### Table 2

**Program Demographics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Teachers Act.</strong></td>
<td></td>
<td></td>
<td>73.92</td>
<td>59.17</td>
</tr>
<tr>
<td>10-70</td>
<td>73</td>
<td>59.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-131</td>
<td>29</td>
<td>23.58</td>
<td></td>
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<tr>
<td>132-191</td>
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<tr>
<td>192-450</td>
<td>6</td>
<td>4.87</td>
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<tr>
<td>Unreported</td>
<td>8</td>
<td>6.50</td>
<td></td>
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</tr>
<tr>
<td><strong>Number of Programs Offered Act.</strong></td>
<td></td>
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<td>38.25</td>
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</tr>
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<td>7-48</td>
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<td>4.88</td>
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<tr>
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<td>7</td>
<td>5.69</td>
<td></td>
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<tr>
<td><strong>Number of Adult Students Act.</strong></td>
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<td>7519.31</td>
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<td>5</td>
<td>4.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6001-74000 *</td>
<td>5</td>
<td>4.06</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>22</td>
<td>17.89</td>
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</tr>
</tbody>
</table>

*Note.*

*This number is an outlier reported in the data.*
Instrumentation

Standard quantitative research design methods were used to design and implement the mailed survey instrument (Dillman, 1978; Salant & Dillman, 1994). A single instrument was used to measure the leaders' perceptions of TQM components and demographic information.

The instrument contained 20 pages in booklet format which was designed following the suggestions of Salant & Dillman (1994). Each TQM statement used in the instrument was based on the Malcolm Baldrige National Quality Award Education Pilot Criteria 1995 (NIST, 1995). The instrument was divided into seven topical categories including: Leadership, Information and Analysis, Strategic & Operational Planning, Personnel Development, School Performance Results, and Student Focus and Stakeholder Satisfaction. Each category contained from two to six subtopics for a total of 28 subtopics. The 28 subtopics contained a total of 147 individual TQM statements. Additionally, nine demographic questions were included.

The respondents were asked for their perceptions of the level of importance and use of each TQM criterion at their school. The instrument required the respondent to circle the number on a scale, from one to five, that best represented their perception of the importance and use of the TQM
statement. The level of importance and use were rated using the following scale: 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high, and DK = "don't know". A for space for written comments was provided for each subtopic.

The Likert-type scaling was chosen because attitudes are quantitatively measurable using a set of related concepts to obtain responses along a bipolar continuum (Alexander & Cobb, 1992). Attitude assessment is dependent on many factors including the validity and reliability of the assessment technique, the manner in which it is administered, and the honesty of individual responses (Alexander & Cobb, 1992; Fraser, 1978).

The inside cover of the instrument contained the purpose and scope of the study along with four word definitions. The inside back cover contained nine demographic questions related to the respondent and the individual JVS. The last page asked if the respondent would like a copy of the results and provided a contact address and telephone number for the researcher. A copy of instrument is included in Appendix A.

The instrument was submitted to the Human Subjects Committee at the Ohio State University for their review. Approval of that committee was obtained in May, 1995.
Validity

Validity refers to whether an instrument measures what it proposes to measure (Miller, 1994). This study examined both the face and content validity of the instrument. Face validity is a subjective evaluation of an instrument to determine if it looks like it measures what it was designed to measure (Miller, 1994). Butts (1983) offered advice on increasing the face validity of an instrument which includes wording the items carefully, eliminating double-barreled questions and shortening the length of the question.

Content validity is a measure of the extent to which the instrument represents the topic of interest (Miller, 1994). A panel of experts is recommended to determine content validity (Fraenkel & Wallen, 1993; Mueller, 1986; Ary, Jacobs & Razavieh, 1990; DeVellis, 1991).

Content and face validity were determined by a panel of experts (Appendix B). Individuals from the Malcolm Baldrige National Award Committee, Federal Standards Skills Board, Ohio Department of Education, Michigan Department of Education, Quality Improvement Consultants, Michigan Center for Career and Technical Education, and The School to Work Clearinghouse and secondary and post secondary school administrators were used to assess the instrument.
Reliability

If an instrument is reliable, measurement is considered consistent and accurate, rather than random (Mueller, 1986). Measures for establishing the reliability of the instrument consisted of two methods (i.e., test-retest and internal consistency) recommended by Mueller (1986) and Ary, Jacobs, & Razavieh (1990).

The instrument was pilot tested using a sample of 30 secondary education skill center administrators in Michigan. The pilot group was identified as a comparative sample based on similar institutional structure, mission and philosophy. The results of the pilot test were used to evaluate construct and face validity as well as reliability.

Test-retest reliability (Traub, 1994) was measured using a portion of the pilot test of Michigan administrators (n=30). Three measures of test-retest reliability were made. First, exact replication from the first trial to the second trial (i.e., indicating a five on the first test and exactly replicating the five on the second test) lead to a test-retest reliability measure of 49%. The second measure of test-retest reliability controlled for directionality. Scores on trial two which were within +/-1 of the score on trial one (i.e., indicating directionality of support/nonsupport) indicated a reliability of 88%. The third measure added the control for nonresponse error and changes in “don’t know” to a numerical response between trials one and two. The results of the third measure of test-retest reliability indicated 93% accuracy. Nunnaly (1978) indicated that in early
stages of research a reliability coefficient of .50 to .60 may be sufficient. Each of the measures of test - retest reliability were considered acceptable for measuring attitudes over time.

The internal consistency of each scale and subscale was established using Cronbach's Alpha. Table 3 presents the Cronbach's Alpha for each of the two scales and their respective subscales. These reliability coefficients ranged from .82 to .96 and were within the range of acceptable coefficients established by Nunnaly (1976).

Table 3

Cronbach Alpha Coefficient on Importance and Use Scales and Subscales

<table>
<thead>
<tr>
<th>Scale &amp; Sub-scale Item</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Importance</strong></td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td>.89</td>
</tr>
<tr>
<td>Information &amp; Analysis</td>
<td>.93</td>
</tr>
<tr>
<td>Strategic &amp; Operational Planning</td>
<td>.90</td>
</tr>
<tr>
<td>Personnel Development &amp; Management</td>
<td>.94</td>
</tr>
<tr>
<td>Educational &amp; Business Process Management</td>
<td>.95</td>
</tr>
<tr>
<td>School Performance Results</td>
<td>.93</td>
</tr>
<tr>
<td>Student Focus &amp; Stakeholder Satisfaction</td>
<td>.96</td>
</tr>
<tr>
<td><strong>Use</strong></td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td>.93</td>
</tr>
<tr>
<td>Information &amp; Analysis</td>
<td>.96</td>
</tr>
<tr>
<td>Strategic &amp; Operational Planning</td>
<td>.93</td>
</tr>
<tr>
<td>Personnel Development &amp; Management</td>
<td>.95</td>
</tr>
<tr>
<td>Educational &amp; Business Process Management</td>
<td>.94</td>
</tr>
<tr>
<td>School Performance Results</td>
<td>.92</td>
</tr>
<tr>
<td>Student Focus &amp; Stakeholder Satisfaction</td>
<td>.94</td>
</tr>
</tbody>
</table>
Variables

The variables for this study were selected to address the specific research objectives presented in the research. All of the variables have been categorized as either dependent or independent except Sum of Importance, which was categorized as dependent or independent depending on which objective was being addressed.

Dependent Variables

TQM was defined using the seven constructs of leadership, information and analysis, strategic and operational planning, personnel development and management, educational and business process management, school performance results, and student and stakeholder satisfaction. Administrators' perception of TQM was assessed using importance and use of each of the seven constructs (Table 4).
Table 4

**Dependent Variables**

<table>
<thead>
<tr>
<th>Name</th>
<th>Operational Definition</th>
<th>Survey Item(s)</th>
<th>Measurement Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of TQM</td>
<td>Score on individual &quot;Importance of TQM&quot; item</td>
<td>&quot;Importance of TQM&quot; items 1.0a to 7.6b</td>
<td>Categorical</td>
</tr>
<tr>
<td>Use of TQM</td>
<td>Score on individual &quot;Use of TQM&quot; item</td>
<td>&quot;Use of TQM&quot; items 1.0a to 7.6b</td>
<td>Categorical</td>
</tr>
<tr>
<td>Sum of Importance</td>
<td>Total sum of scores on 143 &quot;importance&quot; items</td>
<td>&quot;Sum of Importance&quot; items 1.0a to 7.6b</td>
<td>Continuous</td>
</tr>
<tr>
<td>Sum of Use</td>
<td>Total sum of scores on 143 &quot;use&quot; items</td>
<td>&quot;Sum of Use&quot; items 1.0a to 7.6b</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

**Importance of TQM** was defined as the administrators' perception of TQM in defining quality schools. Individual measures of each of the seven constructs were detailed on the instrument and measured using a Likert-type scale. Importance of TQM was reported as the response to each item measuring the construct.

**Use of TQM** was defined as the administrators' perception of the use of TQM in defining quality schools. Individual measures of each of the seven constructs were detailed on the instrument and measured using a Likert-type scale. Use of TQM is reported as the individual response to each item measuring the construct.
Sum of Importance was identified as the administrators' perception of TQM criteria as a holistic model of quality school indicators. Sum of importance was a continuous variable calculated by adding the scores on Importance for each of the individual items.

Sum of Use was defined as the administrators' perception of TQM as a complete model used within the school. Sum of Use was a continuous variable calculated by adding the scores on Use for each of the individual items.

**Independent Variables**

The independent variables for this study represented demographic characteristics of the JVS administrators. Additionally, information was calculated about each school (Table 5).
Table 5

Independent Variables

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Operational Definition</th>
<th>Survey Item(s)</th>
<th>Measurement Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Gender of the individual, male or female</td>
<td>D1</td>
<td>Categorical</td>
</tr>
<tr>
<td>Age</td>
<td>Number of years since birth</td>
<td>D2</td>
<td>Continuous</td>
</tr>
<tr>
<td>Education Level</td>
<td>Highest educational level attained</td>
<td>D3</td>
<td>Categorical</td>
</tr>
<tr>
<td>Year as a school administrator</td>
<td>Number of years as a school administrator</td>
<td>D4</td>
<td>Continuous</td>
</tr>
<tr>
<td>Years as a classroom teacher</td>
<td>Years as a classroom teacher</td>
<td>D5</td>
<td>Continuous</td>
</tr>
<tr>
<td>Number of teachers</td>
<td>Number of teachers at the JVS per year</td>
<td>D6</td>
<td>Continuous</td>
</tr>
<tr>
<td>Number of program offerings</td>
<td>Number of program offerings at your site per year</td>
<td>D7</td>
<td>Continuous</td>
</tr>
<tr>
<td>Number of HS students</td>
<td>Number of high school student at the JVS per semester</td>
<td>D8</td>
<td>Continuous</td>
</tr>
<tr>
<td>Number of adult students</td>
<td>Number of adult students at the JVS per semester</td>
<td>D9</td>
<td>Continuous</td>
</tr>
<tr>
<td>Position</td>
<td>Job title of the respondent</td>
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<td>Dichotomous</td>
</tr>
<tr>
<td>Sum of Importance</td>
<td>Sum of Importance items</td>
<td>N/A</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

**Gender** was measured as a dichotomous (male/ female) variable.

**Age** was measured in years as a continuous variable.

**Education Level** was measured as a categorical variable with a BS/BA degree = 1, BS/BA degree plus extra classes = 2, a MA/MS = 3, a MA/MS plus extra classes = 4, and a PhD = 5.

**Years as a School Administrator** was measured as a continuous variable.
Years as a Classroom Teacher was measured as a continuous variable.

Number of Teachers was measured as a continuous variable indicating the number of teachers employed at the JVS per year.

Number of Program Offerings was measured as a continuous variable indicating the number of vocational programs offered by the JVS per year.

Number of High School Students was measured as a continuous variable indicating the number of enrolled high school students attending the JVS per semester.

Number of Adult Students was measured as a continuous variable indicating the number of enrolled adults, not enrolled in high school, who are attending the JVS per semester.

Position was measured as a dichotomous variable indicating the job title of the respondent.

Sum of Importance was measured as a continuous variable indicating the administrator's perception of TQM as a complete model. Sum of Importance was used as an independent variable to measure the variance in the dependent variable Sum of Use.

**Relationship Between Variables.**

The dependent and independent variables were perceived as related in a linear model. The independent variables were believed to contribute to the perceptions of school administrators regarding TQM. The conceptual relationship between the variables is demonstrated in Figure 2.
Research Model

Independent Variables

Administrator Characteristics
- Position
- Gender
- Age
- Years as an Administrator
- Years as a Teacher
- Educational Level

Dependent Variables

Importance of TQM
- Leadership
- Information & Analysis
- Strategic & Operational Planning
- Personnel Development & Mgt.
- Ed. & Business Process Mgt.
- School Performance Results
- Student Focus & Stakeholder Satisfaction

Use of TQM
- Leadership
- Information & Analysis
- Strategic & Operational Planning
- Personnel Development & Mgt.
- Ed. & Business Process Mgt.
- School Performance Results
- Student Focus & Stakeholder Satisfaction

Independent Variables

Joint Vocational School Characteristics
- Number of Students
- Number of Adults
- Number of Programs
- Number of Teachers

Figure 2. Relationship Between Independent Variables and Dependent Variables
Data Collection

The first instruments were mailed on September 11, 1995. The mailing included a cover letter, an instrument, a self addressed stamped return envelope, and an incentive. The cover letter included a brief introduction to TQM and the Baldrige Award Criteria, an explanation of the significance of the study, an assurance of confidentiality, a deadline for returning the survey, and an offer to share the results of the study (Appendix C). The first mailing produced a 38% response rate (n=54). A telephone call preceded a second follow-up instrument sent to non respondents (Dillman, 1978; Judd, Smith & Kidder, 1991; Salant & Dillman, 1994). The second instrument was mailed October 11, 1995 and contained the same information as the first. The non-respondents for the second mailing were again encouraged to participate in the study. The second mailing increased the response rate to 68% (n=96). The final group of non-respondents received a hand written personalized note with the same information sent with the two previous mailings. The final mailing was sent November 7, 1995 with a final deadline of December 1, 1995. A final telephone call was made to non respondents encouraging them to respond. The three mailings generated a total response rate of 87% (n=123). The entire process from the first to the last mailing lasted 10 weeks.

During the week of December 5, 1995, phone calls were made to a random sample of thirty administrators who had not yet responded. Ten of these individuals responded to survey questions over the phone. Scores from
representative questions from each of the seven categories in the survey were compiled into seven constructs for both of Importance (TSM1i, TSM2i, TSM3i, TSM4i, TSM5i, TSM6i, TSM7i) and Use (TSM1u, TSM2u, TSM3u, TSM4u, TSM5u, TSM6u, TSM7u). The scores for each of the 14 constructs were compared between respondent and non-respondent populations. Means were computed for the respondents and non-respondents and compared using a t-test of independent samples. The null hypothesis for this test was "There is no difference between the responses of the respondents and those of the non-respondents." In all fourteen cases the t-test and related p were greater than alpha, established a priori at .05. Therefore, the researcher failed to reject the null hypothesis and determined that the perceptions of TQM of non-respondents were not significantly different from respondents at the .05 level of significance (Table 6).
Table 6

T-test of Non Respondents and Respondents

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
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<tbody>
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<td>TSM1i</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents</td>
<td>113</td>
<td>13.30</td>
<td>1.97</td>
<td>-1.28</td>
<td>.20</td>
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<tr>
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<td>.88</td>
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<td></td>
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<tr>
<td>TSM1u</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respondents</td>
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<td>11.47</td>
<td>2.19</td>
<td>-.72</td>
<td>.47</td>
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<tr>
<td>Respondents</td>
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<td>1.42</td>
<td>-1.24</td>
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<td>Respondents</td>
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<td>TSM3i</td>
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<tr>
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<td>-1.58</td>
<td>.12</td>
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<td>.95</td>
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<tr>
<td>TSM3u</td>
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</tr>
<tr>
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<td>-.37</td>
<td>.71</td>
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<td>1.08</td>
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<td>Respondents</td>
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<td>16.67</td>
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</tr>
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<td>-.73</td>
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<td>TSM6u</td>
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<td></td>
</tr>
<tr>
<td>Respondents</td>
<td>114</td>
<td>8.65</td>
<td>1.37</td>
<td>-1.01</td>
<td>.32</td>
</tr>
<tr>
<td>Non respondents</td>
<td>10</td>
<td>9.10</td>
<td>1.20</td>
<td></td>
<td></td>
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<tr>
<td>TSM7u</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Respondents</td>
<td>113</td>
<td>7.65</td>
<td>1.60</td>
<td>-.65</td>
<td>.51</td>
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<tr>
<td>Non respondents</td>
<td>10</td>
<td>8.00</td>
<td>1.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Data Analysis

This section will describe the procedures followed in analyzing the data related to each objective. The Statistical Package for the Social Sciences (SPSS) for Windows Version 6.1.3 was used to analyze the survey information.

Responses were entered into the computer database based on the responses to each item on the questionnaire. Items which were not answered were coded as a “0” for missing data. Substitution of the mean for the variable was used as necessary for further calculations.

For the case of dichotomous variables in the regression analysis the variables were dummy coded as “0” and “1”. For gender, the code was assigned as “0 = Female” and “1 = Male.” For position, the code was assigned as “0 = Principal / Director” and “1 = Superintendent.” The variable of Education Level was recoded as a dichotomous variable with “0 = no Ph.D.” and “1 = Ph.D.” dummy coded at each level of education. The dummy coding was assigned as “0 = not at this level” and “1 = at this level.”

Objective 1: Identify the perceptions of Ohio JVS administrators regarding the importance of TQM.

Importance of TQM was determined using the responses to Likert-type scale of the 147 items in the seven TQM constructs. Modes were reported as measures of central tendency for each of the items. Ranges were reported as
measures of dispersion for each item. Dispersion measures were interpreted to indicate the level of agreement between leaders on the importance indicator.

Constructs of combined individual items were measured for particular subscales of Importance as well as the seven constructs of Importance (Leadership, Information and Analysis, Strategic and Operational Planning, Personnel Development and Management, Educational and Business Process Management, School Performance Results, and Student Focus and Stakeholder Satisfaction). The ratings of the respondents according to a five category scale were reported for each subscale as well as the overall constructs. Table 7 provides the interval limits for each of the scores on the respective subscale items and seven constructs.

Objective 2: Identify the perceptions of Ohio JVS administrators regarding the use of TQM.

Use of TQM was determined using the responses to Likert-type scales of the 147 items for the seven TQM constructs. Modes were reported as measures of central tendency for each of the items. Ranges were reported as measures of dispersion for each item. Dispersion measures were interpreted to indicate the level of agreement between leaders on the use indicator.

Constructs of combined individual items were measured for particular subscales of Use as well as the seven constructs of Use (Leadership, Information and Analysis, Strategic and Operational Planning, Personnel
Development and Management, Educational and Business Process Management, School Performance Results, and Student Focus and Stakeholder Satisfaction). The ratings of the respondents according to a five category scale were reported for each subscale as well as the overall constructs. Table 7 provides the interval limits for each of the scores on the respective subscale items and seven constructs.
<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Number of Items</th>
<th>Scale Items</th>
<th>Very Low</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.0 Leadership</strong></td>
<td></td>
<td></td>
<td>17</td>
<td>0</td>
<td>25.33</td>
<td>42.34-59.33</td>
<td>59.34-76.33</td>
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<tr>
<td>1.1 Senior Admin. Leadership</td>
<td>7</td>
<td></td>
<td></td>
<td>0</td>
<td>10.43</td>
<td>17.44-24.43</td>
<td>24.44-31.43</td>
</tr>
<tr>
<td>1.2 Leadership System &amp; Organ.</td>
<td>4</td>
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<td></td>
<td>0</td>
<td>5.96</td>
<td>9.97-13.96</td>
<td>13.97-17.96</td>
</tr>
<tr>
<td>1.3 Public Responsibility &amp; Citizenship</td>
<td>6</td>
<td></td>
<td></td>
<td>0</td>
<td>8.94</td>
<td>14.95-20.94</td>
<td>20.95-26.94</td>
</tr>
<tr>
<td><strong>2.0 Information &amp; Analysis</strong></td>
<td></td>
<td></td>
<td>15</td>
<td>0</td>
<td>22.35</td>
<td>37.36-52.35</td>
<td>52.36-67.36</td>
</tr>
<tr>
<td>2.1 Mgt. of Information &amp; Data</td>
<td>5</td>
<td></td>
<td></td>
<td>0</td>
<td>7.45</td>
<td>12.46-17.45</td>
<td>17.46-22.45</td>
</tr>
<tr>
<td>2.2 Comparisons &amp; Benchmarking</td>
<td>2</td>
<td></td>
<td></td>
<td>0</td>
<td>2.98</td>
<td>4.99-6.98</td>
<td>6.99-8.98</td>
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<tr>
<td>2.3 Analysis &amp; Use of School Level Data</td>
<td>8</td>
<td></td>
<td></td>
<td>0</td>
<td>11.92</td>
<td>19.93-27.92</td>
<td>27.93-35.92</td>
</tr>
<tr>
<td><strong>3.0 Strategic &amp; Operational Planning</strong></td>
<td></td>
<td></td>
<td>12</td>
<td>0</td>
<td>17.88</td>
<td>29.89-41.88</td>
<td>41.89-53.88</td>
</tr>
<tr>
<td>3.1 Strategic Development</td>
<td>7</td>
<td></td>
<td></td>
<td>0</td>
<td>10.43</td>
<td>17.44-24.43</td>
<td>24.44-31.43</td>
</tr>
<tr>
<td>3.2 Strategy Implementation</td>
<td>5</td>
<td></td>
<td></td>
<td>0</td>
<td>7.45</td>
<td>12.46-17.45</td>
<td>17.46-22.45</td>
</tr>
<tr>
<td><strong>4.0 Personnel Development</strong></td>
<td></td>
<td></td>
<td>29</td>
<td>0</td>
<td>43.21</td>
<td>72.22-101.21</td>
<td>101.22-130.21</td>
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<tr>
<td>4.1 Personnel Dev. &amp; Mgt.</td>
<td>9</td>
<td></td>
<td></td>
<td>0</td>
<td>13.41</td>
<td>22.42-31.41</td>
<td>31.42-40.41</td>
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<tr>
<td>4.2 Faculty &amp; Staff Work Systems</td>
<td>8</td>
<td></td>
<td></td>
<td>0</td>
<td>11.92</td>
<td>19.93-27.92</td>
<td>27.93-35.92</td>
</tr>
<tr>
<td>4.3 Faculty &amp; Staff Dev.</td>
<td>9</td>
<td></td>
<td></td>
<td>0</td>
<td>13.41</td>
<td>22.42-31.41</td>
<td>31.42-40.41</td>
</tr>
<tr>
<td><strong>5.0 Educational &amp; Business Process Mgt.</strong></td>
<td></td>
<td></td>
<td>41</td>
<td>0</td>
<td>61.09</td>
<td>102.10-143.09</td>
<td>143.10-184.09</td>
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<tr>
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<td></td>
<td>0</td>
<td>13.41</td>
<td>22.42-31.41</td>
<td>31.42-40.41</td>
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<td>5.2 Ed. Delivery</td>
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<td></td>
<td></td>
<td>0</td>
<td>4.47</td>
<td>7.48-10.47</td>
<td>10.48-13.47</td>
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<tr>
<td>5.3 Ed. Support, Services &amp; Delivery</td>
<td>7</td>
<td></td>
<td></td>
<td>0</td>
<td>10.43</td>
<td>17.44-24.43</td>
<td>24.44-31.43</td>
</tr>
<tr>
<td>5.4 Research, Scholarship &amp; Service</td>
<td>5</td>
<td></td>
<td></td>
<td>0</td>
<td>7.45</td>
<td>17.45-22.45</td>
<td>22.46-25.00</td>
</tr>
<tr>
<td>5.5 Enrollment Mgt.</td>
<td>10</td>
<td></td>
<td></td>
<td>0</td>
<td>14.90</td>
<td>24.90-34.90</td>
<td>34.91-44.90</td>
</tr>
<tr>
<td>5.6 Business Operations Mgt.</td>
<td>7</td>
<td></td>
<td></td>
<td>0</td>
<td>10.43</td>
<td>17.44-24.43</td>
<td>24.44-31.43</td>
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</table>
Table 7 (continued)

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Number of Items</th>
<th>Very Low</th>
<th>Low</th>
<th>Scale</th>
<th>Moderate</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0 School Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Results (total)</td>
<td>12</td>
<td>0 - 17.88</td>
<td>17.89 - 29.88</td>
<td>29.89 - 41.88</td>
<td>41.89 - 53.88</td>
<td>53.89 - 60.00</td>
<td></td>
</tr>
<tr>
<td>6.1 Student Performance Results</td>
<td>4</td>
<td>0 - 5.96</td>
<td>5.97 - 9.96</td>
<td>9.97 - 13.96</td>
<td>13.97 - 17.96</td>
<td>17.97 - 20.00</td>
<td></td>
</tr>
<tr>
<td>6.3 Scholarship &amp; Service Results</td>
<td>4</td>
<td>0 - 5.96</td>
<td>5.97 - 9.96</td>
<td>9.97 - 13.96</td>
<td>13.97 - 17.96</td>
<td>17.97 - 20.00</td>
<td></td>
</tr>
<tr>
<td>7.0 Student Focus &amp; Stakeholder Satisfaction (total)</td>
<td>21</td>
<td>0 - 31.29</td>
<td>31.30 - 52.29</td>
<td>52.30 - 73.29</td>
<td>73.30 - 94.29</td>
<td>94.30 - 105.00</td>
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</tr>
<tr>
<td>7.1 Student Needs &amp; Expectations</td>
<td>6</td>
<td>0 - 8.94</td>
<td>8.95 - 14.94</td>
<td>14.95 - 20.94</td>
<td>20.95 - 26.94</td>
<td>26.95 - 30.00</td>
<td></td>
</tr>
<tr>
<td>7.3 Stakeholder Relationship Mgt.</td>
<td>3</td>
<td>0 - 4.47</td>
<td>4.48 - 7.47</td>
<td>7.48 - 10.47</td>
<td>10.48 - 13.47</td>
<td>13.48 - 15.00</td>
<td></td>
</tr>
<tr>
<td>7.4 Student &amp; Stakeholder Satisfaction</td>
<td>5</td>
<td>0 - 7.45</td>
<td>7.46 - 12.45</td>
<td>12.46 - 17.45</td>
<td>17.46 - 22.45</td>
<td>22.46 - 25.00</td>
<td></td>
</tr>
<tr>
<td>7.5 Student &amp; Stakeholder Satisfaction Results</td>
<td>2</td>
<td>0 - 2.98</td>
<td>2.99 - 4.98</td>
<td>4.99 - 6.98</td>
<td>6.99 - 8.98</td>
<td>8.99 - 10.00</td>
<td></td>
</tr>
<tr>
<td>Sum of Importance</td>
<td>147</td>
<td>0 - 219.03</td>
<td>219.04 - 366.03</td>
<td>366.04 - 513.03</td>
<td>513.04 - 660.03</td>
<td>660.04 - 735</td>
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<tr>
<td>Sum of Use</td>
<td>147</td>
<td>0 - 219.03</td>
<td>219.04 - 366.03</td>
<td>366.04 - 513.03</td>
<td>513.04 - 660.03</td>
<td>660.04 - 735</td>
<td></td>
</tr>
</tbody>
</table>
Objective 3: Explain the proportion of variance in the level of importance of TQM by selected demographic variables.

The statistical procedure of multiple regression was used to determine the proportion of variance in Sum of Importance that could be explained by the independent variables (i.e., age, position, education level, years as an administrator, years as a teacher, number of teachers and programs, number of high school and adult students in the school). In this case, multiple regression was used to describe the respondents rather than generalize to a broader group. Multiple regression was not used as an inferential statistic.

Objective 4: Explain the proportion of variance in the level of use of TQM by selected independent variables.

The statistical procedure of multiple regression was used to determine the proportion of variance in Sum of Use that could be explained by the independent variables (i.e., age, position, education level, years as a teacher, years as an administrator, number of teachers and programs, number of high school and adult students in the school, and Sum of Importance). In this case, multiple regression was used to describe the respondents rather than generalize to a broader group. Multiple regression was not used as an inferential statistic.
CHAPTER IV
FINDINGS AND DATA ANALYSIS

In this chapter, statistical analysis of the responses to survey questions is addressed to test the research hypothesis. Data analysis was completed using SPSS PC Version 6.1.3. Interpretation of data was based on the texts of Warmbrod (1993, 1994), Hair, Thathan, & Black (1992), Norusis (1993a, 1993b, 1994), and Stevens (1992).

The purpose of this study was to determine the perceptions of Ohio JVS administrators toward the importance and use of TQM. In this chapter the findings are presented according to the four objectives of the study.

Objective 1: Identify the perceptions of Ohio JVS administrators regarding the importance of TQM.

Total Quality Management was defined to include the following components: Leadership, Information and Analysis, Strategic and Operational Planning, Personnel Development and Management, Educational and Business Process Management, School Performance Results, and Student Focus and Stakeholder Satisfaction. Each of these components was measured using a series of individual items.
Detailing the perception of the importance of TQM involved the reporting of descriptive statistics to define the central tendency and dispersion of the scores. A mode was used to describe the central tendency since ordinal data was reported. The range was used to describe the variability of the items.

Leadership

The Leadership construct was composed of 17 items (1.1a-1.3f). The 17 items were divided into three categories: 1.1 Senior Administration Leadership, 1.2 Leadership System and Organization, and 1.3 Public Responsibility and Citizenship. Table 8 presents information related to the perceived importance of each of the 17 leadership items.

The respondents' modal ratings for 16 of the 17 leadership items was very high. The dispersion of 14 of these scores ranged between 1 and 5. Two items "1.1e Senior administrators review student performance," and "1.2d School performance results are used to develop improvement plans" had scores that ranged from 2 to 5.

Item "1.3c The school has a process to anticipate public concerns" had a bimodal distribution of high and very high. Forty-eight respondents rated item 1.3c as high and an additional 48 respondents rated the item as very high. The scores for this item ranged from 1 to 5.
Table 8

Importance of Leadership

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1.1 Senior Administration Leadership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1a Senior administrators reinforce high expectations throughout the school.</td>
<td>5 113 83.7 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1b Senior administrators establish measurable goals in the school's strategic plan.</td>
<td>5 74 54.8 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1c Senior administrators maintain a climate conducive to teaching.</td>
<td>5 99 73.3 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1d Senior administrators maintain a climate conducive to learning.</td>
<td>5 91 67.4 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1e Senior administrators review student performance.</td>
<td>5 54 40.0 2-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1f Senior administrators evaluate the effects of school practices.</td>
<td>5 69 51.1 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1g Senior administrators increase their knowledge of improvement processes.</td>
<td>5 71 52.6 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category 1.2 Leadership System and Organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2a The school's leadership system is designed to improve student performance.</td>
<td>5 71 52.6 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2b The school's leadership system maintains focus &amp; cooperation among school units to pursue performance objectives.</td>
<td>5 67 49.6 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2c The school communicates its expectations throughout the community.</td>
<td>5 65 48.1 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2d School performance results are used to develop improvement plans.</td>
<td>5 75 55.6 2-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Category 1.3 Public Responsibility and Citizenship

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3a The school evaluates its community services.</td>
<td>5 50 37.0 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3b The school incorporates regulatory and legal requirements in the school planning process.</td>
<td>5 70 51.9 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3c The school has a process to anticipate public concerns.</td>
<td>4,5 48 35.6 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3d The school promotes legal conduct in its operations.</td>
<td>5 98 72.6 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3e The school promotes ethical conduct in its operations.</td>
<td>5 98 71.1 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3f The school serves as a role model in addressing areas of public concern.</td>
<td>5 56 41.5 1-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The construct of Leadership was composed of 17 items divided into three categories. Summary classifications of respondents' scores on the three
individual categories (A = Senior Leadership, B = Leadership System and Organization, and C = Public Responsibility) and overall Leadership construct total is provided in Table 9. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for each of the three Leadership categories was very high. Furthermore, more than 90% of respondents rated each category, and the overall construct of leadership as high to very high in importance. The responses for summary classification for each category ranged from very low to very high.

Table 9

<table>
<thead>
<tr>
<th>Importance of Leadership Construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Components</td>
</tr>
<tr>
<td>Response</td>
</tr>
<tr>
<td>Very Low</td>
</tr>
<tr>
<td>Low</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>High</td>
</tr>
<tr>
<td>Very High</td>
</tr>
</tbody>
</table>

Note.
A = Senior Administration Leadership
B = Leadership System and Organization
C = Public Responsibility & Citizenship
Information and Analysis

The Information and Analysis construct was composed of 15 items (2.1a-2.3h). The 15 items were divided into three categories: 2.1 Management of Information and Data, 2.2 Comparisons and Benchmarking, and 2.3 Analysis and Use of School Level Data. Table 10 presents information related to the perceived importance of each of the 15 Information and Analysis items.

The respondents' modal rating for two of the 15 items was very high. Item "2.1e Feedback from data users is used to improve the information system" scores ranged from 1 to 5. Item "2.3a Data are used to understand individual student performance" scores ranged from 2 to 5.

The modal response for 13 of the 15 items was high. Three of the 13 items, "2.3b Data are used to understand student group performance," "2.3c Data are used to understand educational program performance," and "2.3e Data are used to understand comparable student performance," had scores that ranged from 2 to 5. The remaining 10 items had scores that ranged from 1 to 5.
Table 10

Importance of Information and Analysis

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>2.1 Management of Information and Data</td>
<td></td>
</tr>
<tr>
<td>2.1a A rationale for using data to drive education improvement efforts is identified.</td>
<td>4</td>
</tr>
<tr>
<td>2.1b A rationale for using data to drive business operation improvement efforts is identified.</td>
<td>4</td>
</tr>
<tr>
<td>2.1c The data gathering techniques are improved.</td>
<td>4</td>
</tr>
<tr>
<td>2.1d Data gathered are aligned with the school’s priorities.</td>
<td>4</td>
</tr>
<tr>
<td>2.1e Feedback from data users is used to improve the information system.</td>
<td>5</td>
</tr>
<tr>
<td>2.2 Comparisons and Benchmarking</td>
<td></td>
</tr>
<tr>
<td>2.2a The school uses benchmarked data to drive overall school improvement efforts.</td>
<td>4</td>
</tr>
<tr>
<td>2.2b The school’s benchmarking process is improved.</td>
<td>4</td>
</tr>
<tr>
<td>2.3 Analysis and Use of School Level Data</td>
<td></td>
</tr>
<tr>
<td>2.3a Data are used to understand individual student performance.</td>
<td>5</td>
</tr>
<tr>
<td>2.3b Data are used to understand student group performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3c Data are used to understand educational program performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3d Data are used to understand school business performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3e Data are used to understand comparable student performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3f Data are used to understand comparable student group performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3g Data are used to understand comparable educational program performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3h Data are used to understand comparable school business performance.</td>
<td>4</td>
</tr>
</tbody>
</table>

The construct of Information and Analysis was composed of 15 items divided into three categories. Summary classifications of respondents' scores on the three individual categories (A= Management of Information and Data,
B = Comparisons and Benchmarking, and C = Analysis and Use of School Level Data) and overall Information and Analysis construct total are provided in Table 11. Summated scores were categorized as very low to very high based on the information provided in Table 7. At least 75% of respondents rated each category, and the overall construct of Information and Analysis as high to very high. The responses for summary classification for each category ranged from very low to very high.

Table 11

**Importance of Information and Analysis Construct**

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th>%</th>
<th>B</th>
<th>%</th>
<th>C</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>3</td>
<td>2.4</td>
<td>6</td>
<td>4.9</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>5.7</td>
<td>5</td>
<td>4.1</td>
<td>1</td>
<td>.8</td>
<td>5</td>
</tr>
<tr>
<td>Moderate</td>
<td>14</td>
<td>11.4</td>
<td>14</td>
<td>11.4</td>
<td>16</td>
<td>13.0</td>
<td>21</td>
</tr>
<tr>
<td>High</td>
<td>64</td>
<td>52.0</td>
<td>54</td>
<td>43.9</td>
<td>68</td>
<td>55.3</td>
<td>68</td>
</tr>
<tr>
<td>Very High</td>
<td>35</td>
<td>28.5</td>
<td>44</td>
<td>35.8</td>
<td>38</td>
<td>30.9</td>
<td>29</td>
</tr>
</tbody>
</table>

Note.  
A= Management of Information and Data  
B= Comparisons and Benchmarking  
C= Analysis and Use of School Level Data
Strategic and Operational Planning

The Strategic and Operational Planning construct was composed of 12 items (3.1a-3.2e). The 12 items were divided into two categories: 3.1 Strategic Development and 3.2 Strategy Implementation. Information regarding the respondents' perceptions related to Strategic and Operational Planning items is presented in Table 12. The respondents' modal ratings for 10 of the 12 items were very high. Each of these 10 items had scores that ranged between 1 and 5. Two items “3.2a The strategic plan identifies how school units cooperate to achieve strategic goals” and “3.2d Two to five year projections of student performance goals are developed” had modal ratings of high and the scores ranged between 1 and 5.
Table 12

Importance of Strategic and Operational Planning

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode  f   %  range</td>
</tr>
<tr>
<td>3.1 Strategic Development</td>
<td></td>
</tr>
<tr>
<td>3.1a Units within the school are involved in the strategy development process.</td>
<td>5 71 52.6 1-5</td>
</tr>
<tr>
<td>3.1b External stakeholders are involved in the strategy development process.</td>
<td>5 63 46.7 1-5</td>
</tr>
<tr>
<td>3.1c Strategies are developed to improve student performance.</td>
<td>5 74 54.8 1-5</td>
</tr>
<tr>
<td>3.1d Strategies are developed to improve overall school performance.</td>
<td>5 79 58.5 1-5</td>
</tr>
<tr>
<td>3.1e The strategic plan is translated into measurable goals which are communicated to school units.</td>
<td>5 68 50.4 1-5</td>
</tr>
<tr>
<td>3.1f The strategic planning processes improved.</td>
<td>5 62 45.9 1-5</td>
</tr>
<tr>
<td>3.1g The strategic plan implementation processes are improved.</td>
<td>5 58 43.0 1-5</td>
</tr>
</tbody>
</table>

3.2 Strategy Implementation

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2a The strategic plan identifies how school units cooperate to achieve strategic goals.</td>
<td>4 55 40.7 1-5</td>
</tr>
<tr>
<td>3.2b The strategic plan identifies resources to support the attainment of strategic plan goals.</td>
<td>5 54 40.0 1-5</td>
</tr>
<tr>
<td>3.2c Goals from the strategic plan are incorporated into an implementation plan.</td>
<td>5 59 43.7 1-5</td>
</tr>
<tr>
<td>3.2d Two to five year projections of student performance goals are developed.</td>
<td>4 44 32.6 1-5</td>
</tr>
<tr>
<td>3.2e The school constructs two to five year projections to business operational goals.</td>
<td>5 49 36.3 1-5</td>
</tr>
</tbody>
</table>

The construct of Strategic and Operational Planning was composed of 12 items divided into two categories. Summary classifications of respondents' scores on the two individual categories (A= Strategic Development, B = Strategic Implementation) and overall Strategic and Operational Planning construct total are provided in Table 13. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for
the Strategic Development category was rated very high. The modal response for the Strategic Implementation category was high. Furthermore, more than 85% of respondents rated the overall construct of Strategic and Operational Planning as high to very high. The responses for summary classification for each category ranged from very low to very high.

Table 13
Importance of Strategic and Operational Planning Construct

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th>B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f%</td>
<td>f</td>
<td>f</td>
</tr>
<tr>
<td>Very Low</td>
<td>.8</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Low</td>
<td>.8</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Moderate</td>
<td>14</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>High</td>
<td>45</td>
<td>55</td>
<td>51</td>
</tr>
<tr>
<td>Very High</td>
<td>62</td>
<td>45</td>
<td>55</td>
</tr>
</tbody>
</table>

Note.
A= Strategic Development
B= Strategic Implementation

Personnel Development and Management

The Personnel Development and Management construct was composed of 29 instrument items (4.1a-4.4c). The 29 items were divided into four categories: 4.1 Personnel Development and Management, 4.2 Faculty and Staff Work Systems, 4.3 Faculty and Staff Development, and 4.4 Personnel
Well-being and Satisfaction. Table 14 presents information regarding each of the 29 Personnel Development and Management items.

The respondents' modal ratings for 25 of the 29 Personnel Development and Management items was very high. Each of these 25 items had scores that ranged between 1 and 5. The respondents' modal rating for four items was high and the scores ranged between 1 and 5. These items included "4.1d The school evaluates personnel development practices with expected results," "4.1i Personnel development opportunities are evaluated," "4.2h The work system is aligned with the school's compensation system," and "4.3d Personnel development activities utilize assessment methods."
### Table 14

**Importance of Personnel Development and Management**

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.1 Personnel Development and Management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1a Personnel development goals are translated into specific action plans.</td>
<td></td>
<td>5</td>
<td>64</td>
<td>47.4</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1b Personnel development capacity is improved.</td>
<td></td>
<td>5</td>
<td>53</td>
<td>39.3</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1c Professional development of all categories of personnel are evaluated</td>
<td></td>
<td>5</td>
<td>59</td>
<td>43.7</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1d The school evaluates personnel development practices with expected results.</td>
<td></td>
<td>4</td>
<td>62</td>
<td>45.9</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1e The school has specific plans addressing personnel development.</td>
<td></td>
<td>5</td>
<td>62</td>
<td>45.9</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1f The school has specific plans addressing personnel recruitment.</td>
<td></td>
<td>5</td>
<td>42</td>
<td>31.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1g The school has specific plans addressing the expectations of personnel.</td>
<td></td>
<td>5</td>
<td>64</td>
<td>47.4</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1h The school has specific plans addressing promotion, compensation and benefits.</td>
<td></td>
<td>5</td>
<td>59</td>
<td>43.7</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1i Personnel development opportunities are evaluated.</td>
<td></td>
<td>4</td>
<td>47</td>
<td>34.8</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>4.2 Faculty and Staff Work Systems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2a Personnel responsibilities support communication across school units.</td>
<td></td>
<td>5</td>
<td>54</td>
<td>40.0</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2b Personnel responsibilities support cooperation across school units.</td>
<td></td>
<td>5</td>
<td>63</td>
<td>46.7</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2c Personnel responsibilities are aligned with the school's compensation system.</td>
<td></td>
<td>5</td>
<td>51</td>
<td>37.8</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2d The work system creates opportunities for initiative and self-directed responsibility.</td>
<td></td>
<td>5</td>
<td>58</td>
<td>43.0</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2e The work system is flexible to respond to changing requirements.</td>
<td></td>
<td>5</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2f The work system supports communication between school units.</td>
<td></td>
<td>5</td>
<td>56</td>
<td>41.5</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2g The work system supports cooperation between school units.</td>
<td></td>
<td>5</td>
<td>58</td>
<td>43.0</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2h The work system is aligned with the school's compensation system.</td>
<td></td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>4.3 Faculty and staff development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.3a New personnel orientation reviews school plans.</td>
<td></td>
<td>5</td>
<td>72</td>
<td>53.3</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3b New personnel orientation reviews school expectations.</td>
<td></td>
<td>5</td>
<td>76</td>
<td>56.3</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3c Personnel development activities include specific performance requirements.</td>
<td></td>
<td>5</td>
<td>70</td>
<td>51.9</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3d Personnel development activities utilize assessment methods.</td>
<td></td>
<td>4</td>
<td>54</td>
<td>40.0</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3e The school evaluates the effectiveness of personnel development efforts.</td>
<td></td>
<td>5</td>
<td>51</td>
<td>37.8</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3f Personnel work together to identify training needs.</td>
<td></td>
<td>5</td>
<td>61</td>
<td>44.4</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3g Personnel work together to design training programs.</td>
<td></td>
<td>5</td>
<td>56</td>
<td>41.5</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3h Personnel work together to deliver training.</td>
<td></td>
<td>5</td>
<td>63</td>
<td>46.7</td>
<td>1-5</td>
</tr>
<tr>
<td>4.3i Knowledge and skills presented in training are reinforced through on-the-job training.</td>
<td></td>
<td>5</td>
<td>64</td>
<td>47.4</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>4.4 Personnel well-being and satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4a The school maintains a healthy and safe work environment.</td>
<td></td>
<td>5</td>
<td>111</td>
<td>82.2</td>
<td>1-5</td>
</tr>
<tr>
<td>4.4b Personnel satisfaction is evaluated.</td>
<td></td>
<td>5</td>
<td>57</td>
<td>42.2</td>
<td>1-5</td>
</tr>
<tr>
<td>4.4c Opportunities to increase personnel satisfaction are offered by the school.</td>
<td></td>
<td>5</td>
<td>55</td>
<td>40.7</td>
<td>1-5</td>
</tr>
</tbody>
</table>
The construct of Personnel Development and Management was composed of 29 items divided into four categories. Summary classifications of respondents' scores on the four individual categories (A = Personnel Development and Management, B = Faculty and Staff Work Systems, C = Faculty and Staff Development, D = Personnel Well-being and Satisfaction) and overall Personnel Development and Management construct total are provided in Table 15. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for Personnel Development and Staff Development and Faculty and Staff Work Systems was high. The modal response for Faculty and Staff Development and Personnel Well-being and Satisfaction was very high. Furthermore, more than 95% of respondents rated the overall construct of Personnel Development and Management as high to very high in importance. The responses for summary classification for each category ranged between very low and very high.
Table 15

**Importance of Personnel Development and Management Construct**

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th>%</th>
<th>B</th>
<th>%</th>
<th>C</th>
<th>%</th>
<th>D</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>1</td>
<td>.8</td>
<td>2</td>
<td>1.6</td>
<td>2</td>
<td>1.6</td>
<td>1</td>
<td>.8</td>
<td>1</td>
<td>.8</td>
</tr>
<tr>
<td>Low</td>
<td>1</td>
<td>.8</td>
<td>3</td>
<td>2.4</td>
<td>2</td>
<td>1.6</td>
<td>2</td>
<td>1.6</td>
<td>1</td>
<td>.8</td>
</tr>
<tr>
<td>Moderate</td>
<td>11</td>
<td>8.9</td>
<td>5</td>
<td>4.1</td>
<td>7</td>
<td>5.7</td>
<td>7</td>
<td>5.7</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>High</td>
<td>62</td>
<td>50.4</td>
<td>57</td>
<td>46.3</td>
<td>55</td>
<td>44.7</td>
<td>54</td>
<td>43.9</td>
<td>69</td>
<td>56.1</td>
</tr>
<tr>
<td>Very High</td>
<td>48</td>
<td>39.0</td>
<td>56</td>
<td>45.5</td>
<td>57</td>
<td>46.3</td>
<td>59</td>
<td>48.0</td>
<td>48</td>
<td>39.0</td>
</tr>
</tbody>
</table>

**Note.**
A= Personnel Development and Management  
B= Faculty and Staff Work Systems  
C= Faculty and Staff Development  
D= Personnel Well-being and Satisfaction

**Educational and Business Process Management**

The Educational and Business Process Management construct was composed of 41 items (5.1a-5.6g). The 41 items were divided into six categories: 5.1 Education Design, 5.2 Education Delivery, 5.3 Educational Support, Services and Delivery, 5.4 Research, Scholarship, and Service, 5.5 Enrollment Management, and 5.6 Business Operations Management. Table 16 includes information regarding the 41 Educational and Business Process Management items.
The respondents' modal rating for 32 of the 41 Educational and Business Process Management items was very high. Each of the scores of these 32 items ranged between 1 and 5. The modal ratings for nine of the Educational and Business Process Management items was high. Scores for eight of these nine items ranged between 1 and 5. A single item “5.3g A process is in place to determine which educational support services are needed” had a modal response of high, and ranged between 2 and 5.
Table 16

Importance of Educational and Business Process Management

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>5.1 Education Design</td>
<td></td>
</tr>
<tr>
<td>5.1a Educational programs address student needs.</td>
<td>5</td>
</tr>
<tr>
<td>5.1b Educational programs are sequenced and linked.</td>
<td>5</td>
</tr>
<tr>
<td>5.1c A student progress plan is in place.</td>
<td>5</td>
</tr>
<tr>
<td>5.1d A system is in place that assures faculty are properly prepared.</td>
<td>5</td>
</tr>
<tr>
<td>5.1e The educational design focuses on active learning.</td>
<td>5</td>
</tr>
<tr>
<td>5.1f The educational delivery system makes use of formative evaluations.</td>
<td>5</td>
</tr>
<tr>
<td>5.1g The educational delivery system makes use of summative evaluations.</td>
<td>5</td>
</tr>
<tr>
<td>5.1h The educational design has adequate faculty and student contact opportunities.</td>
<td>5</td>
</tr>
<tr>
<td>5.1i The school evaluates the design of educational programs.</td>
<td>5</td>
</tr>
<tr>
<td>5.2 Education Delivery</td>
<td></td>
</tr>
<tr>
<td>5.2a The school ensures that ongoing educational programs match their original design objectives.</td>
<td>5</td>
</tr>
<tr>
<td>5.2b The educational programs have an improvement plan.</td>
<td>5</td>
</tr>
<tr>
<td>5.2c The educational programs are evaluated using input from multiple stakeholders.</td>
<td>5</td>
</tr>
<tr>
<td>5.3 Education Support, Services and Delivery</td>
<td></td>
</tr>
<tr>
<td>5.3a Educational support services are available.</td>
<td>5</td>
</tr>
<tr>
<td>5.3b Educational support services are designed to meet student needs.</td>
<td>5</td>
</tr>
<tr>
<td>5.3c Educational support services are improved.</td>
<td>5</td>
</tr>
<tr>
<td>5.3d Multiple stakeholders are used to evaluate support services.</td>
<td>5</td>
</tr>
<tr>
<td>5.3e Multiple stakeholders evaluate community services.</td>
<td>4</td>
</tr>
<tr>
<td>5.3f Multiple stakeholders are used to evaluate scholarship activities.</td>
<td>4</td>
</tr>
<tr>
<td>5.3g A process is in place to determine which educational support services are needed.</td>
<td>4</td>
</tr>
<tr>
<td>5.4 Research, Scholarship and Service</td>
<td></td>
</tr>
<tr>
<td>5.4a The school shares knowledge with the general community.</td>
<td>5</td>
</tr>
<tr>
<td>5.4b Scholarship activities contribute to achieving school objectives.</td>
<td>4</td>
</tr>
<tr>
<td>5.4c Community service activities are aligned with the school's goals.</td>
<td>4</td>
</tr>
<tr>
<td>5.4d The scholarship program has an improvement plan.</td>
<td>4</td>
</tr>
<tr>
<td>5.4e The school has a community service improvement plan.</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 16 (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5 Enrollment Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5a The school communicates its requirements to feeder schools.</td>
<td></td>
<td>5</td>
<td>98</td>
<td>72.6</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5b The school communicates its requirements to families.</td>
<td></td>
<td>5</td>
<td>92</td>
<td>68.1</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5c The school communicates its requirements to prospective students.</td>
<td></td>
<td>5</td>
<td>98</td>
<td>72.6</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5d The school improves interactions with feeder schools.</td>
<td></td>
<td>5</td>
<td>92</td>
<td>68.1</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5e The school improves interactions with families.</td>
<td></td>
<td>5</td>
<td>80</td>
<td>59.3</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5f The school improves its interactions with prospective students.</td>
<td></td>
<td>5</td>
<td>80</td>
<td>59.3</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5g Equity issues are addressed in school enrollment.</td>
<td></td>
<td>5</td>
<td>75</td>
<td>55.6</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5h The school provides student orientations.</td>
<td></td>
<td>5</td>
<td>99</td>
<td>73.3</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5i Student job placement services are offered.</td>
<td></td>
<td>5</td>
<td>95</td>
<td>70.4</td>
<td>1-5</td>
</tr>
<tr>
<td>5.5j The enrollment management system is evaluated.</td>
<td></td>
<td>5</td>
<td>73</td>
<td>54.1</td>
<td>1-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.6 Business Operations Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.6a The school has a process for identifying customers for each key process.</td>
<td></td>
<td>4</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
</tr>
<tr>
<td>5.6b The school has a process to determine customer requirements.</td>
<td></td>
<td>4</td>
<td>47</td>
<td>34.8</td>
<td>1-5</td>
</tr>
<tr>
<td>5.6c The school has a process to establish goals.</td>
<td></td>
<td>5</td>
<td>59</td>
<td>43.7</td>
<td>1-5</td>
</tr>
<tr>
<td>5.6d School business operations are monitored.</td>
<td></td>
<td>5</td>
<td>69</td>
<td>51.1</td>
<td>1-5</td>
</tr>
<tr>
<td>5.6e The school has a process to utilize customer feedback.</td>
<td></td>
<td>5</td>
<td>51</td>
<td>37.8</td>
<td>1-5</td>
</tr>
<tr>
<td>5.6f School business operations are benchmarked.</td>
<td></td>
<td>5</td>
<td>45</td>
<td>33.3</td>
<td>1-5</td>
</tr>
<tr>
<td>5.6g School business operations are improved.</td>
<td></td>
<td>5</td>
<td>54</td>
<td>40.0</td>
<td>1-5</td>
</tr>
</tbody>
</table>

The construct of Educational and Business Process Management was composed of 41 items divided into six categories. Summary classifications of respondents' scores on the six individual categories (A= Education Design, B= Education Delivery, and C= Education Support, Services and Delivery, D= Research, Scholarship and Service, E= Enrollment Management, F= Business Operations Management) and overall Educational and Business Process Management construct total are provided in Table 17. Summated
scores were categorized as very low to very high based on the information provided in Table 7. The modal response for Education Design, Education Delivery, and Enrollment Management was very high. The modal response for Education Support, Services and Delivery, Research, Scholarship and Service and Business Operations Management was high. Furthermore, more than 90% of respondents rated the overall construct of Educational and Business Process Management as high to very high in importance. The responses for summary classifications for each category ranged from very low to very high.

Table 17

Importance of Educational and Business Process Management Construct

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Very Low</td>
<td>1</td>
<td>.8</td>
<td>4</td>
<td>3.3</td>
<td>2</td>
<td>1.6</td>
<td>6</td>
</tr>
<tr>
<td>Low</td>
<td>1</td>
<td>.8</td>
<td>2</td>
<td>1.6</td>
<td>2</td>
<td>1.6</td>
<td>8</td>
</tr>
<tr>
<td>Moderate</td>
<td>1</td>
<td>.8</td>
<td>5</td>
<td>4.1</td>
<td>7</td>
<td>5.7</td>
<td>15</td>
</tr>
<tr>
<td>High</td>
<td>44</td>
<td>35.8</td>
<td>49</td>
<td>39.8</td>
<td>64</td>
<td>52.0</td>
<td>69</td>
</tr>
<tr>
<td>Very High</td>
<td>76</td>
<td>61.8</td>
<td>63</td>
<td>51.2</td>
<td>48</td>
<td>39.0</td>
<td>25</td>
</tr>
</tbody>
</table>

Note.
A= Education Design
B= Education Delivery
C= Education Support, Services, and Delivery
D= Research Scholarship and Service
E= Enrollment Management
F= Business Operations Management
School Performance Results

The School Performance Results construct was composed of 12 instrument items (6.1a-6.4b). The 12 items were divided into four categories: 6.1 Student Performance Results, 6.2 School Education Climate Improvement Results, 6.3 Scholarship and Service Results, and 6.4 School Business Performance Results. Information regarding the School Performance Results items is presented in Table 18.

Respondents' modal rating of seven of the 12 School Performance Results items was very high. Each of the scores of these seven items ranged between 1 and 5. Five of the 12 School Performance Results items had modal ratings of high and ranged between 1 and 5.
Table 18
Importance of School Performance Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6.1 Student Performance Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1a Current student performance levels are identified.</td>
<td></td>
<td>5</td>
<td>77</td>
<td>57.0</td>
<td>1-5</td>
</tr>
<tr>
<td>6.1b Trends of student performance are identified.</td>
<td></td>
<td>5</td>
<td>66</td>
<td>48.9</td>
<td>1-5</td>
</tr>
<tr>
<td>6.1c Current student performance levels are compared with similar schools with similar student populations.</td>
<td></td>
<td>5</td>
<td>53</td>
<td>39.3</td>
<td>1-5</td>
</tr>
<tr>
<td>6.1d Student performance trends are compared with similar schools with similar student populations.</td>
<td></td>
<td>5</td>
<td>45</td>
<td>33.3</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>6.2 School Education Climate Improvement Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2a Current educational climate characteristics are identified.</td>
<td></td>
<td>5</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td>6.2b Trends in educational climate characteristics are identified.</td>
<td></td>
<td>4</td>
<td>53</td>
<td>39.3</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>6.3 Scholarship and Service Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3a Current levels of the school’s contribution to community education are identified.</td>
<td></td>
<td>5</td>
<td>58</td>
<td>43.0</td>
<td>1-5</td>
</tr>
<tr>
<td>6.3b Current levels of the school’s contribution to community service are identified.</td>
<td></td>
<td>4</td>
<td>50</td>
<td>37.0</td>
<td>1-5</td>
</tr>
<tr>
<td>6.3c Trends of the school’s contribution to community education are identified.</td>
<td></td>
<td>4</td>
<td>45</td>
<td>33.3</td>
<td>1-5</td>
</tr>
<tr>
<td>6.3d Trends in the school’s contribution to community service are identified.</td>
<td></td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>6.4 School Business Performance Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4a Current levels of school business operational performance are identified.</td>
<td></td>
<td>5</td>
<td>45</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td>6.4b Trends in school business operational performance are identified.</td>
<td></td>
<td>4</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
</tr>
</tbody>
</table>

The construct of School Performance Results was composed of 12 items divided into four categories. Summary classifications of respondents’ scores on the four individual categories (A = Student Performance Results, B = School Education Climate Improvement Results, and C = Scholarship and Service)
Results and D= School Business Performance Results) and the overall School Performance Results construct total are provided in Table 19. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal category for Student Performance Results was very high. The modal category for School Education Climate Improvement Results, Scholarship and Service Results, and School Business Performance Results was high. Furthermore, more than 90% of respondents rated each category and the overall construct of School Performance Results as high to very high in importance. The responses for summary classification for each category ranged from very low to very high.

Table 19

<table>
<thead>
<tr>
<th>School Performance Results Construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Performance Results Components</td>
</tr>
<tr>
<td>Response</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Very Low</td>
</tr>
<tr>
<td>Low</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>High</td>
</tr>
<tr>
<td>Very High</td>
</tr>
</tbody>
</table>

Note:
A= Student Performance Results
B= School Education Climate Improvement Results
C= Scholarship and Service Results
D= School Business Performance Results.
Student Focus and Stakeholder Satisfaction

The Student Focus and Stakeholder Satisfaction construct was composed of 21 items (7.1a-7.6b). The 21 items were divided into six categories: 7.1 Student Needs and Expectations, 7.2 Future Student Needs and Expectations, 7.3 Stakeholder Relationship Management, 7.4 Student and Stakeholder Satisfaction, 7.5 Student and Stakeholder Satisfaction Results, and 7.6 Student and Stakeholder Satisfaction Comparison. Table 20 presents information regarding the 21 Student Focus and Stakeholder Satisfaction items.

Respondents' modal rating of 13 of the Student Focus and Stakeholder Satisfaction items was very high. The scores for each of the 13 items ranged between 1 and 5. Respondents' modal rating of seven of the Student Focus and Stakeholder Satisfaction items was high and ranged between 1 and 5. A single item "7.2b Anticipated student requirements are used for planning" had a modal rating of very high and scores ranged between 2 and 5.
## Table 20

**Importance of Student Focus and Stakeholder Satisfaction**

<table>
<thead>
<tr>
<th>Category</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>7.1 Student Needs and Expectations</td>
<td></td>
</tr>
<tr>
<td>7.1a The special needs of students are assessed.</td>
<td>5</td>
</tr>
<tr>
<td>7.1b General student expectations are assessed.</td>
<td>5</td>
</tr>
<tr>
<td>7.1c Student utilization of class offerings is tracked.</td>
<td>5</td>
</tr>
<tr>
<td>7.1d Student utilization of facilities is tracked.</td>
<td>5</td>
</tr>
<tr>
<td>7.1e Student utilization of special services is monitored.</td>
<td>5</td>
</tr>
<tr>
<td>7.1f Process for determining student needs are improved.</td>
<td>5</td>
</tr>
<tr>
<td>7.2 Future Student Needs and Expectations</td>
<td></td>
</tr>
<tr>
<td>7.2a The changing requirements of future students are anticipated.</td>
<td>5</td>
</tr>
<tr>
<td>7.2b Anticipated student requirements are used for planning.</td>
<td>5</td>
</tr>
<tr>
<td>7.2c The school improves its processes for determining emerging student needs</td>
<td>5</td>
</tr>
<tr>
<td>7.3 Stakeholder Relationship Management</td>
<td></td>
</tr>
<tr>
<td>7.3a The school has identified mutual basis for relationships with key stakeholders.</td>
<td>4</td>
</tr>
<tr>
<td>7.3b The school improves relationships with stakeholders.</td>
<td>5</td>
</tr>
<tr>
<td>7.3c The school evaluates relationships with key stakeholders.</td>
<td>5</td>
</tr>
<tr>
<td>7.4 Student and Stakeholder Satisfaction</td>
<td></td>
</tr>
<tr>
<td>7.4a Current student satisfaction is evaluated.</td>
<td>5</td>
</tr>
<tr>
<td>7.4b Past student satisfaction is evaluated.</td>
<td>4</td>
</tr>
<tr>
<td>7.4c Key stakeholder satisfaction is evaluated.</td>
<td>5</td>
</tr>
<tr>
<td>7.4d Student satisfaction determination processes are evaluated.</td>
<td>4</td>
</tr>
<tr>
<td>7.4e Stakeholder satisfaction determination process are evaluated.</td>
<td>4</td>
</tr>
<tr>
<td>7.5 Student and Stakeholder Satisfaction Results</td>
<td></td>
</tr>
<tr>
<td>7.5a The school compares current and past levels of student satisfaction</td>
<td>4</td>
</tr>
<tr>
<td>7.5b The school compares current and past levels of stakeholder satisfaction</td>
<td>4</td>
</tr>
<tr>
<td>7.6 Student and Stakeholder Satisfaction Comparison</td>
<td></td>
</tr>
<tr>
<td>7.6a Student satisfaction levels are compared with student satisfaction in comparable schools</td>
<td>5</td>
</tr>
<tr>
<td>7.6b Stakeholder satisfaction levels are compared with stakeholder satisfaction in comparable schools</td>
<td>4</td>
</tr>
</tbody>
</table>
The construct of Student Focus and Stakeholder Satisfaction was composed of 21 items divided into six categories. Summary classifications of respondents' scores on the six individual categories (A = Student Needs and Expectations, B = Future Student Needs and Expectations, C = Stakeholder Relationship Management, D = Student and Stakeholder Satisfaction Determination, E = Student and Stakeholder Satisfaction Comparison, and F = Student and Stakeholder Satisfaction Comparison) and overall Student Focus and Stakeholder Satisfaction construct total are provided in Table 21. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for Student Needs and Expectations, Future Student Needs and Expectations and Stakeholder Relationship Management was very high. The modal response for Student and Stakeholder Satisfaction and Student and Stakeholder Satisfaction Comparison was high. Student and Stakeholder Satisfaction Comparison had a bimodal distribution of high and very high. More than 86% of the respondents rated the overall construct as high to very high in importance. The responses for summary classification for each category ranged from very low to very high.
## Table 21

### Importance of Student Focus and Stakeholder Satisfaction Construct

#### Student Focus and Stakeholder Satisfaction Components

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th></th>
<th>B</th>
<th></th>
<th>C</th>
<th></th>
<th>D</th>
<th></th>
<th>E</th>
<th></th>
<th>F</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>1 .8</td>
<td>2</td>
<td>1.6</td>
<td>2</td>
<td>1.6</td>
<td>5</td>
<td>4.1</td>
<td>7</td>
<td>5.7</td>
<td>10</td>
<td>8.1</td>
<td>1</td>
<td>.8</td>
</tr>
<tr>
<td>Low</td>
<td>0 0.0</td>
<td>1</td>
<td>.8</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>.8</td>
<td>4</td>
<td>3.3</td>
<td>13</td>
<td>10.6</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Moderate</td>
<td>9 7.3</td>
<td>6</td>
<td>4.9</td>
<td>17</td>
<td>13.8</td>
<td>13</td>
<td>10.6</td>
<td>17</td>
<td>13.8</td>
<td>26</td>
<td>21.1</td>
<td>13</td>
<td>10.6</td>
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<tr>
<td>High</td>
<td>50 40.7</td>
<td>43</td>
<td>35.0</td>
<td>48</td>
<td>39.0</td>
<td>60</td>
<td>48.8</td>
<td>57</td>
<td>46.3</td>
<td>37</td>
<td>30.1</td>
<td>66</td>
<td>53.7</td>
</tr>
<tr>
<td>Very High</td>
<td>63 51.2</td>
<td>71</td>
<td>57.7</td>
<td>56</td>
<td>45.0</td>
<td>44</td>
<td>35.8</td>
<td>38</td>
<td>30.9</td>
<td>37</td>
<td>30.1</td>
<td>40</td>
<td>32.5</td>
</tr>
</tbody>
</table>

**Note.**
- A= Student Needs and Expectations
- B= Future Student Needs and Expectations
- C= Stakeholder Relationship Management
- D= Student and Stakeholder Satisfaction Determination
- E= Student and Stakeholder Satisfaction Results
- F= Student and Stakeholder Satisfaction Comparison
Objective 2: Identify the perceptions of Ohio JVS administrators regarding the use of TQM.

Perceived use of TQM was defined with the following components: Leadership, Information and Analysis, Strategic and Operational Planning, Personnel Development and Management, Educational and Business Process Management, School Performance Results, and Student Focus and Stakeholder Satisfaction. Each of these components was measured using a series of individual items.

Detailing the perception of the use of TQM involved the reporting of descriptive statistics to define the central tendency and dispersion of the scores. A mode was used to describe the central tendency since ordinal data was reported. The range was used to describe the variability of the items.

Leadership

The Leadership construct was composed of 17 items (1.1a-1.3f). The 17 items were divided into three categories: 1.1 Senior Administration Leadership, 1.2 Leadership System and Organization, and 1.3 Public Responsibility and Citizenship. Table 22 presents information related to the perceived use of each of the 17 leadership items.

The modal rating for four of the 17 leadership items was very high. The modal rating for 11 of the 17 leadership items was high. The modal response for
two of the 17 leadership items was moderate. These two items included "1.1e Senior administrators review student performance" and "1.3c The school has a process to anticipate public concerns." The dispersion of scores on all 17 items ranged from 1 to 5.
Table 22

Use of Leadership

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>1.1 Senior Administration Leadership</td>
<td></td>
</tr>
<tr>
<td>1.1a Senior administrators reinforce high expectations throughout the school.</td>
<td>5</td>
</tr>
<tr>
<td>1.1b Senior administrators establish measurable goals in the school's strategic plan.</td>
<td>4</td>
</tr>
<tr>
<td>1.1c Senior administrators maintain a climate conducive to teaching.</td>
<td>5</td>
</tr>
<tr>
<td>1.1d Senior administrators maintain a climate conducive to learning.</td>
<td>4</td>
</tr>
<tr>
<td>1.1e Senior administrators review student performance.</td>
<td>3</td>
</tr>
<tr>
<td>1.1f Senior administrators evaluate the effects of school practices.</td>
<td>4</td>
</tr>
<tr>
<td>1.1g Senior administrators increase their knowledge of improvement processes.</td>
<td>4</td>
</tr>
<tr>
<td>1.2 Leadership System and Organization</td>
<td></td>
</tr>
<tr>
<td>1.2a The school's leadership system is designed to improve student performance.</td>
<td>4</td>
</tr>
<tr>
<td>1.2b The school's leadership system maintains focus &amp; cooperation among school units to pursue performance objectives.</td>
<td>4</td>
</tr>
<tr>
<td>1.2c The school communicates its expectations throughout the community.</td>
<td>4</td>
</tr>
<tr>
<td>1.2d School performance results are used to develop improvement plans.</td>
<td>4</td>
</tr>
<tr>
<td>1.3 Public Responsibility and Citizenship</td>
<td></td>
</tr>
<tr>
<td>1.3a The school evaluates its community services.</td>
<td>4</td>
</tr>
<tr>
<td>1.3b The school incorporates regulatory and legal requirements in the school planning process.</td>
<td>4</td>
</tr>
<tr>
<td>1.3c The school has a process to anticipate public concerns.</td>
<td>3</td>
</tr>
<tr>
<td>1.3d The school promotes legal conduct in its operations.</td>
<td>5</td>
</tr>
<tr>
<td>1.3e The school promotes ethical conduct in its operations.</td>
<td>5</td>
</tr>
<tr>
<td>1.3f The school serves as a role model in addressing areas of public concern.</td>
<td>4</td>
</tr>
</tbody>
</table>

The construct of Leadership was composed of 17 items divided into three categories. Summary classifications of respondents' scores on the three individual categories (A= Senior Leadership, B = Leadership System and...
Organization, and C = Public Responsibility) and overall Leadership construct total are provided in Table 23. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for each of the three Leadership categories was high. Furthermore, 85% of respondents rated the overall construct of Leadership as high and very high in use for determining quality schools. The responses for summary classifications for each category ranged from very low to very high.

Table 23

Use of Leadership Construct

<table>
<thead>
<tr>
<th>Leadership Components</th>
<th>A</th>
<th></th>
<th>B</th>
<th></th>
<th>C</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
<td>f %</td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>2</td>
<td>1.6</td>
<td>4</td>
<td>3.3</td>
<td>1</td>
<td>.8</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>1.6</td>
<td>3</td>
<td>2.4</td>
<td>4</td>
<td>3.3</td>
<td>5</td>
<td>4.1</td>
</tr>
<tr>
<td>Moderate</td>
<td>13</td>
<td>10.6</td>
<td>24</td>
<td>19.5</td>
<td>10</td>
<td>8.1</td>
<td>13</td>
<td>10.6</td>
</tr>
<tr>
<td>High</td>
<td>77</td>
<td>62.6</td>
<td>63</td>
<td>51.2</td>
<td>71</td>
<td>57.7</td>
<td>82</td>
<td>66.7</td>
</tr>
<tr>
<td>Very High</td>
<td>29</td>
<td>23.6</td>
<td>29</td>
<td>23.6</td>
<td>37</td>
<td>30.1</td>
<td>23</td>
<td>18.7</td>
</tr>
</tbody>
</table>

Note.
A= Senior Administration Leadership
B= Leadership System and Organization
C= Public Responsibility & Citizenship

Information and Analysis

The Information and Analysis construct was composed of 15 items (2.1a-2.3h). The 15 items were divided into three categories: 2.1 Management of
Information and Data, 2.2 Comparisons and Benchmarking, and 2.3 Analysis and Use of School Level Data. Data related to the Information and Analysis items is presented in Table 24.

The respondents' modal rating of 10 of the 15 items was high. The modal rating for the three items "2.3e Data are used to understand comparable student performance," "2.3g Data are used to understand comparable educational program performance," and "2.3h Data are used to understand comparable school business performance" was moderate. The two items "2.1c The data gathering techniques are improved," and "2.1e Feedback from data users is used to improve the information system" had a bimodal distribution rating of moderate and high. All of the 15 items had scores that ranged between 1 and 5.
Table 24

Use of Information and Analysis

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>2.1 Management of Information and Data</td>
<td></td>
</tr>
<tr>
<td>2.1a A rationale for using data to drive education improvement efforts is identified.</td>
<td>4</td>
</tr>
<tr>
<td>2.1b A rationale for using data to drive business operation improvement efforts is identified.</td>
<td>4</td>
</tr>
<tr>
<td>2.1c The data gathering techniques are improved.</td>
<td>3,4</td>
</tr>
<tr>
<td>2.1d Data gathered are aligned with the school's priorities.</td>
<td>4</td>
</tr>
<tr>
<td>2.1e Feedback from data users is used to improve the information system.</td>
<td>3,4</td>
</tr>
<tr>
<td>2.2 Comparisons and Benchmarking</td>
<td></td>
</tr>
<tr>
<td>2.2a The school uses benchmarked data to drive overall school improvement efforts.</td>
<td>4</td>
</tr>
<tr>
<td>2.2b The school's benchmarking process is improved.</td>
<td>4</td>
</tr>
<tr>
<td>2.3 Analysis and Use of School Level Data</td>
<td></td>
</tr>
<tr>
<td>2.3a Data are used to understand individual student performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3b Data are used to understand student group performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3c Data are used to understand educational program performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3d Data are used to understand school business performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3e Data are used to understand comparable student performance.</td>
<td>3</td>
</tr>
<tr>
<td>2.3f Data are used to understand comparable student group performance.</td>
<td>4</td>
</tr>
<tr>
<td>2.3g Data are used to understand comparable educational program performance.</td>
<td>3</td>
</tr>
<tr>
<td>2.3h Data are used to understand comparable school business performance.</td>
<td>3</td>
</tr>
</tbody>
</table>

The construct of Information and Analysis was composed of 15 items divided into three categories. Summary classifications of respondents' scores on the three individual categories (A= Management of Information and Data,
B = Comparisons and Benchmarking, and C = Analysis and Use of School Level Data) and overall Information and Analysis construct total are provided in Table 25. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for each of the three Information and Analysis categories was very high. Furthermore, 80% of respondents rated the overall construct of Information and Analysis as moderate to high. The responses for summary classifications for each category ranged from very low to very high.

Table 25

Use of Information and Analysis Construct

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th></th>
<th>B</th>
<th></th>
<th>C</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Very Low</td>
<td>10</td>
<td>8.1</td>
<td>11</td>
<td>8.9</td>
<td>1</td>
<td>.8</td>
<td>1</td>
<td>.8</td>
</tr>
<tr>
<td>Low</td>
<td>11</td>
<td>8.9</td>
<td>15</td>
<td>12.2</td>
<td>9</td>
<td>7.3</td>
<td>16</td>
<td>13.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>42</td>
<td>34.1</td>
<td>31</td>
<td>25.5</td>
<td>43</td>
<td>35.0</td>
<td>47</td>
<td>38.2</td>
</tr>
<tr>
<td>High</td>
<td>50</td>
<td>40.7</td>
<td>51</td>
<td>41.5</td>
<td>55</td>
<td>44.7</td>
<td>50</td>
<td>41.5</td>
</tr>
<tr>
<td>Very High</td>
<td>10</td>
<td>8.1</td>
<td>15</td>
<td>12.2</td>
<td>15</td>
<td>12.2</td>
<td>8</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Note.
A= Management of Information and Data
B= Comparisons and Benchmarking
C= Analysis and Use of School Level Data
Strategic and Operational Planning

The Strategic and Operational Planning construct was composed of 12 items (3.1a-3.2e). The 12 items were divided into two categories: 3.1 Strategic Development and 3.2 Strategy Implementation. Information regarding the respondents' perceptions related to Strategic and Operational Planning items is presented in Table 26.

The respondents' modal rating of eight of the 12 items was high. The modal rating for three items "3.1e The strategic plan is translated into measurable goals which are communicated to school units," "3.1f The strategic planning processes are improved," and "3.2d Two to five year projections of student performance goals are developed" was moderate. The item "3.2a The strategic plan identifies how school units cooperate to achieve strategic goals" had a bimodal distribution rating of moderate and high. All of the 12 items had scores that ranged between 1 and 5.
Table 26

Use of Strategic and Operational Planning

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>3.1 Strategic Development</td>
<td></td>
</tr>
<tr>
<td>3.1a Units within the school are involved in the strategy development process.</td>
<td>4 54</td>
</tr>
<tr>
<td>3.1b External stakeholders are involved in the strategy development process.</td>
<td>4 37</td>
</tr>
<tr>
<td>3.1c Strategies are developed to improve student performance.</td>
<td>4 57</td>
</tr>
<tr>
<td>3.1d Strategies are developed to improve overall school performance.</td>
<td>4 42</td>
</tr>
<tr>
<td>3.1e The strategic plan is translated into measurable goals which are communicated to school units.</td>
<td>3 40</td>
</tr>
<tr>
<td>3.1f The strategic planning processes are improved.</td>
<td>3 37</td>
</tr>
<tr>
<td>3.1g The strategic plan implementation processes are improved.</td>
<td>4 37</td>
</tr>
<tr>
<td>3.2 Strategy Implementation</td>
<td></td>
</tr>
<tr>
<td>3.2a The strategic plan identifies how school units cooperate to achieve strategic goals.</td>
<td>3.4 45</td>
</tr>
<tr>
<td>3.2b The strategic plan identifies resources to support the attainment of strategic plan goals.</td>
<td>4 53</td>
</tr>
<tr>
<td>3.2c Goals from the strategic plan are incorporated into an implementation plan.</td>
<td>4 41</td>
</tr>
<tr>
<td>3.2d Two to five year projections of student performance goals are developed.</td>
<td>3 49</td>
</tr>
<tr>
<td>3.2e The school constructs two to five year projections of business operational goals.</td>
<td>4 35</td>
</tr>
</tbody>
</table>

The construct of Strategic and Operational Planning was composed of 12 items divided into two categories. Summary classifications of respondents' scores on the two individual categories (A = Strategic Development, B = Strategic Implementation) and overall Strategic and Operational Planning construct total are provided in Table 27. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for
Strategic Development was high. The modal response for Strategic Implementation was moderate. Furthermore, more than 76% of respondents rated the overall construct of Strategic and Operational Planning as moderate to high in use for determining quality schools. The responses for summary classifications for each category ranged from very low to very high.

Table 27

Use of Strategic and Operational Planning Construct

<table>
<thead>
<tr>
<th>Strategic and Operational Planning Components</th>
<th>A</th>
<th>B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f %</td>
<td>f %</td>
<td>f %</td>
</tr>
<tr>
<td>Very Low</td>
<td>1 0.8</td>
<td>6 4.9</td>
<td>2 1.6</td>
</tr>
<tr>
<td>Low</td>
<td>8 6.5</td>
<td>14 11.4</td>
<td>8 6.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>38 30.9</td>
<td>49 35.8</td>
<td>37 30.1</td>
</tr>
<tr>
<td>High</td>
<td>52 42.3</td>
<td>44 35.8</td>
<td>57 46.3</td>
</tr>
<tr>
<td>Very High</td>
<td>24 19.5</td>
<td>15 12.2</td>
<td>19 15.4</td>
</tr>
</tbody>
</table>

Note.
A= Strategic Development
B= Strategic Implementation

Personnel Development and Management

The Personnel Development and Management construct was composed of 29 instrument items (4.1a-4.4c). The 29 items were divided into four categories: 4.1 Personnel Development and Management, 4.2 Faculty and Staff Work Systems, 4.3 Faculty and Staff Development, and 4.4 Personnel
Well-being and Satisfaction. Table 28 presents information regarding each of the 29 Personnel Development and Management items.

The modal response for the five items “4.1e The school has specific plans addressing personnel development,” “4.1h The school has specific plans addressing promotion, compensation, and benefits,” “4.3a New personnel orientation reviews school plans,” “4.3b New personnel orientation reviews school expectations,” and “4.4a The school maintains a healthy and safe work environment” was very high. The modal response for the remaining 24 items was high. Each of the 29 Personnel Development and Management items had scores that ranged from 1 to 5.
## Table 28

### Use of Personnel Development and Management

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Personnel development and management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1a</td>
<td>Personnel development goals are translated into specific action plans.</td>
<td>4</td>
<td>41</td>
<td>30.4</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1b</td>
<td>Personnel development capacity is improved.</td>
<td>4</td>
<td>42</td>
<td>31.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1c</td>
<td>Professional development of all categories of personnel are evaluated.</td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1d</td>
<td>The school evaluates personnel development practices with expected results.</td>
<td>4</td>
<td>42</td>
<td>31.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1e</td>
<td>The school has specific plans addressing personnel development.</td>
<td>5</td>
<td>41</td>
<td>30.4</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1f</td>
<td>The school has specific plans addressing personnel recruitment.</td>
<td>4</td>
<td>38</td>
<td>28.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1g</td>
<td>The school has specific plans addressing the expectations of personnel.</td>
<td>4</td>
<td>43</td>
<td>31.9</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1h</td>
<td>The school has specific plans addressing promotion, compensation and benefits.</td>
<td>5</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.1i</td>
<td>Personnel development opportunities are evaluated.</td>
<td>4</td>
<td>37</td>
<td>37.4</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2</td>
<td>Faculty and staff work systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2a</td>
<td>Personnel responsibilities support communication across school units.</td>
<td>4</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2b</td>
<td>Personnel responsibilities support cooperation across school units.</td>
<td>4</td>
<td>58</td>
<td>43.0</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2c</td>
<td>Personnel responsibilities are aligned with the school’s compensation system.</td>
<td>4</td>
<td>32</td>
<td>23.7</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2d</td>
<td>The work system creates opportunities for initiative and self-directed responsibility.</td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2e</td>
<td>The work system is flexible to respond to changing requirements.</td>
<td>4</td>
<td>43</td>
<td>31.9</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2f</td>
<td>The work system supports communication between school units.</td>
<td>4</td>
<td>44</td>
<td>32.6</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2g</td>
<td>The work system supports cooperation between school units.</td>
<td>4</td>
<td>49</td>
<td>36.3</td>
<td>1-5</td>
</tr>
<tr>
<td>4.2h</td>
<td>The work system is aligned with the school’s compensation system.</td>
<td>4</td>
<td>37</td>
<td>27.4</td>
<td>1-5</td>
</tr>
</tbody>
</table>
The construct of Personnel Development and Management was composed of 29 items divided into four categories. Summary classifications of respondents' scores on the four individual categories (A= Personnel Development and Management, B = Faculty and Staff Work Systems, C= Faculty and Staff Development, D= Personnel Well-being and Satisfaction) and overall Personnel Development and Management construct total are provided in Table 29. Summated scores were categorized as very low to very

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3a New personnel orientation reviews school plans.</td>
<td>5</td>
<td>41</td>
<td>30.4</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3b New personnel orientation reviews school expectations.</td>
<td>5</td>
<td>47</td>
<td>34.8</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3c Personnel development activities include specific performance requirements.</td>
<td>4</td>
<td>56</td>
<td>41.5</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3d Personnel development activities utilize assessment methods.</td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3e The school evaluates the effectiveness of personnel development efforts.</td>
<td>4</td>
<td>48</td>
<td>35.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3f Personnel work together to identify training needs.</td>
<td>4</td>
<td>48</td>
<td>35.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3g Personnel work together to design training programs.</td>
<td>4</td>
<td>40</td>
<td>26.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3h Personnel work together to deliver training.</td>
<td>4</td>
<td>44</td>
<td>32.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.3i Knowledge and skills presented in training are reinforced through on-the-job training.</td>
<td>4</td>
<td>41</td>
<td>30.4</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.4a The school maintains a healthy and safe work environment.</td>
<td>5</td>
<td>86</td>
<td>63.7</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.4b Personnel satisfaction is evaluated.</td>
<td>4</td>
<td>44</td>
<td>32.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>4.4c Opportunities to increase personnel satisfaction are offered by the school.</td>
<td>4</td>
<td>38</td>
<td>28.1</td>
<td>1-5</td>
<td></td>
</tr>
</tbody>
</table>

Table 28 (continued)
high based on the information provided in Table 7. The modal response for each of the four Personnel Development and Management categories was high. Furthermore, more than 83% of respondents rated the overall construct of Personnel Development and Management as moderate to high in use for determining quality schools. The responses for summary classifications for each category ranged from very low to very high.

Table 29

<table>
<thead>
<tr>
<th>Use of Personnel Development and Management Construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Development and Management Components</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f%</td>
<td>f%</td>
<td>f%</td>
<td>f%</td>
<td>f%</td>
</tr>
<tr>
<td>Very Low</td>
<td>2</td>
<td>1.6</td>
<td>1</td>
<td>.8</td>
<td>2</td>
</tr>
<tr>
<td>Low</td>
<td>9</td>
<td>7.3</td>
<td>11</td>
<td>8.9</td>
<td>8</td>
</tr>
<tr>
<td>Moderate</td>
<td>27</td>
<td>22.0</td>
<td>22</td>
<td>17.9</td>
<td>31</td>
</tr>
<tr>
<td>High</td>
<td>66</td>
<td>53.7</td>
<td>71</td>
<td>57.7</td>
<td>62</td>
</tr>
<tr>
<td>Very High</td>
<td>19</td>
<td>15.4</td>
<td>18</td>
<td>14.6</td>
<td>20</td>
</tr>
</tbody>
</table>

Note.  
A= Personnel Development and Management  
B= Faculty and Staff Work Systems  
C= Faculty and Staff Development  
D= Personnel Well-being and Satisfaction
The Educational and Business Process Management construct was composed of 41 items (5.1a-5.6g). The 41 items were divided into six categories: 5.1 Education Design, 5.2 Education Delivery, 5.3 Educational Support, Services and Delivery, 5.4 Research, Scholarship, and Service, 5.5 Enrollment Management, and 5.6 Business Operations Management. Information is presented on the 41 Educational and Business Process Management items in Table 30.

The modal rating for 17 of the 41 Educational and Business Process Management items was very high. Sixteen of these items had scores that ranged between 1 and 5. The single item “5.6d The school business operations are monitored” had scores that ranged between 2 and 5.

The modal rating for 16 of the 41 Educational and Business Process Management items was high. The modal rating for four of the 41 Educational and Business Process Management items was moderate. All 20 of these items had scores that ranged between 1 and 5.

Four items had bimodal ratings of high and very high. Three of these items had scores that ranged between 1 and 5. The item “5.1a Educational programs address student needs” had scores that ranged between 2 and 5.
Table 30

Use of Educational and Business Process Management

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.1 Education Design</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1a Educational programs address student needs.</td>
<td>4,5</td>
<td>58</td>
<td>43.0</td>
<td>2-5</td>
<td></td>
</tr>
<tr>
<td>5.1b Educational programs are sequenced and linked.</td>
<td>5</td>
<td>54</td>
<td>40.0</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1c A student progress plan is in place.</td>
<td>5</td>
<td>51</td>
<td>37.8</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1d A system is in place that assures faculty are properly prepared.</td>
<td>4</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1e The educational design focuses on active learning.</td>
<td>5</td>
<td>60</td>
<td>44.4</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1f The educational delivery system makes use of formative evaluations.</td>
<td>4</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1g The educational delivery system makes use of summative evaluations.</td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1h The educational design has adequate faculty and student contact opportunities.</td>
<td>4,5</td>
<td>53</td>
<td>39.3</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.1i The school evaluates the design of educational programs.</td>
<td>4</td>
<td>49</td>
<td>36.3</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td><strong>5.2 Education Delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2a The school ensures that ongoing educational programs match their original design objectives.</td>
<td>4</td>
<td>58</td>
<td>43.0</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.2b The educational programs have an improvement plan.</td>
<td>4</td>
<td>50</td>
<td>37.0</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.2c The educational programs are evaluated using input from multiple stakeholders.</td>
<td>4,5</td>
<td>40</td>
<td>29.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td><strong>5.3 Education Support, Services and Delivery</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3a Educational support services are available.</td>
<td>5</td>
<td>65</td>
<td>48.1</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.3b Educational support services are designed to meet student needs.</td>
<td>5</td>
<td>67</td>
<td>49.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.3c Educational support services are improved.</td>
<td>5</td>
<td>57</td>
<td>42.0</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.3d Multiple stakeholders are used to evaluate support services.</td>
<td>5</td>
<td>38</td>
<td>28.1</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.3e Multiple stakeholders evaluate community services.</td>
<td>4</td>
<td>37</td>
<td>27.4</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.3f Multiple stakeholders are used to evaluate scholarship activities.</td>
<td>3</td>
<td>51</td>
<td>37.8</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.3g A process is in place to determine which educational support services are needed.</td>
<td>3</td>
<td>40</td>
<td>29.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td><strong>5.4 Research, Scholarship and Service</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.4a The school shares knowledge with the general community.</td>
<td>4,5</td>
<td>40</td>
<td>29.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.4b Scholarship activities contribute to achieving school objectives.</td>
<td>4</td>
<td>43</td>
<td>31.9</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.4c Community service activities are aligned with the school's goals.</td>
<td>4</td>
<td>37</td>
<td>27.4</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.4d The scholarship program has an improvement plan.</td>
<td>3</td>
<td>44</td>
<td>32.6</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>5.4e The school has a community service improvement plan.</td>
<td>4</td>
<td>34</td>
<td>25.2</td>
<td>1-5</td>
<td></td>
</tr>
</tbody>
</table>
Table 30 (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td>5.5 Enrollment Management</td>
<td></td>
</tr>
<tr>
<td>5.5a The school communicates its requirements to feeder schools.</td>
<td>5</td>
</tr>
<tr>
<td>5.5b The school communicates its requirements to families.</td>
<td>5</td>
</tr>
<tr>
<td>5.5c The school communicates its requirements to prospective students.</td>
<td>5</td>
</tr>
<tr>
<td>5.5d The school improves interactions with feeder schools.</td>
<td>5</td>
</tr>
<tr>
<td>5.5e The school improves interactions with families.</td>
<td>4</td>
</tr>
<tr>
<td>5.5f The school improves its interactions with prospective students.</td>
<td>5</td>
</tr>
<tr>
<td>5.5g Equity issues are addressed in school enrollment.</td>
<td>5</td>
</tr>
<tr>
<td>5.5h The school provides student orientations.</td>
<td>5</td>
</tr>
<tr>
<td>5.5i Student job placement services are offered.</td>
<td>5</td>
</tr>
<tr>
<td>5.5j The enrollment management system is evaluated.</td>
<td>5</td>
</tr>
<tr>
<td>5.6 Business Operations Management</td>
<td></td>
</tr>
<tr>
<td>5.6a The school has a process for identifying customers for each key process.</td>
<td>4</td>
</tr>
<tr>
<td>5.6b The school has a process to determine customer requirements.</td>
<td>4</td>
</tr>
<tr>
<td>5.6c The school has a process to establish goals.</td>
<td>4</td>
</tr>
<tr>
<td>5.6d School business operations are monitored.</td>
<td>5</td>
</tr>
<tr>
<td>5.6e The school has a process to utilize customer feedback.</td>
<td>3</td>
</tr>
<tr>
<td>5.6f School business operations are benchmarked.</td>
<td>4</td>
</tr>
<tr>
<td>5.6g School business operations are improved.</td>
<td>4</td>
</tr>
</tbody>
</table>

The construct of Educational and Business Process Management was composed of 41 items divided into six categories. Summary classifications of respondents' scores on the six individual categories (A = Education Design, B = Education Delivery, and C = Education Support, Services and Delivery, D = Research, Scholarship and Service, E = Enrollment Management, F = Business Operations Management) and overall Educational and Business Process Management construct total are provided in Table 31. Summated scores were categorized as very low to very high based on the information.
provided in Table 7. The modal response for Enrollment Management was very high. The modal response for Education Design, Education Delivery, Education Support, Service and Delivery, and Business Operations Management was high. The modal response for Research, Scholarship and Service was moderate. Furthermore, more than 81% of respondents rated the overall construct of Educational and Business Process Management as moderate to high in use. The responses for summary classification ranged from very low to very high.

Table 31

Use of Educational and Business Process Management Construct

<table>
<thead>
<tr>
<th>Educational and Business Process Management Components</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>Very Low</td>
<td>1</td>
<td>.8</td>
<td>5</td>
<td>4.1</td>
<td>3</td>
<td>2.4</td>
<td>8</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>1.6</td>
<td>7</td>
<td>5.7</td>
<td>3</td>
<td>2.4</td>
<td>17</td>
</tr>
<tr>
<td>Moderate</td>
<td>16</td>
<td>13.0</td>
<td>25</td>
<td>20.3</td>
<td>28</td>
<td>22.8</td>
<td>52</td>
</tr>
<tr>
<td>High</td>
<td>62</td>
<td>50.4</td>
<td>57</td>
<td>46.3</td>
<td>70</td>
<td>56.9</td>
<td>38</td>
</tr>
<tr>
<td>Very High</td>
<td>42</td>
<td>34.1</td>
<td>29</td>
<td>23.6</td>
<td>19</td>
<td>15.4</td>
<td>8</td>
</tr>
</tbody>
</table>

Note.
A= Education Design
B= Education Delivery
C= Education Support, Services, and Delivery
D= Research Scholarship and Service
E= Enrollment Management
F= Business Operations Management
School Performance Results

The School Performance Results construct was composed of 12 instrument items (6.1a-6.4b). The 12 items were divided into four categories: 6.1 Student Performance Results, 6.2 School Education Climate Improvement Results, 6.3 Scholarship and Service Results, and 6.4 School Business Performance Results. Table 32 presents information regarding the 12 School Performance Results items.

The respondents' modal rating for one item "6.1a Current student performance levels are identified" was very high. The modal rating of nine of the 12 School Performance Results items was high. The modal rating for two items "6.1d Student performance trends are compared with similar schools with similar populations," and "6.2b Trends in educational climate characteristics are identified," was moderate. Each of the 12 items had scores that ranged from 1 to 5.
Table 32

Use of School Performance Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
<th>mode</th>
<th>f</th>
<th>%</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6.1 Student Performance Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1a Current student performance levels are identified.</td>
<td></td>
<td>5</td>
<td>52</td>
<td>38.5</td>
<td>1-5</td>
</tr>
<tr>
<td>6.1b Trends of student performance are identified.</td>
<td></td>
<td>4</td>
<td>48</td>
<td>35.6</td>
<td>1-5</td>
</tr>
<tr>
<td>6.1c Current student performance levels are compared with similar schools with similar student populations.</td>
<td></td>
<td>4</td>
<td>39</td>
<td>28.9</td>
<td>1-5</td>
</tr>
<tr>
<td>6.1d Student performance trends are compared with similar schools with similar student populations.</td>
<td></td>
<td>3</td>
<td>37</td>
<td>27.4</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>6.2 School Education Climate Improvement Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2a Current educational climate characteristics are identified.</td>
<td></td>
<td>4</td>
<td>42</td>
<td>31.1</td>
<td>1-5</td>
</tr>
<tr>
<td>6.2b Trends in educational climate characteristics are identified.</td>
<td></td>
<td>3</td>
<td>38</td>
<td>28.1</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>6.3 Scholarship and Service Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.3a Current levels of the school's contribution to community education are identified.</td>
<td></td>
<td>4</td>
<td>46</td>
<td>34.1</td>
<td>1-5</td>
</tr>
<tr>
<td>6.3b Current levels of the school's contribution to community service are identified.</td>
<td></td>
<td>4</td>
<td>43</td>
<td>31.9</td>
<td>1-5</td>
</tr>
<tr>
<td>6.3c Trends of the school's contribution to community education are identified.</td>
<td></td>
<td>4</td>
<td>45</td>
<td>33.3</td>
<td>1-5</td>
</tr>
<tr>
<td>6.3d Trends in the school's contribution to community service are identified.</td>
<td></td>
<td>4</td>
<td>40</td>
<td>29.6</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>6.4 School Business Performance Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4a Current levels of school business operational performance are identified.</td>
<td></td>
<td>4</td>
<td>37</td>
<td>27.4</td>
<td>1-5</td>
</tr>
<tr>
<td>6.4b Trends in school business operational performance are identified.</td>
<td></td>
<td>4</td>
<td>36</td>
<td>26.7</td>
<td>1-5</td>
</tr>
</tbody>
</table>

The construct of School Performance Results was composed of 12 items divided into four categories. Summary classifications of respondents' scores on the four individual categories (A = Student Performance Results, B = School Education Climate Improvement Results, and C = Scholarship and Service
Results and D= School Business Performance Results) and overall School Performance Results construct total are provided in Table 33. Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for each of the four School Performance Results categories was high. Furthermore, 75% of respondents rated the overall construct of School Performance Results as high to very high in use for determining quality schools. The responses for summary classifications for each category ranged from very low to very high.

Table 33
Use of School Performance Results Construct

<table>
<thead>
<tr>
<th>School Performance Results Components</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
</tr>
<tr>
<td>Very Low</td>
<td>3</td>
<td>2.4</td>
<td>9</td>
<td>7.3</td>
<td>6</td>
</tr>
<tr>
<td>Low</td>
<td>6</td>
<td>4.9</td>
<td>6</td>
<td>4.9</td>
<td>6</td>
</tr>
<tr>
<td>Moderate</td>
<td>30</td>
<td>24.4</td>
<td>36</td>
<td>29.3</td>
<td>34</td>
</tr>
<tr>
<td>High</td>
<td>49</td>
<td>39.8</td>
<td>48</td>
<td>39.0</td>
<td>55</td>
</tr>
<tr>
<td>Very High</td>
<td>35</td>
<td>28.5</td>
<td>24</td>
<td>19.5</td>
<td>22</td>
</tr>
</tbody>
</table>

Note.
A= Student Performance Results
B= School Education Climate Improvement Results
C= Scholarship and Service Results
D= School Business Performance Results
Student Focus and Stakeholder Satisfaction

The Student Focus and Stakeholder Satisfaction construct was composed of 21 items (7.1a-7.6b). The 21 items were divided into six categories: 7.1 Student Needs and Expectations, 7.2 Future Student Needs and Expectations, 7.3 Stakeholder Relationship Management, 7.4 Student and Stakeholder Satisfaction, 7.5 Student and Stakeholder Satisfaction Results, 7.6 Student and Stakeholder Satisfaction Comparison. Information on the 21 Student Focus and Stakeholder Satisfaction items is presented in Table 34.

The respondents' modal rating for four of the Student Focus and Stakeholder Satisfaction items was very high. Modal ratings for seven of the Student Focus and Stakeholder Satisfaction items was high. Respondents' modal rating of 10 of the Student Focus and Stakeholder Satisfaction items was moderate. Each of the Student Focus and Stakeholder Satisfaction items had scores that ranged from 1 to 5.
Table 34

Use of Student Focus and Stakeholder Satisfaction

<table>
<thead>
<tr>
<th>Category</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mode</td>
</tr>
<tr>
<td><strong>7.1 Student Needs and Expectations</strong></td>
<td></td>
</tr>
<tr>
<td>7.1a The special needs of students are assessed.</td>
<td>5</td>
</tr>
<tr>
<td>7.1b General student expectations are assessed.</td>
<td>4</td>
</tr>
<tr>
<td>7.1c Student utilization of class offerings is tracked.</td>
<td>5</td>
</tr>
<tr>
<td>7.1d Student utilization of facilities is tracked.</td>
<td>4</td>
</tr>
<tr>
<td>7.1e Student utilization of special services is monitored.</td>
<td>5</td>
</tr>
<tr>
<td>7.1f Process for determining student needs are improved.</td>
<td>5</td>
</tr>
<tr>
<td><strong>7.2 Future Student Needs and Expectations</strong></td>
<td></td>
</tr>
<tr>
<td>7.2a The changing requirements of future students are anticipated.</td>
<td>4</td>
</tr>
<tr>
<td>7.2b Anticipated student requirements are used for planning.</td>
<td>4</td>
</tr>
<tr>
<td>7.2c The school improves its processes for determining emerging student needs.</td>
<td>4</td>
</tr>
<tr>
<td><strong>7.3 Stakeholder Relationship Management</strong></td>
<td></td>
</tr>
<tr>
<td>7.3a The school has identified mutual basis for relationships with key stakeholders.</td>
<td>3</td>
</tr>
<tr>
<td>7.3b The school improves relationships with stakeholders.</td>
<td>4</td>
</tr>
<tr>
<td>7.3c The school evaluates relationships with key stakeholders.</td>
<td>3</td>
</tr>
<tr>
<td><strong>7.4 Student and Stakeholder Satisfaction</strong></td>
<td></td>
</tr>
<tr>
<td>7.4a Current student satisfaction is evaluated.</td>
<td>3</td>
</tr>
<tr>
<td>7.4b Past student satisfaction is evaluated.</td>
<td>3</td>
</tr>
<tr>
<td>7.4c Key stakeholder satisfaction is evaluated.</td>
<td>3</td>
</tr>
<tr>
<td>7.4d Student satisfaction determination processes are evaluated.</td>
<td>3</td>
</tr>
<tr>
<td>7.4e Stakeholder satisfaction determination process are evaluated.</td>
<td>3</td>
</tr>
<tr>
<td><strong>7.5 Student and Stakeholder Satisfaction Results</strong></td>
<td></td>
</tr>
<tr>
<td>7.5a The school compares current and past levels of student satisfaction.</td>
<td>3</td>
</tr>
<tr>
<td>7.5b The school compares current and past levels of stakeholder satisfaction.</td>
<td>4</td>
</tr>
<tr>
<td><strong>7.6 Student and Stakeholder Satisfaction Comparison</strong></td>
<td></td>
</tr>
<tr>
<td>7.6a Student satisfaction levels are compared with student satisfaction in comparable schools.</td>
<td>3</td>
</tr>
<tr>
<td>7.6b Stakeholder satisfaction levels are compared with stakeholder satisfaction in comparable schools.</td>
<td>3</td>
</tr>
</tbody>
</table>
The construct of Student Focus and Stakeholder Satisfaction was composed of 21 items divided into six categories. Summary classifications of respondents' scores on the six individual categories (A = Student Needs and Expectations, B = Future Student Needs and Expectations, C = Stakeholder Relationship Management, D = Student and Stakeholder Satisfaction Determination, E = Student and Stakeholder Satisfaction Comparison, and F = Student and Stakeholder Satisfaction Comparison) and overall Student Focus and Stakeholder Satisfaction construct total are provided in Table 35.

Summated scores were categorized as very low to very high based on the information provided in Table 7. The modal response for three categories Student Needs and Expectations, Future Student Needs and Expectations, and Stakeholder Relationship Management was high. The modal response for two categories, Student and Stakeholder Satisfaction and Student and Stakeholder Satisfaction Comparison was moderate. Student and Stakeholder Satisfaction Results had a bimodal distribution of moderate and high. Furthermore, more than 81% of respondents rated the overall construct of Student Focus and Stakeholder Satisfaction as moderate to high in use for determining quality schools. The response for summary classifications for each category ranged from very low to very high.
### Table 35

**Use of Student Focus and Stakeholder Satisfaction Construct**

<table>
<thead>
<tr>
<th>Response</th>
<th>A</th>
<th></th>
<th>B</th>
<th></th>
<th>C</th>
<th></th>
<th>D</th>
<th></th>
<th>E</th>
<th></th>
<th>F</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>0</td>
<td>0.0</td>
<td>4</td>
<td>3.3</td>
<td>5</td>
<td>4.1</td>
<td>4</td>
<td>3.3</td>
<td>13</td>
<td>10.6</td>
<td>18</td>
<td>14.6</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>5</td>
<td>4.1</td>
<td>3</td>
<td>2.4</td>
<td>3</td>
<td>2.4</td>
<td>16</td>
<td>13.1</td>
<td>25</td>
<td>20.3</td>
<td>32</td>
<td>26.0</td>
<td>11</td>
</tr>
<tr>
<td>Moderate</td>
<td>20</td>
<td>16.3</td>
<td>27</td>
<td>22.0</td>
<td>43</td>
<td>35.0</td>
<td>52</td>
<td>42.3</td>
<td>33</td>
<td>26.8</td>
<td>39</td>
<td>31.7</td>
<td>42</td>
</tr>
<tr>
<td>High</td>
<td>56</td>
<td>45.5</td>
<td>53</td>
<td>43.1</td>
<td>45</td>
<td>36.6</td>
<td>34</td>
<td>27.6</td>
<td>33</td>
<td>26.8</td>
<td>15</td>
<td>12.2</td>
<td>55</td>
</tr>
<tr>
<td>Very High</td>
<td>42</td>
<td>34.1</td>
<td>36</td>
<td>29.3</td>
<td>27</td>
<td>22.0</td>
<td>17</td>
<td>13.8</td>
<td>19</td>
<td>15.4</td>
<td>19</td>
<td>15.4</td>
<td>15</td>
</tr>
</tbody>
</table>

**Note.**

A = Student Needs and Expectations
B = Future Student Needs and Expectations
C = Stakeholder Relationship Management
D = Student and Stakeholder Satisfaction Determination
E = Student and Stakeholder Satisfaction Results
F = Student and Stakeholder Satisfaction Comparison
Objective 3: Explain the proportion of variance in the level of importance of TQM by selected demographic characteristics.

Multiple regression was used to determine the proportion of variance in the dependent variable (Sum of Importance) explained by the independent variables (gender, position, age, education level, years as an administrator, years as a teacher, number of teachers, number of programs, number of high school and adult students). As mentioned in Chapter 4, multiple regression was only used to describe the respondents rather than to determine if the findings could be generalized to a broader group. Sum of Importance was generated as the sum of each of the 147 items for the seven constructs of importance. Summary data related to the independent and dependent variables is presented in Table 36.

Previous information regarding the relationship between the selected independent and dependent variables was not available. Based on the exploratory nature of the research, simultaneous and stepwise entry were used to enter the independent variables in the equation (Norusis, 1993b; Warmbrod, 1994). Simultaneous and stepwise entry are most appropriate when there is no logical or theoretical basis for determining the order of entering the variables. Simultaneous entry of the variables explains the proportion of variance in the dependent variable that can be explained when all the independent variables are included in the multiple regression equation. The stepwise technique selects at
each step the variable which explains the most variance in the dependent variable and ceases to add independent variables when the addition of a variable does not contribute a statistically significant explanation of variance (Norusis, 1993b; Warmbrod, 1994).
Table 36

Summary Data: Regression of Importance of TQM on Administrator and School Characteristics (N = 123)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$X_1$</th>
<th>$X_2$</th>
<th>$X_3$</th>
<th>$X_4$</th>
<th>$X_5$</th>
<th>$X_6$</th>
<th>$X_7$</th>
<th>$X_8$</th>
<th>$X_9$</th>
<th>$X_{10}$</th>
<th>$Y$</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU2 ($X_1$)</td>
<td>1.00</td>
<td>-0.05</td>
<td>0.09</td>
<td>0.04</td>
<td>0.08</td>
<td>0.16</td>
<td>0.07</td>
<td>0.14</td>
<td>-0.09</td>
<td>-0.13</td>
<td>0.06</td>
<td>0.15*</td>
<td>0.35</td>
</tr>
<tr>
<td>GENDER ($X_2$)</td>
<td>1.00</td>
<td>0.10</td>
<td>0.05</td>
<td>0.07</td>
<td>0.02</td>
<td>0.07</td>
<td>0.26</td>
<td>-0.22</td>
<td>-0.05</td>
<td>-0.04</td>
<td>0.03</td>
<td>0.83*</td>
<td>0.38</td>
</tr>
<tr>
<td>PORSUP ($X_3$)</td>
<td>1.00</td>
<td>0.19</td>
<td>0.15</td>
<td>0.11</td>
<td>0.11</td>
<td>0.33</td>
<td>-0.20</td>
<td>-0.08</td>
<td>-0.06</td>
<td>0.34*</td>
<td>0.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE ($X_4$)</td>
<td>1.00</td>
<td>0.07</td>
<td>0.04</td>
<td>0.21</td>
<td>0.53</td>
<td>0.19</td>
<td>0.11</td>
<td>0.02</td>
<td>49.01</td>
<td>6.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMADU ($X_5$)</td>
<td>1.00</td>
<td>0.13</td>
<td>0.13</td>
<td>0.16</td>
<td>-0.10</td>
<td>-0.05</td>
<td>0.19</td>
<td>1339.09</td>
<td>1191.87</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>NUMHSST ($X_6$)</td>
<td>1.00</td>
<td>0.64</td>
<td>0.15</td>
<td>-0.06</td>
<td>0.39</td>
<td>-0.01</td>
<td>703.23</td>
<td>350.22</td>
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<td></td>
</tr>
<tr>
<td>NUMPRO ($X_7$)</td>
<td>1.00</td>
<td>0.18</td>
<td>-0.47</td>
<td>0.04</td>
<td>0.02</td>
<td>16.42</td>
<td>6.97</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>YSA ($X_8$)</td>
<td>1.00</td>
<td>1.00</td>
<td>-0.02</td>
<td>-0.07</td>
<td>8.17</td>
<td>5.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YCT ($X_9$)</td>
<td>1.00</td>
<td>1.00</td>
<td>0.03</td>
<td>64.93</td>
<td>35.38</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMTEA ($X_{10}$)</td>
<td>1.00</td>
<td>1.00</td>
<td>644.57</td>
<td>55.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note.
* = dichotomous variable
EDU2 = Education
PORSUP = Position
NUMADU = Number of adult students
NUMHSST = Number of high school students
NUMPRO = Number of programs
YSA = Years as an administrator
YCT = Years as a classroom teacher
NUMTEA = Number of teachers
IMPORT = Perceived importance of TQM
Simultaneous Entry

Testing for multicollinearity was accomplished by evaluating the correlations between the independent variables. Table 36 details the correlation between the independent variables and between the independent variables and the dependent variable. Warmbrod (1994) indicates that correlations in excess of .80 may cause multicollinearity problems. All correlations are below .60 and therefore considered acceptable.

Table 37 details the relationship of the independent variables and the dependent variable by describing the linear regression model. The coefficient of determination was used to describe the proportion of variance explained and the goodness of fit of the model. Ten percent of the variance in the Sum of Importance was explained by the linear model of the regression equation (Coefficient of Determination; \( R^2 = .10 \)). A model which explained 10% of the variance was considered weak.

As exploratory research, the intention was to describe the characteristics of the population, and explain the proportion of variance in the level of importance that could be explained by these variables. The fact that this research project involved the participation of the entire population makes inferences to the same population unnecessary. Therefore, hypothesis testing of the proportion of variance in the population was determined to be inappropriate for this research.
Table 37

Regression of Importance of TQM on Administrator and School Characteristics
(N=123) (Simultaneous Entry)

<table>
<thead>
<tr>
<th>Variables</th>
<th>b</th>
<th>SE</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrator Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.42</td>
<td>1.21</td>
<td>.05</td>
<td>.35</td>
<td>.73</td>
</tr>
<tr>
<td>Education</td>
<td>6.75</td>
<td>14.77</td>
<td>.04</td>
<td>.46</td>
<td>.65</td>
</tr>
<tr>
<td>Gender</td>
<td>1.63</td>
<td>13.90</td>
<td>.01</td>
<td>.12</td>
<td>.91</td>
</tr>
<tr>
<td>Position</td>
<td>.00</td>
<td>11.27</td>
<td>.00</td>
<td>.00</td>
<td>.99</td>
</tr>
<tr>
<td>Years as a Teacher</td>
<td>-1.27</td>
<td>1.39</td>
<td>-.12</td>
<td>-.92</td>
<td>.36</td>
</tr>
<tr>
<td>Years as an Administrator</td>
<td>-1.00</td>
<td>1.20</td>
<td>-.13</td>
<td>-.83</td>
<td>.41</td>
</tr>
<tr>
<td><strong>School Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Adult Students</td>
<td>.01</td>
<td>.00</td>
<td>.18</td>
<td>1.93</td>
<td>.06</td>
</tr>
<tr>
<td>Number High School Stud.</td>
<td>-.03</td>
<td>.02</td>
<td>-.17</td>
<td>-1.48</td>
<td>.14</td>
</tr>
<tr>
<td>Number of Programs</td>
<td>1.52</td>
<td>.60</td>
<td>.30</td>
<td>2.55</td>
<td>.01</td>
</tr>
<tr>
<td>Number of Teachers</td>
<td>-.09</td>
<td>.17</td>
<td>-.06</td>
<td>-.53</td>
<td>.60</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>618.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R² = .10
Multiple R = .32

Standardized Partial Regression Coefficients (β in Table 37) were interpreted as the expected change in Sum of Use with a one unit change in the respective independent variable when the effects of the other independent variables were held constant. Number of programs was determined to be the most important independent variable (β = .30), and contributed to the estimation of the Sum of Importance in a additive direction (positive sign). Analysis of the significance of the T scores determined that Number of programs was statistically significant in
the equation \((p < .05)\). Table 37 also details the intercept and the partial
coefficient for all the variables in the simultaneous equation.

Testing the assumptions of linear regression was necessary to assure the
appropriateness of the linear regression analysis. Specification errors were
addressed in two ways. Scatter plots of each independent variable against the
dependent variable of Sum of Importance were examined. This examination
suggested a linear relationship between the independent variables and Sum of
Importance. Examination of the Scatter plots of the residuals determined that
the residuals were normally distributed with a mean of zero, had a constant
variance (homoscedasticity), and that the residuals were not correlated with any
independent variable. The residuals were virtually independent (no
autocorrelation). Although there was a small positive correlation between the
residuals, the magnitude of the error of each observation associated with error of
another observation was insignificant \(\text{(Durbin Watson} = 2.24 \text{ compared to} 2.0 \text{ as}
perfect independence)\). The assumptions of the inclusion of all relevant
variables and elimination of all irrelevant variables was addressed using the
literature review.

The linear regression equation derived from the information in Table 37 is
detailed in Figure 3. The equation indicated that the predicted Sum of
Importance could be computed by adding the constant value to the multiple of
each independent variable score by its respective coefficient.
\[
\hat{Y} = 618.72 + .42 (\text{Age}) + 6.75 (\text{Education}) + 1.63(\text{Gender}) + .01 (\text{Number of Adults}) + (-.03)(\text{Number of High School Students}) + 1.52 (\text{Number of Programs}) + (-.09) (\text{Number of Teachers}) + 0(\text{Position}) + (-1.27) (\text{Years as a Teacher}) + (-1.00) \text{ Years as an Administrator}
\]

Figure 3. Linear Regression Model of Importance (Simultaneous Entry)

**Stepwise Entry**

Table 38 details the relationship of the independent variables and the dependent variables by describing the linear regression model. The coefficient of determination was used to describe the proportion of variance explained and the goodness of fit of the model. Four percent of the variance in the Sum of Importance was explained by the linear model of the regression equation (Coefficient of Determination; \( R^2 = .04 \)). A model which explained 4% of the variance was considered very weak.

As exploratory research, the intention was to describe the characteristics of the population that predicted the proportion of variance in the Sum of Importance that could be explained by the significant (\( p < .05 \)) independent variables. The fact that this research project involved the participation of the entire population, makes inferences to the same population unnecessary. Therefore, hypothesis testing of the proportion of variance in the population was determined to be inappropriate for this research.
Testing the assumptions of linear regression was necessary to assure the appropriateness of the linear regression analysis. Specification errors were addressed in two ways. Scatter plots of each independent variable against the dependent variable of Sum of Importance were examined. This examination suggested a linear relationship between the independent variables and Sum of Importance. Examination of the Scatter plots of the residuals determined that the residuals were normally distributed with a mean of zero, had a constant variance (homoscedasticity), and that the residuals were not correlated with any independent variable. The residuals were virtually independent (no autocorrelation). Although there was a small positive correlation between the residuals, the magnitude of the error of each observation associated with error of another observation was insignificant (Durbin Watson = 2.21 compared to 2.0 as perfect independence). The assumptions of the inclusion of all relevant variables and elimination of all irrelevant variables was addressed using the literature review.
Figure 4 identifies the linear regression equation derived from Table 39. The equation indicated that the predicted Sum of Importance could be computed by adding the constant value to the sum of 1.02 times the number of programs in the JVS.

\[ \hat{Y} = 615.92 + 1.02 \text{(Number of Programs)} \]

Figure 4. Linear Regression Model of Importance (Stepwise Entry)

Objective 4: Explain the proportion of variance in the level of use of TQM by selected demographic characteristics and perceived importance of TQM.

Multiple regression was used to determine the proportion of variance in the dependent variable (Sum of Use) explained by the independent variables of gender, position, age, education level, years as an administrator, years as a teacher, number of teachers and programs, number of students (high school and adult), and perceived importance of TQM. Sum of Use was generated as the sum of each of the 147 items for the seven constructs of use. As mentioned in Chapter 4, multiple regression was used to describe the respondents rather than to see if the findings could be generalized to a broader group.
Previous information regarding the relationship between the selected independent and dependent variables was not available. Consideration of three methods of entry was made. Hierarchical entry technique was not used because the research lacked a theoretical or logical model for determining the precise order of entry. Based on the exploratory nature of the research, simultaneous and stepwise entry were used to enter the independent variables in the equation (Norusis, 1993b; Warmbrod, 1994). Simultaneous and stepwise entry are most appropriate when there is no logical or theoretical basis for determining the order of entering the variables. Simultaneous entry of the variables explains the proportion of variance in the dependent variable explained when all the independent variables are included in the multiple regression equation. The stepwise technique selects at each step the variable which explains the most variance in the dependent variable and ceases to add independent variables when the addition of a variable does not contribute a statistically significant explanation of variance (Norusis, 1993b; Warmbrod, 1994).

**Simultaneous Entry**

Testing for multicollinearity was accomplished by evaluating the correlations between the independent variables. Table 39 details the correlation between the independent variables and between the independent variables and the dependent variable. Warmbrod (1994) indicates that correlations in excess of .80 cause multicollinearity problems. All correlations are below .75 and therefore considered acceptable.
### Table 39

**Summary Data: Regression of Use of TQM on Administrator and School Characteristics, and Perceived Importance of TQM (N = 123)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(X_1)</th>
<th>(X_2)</th>
<th>(X_3)</th>
<th>(X_4)</th>
<th>(X_5)</th>
<th>(X_6)</th>
<th>(X_7)</th>
<th>(X_8)</th>
<th>(X_9)</th>
<th>(X_{10})</th>
<th>(X_{11})</th>
<th>(Y)</th>
<th>(M)</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU2 ((X_a))</td>
<td>1.00</td>
<td>-.05</td>
<td>.09</td>
<td>.04</td>
<td>.08</td>
<td>.16</td>
<td>.07</td>
<td>.14</td>
<td>-.09</td>
<td>-.13</td>
<td>.06</td>
<td>.13</td>
<td>.15*</td>
<td>.35</td>
</tr>
<tr>
<td>GENDER ((X_j))</td>
<td>1.00</td>
<td>.10</td>
<td>.05</td>
<td>.07</td>
<td>.02</td>
<td>.07</td>
<td>.26</td>
<td>-.22</td>
<td>-.05</td>
<td>.04</td>
<td>.02</td>
<td>.83*</td>
<td>.38</td>
<td>.48</td>
</tr>
<tr>
<td>PORSUP ((X_3))</td>
<td>1.00</td>
<td>.19</td>
<td>.15</td>
<td>.11</td>
<td>.11</td>
<td>.33</td>
<td>-.20</td>
<td>-.08</td>
<td>.06</td>
<td>.23</td>
<td>.34*</td>
<td>.48</td>
<td>.61</td>
<td>.13</td>
</tr>
<tr>
<td>AGE ((X_a))</td>
<td>1.00</td>
<td>.07</td>
<td>.04</td>
<td>.21</td>
<td>.53</td>
<td>.19</td>
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<td>.09</td>
<td>49.01</td>
<td>6.13</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
</tr>
<tr>
<td>NUMADU ((X_j))</td>
<td>1.00</td>
<td>.13</td>
<td>.13</td>
<td>.16</td>
<td>-.10</td>
<td>.05</td>
<td>.19</td>
<td>.17</td>
<td>1339.09</td>
<td>1191.87</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
<td></td>
</tr>
<tr>
<td>NUMHSST ((X_j))</td>
<td>1.00</td>
<td>.54</td>
<td>.15</td>
<td>-.06</td>
<td>.39</td>
<td>-.01</td>
<td>.06</td>
<td>703.23</td>
<td>350.22</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMPRO ((X_j))</td>
<td>1.00</td>
<td>.18</td>
<td>-.03</td>
<td>.48</td>
<td>.20</td>
<td>.15</td>
<td>28.15</td>
<td>10.91</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YSA ((X_a))</td>
<td>1.00</td>
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<td>.04</td>
<td>.02</td>
<td>.16</td>
<td>16.42</td>
<td>6.97</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>YCT ((X_j))</td>
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<td>-.02</td>
<td>-.07</td>
<td>-.08</td>
<td>8.17</td>
<td>5.07</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMTEA ((X_j))</td>
<td>1.00</td>
<td>.03</td>
<td>.00</td>
<td>64.93</td>
<td>35.38</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>IMPORT ((X_j))</td>
<td>1.00</td>
<td>.57</td>
<td>644.57</td>
<td>55.51</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
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</tr>
<tr>
<td>USETOT ((Y))</td>
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<td>77.07</td>
<td>.83</td>
<td>.38</td>
<td>.48</td>
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</tr>
</tbody>
</table>

*Note.*

\* = dichotomous variable  
EDU2 = Education  
PORSUP = Position  
NUMADU = Number of adult students  
NUMHSST = Number of high school students  
NUMPRO = Number of programs  
YSA = Years as an administrator  
YCT = Years as a classroom teacher  
NUMTEA = Number of teachers  
IMPORT = Perceived Importance of TQM  
USETOT = Perceived use of TQM
Table 40 details the relationship of the independent variables and the dependent variables by describing the linear regression model. The coefficient of determination was used to describe the proportion of variance explained and the goodness of fit of the model. Thirty eight percent of the variance in the Sum of Use was explained by the linear model of the regression equation (Coefficient of Determination; $R^2 = .38$). A model which explained 38% percent of the variance was considered moderate, although relevant for exploratory research.

As exploratory research, the intention was to describe the characteristics of the population, and explain the proportion of variance in the level of Use that could be explained by these variables. The fact that this research project involved the participation of the entire population makes inferences to the same population unnecessary. Therefore, hypothesis testing of the proportion of variance in the population was determined to be inappropriate for this research.

Standardized Partial Regression Coefficients ($\beta$ in Table 40) were interpreted as the expected change in Sum of Use with a one unit change in the respective independent variable when the effects of other independent variables are held constant. Perceived Importance of TQM was determined to be the relatively most important independent variable ($\beta = .57$), and contributed to the estimation of the Sum of Use in an additive direction (positive sign). Analysis of the significance of the T scores determined that two variables, Perceived Importance of TQM and Position were statistically significant in the simultaneous
equation \( p < .05 \). Table 40 also details the intercept and the partial coefficient
for all the variables in the simultaneous equation.

Table 40

Regression of Use of TQM on Administrator and School Characteristics and
Perceived Importance of TQM \( (N=123) \) (Simultaneous Entry)

<table>
<thead>
<tr>
<th>Variables</th>
<th>( b )</th>
<th>SE ( b )</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator Characteristics</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.56</td>
<td>1.40</td>
<td>-.04</td>
<td>-.40</td>
<td>.70</td>
</tr>
<tr>
<td>Education</td>
<td>12.76</td>
<td>17.10</td>
<td>.06</td>
<td>.75</td>
<td>.46</td>
</tr>
<tr>
<td>Gender</td>
<td>-6.25</td>
<td>16.08</td>
<td>-.03</td>
<td>-.39</td>
<td>.70</td>
</tr>
<tr>
<td>Position</td>
<td>27.70</td>
<td>13.04</td>
<td>.17</td>
<td>2.12</td>
<td>.04</td>
</tr>
<tr>
<td>Years as a Teacher</td>
<td>1.12</td>
<td>1.61</td>
<td>.07</td>
<td>.69</td>
<td>.49</td>
</tr>
<tr>
<td>Years as an Administrator</td>
<td>1.64</td>
<td>1.40</td>
<td>.15</td>
<td>1.18</td>
<td>.24</td>
</tr>
<tr>
<td>School Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Adult Students</td>
<td>.00</td>
<td>.01</td>
<td>.01</td>
<td>.19</td>
<td>.85</td>
</tr>
<tr>
<td>Number High School Stud.</td>
<td>.01</td>
<td>.02</td>
<td>.04</td>
<td>.46</td>
<td>.64</td>
</tr>
<tr>
<td>Number of Programs</td>
<td>-.21</td>
<td>.71</td>
<td>-.03</td>
<td>-.29</td>
<td>.77</td>
</tr>
<tr>
<td>Number of Teachers</td>
<td>.01</td>
<td>.20</td>
<td>.00</td>
<td>.05</td>
<td>.96</td>
</tr>
<tr>
<td>Perceived Importance of TQM</td>
<td>.78</td>
<td>.11</td>
<td>.57</td>
<td>7.18</td>
<td>.00</td>
</tr>
<tr>
<td>Constant</td>
<td>39.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( R^2 = .38 \)

Multiple R = .62

Testing the assumptions of linear regression was necessary to assure the
appropriateness of the linear regression analysis. Specification errors were
addressed in two ways. Scatter plots of each independent variable against the
dependent variable of Sum of Importance were examined. This examination
suggested a linear relationship between the independent variables and Sum of Use. Examination of the scatter plots of the residuals determined that the residuals were normally distributed with a mean of zero, had a constant variance (homoscedasticity), and that the residuals were not correlated with any independent variable. The residuals were virtually independent (no autocorrelation). Although there was a small positive correlation between the residuals, the magnitude of the error of each observation associated with the error of another observation was insignificant (Durbin Watson = 2.04 compared to 2.0 as perfect independence). The assumptions of the inclusion of all relevant variables and elimination of all irrelevant variables was addressed using the literature review.

Figure 5 identifies the linear regression equation derived from the information provided in Table 40. This equation indicated that the predicted Sum of Use could be computed by adding the constant value to the sum of each variable multiplied by its respective coefficient.

\[
\hat{Y} = 618.72 + .42 \text{(Age)} + 6.75 \text{(Education)} + 1.63 \text{(Gender)} + .01 \text{(Number of Adults)} + (-.03) \text{(Number of High School Students)} + 1.52 \text{(Number of Programs)} + (-.09) \text{(Number of Teachers)} + 0 \text{(position)} + (-1.27) \text{(Years as a Teacher)} + (-1.00) \text{Years as an Administrator}
\]

**Figure 5.** Linear Regression Model of Use (Simultaneous Entry)
**Stepwise Entry**

The stepwise entry provided the most explanation of the variance with a statistically significant model. Stepwise entry is most appropriate when there exists no logical or theoretical basis for determining the order of entering the variables. The stepwise technique selects at each step the variable which explains the most variance in the dependent variable. The stepwise method ceases to add independent variables when the addition of a variable does not contribute a statistically significant explanation of variance (Norusis, 1993b; Warmbrod, 1994).

Table 41 details the relationship of the independent variables and the dependent variables by describing the linear regression model. The coefficient of determination was used to describe the proportion of variance explained and the goodness of fit of the model. Thirty six percent of the variance in the Sum of Use was explained by the linear model of the regression equation (Coefficient of Determination; \( R^2 = .36 \)). A model which explained 36% of the variance was considered moderate.
Table 41

 Regression of Use of TQM on Administrator and School Characteristics, and Perceived Importance of TQM (N=123) (Stepwise Entry)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$R^2$ change</th>
<th>$R^2$</th>
<th>$b$</th>
<th>tolerance</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Importance</td>
<td>.32</td>
<td>.32</td>
<td>.78</td>
<td>1.00</td>
<td>.56</td>
<td>7.70</td>
<td>.00</td>
</tr>
<tr>
<td>Position (Constant)</td>
<td>.36</td>
<td>.04</td>
<td>32.23</td>
<td>1.00</td>
<td>.20</td>
<td>2.74</td>
<td>.01</td>
</tr>
</tbody>
</table>

$R^2 = .36$
Multiple $R = .60$

As exploratory research, the intention was to describe the characteristics of the population that predicted the proportion of variance in Sum of Use that could be explained by the significant ($p<.05$), independent variables. The fact that this research project involved the participation of the entire population, makes inferences to the same population unnecessary. Therefore, hypothesis testing of the proportion of variance in the population was determined to be inappropriate for this research.

Standardized Partial Regression Coefficients ($\beta$ in Table 43) were interpreted as the expected change in Sum of Use with a one unit change in the respective independent variable when the effects of the other independent variables were held constant. Sum of Importance was determined to be the most important independent variable ($\beta = .32$), and contributed to the estimation of the Sum of Use in an additive direction (positive sign). Analysis of the significance
of the T scores determined that both of the variables were statistically significant in the stepwise equation (p < .05).

Testing the assumptions of linear regression was necessary to assure the appropriateness of the linear regression analysis. Specification errors were addressed in two ways. Scatter plots of each independent variable against the dependent variable of Sum of Use were examined. This examination suggested a linear relationship between the independent variables and Sum of Use. Examination of the Scatter plots of the residuals determines that the residuals were normally distributed with a mean of zero, had a constant variance (homoscedasticity), and that the residuals were not correlated with any independent variable. The residuals were virtually independent (no autocorrelation). Although there was a small positive correlation between the residuals, the magnitude of the error of each observation as associated with error of another observation was insignificant (Durbin Watson = 2.03 compared to 2.0 as perfect independence). The assumptions of the inclusion of all relevant variables and elimination of all irrelevant variables was addressed using the literature review.

The linear regression equation is detailed in Figure 6. The intercept and the partial coefficients (b) for the variable in the equation are provided from Table 41. This equation indicates that the predicted Sum of Use could be computed by adding the constant value to .78 times the score of Sum of
Importance and adding 32.23 points to the score if the individual was a superintendent (adding 0 if the individual was a principal or director).

\[
\hat{Y} = 52.01 + .78 \text{ (Sum of Importance)} + 32.23 \text{ (Position)}
\]

Figure 6. Linear Regression Model of Use (Stepwise Entry)
CHAPTER V
SUMMARY/ CONCLUSIONS/ RECOMMENDATIONS

This chapter summarizes the background, purpose and objectives, methodology, and major findings of the study. The conclusions and recommendations are also indicated.

Background

Ohio JVSs, governed and administrated by school boards, superintendents, and directors are charged with providing vocational skill training reflective of current and future workforce environments. These administrators have the ability to create a positive educational environment supportive of TQM. In creating this environment, administrators have been encouraged to use TQM in managing their organizations. Administrators' perceptions of the importance and use of TQM represents a measure of its potential adoption (Hollander, 1990). Prior to this research the perceptions of Ohio JVSs administrators regarding the importance and use of TQM was unknown.
Purpose and Objectives

The purpose of the study was to determine the perceptions of Ohio JVS administrators toward the importance and use of TQM. The specific objectives of the study were to:

1. Identify the perceptions of Ohio JVS administrators regarding the importance of TQM.
2. Identify the perceptions of Ohio JVS administrators regarding the use of TQM.
3. Explain the proportion of variance in the level of importance of TQM by selected demographic characteristics (i.e., gender, age, education level, position, years as an administrator, years as a teacher, number of teachers and programs, and high school and adult students).
4. Explain the proportion of variance in the level of use of TQM by selected demographic characteristics (i.e., gender, age, education level, position, years as an administrator, years as a teacher, number of teachers and programs, and high school and adults students) and the Sum of Importance.

Methodology

This research was classified as exploratory, ex post facto research since it involved investigating the use of naturally occurring treatment without manipulations of the independent variable by the researcher (Campbell &
Stanley, 1963; Miller, 1994). This study was exploratory since no other studies were found that describe JVS administrators' perceptions regarding TQM.

The questionnaire was based on the Malcolm Baldrige National Quality Award Education Pilot Criteria. The survey consisted of 147 two-part questions and nine demographic questions for a total of 303 survey items.

The survey instrument was developed and tested to ensure validity and reliability. The content and face validity of the instrument was evaluated by a panel of experts. Measures for establishing the reliability of the instrument consisted of two methods (i.e., test-retest and internal consistency). The instrument was pilot tested using a random sample of 30 secondary education skill center administrators in Michigan. Pilot testing the instrument indicated the internal consistency of each scale and subscale. The Cronbach's Alpha ranged between .82 and .96. The test-retest coefficients for determining reliability ranged from .49 to .93.

Survey instruments were mailed to the population of 143 Ohio JVS superintendents and principals. A response rate of 86% was achieved after three mailings and several follow-up telephone calls.

The variables in the study were divided into dependent (i.e., Perceived Use and Perceived Importance) and independent variables (i.e., school and administrator characteristics). The dependent variables consisted of the total score for importance and the total score for use. The independent variables consisted of personal demographic characteristics of the superintendent or
director/principal (i.e., age, gender, education level, position, years as a classroom teacher, years as an administrator) and the school characteristics (i.e., number of high school students, number of adults, number of teachers and number of programs). To assist in explaining the variance in the total Use score, the total score of Importance was used as an independent variable according to Ajzen's Theory of Planned Behavior.

The survey data were entered into SPSS Version 6.1.3 on a personal computer for data analysis. Descriptive statistics were calculated, including central tendency, dispersion and correlation statistics. Additionally, multiple regression was used to determine the variance in the dependent variable that is explained by the independent variables. Simultaneous and stepwise methods of entry for multiple regression were used as recommended by Warmbrod (1994) for exploratory studies.

**Major Findings**

Objective 1: Identify the perceptions of Ohio JVS administrators regarding the importance of TQM.

The administrators' rated three of the seven TQM constructs as high or very high in importance. These constructs included: Leadership, Personnel Development and Management, and Educational and Business Process Management. All three of these constructs were rated high or very high in importance by more than 90% of the respondents.
The individual Leadership items: “Senior administrators reinforce high expectations throughout the school,” “Senior administrators maintain a climate conducive to teaching,” “The school promotes legal conduct in its operations”, and “The school promotes ethical conduct in its operations”, were rated very high in importance by more than 70% of the administrators. The individual Personnel Development and Management item: “The school maintains a healthy and safe work environment” was rated high to very high in importance by more than 90% of the administrators. The four Educational and Business Process Management items: “Educational programs address student needs”, “The school communicates its requirements to feeder schools”, “The school communicates its requirements to prospective students”, and “The school provides student orientations” were rated high to very high in importance by more than 90% of the administrators.

Objective 2: Identify the perceptions of Ohio JVS administrators regarding the use of TQM.

The Leadership construct items: “The school promotes legal conduct in its operations” and “The school promotes ethical conduct in its operations” were rated very high in use by more than 60% of the administrators. The Strategic and Operational Planning construct was rated relatively low with 26% of the administrators rating the item as high in use. The individual Personnel Development and Management item: “Personnel responsibilities are aligned with
the school's compensation system" was rated relatively low with 24% of the respondents rating the item as high in use.

Seven of the Educational and Business Process Management items: "Educational programs address student needs", "The educational design focuses on active learning", "Educational support services are available", "Educational support services are designed to meet student needs", "The school communicates it requirements to feeder schools", "The school provides student orientations" and "Student job placement services are offered" were rated very high in use by more than 40% of the respondents. The three Educational and Business Process Management items "The school has a community service improvement plan", "The school has a process to utilize customer feedback" and "School business operations are benchmarked" were rated high in use by a maximum of 27% of the respondents.

The Student Focus and Stakeholder Satisfaction construct items: "The special needs of students are assessed" was rated very high in use by 76% of the respondents. The item: "The school compares current and past levels of student satisfaction" was rated as moderate in use by 21.8% of the respondents. The item: "The school compares current and past levels of stakeholder satisfaction" was rated as high in use by 23.0% of the respondents. The subconstructs of Student and Stakeholder Satisfaction Results and Student and Stakeholder Satisfaction Comparison produced the widest dispersion of scores.
Objective 3: Explain the proportion of variance in the level of importance of TQM by selected demographic characteristics.

Multiple regression analysis by simultaneous and stepwise entry of the independent variables was conducted. Simultaneous entry explained 10% of the variance in Perceived Importance of TQM. Similarly, stepwise entry identified the variable Number of Programs as the only statistically significant variable used to explain the variance in the importance of TQM. The model was statistically significant and explained 4% of the variance in Perceived Importance of TQM.

Objective 4: Explain the proportion of variance in the level of Use of TQM by selected demographic characteristics and Perceived Importance of TQM.

Multiple regression analysis by simultaneous and stepwise entry of the independent variables was conducted. Simultaneous entry explained 38% of the variance in Perceived Use of TQM. Stepwise entry identified the variables Position and Perceived Importance of TQM as statistically significant. The model was statistically significant and explained 36% of the variance in Perceived Use of TQM.

Conclusions

The conclusions in the study were derived from the specific research objectives and the resultant findings. The intent of the conclusions is to present new information and blend the information into current knowledge.
The JVS administrators perceived all of the TQM criteria as important in their respective JVSs. The entire list of TQM constructs and subconstructs were perceived to be high in importance by the majority of JVS administrators.

The TQM criteria that explicitly identified the traditional roles of educational administrators (i.e., maintaining the educational environment and structure to meet the needs of students) were rated consistently very high. Sergiovanni, Burglingame, Coombs & Thurston (1992) and Reese (1992) describe the traditional education organization structure and governance roles in the literature. The educational administrator position requirements rated high in the study were also identified as important in the literature.

JVS administrators rated most of the TQM criteria as high to very high in importance. However, the perception of the usage of the TQM criteria was rated lower than its respective perception of importance. This conclusion replicates other research findings in academic environments including those of Regauld (1993) and Sherr & Teeter (1991).

Both the simultaneous and stepwise methods of entering independent variables determined that the number of programs explained (10% and 4% respectively) the variance in the Sum of Importance. The conclusion reached concerning the explanation of the variance in the dependent variable by the independent variable is that demographic variables explain very little of the variance in Importance of TQM.
Both the simultaneous and stepwise methods of entry indicated that Perceived Importance (Sum of Importance) and Position (Superintendent/Principal) explained (38% and 36% respectively) the variance in the Sum of Use. The conclusion was that only two of the variables helped to explain variance in use of TQM.

Recommendations

The recommendations of this research are derived from the findings and conclusions. Recommendations for existing theory, practice and further research are also presented.

Recommendations for Theory

Recommendations for theory support, challenge, and encourage the further refinement of theory. The following four recommendations for theory provide insight derived from the exploratory nature of this study.

Based on the findings and conclusions, the research model presented for this study should be modified, eliminating the non-significant demographic factors which did not contribute to explaining the variance in Sum of Use. Both significant and non-significant factors provide information for further theory development.

For future theory development in other areas, the ratings of the criteria should be included in quality theory as applied to educational environments. The
respondents consistently rated the importance of specific constructs high, which suggests that theory and models of quality should include these constructs.

Comparison of the ratings of specific items suggests that discrepancies exist in the perception of student and stakeholders as customers, benchmarking information and extending the mission of the school into the community. The conceptualization of the student and other stakeholders as a customer was rated low. This suggests that administrators may not share a paradigm in which students are perceived as customers. Use of TQM criteria in which the student is viewed as “customer” may be incongruous with administrators’ perceptions. Implications exist therefore, in theory, which demand resolution or explanation of this inconsistency.

The JVS administrators did not rate the benchmarking information high in importance or use. Benchmarking information was another construct that must be explained in terms of how the school views itself and how it evaluates its effort. According to TQM theory presented by Bonstingl (1992), a school must benchmark performance indicators to monitor progress toward achieving organizational goals. This inconsistency also requires resolution at the theoretical level.

Ajzen’s Theory of Planned Behavior (1985) provided a theoretical model for explaining the relationship between attitude and behavior. The specific component of the Ajzen model examined in this research was the attitude and behavior relationship. The relationship outlined in Ajzen’s model was
substantiated in this research. The variable Sum of Importance was found to be the largest statistically significant contributor in explaining the Sum of Use of the quality criteria.

**Recommendations for Practice**

The scope of the educational delivery system (i.e., to whom and how does the JVS provide service) needs further investigation through review of theories of community and economic development as presented by McNeill (1986). Recommendations for practice represent ideas generated as a product of this research. Ideally, recommendations for practice contribute to the applicability and practical aspects of research.

The Malcolm Baldrige National Quality Award Pilot Education Criteria Committee will be informed regarding the use and importance of the pilot criteria for education as it applies to JVSs in Ohio. This study provides evidence regarding the importance and use of the pilot criteria. In this manner, implications for practice could influence the final set of criteria used to evaluate quality within educational institutions on a national level.

An important implication to practice from this research is derived from importance ratings of TQM criteria. External groups (e.g., Ohio Department of Education) intending to sponsor TQM pilot programs, will benefit from the results of this research. The research identified the TQM criteria that JVS administrators place at a very high level of importance. The information should help external organization(s) make better decisions concerning this group of
administrators. For example, external organizations will be more efficient with their resources if money is spent on direct programming rather than on promotion programs. This is true in light of the fact that JVS administrators already perceive the TQM criteria as high to very high in importance.

This study provides insight into the inservice needs of Ohio JVS administrators and has implications for institutional development. Differences between the items rated on the survey as very high in importance and the corresponding use item rated at low to moderate levels indicates a possible need for inservice.

**Recommendations for Further Study**

The recommendations for further study represent unanswered questions and insights generated by this research. The recommendations offer suggestions for ideas on further research to create linkages and extensions of knowledge resulting from this study.

Joint Vocational School administrators' ratings of importance suggest a high receptivity to TQM as represented in the Malcolm Baldrige Quality Award Education Pilot Criteria. It is unknown if the high ratings of importance can be linked to TQM criteria as potential evaluative criteria. Further study should be conducted to examine the extent to which TQM could be used as an evaluative tool for Ohio JVS and other educational institutions.

It is unknown whether Ohio JVS administrators' perceptions are unique when compared to other educational leaders. To determine the relative status
of Ohio JVS administrators regarding their perceptions of the importance and use of TQM criteria, a comparative study is necessary.

In light of the national scope of the Malcolm Baldrige National Quality Award Education Pilot Criteria, further assessment of its applicability to vocational technical education is warranted. Information regarding the perceptions of other formal and informal educational leaders (e.g., school board members, teachers, union leadership, staff, parents, employers) would provide insight into the importance and use of TQM from alternative perspectives.

Current administrator perceptions of TQM in Ohio JVSs should provide useful information for further research regarding the cyclic nature of organizational improvement efforts. The administrators' ratings of importance and use of TQM criteria provides information for longitudinal studies involving trends and patterns.
REFERENCES


Lankard, B. (1992). *Total quality management: Application in vocational education*, ERIC Digest No. 125 Clearinghouse on Adult, Career and Vocational Education. Center in Education and Training for Employment, Columbus, OH.


Miller, L. (1994). *Agriculture Education Research 885 Class Notes.* Agricultural Education Department, College of Food, Agricultural and Environmental Sciences, The Ohio State University, Columbus; OH.

Miller, M. (1985). *Principles and a philosophy for vocational education.* (Special Publication Series No. 48). Special Columbus, OH. The National Center for Research in Vocational Education.


APPENDIX A

INSTRUMENT
Quality Educational Practices in Ohio Joint Vocational Schools

A Survey of Ohio’s Joint Vocational Schools.
F. Mike Ennis ©
Purpose

The purpose of this survey is to identify Joint Vocational School administrator perceptions regarding the degree of use and importance of selected quality criteria. The criteria listed in this survey were modified from the Malcolm Baldrige National Quality Award Education Pilot Criteria, 1995. These criteria begin to identify those found in quality schools. Note: Your answers will be held confidential, only the researchers will know how you responded.

Scope of Survey

All of Ohio's 143 Joint Vocational School Superintendents and Directors are asked to participate in this study. Your input will provide valuable insight into the attitudes and level of participation associated with a selected list of quality school activities.

Definitions:

Community Service
Community service is a general category for a variety of services or products offered to a community excluding the regular K-12 educational programming. Common community service activities include offering school facilities for group meetings, coordinating community adult education programs, and summer youth programs.

Benchmarking
Benchmarking is the process of collecting performance data on organizations, similar to your own, for the purpose of comparing your institution's performance data to another institution's performance.

Stakeholder
A stakeholder is an individual or group of people having a vested interest in the inputs, operations, and outputs of the organization. Parents, teachers, administrators, students, employers, and taxpayers are examples of stakeholders for a school system.

Personnel
Personnel is defined as a combination of the faculty, staff, and administrators of the school.
Directions:

Please circle the response that best represents your answer(s) to the following statements below.

Your "Level of Importance" response indicates how important you believe each criterion is when you define "quality" at your school.

Your "Level of Use" response indicates the level of use for each criterion, as you perceive it being used at your school.

<table>
<thead>
<tr>
<th>Level of Importance</th>
<th>Level of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Very Low</td>
<td>1 = Very Low</td>
</tr>
<tr>
<td>2 = Low</td>
<td>2 = Low</td>
</tr>
<tr>
<td>3 = Moderate</td>
<td>3 = Moderate</td>
</tr>
<tr>
<td>4 = High</td>
<td>4 = High</td>
</tr>
<tr>
<td>5 = Very High</td>
<td>5 = Very High</td>
</tr>
<tr>
<td>DK = Don't Know</td>
<td>DK = Don't Know</td>
</tr>
</tbody>
</table>

Example:

1 2 3 4 5 DK School facilities are adequate. 1 2 3 4 5 DK

1.0 Leadership

<table>
<thead>
<tr>
<th>Importance</th>
<th>1.1 Senior Administration Leadership</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Senior administrators reinforce high expectations throughout the school.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Senior administrators establish measurable goals in the school’s strategic plan.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Senior administrators maintain a climate conducive to learning.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Senior administrators maintain a climate conducive to teaching.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. Senior administrators review student performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. Senior administrators evaluate the effects of school practices.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. Senior administrators increase their knowledge of improvement processes.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

Comments:
<table>
<thead>
<tr>
<th>Importance</th>
<th>1.2 Leadership System &amp; Organization Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school's leadership system is designed to improve student performance. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school's leadership system maintains focus and cooperation among school units to pursue performance objectives. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The school communicates its expectations throughout the community. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. School performance results are used to develop improvement plans. 1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

Comments:

<table>
<thead>
<tr>
<th>Importance</th>
<th>1.3 Public Responsibility &amp; Citizenship Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school evaluates its community services. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school incorporates regulatory and legal requirements in the school planning process. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The school has a process to anticipate public concerns. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. The school promotes legal conduct in its operations. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school promotes ethical conduct in its operations. 1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. The school serves as a role model in addressing areas of public concern. 1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

Comments:
### 2.1 Management of Information & Analysis

<table>
<thead>
<tr>
<th>Importance</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. A rationale for using data to drive education improvement efforts is identified.</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. A rationale for using data to drive business operation improvement</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The data gathering techniques are improved.</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Data is collected that is aligned with the school’s priorities.</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. Feedback from data users is used to improve the information system.</td>
</tr>
</tbody>
</table>

**Comments:**

### 2.2 Comparisons & Benchmarking

<table>
<thead>
<tr>
<th>Importance</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school uses benchmarked data to drive overall school improvement efforts.</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school’s benchmarking process is improved.</td>
</tr>
</tbody>
</table>

**Comments:**
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<thead>
<tr>
<th>Importance</th>
<th>2.3 Analysis &amp; Use of School-Level Data</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Data are used to understand individual student performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Data are used to understand student group performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Data are used to understand educational program performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Data are used to understand school business performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. Data are used to understand comparable student performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. Data are used to understand comparable student group performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. Data are used to understand comparable educational program performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>h. Data are used to understand comparable school business performance.</td>
<td>1 2 3 4 5 DK</td>
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Comments:
### 3.0 Strategic & Operational Planning

#### 3.1 Strategy Development

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<thead>
<tr>
<th>Importance</th>
<th>3.1 Strategy Development</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Units within the school are involved in the strategy development process.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. External stakeholders are involved in the strategy development process.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Strategies are developed to improve student performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Strategies are developed to improve overall school performance.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The strategic plan is translated into measurable goals which are communicated to school units.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. The strategic planning process is improved.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. The strategic plan implementation processes is improved.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

Comments:

#### 3.2 Strategy Implementation

<table>
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<tr>
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<th>3.2 Strategy Implementation</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The strategic plan identifies how school units cooperate to achieve strategic goals.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The strategic plan identifies resources to support the attainment of strategic plan goals.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Goals from the strategic plan are incorporated into an implementation plan.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Two to five year projections of student performance goals are developed.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school constructs two to five year projections of business operational goals.</td>
<td>1 2 3 4 5 DK</td>
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Comments:
### Level of Importance

1 = Very Low  
2 = Low  
3 = Moderate  
4 = High  
5 = Very High  
DK = Don't Know

### Level of Use

1 = Very Low  
2 = Low  
3 = Moderate  
4 = High  
5 = Very High  
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## 4.0 Personnel Development & Management

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<thead>
<tr>
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<th>4.1 Personnel Development &amp; Management</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Personnel development goals are translated into specific action plans.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Personnel development capacity is improved.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Professional development of all categories of personnel are evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. The school evaluates personnel development practices with expected results.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school has specific plans addressing personnel development.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. The school has specific plans addressing personnel recruitment.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. The school has specific plans addressing the expectations of personnel.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>h. The school has specific plans addressing promotion, compensation and benefits.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>i. Personnel development opportunities are evaluated.</td>
<td>1 2 3 4 5 DK</td>
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### Comments:
## Level of Importance

1 = Very Low  
2 = Low  
3 = Moderate  
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1 = Very Low  
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<th>Importance</th>
<th>4.2 Faculty &amp; Staff Work Systems</th>
<th>Use</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Personnel responsibilities support communication across school units.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Personnel responsibilities support cooperation across school units.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Personnel responsibilities are aligned with the school’s compensation system.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. The work system creates opportunities for initiative and self-directed responsibility.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The work system is flexible to respond to changing requirements.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. The work system supports communication between school units.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. The work system supports cooperation between school units.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>h. The work system is aligned with the school’s compensation system.</td>
<td>1 2 3 4 5 DK</td>
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**Comments:**
<table>
<thead>
<tr>
<th>Importance</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. New personnel orientation reviews school plans.</td>
<td>1 2 3 4 5 DK</td>
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<tr>
<td>1 2 3 4 5 DK</td>
<td>b. New personnel orientation reviews school expectations.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Personnel development activities include specific performance requirements.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Personnel development activities utilize assessment methods.</td>
<td>1 2 3 4 5 DK</td>
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<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school evaluates the effectiveness of personnel development efforts.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. Personnel work together to identify training needs.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. Personnel work together to design training programs.</td>
<td>1 2 3 4 5 DK</td>
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<td>1 2 3 4 5 DK</td>
<td>h. Personnel work together to deliver training.</td>
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<tr>
<td>1 2 3 4 5 DK</td>
<td>i. Knowledge and skills presented in training are reinforced through on-the-job training.</td>
<td>1 2 3 4 5 DK</td>
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Comments:

<table>
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<th>Importance</th>
<th>4.4 Personnel Well-Being &amp; Satisfaction</th>
<th>Use</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school maintains a healthy &amp; safe work environment.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Personnel satisfaction is evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Opportunities to increase personnel satisfaction are offered by the school.</td>
<td>1 2 3 4 5 DK</td>
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Comments:
5.0 Educational & Business Process Management

### 5.1 Educational Design

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**Level of Use**

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<tr>
<th>Importance</th>
<th>5.3 Education Support, Service &amp; Delivery</th>
<th>Use</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Educational support services are available.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Educational support services are designed to meet student needs.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Educational support services are improved.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Multiple stakeholders are used to evaluate support services.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. Multiple stakeholders evaluate community services.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. Multiple stakeholders are used to evaluate scholarship activities.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. A process is in place to determine which educational support services are needed.</td>
<td>1 2 3 4 5 DK</td>
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</tbody>
</table>

**Comments:**

<table>
<thead>
<tr>
<th>Importance</th>
<th>5.4 Research, Scholarship &amp; Service</th>
<th>Use</th>
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</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school shares knowledge with the general community.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Scholarship activities contribute to achieving school objectives.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Community service activities are aligned with the school's goals.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. The scholarship program has an improvement plan.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school has a community service improvement plan.</td>
<td>1 2 3 4 5 DK</td>
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</table>

**Comments:**
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<tr>
<th>Importance</th>
<th>5.5 Enrollment Management</th>
<th>Use</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school communicates its requirements to feeder schools</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school communicates its requirements to families.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The school communicates its requirements to prospective students.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. The school improves interactions with feeder schools.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school improves interactions with families.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. The school improves its interactions with prospective students.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. Equity issues are addressed in school enrollment.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>h. The school provides student orientations.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>i. Student job placement services are offered.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>j. The enrollment management system is evaluated.</td>
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</table>

Comments:
### 5.6 Business Operations Management

<table>
<thead>
<tr>
<th>Importance</th>
<th>5.6 Business Operations Management</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school has a process for identifying customers for each key process.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school has a process to determine customer requirements.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The school has a process to establish goals.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. School business operations are monitored.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. The school has a process to utilize customer feedback.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. School business operations are benchmarked.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>g. School business operations are improved.</td>
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**Comments:**

### 6.0 School Performance Results

<table>
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<tr>
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<th>6.1 Student Performance Results</th>
<th>Use</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Current student performance levels are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Trends of student performance are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Current student performance levels are compared with similar schools with similar student populations.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Student performance trends are compared with similar schools with similar student populations.</td>
<td>1 2 3 4 5 DK</td>
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</tbody>
</table>

**Comments:**
<table>
<thead>
<tr>
<th>Importance</th>
<th>6.2 School Education Climate Improvement Results</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Current educational climate characteristics are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Trends in educational climate characteristics are identified.</td>
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**Comments:**

<table>
<thead>
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<th>Importance</th>
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<th>Use</th>
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<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Current level of the school’s contribution to community education are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Current levels of the school’s contribution to community service are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Trends of the school’s contribution to community education are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Trends in the school’s contribution to community service are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

**Comments:**

<table>
<thead>
<tr>
<th>Importance</th>
<th>6.4 School Business Performance Results</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Current levels of school business operational performance are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Trends in school business operational performance are identified.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

**Comments:**
### 7.0 Student Focus & Stakeholder Satisfaction

<table>
<thead>
<tr>
<th>Importance</th>
<th>7.1 Student Needs &amp; Expectations</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The special needs of students are assessed.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. General student expectations are assessed.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Student utilization of class offerings is tracked.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Student utilization of facilities is tracked.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. Student utilization of special services is monitored.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>f. Processes for determining student needs are improved.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

**Comments:**

<table>
<thead>
<tr>
<th>Importance</th>
<th>7.2 Future Student Needs and Expectations</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The changing requirements of future students are anticipated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Anticipated student requirements are used for planning.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The school improves its processes for determining emerging student needs.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

**Comments:**
Level of Importance 1 = Very Low 2 = Low 3 = Moderate 4 = High 5 = Very High DK = Don't Know

Level of Use 1 = Very Low 2 = Low 3 = Moderate 4 = High 5 = Very High DK = Don't Know

<table>
<thead>
<tr>
<th>Importance</th>
<th>7.3 Stakeholder Relationship Management</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school has identified mutual basis for relationships with key stakeholders.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school improves relationships with stakeholders.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. The school evaluates relationships with key stakeholders.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

Comments:

<table>
<thead>
<tr>
<th>Importance</th>
<th>7.4 Student and Stakeholder Satisfaction Determination</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Current student satisfaction is evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Past student satisfaction is evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>c. Key stakeholder satisfaction is evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>d. Student satisfaction determination processes are evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>e. Stakeholder satisfaction determination processes are evaluated.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

Comments:
## Importance 7.5 Student & Stakeholder Satisfaction Results

<table>
<thead>
<tr>
<th>Importance</th>
<th>7.5 Student &amp; Stakeholder Satisfaction Results</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. The school compares current and past levels of student satisfaction.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. The school compares current and past levels of stakeholder satisfaction.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

**Comments:**

Level of Importance
1 = Very Low
2 = Low
3 = Moderate
4 = High
5 = Very High
DK = Don't Know

Level of Use
1 = Very Low
2 = Low
3 = Moderate
4 = High
5 = Very High
DK = Don't Know

## Importance 7.6 Student & Stakeholder Satisfaction Comparison

<table>
<thead>
<tr>
<th>Importance</th>
<th>7.6 Student &amp; Stakeholder Satisfaction Comparison</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 DK</td>
<td>a. Student satisfaction levels are compared with student satisfaction in comparable schools.</td>
<td>1 2 3 4 5 DK</td>
</tr>
<tr>
<td>1 2 3 4 5 DK</td>
<td>b. Stakeholder satisfaction levels are compared with stakeholder satisfaction in comparable schools.</td>
<td>1 2 3 4 5 DK</td>
</tr>
</tbody>
</table>

**Comments:**

**General Comments:**

Please include any comments you feel that may help the researcher to understand your perceptions concerning the quality improvement criteria included in this survey. Feel free to write your response below or call collect Mike Ennis at (810) 724-0946.
**Directions:** Please place your answer to the following questions in the blank to the left of the question.

**Demographics**

1. ____ Male  ____ Female

2. ____ Age?

3. ____ Highest education level?
   - Bachelor Degree
   - Bachelor Degree + extra classes
   - Master Degree
   - Master Degree + extra classes
   - Ph.D.

4. ____ Years as a school administrator?

5. ____ Years as a classroom teacher?

6. ____ Number of teachers at your site?

7. ____ Number of program offerings at your site?

8. ____ Number of high school students at your site per semester?

9. ____ Number of enrolled adults at your site per semester?

When you have completed the survey, please return it in the stamped, self-addressed envelope.
Thank you for completing this questionnaire 😊!!!!!

If you would like a copy of the results, please indicate below.

_____ Yes, I want a copy of the results.

_____ No, I do not want a copy of the results.

If you have any questions, please call collect:
Mike Ennis at (810) 724 - 0946 (Home)

Correspondence can be sent to:
Mike Ennis
572 S. Cedar
Imlay City, MI 48444

Numbering this survey is very important. Numbering assists the researchers in identifying which surveys were returned. With increasing postage costs it is important not to send a second reminder survey to individuals who have already returned the first survey. This helps to save money and time. Please help us in reducing costs. Thank You.

Survey Number_______
Content and Face Validity Panel

Dr. John Bonstingl
International Quality Consultant
Education Network of the Association for Supervision and Curriculum Development

Ms. Martha Bozman
Director of Quality Initiatives
American Association of School Administrators Quality Network

Ms. Sally Duncan
TQM Consultant
PQ Systems

Mr. Ron Fitzgerald
Principal of Vocational Center
Minute Man Tech

Dr. Don Knox
Professor Emeritus
Ohio University

Mr. John Jasinski
Educational Specialist
The Malcolm Baldrige National Quality Award
National Institute of Standards and Technology

Mr. Ben Lavin
Quality Advancement Manager
Ohio Department of Education

Dr. John MacKenzie
Associate Director
Michigan Center for Career and Technical Education and Michigan School to Work Clearinghouse.
Michigan State University

Ms. Joann Neurough
On Purpose
Quality Consultant

Dr. Mike Regauld
Executive Director
Vocational and Industrial Clubs of America

Ms. Sue Rohan
Education Specialist
The Malcolm Baldrige National Quality Award
National Institute of Standards and Technology

Dr. Carol Sager
TQM Education Consultant
Sager Educational Enterprises

Ms. Sue Tucker
TQM Consultant
Tucker Consultants
APPENDIX C

CORRESPONDENCE
April 21, 1995

Dear XXXX:

Thank you for agreeing to serve on the panel of experts to review my dissertation survey instrument. You are part of a group of 10 people across the country evaluating the face and content validity of the survey instrument.

Enclosed is a copy of the survey instrument, return envelope, and copy of the 1995 Education Pilot Criteria for the Malcolm Baldrige National Quality Award. I have also enclosed a comment sheet which includes a set of questions to assist in your evaluation of the instrument. Please feel free offer any suggestions to improve the quality of this instrument. I would like to have your input concerning this questionnaire by April 28.

Thank you for offering your assistance.

Sincerely,

F. Mike Ennis
Graduate Student
The Ohio State University
Comment Sheet

You were asked to evaluate the face and content validity of this instrument which was translated from the Baldrige Award Criteria. The specific Baldrige Criteria are outlined from pages 12 to 31 of the Baldrige booklet. Please use the Baldrige booklet provided to assist in making your evaluation.

As a reminder

**Face Validity:** Does the instrument appear valid?

**Content Validity:**
The extent to which the instrument represents the content of interest.

Please write your comments directly on the survey instrument.

Questions to consider when evaluating the instrument:

1. Are the questions clearly stated?

2. Are the questions ambiguously stated?

3. Are the instructions clear?

4. Is the purpose of the research clear?

5. Are the definitions clear?

6. Is the survey too long?

7. Does the scaling system match the focus of the questions?

8. Are the demographic questions understandable?

Please return the comment sheet along with the survey in the self-addressed, stamped envelope.
July 19, 1995

Mr. Bill Weisgerber  
State Director  
Office of Career and Technical Education  
PO Box 30009  
Michigan Dept of Education  
Lansing, MI 48909

Dear Mr. Weisgerber:

Enclosed is a copy of the survey I would like to send to the directors and superintendents of the secondary education skill (Skill Centers/ Career Center/ Technical Centers) in Michigan to collect information for my dissertation research. This instrument was translated from and is consistent with the Malcolm Baldrige National Quality Award, Education Pilot Criteria 1995. Enclosed is a copy of the award criteria for your review and the list of persons who have already reviewed the document.

The purpose of this letter is to seek your endorsement of this study by signing the cover letter that will be sent along with the survey to Michigan secondary education skill center administrators. I am aware of some of the practical and political considerations and will understand if you choose not to participate by not signing the cover letter.

Please review the enclosed brief description of research and the survey instrument. If you have any questions, I can be contacted at (614) 292-8436 - work or (614) 844-6509 - home.

Sincerely,

Mike Ennis  
Extension Research Associate  
The Ohio State University
August 15, 1995

Dear XXXX:

We would appreciate your participation in a study of secondary education skill center superintendents' and directors' perceptions of the use and importance of pilot criteria for the Malcolm Baldrige National Quality Award for Education. Representatives from the Michigan Department of Education are working with researchers at Ohio State University to investigate the perceptions of superintendents and directors regarding the importance and use of total quality management concepts as represented in the Malcolm Baldrige National Quality Award for Education.

The survey will require 15 to 25 minutes to complete. The information you provide will be held in strict confidence. Your identity in connection with your responses will only be known by Mike Ennis. The identification number on the survey is to identify the surveys that are returned, and assists the researchers in avoiding duplication of requests for participation on subsequent mailings.

Please return the survey by September 10, 1995. A self-addressed, stamped envelope has been enclosed for your convenience in returning your response. Please check "Yes" if you would like a copy of the results sent to you. Please contact us at (810) 724-0946 if you have any questions or comments about this research.

Sincerely,

F. Mike Ennis
Graduate Student

N. L. McCaslin, Professor
Comprehensive Vocational Education
The Ohio State University

William Weisgerber
State Director
Office of Career & Technical Education
Michigan Department of Education
September 11, 1995

Dear XXXX:

I would appreciate your participation in a study of Michigan Skill Center superintendents' and directors' perceptions of the use and importance of pilot criteria for the Malcolm Baldrige National Quality Award for Education. Representatives of the Michigan Department of Education, the American Society for Quality Control and The Ohio State University are working together to investigate the perceptions of superintendents and directors regarding the importance and use of total quality management concepts as represented in the Malcolm Baldrige National Quality Award for Education. The information you provide will assist in completing my dissertation.

The survey will require 15 to 25 minutes to complete. The information you provide will be held in strict confidence. Your identity in connection with your responses will only be known by Mike Ennis. The identification number on the survey is to identify the surveys that are returned, and assists the researchers in avoiding duplication of requests for participation on subsequent mailings.

Please return the survey by September 29, 1995. A self-addressed, stamped envelope has been enclosed for your convenience in returning your response. Please check "Yes" if you would like a copy of the results sent to you. Please contact me at (810) 724-0946 if you have any questions or comments about this research.

Sincerely,

F. Mike Ennis
Graduate Student
The Ohio State University
September 25, 1995

Dear XXXX:

Thank you very much for completing the first part of my research study entitled "Quality Educational Practices in Michigan Secondary Education Skill Centers." The second part of the study consists of a duplicate survey containing the same questions as the first survey. The purpose of asking the same questions a second time is to calculate instrument reliability statistics. This survey represents the final stage of data collection.

Please accept the enclosed $5.00 McDonald’s gift certificate as a token of my appreciation for your attention to both of my surveys. If you choose not to complete the second survey, please use the certificate with my gratitude for taking the time to complete the first survey.

Please return the survey by October 10, 1995. A self-addressed, stamped envelope has been enclosed for your convenience in returning your response. I can be contacted at (810) 724-0946 if you have any questions or comments about this research.

Sincerely,

F. Mike Ennis
Graduate Student
The Ohio State University
Dear XX. XXXXXX:

I have received your completed survey on Quality Educational Practices in Michigan Skill Centers. Your input from XXXXXXXXXX will help provide a better perspective on what quality educational practices actually occur in Michigan Skill Centers.

Thank you for taking the time to complete and return the survey. If you have any questions please I can be reached at (810) 724-0946.

Sincerely,

Mike Ennis
Graduate Student
The Ohio State University
September 11, 1995

Dear XXXX:

I would appreciate your participation in a study of Ohio Joint Vocational School superintendents' and directors' perceptions of the use and importance of pilot criteria for the Malcolm Baldrige National Quality Award for Education. Representatives of the Ohio Department of Education, the American Society for Quality Control and The Ohio State University are working with researchers at The Ohio State University to investigate the perceptions of superintendents and directors regarding the importance and use of total quality management concepts as represented in the Malcolm Baldrige National Quality Award for Education. The information you provide will assist in completing my dissertation.

The survey will require 15 to 25 minutes to complete. The information you provide will be held in strict confidence. Your identity in connection with your responses will only be known by Mike Ennis. The identification number on the survey is to identify the surveys that are returned, and assists the researchers in avoiding duplication of requests for participation on subsequent mailings.

Please return the survey by September 29, 1995. A self-addressed, stamped envelope has been enclosed for your convenience in returning your response. Please check "Yes" if you would like a copy of the results sent to you. Please contact me at (810) 724-0946 if you have any questions or comments about this research.

Sincerely,

F. Mike Ennis
Graduate Student
The Ohio State University
October 11, 1995

Dear XXXX:

A few weeks ago a survey entitled: Ohio Joint Vocational School Superintendents’ and Directors’ Perceptions of the Use and Importance of the Malcolm Baldrige National Quality Award Pilot Criteria for Education was sent to you. Mr. / Mrs. XXXX, it is very important that we receive your response from XXXXXXXX. Your input will help local, state, and national leaders in vocational/ technical education assess the appropriateness of the Malcolm Baldrige Pilot Criteria to vocational/ technical education. Please take time and complete the enclosed survey as soon as you can.

The information you provide will be held in strict confidence. Your identity in connection with your responses will only be known by Mike Ennis, the researcher. The identification number on the survey is to identify if a survey was returned from XXXXXXXX.

A self-addressed, stamped envelope has been enclosed for your convenience in returning your response. Please check “Yes” if you would like a copy of the results sent to you. Please contact me at (810) 724 - 0946 if you have any questions or comments about this research.

If you have already completed and returned the first survey please disregard this request.

Sincerely,

F. Mike Ennis
Graduate Student
The Ohio State University
November 7, 1995

Dear XXXX:

I would appreciate your assistance in completing the enclosed survey of Ohio Joint Vocational School practices. Your input is extremely important!! Please complete and return the enclosed survey as soon as possible. It is very important to obtain input from XXXX.

If you have any questions, please call collect at the number above.

Sincerely,

F. Mike Ennis
Graduate Student
The Ohio State University
Dear XX, XXXXXXX:

I have received your completed survey on Quality Educational Practices in Ohio Joint Vocational Schools. Your input from XXXXXXX will help provide a better perspective on what quality educational practices actually occur in Ohio Joint Vocational Schools.

Thank you for taking the time to complete and return the survey. If you have any questions please I can be reached at (810) 724-0946.

Sincerely,

Mike Ennis
Graduate Student
The Ohio State University
APPENDIX D

WRITTEN COMMENTS
Written Comments

2.1 I'm leery of data manipulation. (e.g. locally a school who overall has lower proficiency scores has higher proficiency scores when comparing the upper students. The schools draw from different populations. Which one is the better school?

3.1 No strategic plan is used considering the normal definition of strategic plan as is taught - But planning is.

3.1 Strategic development, we don’t have one.

4.0 I have negotiations - Promotion is not a given.

GC I am not impressed with this survey. I believe that different people in the same district could come with different answers depending on his/her own perception of the questions and operation of the district. Also emotional state at the time of completing this might cause different responses to be received. Many times used have wide range of meaning.

GC This was very difficult too subjective

GC Feel the survey was to long, too wordy, too complicated.

GC This took longer than 20 minutes. Not sure how to evaluate this because it is too complicated.

GC The adult education, an integral part of all “JVS” schools was never mentioned. More adult students attend classes than high school students. These adults are also the taxpayers. Therefore I believe this survey is flawed. It is my belief that all questions are being answered based on the high school operation.

GC Some questions need clarification “Do not Understand” as a choice. Survey was much too long.

GC This survey is too long!

GC Most of the statements are subject to interpretation as to the meaning and applicability. A “four” means what? The statements mean what? Yet conclusions will be drawn. I don’t find this credible.
Simple and understandable survey but like most of it takes too much time to fill out. The conception of this survey is outstanding. If the results show anything other than in general things have more importance than we are able to give them in practice, I'll be surprised.

Good luck Mike!

I believe if you wanted some of these statistics they would have been available. This was entirely too long, your expectation of administrators time was not taken into consideration.

Survey was too long!!! Items represent areas well but there are too many. Good Luck.

Ohio has about all that is needed to meet every question with a very positive response. The key question your survey may not uncover is the degree to which all persons are satisfied with implementation of the numerous efforts required and/or desired. Lack of resources is a real reason that more is not done to raise satisfaction levels significantly.

Thanks for the “Miracle Fish” I wish we could effectively accomplish/use all these quality indicators. We are generally too busy putting out fires to effectively accomplish long range planning.

Way too long - redundant questions.

If the survey is completed as a public relations piece for the school, the numbers will be high. If it is completed as an in-house training piece, it could be lower, due to justifying the need for additional training. The survey could also be passed along to another person, not the person it was intended.