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Principal's leadership style and science research associates test scores

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Abstract

Principal's Leadership Style And Science

Research Associates Test Scores

by Kevin William Whirdy

Master of Education, University of Richmond, 1986

Thesis Director: Dr. Donald W. Pate, Ph.D.

The purpose of this study was to determine if the principal's leadership style had a positive effect on students' Science Research Associates Composite Test scores. The correlational method of research was used on fifteen randomly selected public high schools with school populations between six hundred and nine hundred students in the State of Virginia. The Principal Leadership Style Questionnaire was used to ascertain the leadership style of the principal. The Likert Profile of a School Questionnaire was used to measure the climate of the school.

The results showed a significant correlational coefficient between the principal's leadership style and the test scores. A significant correlational coefficient was also found between the principal's leadership style and the school's climate. It was concluded that principals having a 7,7 style of leadership were in schools with higher Science Research Associates Composite Percentile scores. The climate in these schools was also tending toward Likert's Participative System 4.

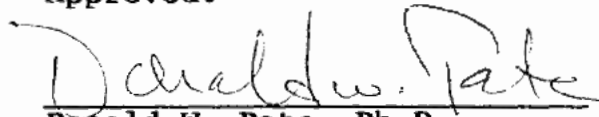
Principal's Leadership Style and Science Research

Associates Test Scores

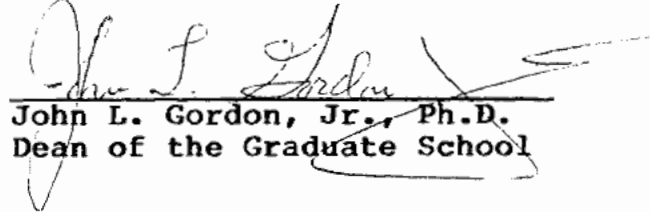
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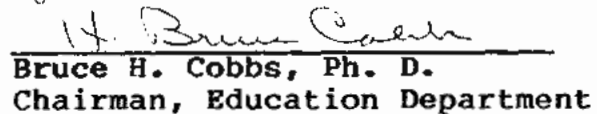
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PRINCIPAL'S LEADERSHIP STYLE AND SCIENCE
RESEARCH ASSOCIATES TEST SCORES

By

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Cert. Ed., Queen's University, 1973

A Thesis

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CHAPTER 1

Introduction

Throughout history, leadership style has intrigued researchers, historians and political analysts. They have searched to find the most effective leadership style or those common personality traits of acknowledged great leaders. Theories abound, but two main dimensions of leadership are accepted as focusing points for discussion (Sergiovanni 1983). These dimensions describe the orientation of the leader toward (1) the achievement of the group's goals and (2) group membership satisfaction. In terms of the school these leadership dimensions are reflected in the principal's orientation toward the achievement of the aims of the school and orientation toward teacher satisfaction. Degrees of orientation are possible. Obviously some principals will value achievement of the task more highly than staff relations and vice versa. It is also feasible to value them equally.

Recently, educational researchers have centered on the effectiveness of schools and the principal's leadership role. Many articles have been written on the relevancy of the present curriculum, the competency of teachers in the schools, the lowering of academic standards, and

the principal as an instructional leader. The present study examined the relationship, between the style of the principal's leadership as perceived by the faculty and the academic achievement of the students.

Research indicated that the principal's leadership style was related to the school's climate. It was not the only factor involved in creating the school's climate, others being socio-economic background of the students, parental attitudes towards schooling, teacher competency (Goodlad 1984). The current study was concerned with the possible relationship between the climate of the school and the academic achievement of students. The purpose of this study was to determine if the principal's leadership style had a positive effect on students' Science Research Associates Composite Test scores.

Statement of the Problem

The problem was to determine the correlation between the following: (1) the leadership style of the principal and the school's Science Research Associates Composite Percentile, (2) the leadership style of the principal and the school's climate, (3) the school's climate and Science Research Associates Composite Percentile. The correlational method of research was used on a randomly selected group of public high schools with school populations

between six hundred and nine hundred students in the State of Virginia.

Delimitations

The study was confined to fifteen randomly selected Virginia Public High Schools, with populations between six hundred and nine hundred students. Forty teachers who were full-time members of the faculties in these schools were randomly chosen. All the data used in this study was from the school year 1984-85.

Limitations

The limitations placed on this study were: (1) its dependence on Superintendents agreeing to their school districts inclusion in the study, (2) principals giving permission for the inclusion of their school, (3) faculty answering the questionnaires and returning the same, (4) principals returning the school's Science Research Associates Composite Percentile score, and (5) the State Department of Education of Virginia supplying the 1984-85 list of teachers for each school.

Hypothesis

The first hypothesis would show no correlation between principal's leadership style and Science Research Associates Composite Percentile score. The second hypothesis would

show no correlation between principal's leadership style and the school's climate. The third hypothesis would show no correlation between the school's climate and Science Research Associates Composite Percentile score.

Assumptions

It was assumed, for the purposes of this study: (1) that teachers would answer the questionnaires truthfully and accurately, (2) that the Science Research Associates Composite Percentile score received for each school from the principal was correct, and (3) the list of schools and teachers obtained from the State Department of Education of Virginia was correct.

Definitions

For the purposes of clarity the following terms used in the study were defined.

Science Research Associates Composite Percentile

This was a norm referenced achievement and academic ability test taken by students in grade eleven in the State of Virginia. These tests were administered by all public school divisions as required by the State Board of Education. The Composite Percentile score was the combining of the students Reading, Mathematics and Language scores into a single school percentile for these subjects.

The percentile rankings were nationally applicable. The Composite Percentile for the year 1984-85 was used.

Concern For

Blake and Mouton (1985) stated that this

is not a mechanical term that indicates the amount of actual production achieved or actual behavior toward people. Rather, it indicates the character and strength of assumptions present behind any given leadership style (P.10).

Concern for Production

Blake and Mouton (1985) stated that this concept covered "both quantity and quality" pointing out that it "may be revealed in the scope and soundness of decisions, the number of creative ideas product development converts into salable items . . . or quality and thoroughness of services provided by staff" (P.10).

Concern for People

Blake and Mouton (1985) noted that this may be revealed in the leader's "efforts to ensure that subordinates like them," or "that subordinates get their jobs done" (P.11).

School Climate

Litwin and Stringer (1968) defined this as

the perceived subjective effects of the formal system, the informal style of managers, and other important environmental factors on the attitudes,

beliefs, values and motivation of people who work in a particular organization (P.5).

Principal Leadership Style Questionnaire

This was devised and adapted by Utz (1972) from Blake and Mouton's The Managerial Grid (1964) to measure the two basic dimensions of leader behavior, Concern for Production and Concern for People (Bhella, 1982).

Likert Profile of a School Questionnaire

This was devised by Likert to measure the climate of the school in terms of leadership, motivation, communication, interaction-influence, decision making and performance goals (Cullers, 1973).

Research Design

The method used in this study was correlational, investigating the relationship between principal's leadership style and Science Research Associates Composite Percentile score. The Principal Leadership Style Questionnaire was used to ascertain the high school principal's leadership style. The Likert Profile of a School Questionnaire was used to assess the school's climate. Forty randomly selected teachers in each of the selected schools were requested to complete both questionnaires. Each principal was requested to supply the Science Research Associates Composite Percentile score for the

school. The fifteen schools were randomly selected from a list of State high schools received from the State Department of Education.

External Validity

The study focused on a random sample of state high schools, with populations between 600 and 900 students, in the State of Virginia. The results will be applicable to all similar sized state high schools in Virginia.

Internal Validity

The Principal Leadership Style Questionnaire was used to identify the two types of principal's behavior. It originated from Blake and Mouton's studies in the 1940's as recorded in The Managerial Grid (1964). It was modified by Utz (1972) and used by him and Bhella (1975) in leadership research.

The Likert Profile of a School Questionnaire was used to identify the school's climate. Likert (1967) used the split-half technique to test the reliability of this instrument. He administered the form to three groups. For the first group a coefficient of .90 was found. The coefficient for the second and third groups resulted in corrected split-half reliabilities of .97 and .99 respectively.

Organization

The remainder of the study was organized as follows:

Chapter 2 Review of Literature

Chapter 3 Procedures

Chapter 4 Analysis of Data

Chapter 5 Summary, Conclusions and Recommendations

CHAPTER 2

Review of Literature

This chapter considered current literature on the leadership of the principal and its impact on student achievement. The school as a social system was examined to highlight those issues involved in leading a social group. The focus was then placed on the theory of educational administration. The main leadership theories were researched with particular emphasis on Blake and Mouton's theory. The literature on organizational climate was reviewed with particular attention given to research dealing with the principal's influence on the school's climate. A review of literature related to the organizational climate and its influence on student achievement was also addressed.

Social Systems

Researchers of social systems have proposed various models of the human interactions that occur to explain the resultant behavior of individuals within the system. Getzels, Lipham, and Campbell (1968) perceived the social behavior generated by a social system as having two

independent but interactive factors. These were the nomothetic or normative and the idiographic or personal dimensions.

Getzels, Lipham, and Campbell (1968) defined the nomothetic or normative dimension as "the institutions, with certain roles and expectations, that will fulfill the goals of the system" (P.56). Each of the elements, institution, role, and expectations was analyzed in terms of the preceding element. The authors held that institutions had generally five characteristics. They were: (1) purposive, (2) peopled, (3) structural, (4) normative, and (5) sanction bearing. The purpose of the school would be the education of the students. The role incumbents would be the principal, teachers, and the students each with a specified set of tasks. The norms of behavior for the members would be understood by all with the sanctions laid down. Getzels, Lipham, and Campbell (1968) stressed that the roles which people fulfilled in the institutions were done so according to definitive expectations. The desired goals of the institution were expected to flow from these elements (Fig. 1). For example the educational goals of the school would be achieved if the role incumbents fulfilled the expectations of the roles. However, due to the second constituent

part of the social system, the individual dimension this does not occur.

Social System —> Institution —> Role —> Expectation
 —> Institution Goal Behavior

Figure 1

The Nomothetic Dimension

(Taken from Getzel, Lipham, and Campbell, 1968)

Getzel, Lipham, and Campbell (1968) defined the idiographic or personal dimension as "the individuals, with certain personalities and dispositions" (P. 68). They subdivided the idiographic dimension into the personality of the individual and his or her needs and drives (Fig. 2).

Social System —> Individual —> Personality
 —> Need-Disposition —> Individual Goal Behavior

Figure 2

The Idiographic Dimension

(Taken from Getzels, Lipham, and Campbell, 1968)

Their definition of personality perceived it as a "dynamic organization within the individual of those

need-dispositions and capacities that determine his unique interaction with the environment" (P. 69).

They contended that a persons personality was a motivational system interacting with the environment. Peoples' need-dispositions were drives towards specific aims within a person, which influenced their behavior continually (Getzels, Lipham, and Campbell, 1968).

The authors portrayed the interaction of the two dimensions diagrammatically as shown in Figure 3. The resultant goal activity of these two features of a social system should be harmonious, otherwise there was discord, with individual oriented goals and institutional oriented goals in conflict. (Getzels, Lipham, and Campbell, 1968)

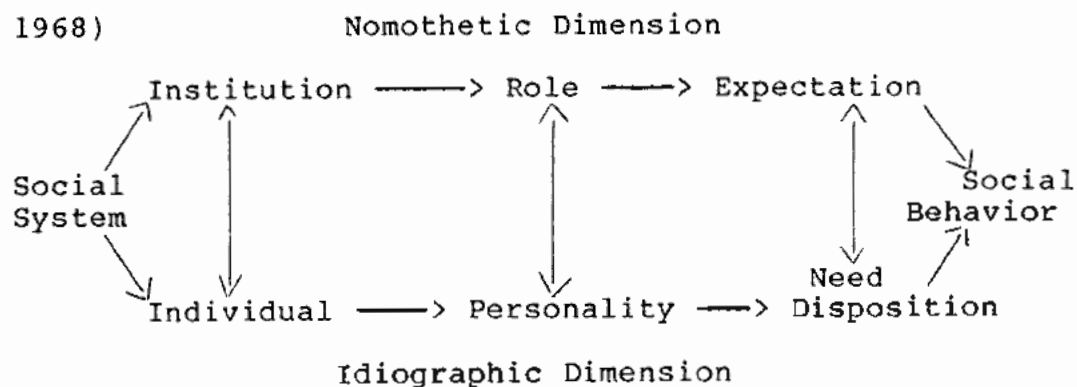


Figure 3

The Nomothetic and Idiographic Dimensions
of Social Behavior

(Taken from Getzels, Lipham, and Campbell, 1968)

The authors argued that in order to understand the resultant behavior of the role incumbents it was necessary to consider the personality of the individual with that persons needs and drives along with the expectations for that role.

Hoy and Miskel (1978) defined a social system as "a bounded set of elements (subsystems) and activities in mutual interaction that constitute a single social entity" (P37). They made six assumptions which were basic to any social system. These were similar to Getzels, Lipham, and Campbell's characteristics but in addition they included the inter-dependence of the elements involved. The six assumptions basic to a social system were:

1. the component parts were interdependent and when a decision was taken, or activity undertaken in one area, it affected the remainder of the system,
2. it had a purpose or purposes, the schools main purpose being the education of its students,
3. people were essential to the system, they fulfilled the many roles in the system: principal, vice-principal, department heads, teachers, and students.
4. it was functionally organized with specific tasks for different groupings,

5. the roles had norms of behavior which must be met, teachers had to act according to the recognized behavioral norms to be accepted as teachers,

6. to enforce this role conformity there were negative and positive sanctions available, suspension or dismissal of a principal or teacher, and expulsion of a student.

Hoy and Miskel's model of a social system was not unlike Getzels, Lipham, and Campbell's model. However they saw another group within the system as strongly influencing the achievement of the goals of the total system. This third dimension they referred to as the informal groupings, which they perceived as inevitably functioning within any organization (Fig. 4). In addition as an alternative to the institution they substituted bureaucracy because it conceptualized better the attendant rules and regulations of a school.

Formal
Organizations -> Informal -> Climate -> Intentions -> Social
as a Social Groups Behavior
System

Figure 4

Informal Groups

(Taken from Hoy and Miskel, 1978)

Hoy and Miskel (1978) stated that

the group balances bureaucratic expectations and individual needs. As the groups form, climate and intentions develop that also affect individual behavior (P.43).

The resultant social behavior of individuals was therefore the interaction of these three dimensions (Fig. 5). This dynamic view of the school as a social system appeared to reject that any one person could influence the outcomes of the system. However the role of the principal as leader as perceived both within the school system and in society in general could be the nucleus for determining the school's goals.

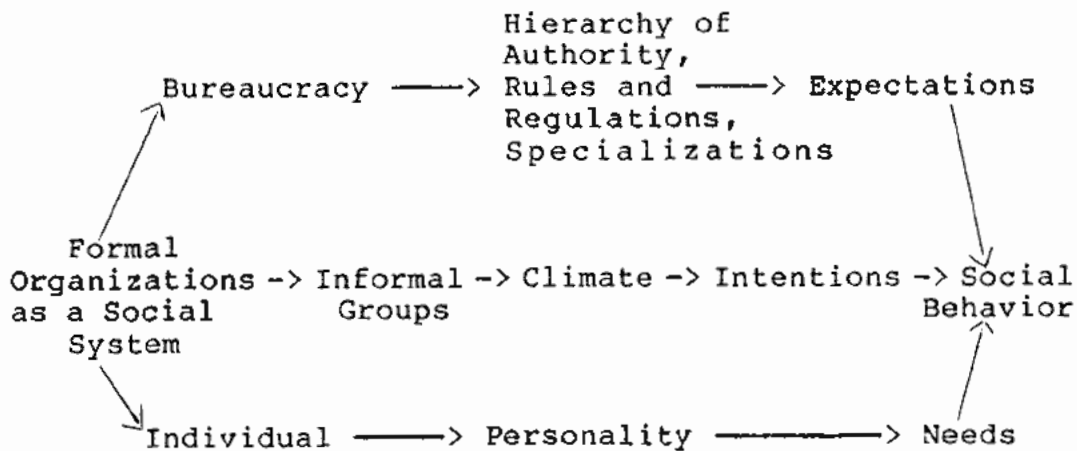


Figure 5

Hoy and Miskel Social Systems

(Taken from Hoy and Miskel, 1978)

Hanson (1985) stated in relation to a social system that "the key characteristics were, (1) a plurality of actors, (2) interaction, (3) a goal, (4) patterned behavior, and (5) a duration or time dimension" (P.60). The author reasoned that the school social system was comprised of a number of subsystems. None of these subsystems was independent, they were interrelated. An action in one subsystem would have a ripple effect on those surrounding systems. It could be concluded that the principal was the main subsystem and therefore whatever the principal did had a greater effect than any of the other subsystems.

Blake and Mouton (1985) proposed four characteristics of an organization that were always present. They were purpose, people, power or hierarchy, and organization culture. Purpose was the reason why the organization existed, it was the goal of the group. The second characteristic of an organization was the presence of people. They were essential to any organization and its purpose or purposes were dependent on them. The third characteristic was power. There was some type of hierarchical authority structure to enable the purpose to be achieved through the efforts of people. Blake and Mouton (1985) defined the fourth characteristic, organization culture as, "the broader framework within which feelings

of membership are experienced" (P.9). The authors elaborated that this culture included the "norms and values that influence how members conduct themselves", either to "prevent members from applying a maximum effort or may encourage them to do so" (P.9). Blake and Mouton's organization universals appeared to be synonymous with the social systems of the other quoted authors.

The models of the school as a social system gave the framework within which the principal must function. The interaction of the individual, informal groups, and bureaucracy would be influenced by the process of administration. How the principal coordinated the human effort involved would appear to influence the school's goals.

Educational Administration

The emphases placed by principals on the bureaucratic, individual, or informal groups dimensions of the social system have determined the style of school administration. The development of the theory of educational administration according to Hoy and Miskel (1978) has been along the following lines: (1) classical organization (1900-1930), (2) human relations approach (1930-1950), (3) behavioral approach (1950 - present). However, these approaches or emphasis overlapped with the classical organization and

human relations approaches still being used in school systems (Hoy and Miskel, 1978). Getzels, Lipham, and Campbell (1968) identified three similar classifications: (1) managerial emphasis, (2) human relations emphasis, and (3) social science emphasis. These theories of educational administration indicated the knowledge on which the principals based their styles. Each was reviewed to provide a background to the differing leadership styles.

Classical Organization

Hoy and Miskel (1978) explained the main concept of the classical organization as perceiving man as a machine with the focus on physical production based on time and motion studies. Magnusen (1977) wrote that "the theory views the organization in structured, static terms and assumes that there is 'one best way' to divide up work and arrange hierarchical levels" (P.6). Each task was divided into its constituent parts with personnel held responsible for specific functions. Authority "flowed" from top to bottom with each department's tasks and authority succinctly defined and rigidly controlled. Getzels, Lipham, and Campbell (1968), in expressing the managerial point of view, commented "that administration was intended to maximize the output of workers in an

organization by applying the principles of scientific management" (P.23).

Human Relations

Hoy and Miskel (1978) explained the human relations approach on the other hand as perceiving man as a social being and that his actions and motives were governed more by varying informal group interactions than by economic necessity. This approach was based on the findings of the Hawthorne studies at the Western Electric Company in Chicago. The major conclusions of this research were that informal groups, their expectations and needs, greatly influenced the organizational goals. These informal groups appeared to have more influence than economic incentives, and an increase in consideration toward the workers by management, increased their morale thereby increasing productivity (Magnusen, 1977). The theory was that the informal groups set the standards to be achieved rather than formal management objectives.

Getzel, Lipham, and Campbell (1968) in a review of educational literature at this time, formulated the following principles of to be used in school administration.

1. Democracy is primarily concerned with human relations; therefore a most important consideration is the principal's dealings with teachers individually and collectively.

2. Simple problems of human relations almost always have wider frames of reference.

3. The single-school faculty is the most natural and efficient unit of democratic action.

4. The principal is in the most advantageous position to offer leadership to the faculty in its attempts to provide itself with democratic experiences.

5. The faculty is a complex social group which requires expert handling to achieve its own best desires.

6. The primary responsibility of the principal is that of facilitation of the interactions of the faculty group so that they may result in maximum benefit to the teachers.

7. All individuals affected by any decision should have a share in determining its character and form (P.39).

Arising from the conflict that occurred between the goals of the organization and the individual was McGregor's Theory X and Theory Y. This was a major proponent of the human relations approach. Sergiovanni and Starratt (1983) explained Theory X as the leader assuming that employees disliked work, avoided responsibility, and therefore need to be led by direct methods. The authors wrote that the "supervisory styles stemming from Theory X were based on mistaken notions of what was cause and what was effect" (P.72). It was the leader's attitude which caused the Theory X behavior but if their attitude were changed then the workers behavior would change also. Sergiovanni and Starratt (1983) explained Theory Y as the leader assuming that employees were not naturally indolent or lacking in motivation for the goals of the

organization but "have become so as a result of experience in organizations" (P.73). This theory according to a number of authors belonged to the human relations and the behavioralist periods, it overlapped both.

Behavioral Approach

Hoy and Miskel (1978) explained that the behavioral approach was based on the behavioral sciences disciplines fused with social relations and formal structure. Various names were linked to the development of this approach including McGregor, Lewin, Likert, Maslow, and Blake and Mouton (Moore, 1982). Moore (1982) wrote that,

the classicists searched for "principles" whereas social scientists tried to "develop." Both, in fact, searched for generalizations which would have wide-spread applicability (P.44-45).

Social scientists emphasized the importance of the individual's contribution to the organization.

Leadership Theories

Several of the theories of leadership style were reviewed to explain the factors involved in leadership. Even though the main emphasis of this research was Blake and Mouton's Grid Theory, it was important to put it in the context of the other main theories.

The first strand of leadership theory focused on the individual and the person's attributes. The idea that inheritance was the source of leadership gave rise to the "great man" theory. Morphet, Johns, and Reller (1982) stated that the writings of the bibliographers and historians instigated the theory rather than empirical research. Lipham and Hoeh (1974) agreed when they wrote concerning the "great man" theory that "studies tend to enshrine leaders, than to explain leadership" (P.177). Stodgill (1974) wrote that this was founded on leaders who were "endowed with superior qualities that differentiate him from his followers" (P.17). This concept of leadership gave rise to the "trait" theory.

Research attempted to identify those personality traits that were common to leaders. Hoy and Miskel (1978) observed that,

many of the traits tentatively isolated as crucial in one study were contradicted in others, that is, in some groups, effective leaders were assertive and aggressive, in others, mild mannered and restrained; in some quick and decisive, in others, reflective and diplomatic (P.177).

Lipham and Hoeh (1974) concurred in writing that no set of traits had been isolated as the necessary requirements for leadership. Stodgill (1974) on the other hand wrote the following:

The leader is characterized by a strong drive for responsibility and task completion, vigor and persistence in pursuit of goals, venturesomeness and originality in problem solving, drive to exercise initiative in social situations, self-confidence and sense of personal identity, willingness to accept consequences of decision and action, readiness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other persons' behavior, and capacity to structure social interaction systems to the purpose at hand (P.81).

The second strand of leadership theory was that proposed by the situational or environmental theorists. Stogdill (1974) indicated according to this theory that the leader always emerged in times of crisis. It was proposed that no matter what the situation or group who required leadership, innately qualified people would come to the fore front. The situation governed the appearance of the leader. Pfiffner and Presthus (1960) in support of this theory stated,

that the popular view of leadership as a complex of personal aptitudes of general applicability must be revised. Instead, certain patterns of leadership behavior are required in certain situations. . . . If there is such a person as a "born leader," it would seem that he must appear in the proper place at the moment when his particular aptitudes are needed (P.93-94).

The third avenue of leadership theory according to Stogdill (1974) sought to integrate two factors: (1) the interaction of the person, and (2) the situation. These theories varied in the emphases placed on either of the

two variables but generally they represented the more recent developments in leadership thinking. Included in the theories were the Path-Goal Theory, Contingence Theory, Theory X and Theory Y, and the Grid Theory. These theories were studied in the next part of the chapter.

Dimensions Of Leadership

Through studies, conducted at the Ohio State University and at University of Michigan, the focus of leadership research shifted from the search for traits of leaders to descriptions of leadership behavior and style (Cox, 1985). Sergiovanni and Starratt (1983) stated that research had identified two principle dimensions of leadership albeit under different names. These differed on the orientation of the leader toward the goals of the organization or toward relations with the members.

Cox (1985) indicated that the Ohio State University research which was further refined by Halpin and Winer (1957) resulted in the four factors: (1) consideration, (2) initiating structure, (3) production emphasis, and (4) sensitivity. These four factors were reduced to the two dimensions of consideration and initiating structure. Halpin (1955) defined consideration as displayed by the leader's "behavior indicative of friendship, mutual

trust, respect, and warmth in the relationship between the leader and the members of the group" (P.18). The second dimension initiating structure he defined as the

leader's behavior in delineating the relationship between himself and the members of his group, and in endeavoring to establish well-defined patterns of organization, channels of communication, and ways of getting the job done (P.18).

Getzels, Lipham, and Campbell (1968) using their administration framework, identified three styles of leadership: (1) normative, (2) personal, and (3) transactional. The normative style placed emphasis on the institutional expectations of behavior. The personal style placed emphasis on the requirements of the individual as opposed to the institution and its expectations. The authors stressed that neither style was better or worse than the other. The style to be used would depend on the situation or the type of organization. Getzels, Lipham, and Campbell (1968) described the third style as the transactional style, focusing "attention to the need for moving toward one style under one set of circumstances and toward the other style under another set of circumstances" (P.148).

All the studies agreed on the dimensions involved in leadership. They proposed that the behavior of the leader would indicate which dimension was of more importance

to the leader. The theories indicated that the dimensions were difficult to combine successfully. The personality of the leader was the major factor in deciding which approach was used. None of the theories proposed one style of leadership to be more effective than any other.

Fiedler's Contingency theory also combined the situation and the personality of the leader. Fiedler's theory was based on the integration of the leader's personality and the situation within which the leadership occurred (Cox 1985). Fiedler (1974) proposed,

that the effectiveness of a task group or of an organization depends on two main factors: the personality of the leader and the degree to which the situation gives the leader power, control and influence over the situation or, conversely, the degree to which the situation confronts the leader with uncertainty (P.65).

The concept of this theory was that the situation determined the most effective leadership style to be utilized. Fiedler (1974) reasoned that the personality of the leader was oriented primarily towards good relationships with employees, or towards the achievement of the tasks. Therefore certain situations were more suitable to each of the two personality orientations. This meant that it was important to match the leader's personality and situation because that determined the resultant degree of leadership effectiveness (Fiedler, 1974). Sergiovanni

and Starratt (1983) suggested that with the contingency theory the tasks and situations should compliment the style of the leader, rather than, the style adapting to the situation and tasks.

Blake and Mouton (1982) argued that the Grid theory of leadership was based on the concept that there was one style which was more effective than any other style (P.275). The authors emphasized that this style was not dependent on either the situation or the personality of the leader. They stressed that Fiedler's Contingency theory was not compatible with the Grid theory, because the Contingency theory did not accept that one style was better than all others. Blake and Mouton (1982) represented the various styles of leadership graphically on a grid with a horizontal and vertical axes. The horizontal axis represented Concern for Production while the vertical axis represented Concern for People (Appendix A). The scale was nine points on each axis giving eighty one possible combinations of leadership style.

Blake and Mouton (1985) defined "Concern for" as indicating "the character and strength of assumptions present behind any given leadership style" (P.10). They argued that all decisions were based on what the leader assumed to be true regarding the variables of the decision

making situation. Blake and Mouton (1985) believed that these assumptions were based on: (1) the type of organization being lead, (2) the leader's values, (3) the leader's personal history, and (4) chance. Concern for Production involved an emphasis on those facets which contributed to the purpose or aims of the organization. The education of the students would be a purpose of the school which all principals would agree on. However the methods for this to be achieved could differ according to the Grid theory. The leader's display of Concern for People could also be varied, and could be provoked by a necessity to be liked by employees to a concern that they achieved their tasks.

Blake and Mouton (1982) stated that the two variables which formed the framework for leadership, Concern for Production and Concern for People, were interdependent but uncorrelated (P.278). The authors' proposed that the two variables were always present and dependent on each other. They reasoned that the variables were not correlated because leadership style depended on the interaction of these two variables. This meant that the 9 in a 9,1 leadership style was not equivalent to a 9 in a 9,9 leadership style. The authors' questionnaires reflected this interdependence when they stated:

When the conceptual premise is that two variables cannot be separated, it follows that any question designed to measure how a leader leads must reflect the character of the interdependence (P. 279).

The main elements of leadership according to Blake and Mouton (1985) were "initiative, inquiry, advocacy, conflict resolution, decision making, and critique" (P.2). They defined each as follows:

1. initiative was to start, stop, or redirect an activity,

2. inquiry was to acquire knowledge of the facts and data from all sources,

3. advocacy was to take a position with personally held convictions,

4. conflict resolution was to perceive disagreements as challenges to be resolved,

5. decision making was the application of leadership to performance,

6. to critique was to evaluate the current practices in operation by a variety of methods.

There were five major styles of leadership which dominate the grid. These five were described as follows.

The 9,1 orientation represented a high Concern for Production coupled with a low Concern for People. This type of leadership style assumed that people would only be productive when totally controlled and directed. As

Blake and Mouton (1985) described "a 9,1 oriented manager's sense of strength comes from feeling powerful, submitting to nothing and to no one and expecting unquestioning subservience from subordinates" (P.19). This was similar to Theory X assumptions, that people did not want to work therefore they must be made. Subordinates did not participate in any part of the decision making process.

The second major style was 1,9 where low Concern for Production was coupled with high Concern for People. With this style the principals' main concern would be the maintenance of good relations with the staff. More often than not this could be at the expense of productivity. Blake and Mouton (1985) believed that a major motivating factor was the "desire for acceptance and approval" (P.37). Criticism or conflict were avoided preferring above all to maintain harmony. Decisions which were likely to be unpopular were postponed while seeking further consultation. This was detrimental to the general well being of the organization.

The third style was 1,1, where low Concern for Production was coupled with low Concern for People. This style was reflected in the leader who kept a low profile with regard to the rest of the organization. The person would be apathetic to productivity and accept

as little responsibility as possible. Interest in faculty would be minimal and those meetings which were unavoidable were kept conflict free.

The fourth style, 5,5, coupled moderate Concern for Production with moderate Concern for People. This leadership style would attempt to maintain reasonable levels of productivity as a trade off for friendly relationships. There was an underlying philosophy, according to Blake and Mouton (1985), that extremism of any kind would be counterproductive and compromise was more important.

The final major style was 9,9 orientation where high Concern for Productivity was coupled with high Concern for People. Blake and Mouton (1985) perceived this style as presuming "a necessary connection between organizational needs for production and the needs of people for full and rewarding work experiences" (P.82). This style of leadership promoted teamwork and involvement in achieving the goals of the organization. Blake and Mouton (1985), in describing this the ideal leadership style, wrote:

This level of integration is possible only through leadership that meets the mature needs of people to commit themselves to corporate objectives through contributions that are beyond the ordinary. The needs of people are met through establishing sound and mature relationships with one another, which is essential to accomplishing organizational goals (P.82).

Utz in a 1972 study sought to "provide information as to existing and 'ideal' leadership styles, and to assess the relevancy of the 'Production' and 'People' grid concepts to more global evaluations of principals" (P.2.). The study consisted of 115 experienced teachers enrolled in graduate courses at two mid-western universities. The teachers were asked to evaluate their principals ranging from excellent to poor. They then had to rank the principal's concern for teachers, school management skills, and for an excellent learning program. Lastly the teachers were to evaluate the principal using a twelve item Principal Leadership Style Questionnaire. The results showed that there was a positive linear relationship between the teachers ranking of excellent to poor and the grid dimensions of Concern for Production, and Concern for People. The higher ranked principals had significantly higher mean scores at the $p < .02$ level, in both the Concern for Production and Concern for People dimensions than the lower ranked principals. Utz (1972) also found a significant difference between the principals' excellence ranking and their concern for teachers, school management skills, and an excellent learning program. Principals evaluated as below average to poor, were ranked higher on the school management skills than on either, the

concern for teachers and concern for the learning program. Utz (1972) concluded that the results indicated "the feasibility of utilizing leadership evaluation schemes incorporating 'task' and 'social-emotional' dimensions in evaluating the performance of educational leaders" (P.4).

The several theories cited did not differ on the dimensions involved in leadership style. However they differed on the resulting interaction between these dimensions. This study was based on Blake and Mouton's Grid theory. This charged that there was one effective leadership style to be used by school principals. Did this imply that the nearer the principal was to a 9,9 style of leadership was related to the achievement of the students? Related literature was reviewed in an attempt to answer this question.

Studies of Principal's Leadership Style

The style of the principal's leadership does have an impact on the school as a social system, but does it have any impact on the test results of the students? This was the main question of the present research.

A study by Stallings and Mohlman (1981) investigated the relationship between leadership style, teacher change, and student behavior in eight high schools. The

results indicated that absences of students was significantly related to a leadership style that enforced consistently clear school policies. They reasoned that if the policy on tardiness reduced significantly the interruptions, then it was logical that students and teachers would perform better in environments free from interruption. Teacher morale and commitment were higher where school rules were explained and enforced, and teachers' professionalism was respected. Stallings and Mohlman (1981) wrote that "where teachers reported burdensome administrative duties and inadequate support services, their commitment to do a good job of teaching tended to be lower" (P.41). Their results showed that with a high directive style of leadership the teachers had lower morale and were less engaged in their work. The authors found no difference between the leadership styles which were most effective in schools predominantly white and affluent, and the less affluent multi-cultural schools.

Brittenham (1982) investigated the administrative organization, processes, and behaviors in high schools that attempted to individualize instruction. He found that there was a conviction among respondents, that the leadership of the principal largely influenced the success of the school instructional program.

Sergiovanni (1984) stated in an article dealing with leadership and excellence in schools that:

schools managed by incompetent leaders, simply don't get the job done. Typically such schools are characterized by confusion and inefficiency in operation and malaise in human climate. Student achievement is lower. Teachers may not be giving a fair day's work for a fair day's pay (P.6).

In an attempt to delineate those characteristics of the effective high school principal, Mazzairell (1985) reviewed current research and found that there were two characteristics of principals of academically effective schools. Firstly, they promoted the importance of academic success frequently recognizing it as worthwhile. Secondly, they preserved an orderly and studious environment within which the academic learning could take place.

Austin (1979), in reviewing research on effective schools, found that the leadership style of the principal was critical. The principal had to delineate the purpose of the school clearly and forcefully. He or she needed to be an instructional leader with high academic expectations for the students and high professional expectations for the teachers. The principals of effective schools felt they were leading and that they had more control over the functioning of the school, its curriculum program, and staff.

Cullers, Hughes, and McGreal (1973) studied research examining the relationship between leadership style and student dissatisfaction. They concluded that;

while our comments are drawn from a sample too small to be conclusive, the authors feel the evidence is strong enough to support the contention that there is a relationship between administrative behavior and pupil satisfaction (P.163).

Sweeney (1983), in a paper on the secondary principal's instructional leadership stated, that the principals in effective schools had systematic goals for high achievement and pursued them actively.

The research reviewed found that there was a relationship between the principal's leadership style and different variables within the school. They all concluded that the principal was extremely important to the functioning of the school, and to the achievement of its goals. They suggested that a principal who was not focusing on the school's goals, with and through the faculty was not leading an effective school. The principal's leadership style could differ in attempting to achieve the school's goals, however Blake and Mouton stated that a 9,9 style of leadership would be most effective.

School Climate

The school as a social system was explored which highlighted the main component parts of that system.

The climate would result from the interaction of the bureaucracy, informal groups, and the individual. Two questions were posed by this research relating to the school's climate. The first was to ascertain the relationship between the principal's leadership style and the school's climate. The second was to ascertain the relationship between the school's climate and the school's Science Research Associates Composite Percentile score.

Litwin and Stringer (1968) stated that organization's climate was,

the perceived subjective effects of the formal system, the informal style of managers, and other important environmental factors on the attitudes, beliefs, values and motivation of people who work in a particular organization (P.5).

Research appeared to conclude that the principal was a singularly important factor in the creation and maintenance of a productive climate. Likert's description of an organization's climate was the main focus of this research.

Likert (1967) proposed four different climates: System 1, Exploitive-authoritative; System 2, Benevolent authoritative; System 3, Consultative; and System 4, Participative. Each system was evaluated according to six variables: leadership processes, motivational forces, communication process, interaction and influence process, decision-making process, and goal setting.

Exploitive-authoritative (System one), and Benevolent authoritative (System two), were very similar to Theory X assumptions. Participative (System 4), was close to Theory Y assumptions. In a Participative (System 4), type of school climate the teachers were valued as motivated professionals, who wished to achieve high educational goals for their students. Their opinions and input to decision making was important for the effective functioning of the school. The students would also be aware of the teachers' role within the school system. High academic goals would be put before the students by the principal and teachers (Likert, 1967).

Participative (System 4), according to Sergiovanni (1983) was the ideal, therefore "it may be more useful in actual situations to speak of tendencies toward System 4 rather than speaking of actually meeting this goal" (P.67). No school therefore would be expected to be actually operating in a Participative climate. However all should be tending toward that System rather than the other Systems.

Hanson (1985) wrote that for a school to develop Participative (System 4), climate it must integrate three characteristics: "(1) the principle of supportive

relationships, (2) group decision making, and (3) high performance work norms" (P.82).

A study by Dwyer (1982) in which forty two principals, chosen by their peers as successful instructional leaders, were interviewed and watched found that they had one common trait. They all focused on improving the climate and instructional organization of their schools. The school's climate for the principals was a facet of the school which could be monitored and changed. They perceived climate as having physical and social aspects. Dwyer (1982) wrote, "in general they treated climate as a diverse set of properties that communicates to students that the school is a pleasant place to be, can help them achieve and is a serious work place" (P.36).

In a famous study of twelve inner London secondary schools, Rutter, Maughan, Mortimer, and Ouston (1979), found significant differences in climate between effective schools and less effective schools. The schools were evaluated on: (1) pupil academic achievement, (2) pupil behavior, (3) pupil attendance, (4) staff organization and actions, and (5) stability of staff. The authors reported that in the more successful schools the teachers were more involved and interested in the educational goals of the school. Their views were taken into consideration

before decisions were taken. There was more faculty co-operation and planning among the faculty themselves. The authors concluded that the principal had a very considerable impact on the school's climate. However, as the study did not focus on the leadership styles, they could not define the most appropriate. Nevertheless Rutter, Maughan, Mortimer, and Ouston (1979) observed varying approaches by effective principals but "it was likely that these had essential elements in common" (P.204).

McDill, Rigsby, and Meyers (1983) studied twenty public high schools with similar demographic, socio-economic, and community characteristics. The purpose of the research was to study the effects of the educational climate of the school on its academic achievement. The school's achievement was measured using a standardized test. The authors found that if academic performance was stressed and high goals were set then achievement was higher. Secondly, the more the atmosphere of intellectualism permeated the school, the greater the school's academic achievement. The role of the principal's leadership in pursuing these goals was central to achieving the academic atmosphere.

Troisi (1983) concurred with this when arguing that the principal's leadership was the critical factor in

building an academic ambience in the school. He wrote that to establish an effective school climate the principal needed to set high academic goals, stress the importance of teaching to teachers, to students, and parents. In addition the principal needed to reduce intrusions and disruptions, be consistent in enforcing regulations and policies, and hold high expectations of self, teachers and students. He stressed the importance of the principal in creating an atmosphere where the inter-staff dialogue related to school matters and teaching was open and productive.

Austin (1979) wrote concerning unusually successful schools, that the results of research conducted by Guditus and Zirkel (1979) indicated that the principals were perceived by faculty and students as experts in a wide range of educational topics. They were instructional leaders with high academic expectations for the students. The teachers also held these high expectations for the students. Related to the school's climate and high academic achievement Austin (1979) proposed, that the home and neighborhood influences have an impact. He wrote that the

school climate must provide stimulating ideas and facilitate the exchange of ideas with colleagues. . . . When the teachers and other school personnel feel successful about education in their school,

children also believe they can achieve and they do (P.14).

From the review of research the school's climate could be defined as, the set of internal characteristics which distinguishes schools from each other and influences the behavior of teachers and students. It was perceived as a dynamic force within the system which motivated the members positively or negatively. They were not and could not be immune from its influence.

Summary

This chapter has reviewed the concept of a social system and the position of educational administration within the social system. The theories of leadership were reviewed with particular attention to Blake and Mouton's Grid theory. A review of literature relating to student achievement and the leadership style of the principal followed. The school climate and particularly Likert's four Systems were examined. Finally, the literature relating to student achievement and the school's climate was reviewed.

The research repeatedly pointed to the importance of the principal as leader of the school. No other member of the faculty could fulfill this role. The bureaucratic expectations for the role of principal

could only be fulfilled if the principal accepted his or her position as leader. The leadership style that was most effective was not clear. However, the research did indicate that the principal needed a high Concern for Production and a high Concern for People. This was a principal enthusiastic for high academic achievement who motivated the faculty by making them partners in educating the students.

CHAPTER 3

Procedures

The following were the procedures pursued in this study:

1. A list of high schools was obtained from the State Department of Education. State high schools with student populations between 600 and 900 students and with grades nine through twelve were selected. This provided a total of sixty eight high schools which were eligible for inclusion. The sixty eight high schools were represented by fifty seven school districts.

2. The superintendents of those school districts with a school population between 600 and 900 students were sent a letter (Appendix B) with a returnable card (Appendix C) requesting permission to include their district in the study.

3. Further information was sent to those superintendents who requested it.

4. A follow-up telephone call was made to superintendents who failed to reply initially.

5. The names of the schools were entered onto the computer, and fifteen schools were randomly selected.

6. A letter (Appendix D) was sent to each of the fifteen principals of the selected schools requesting each faculty's cooperation in the research. The proposed date for the dispatching of the questionnaires to the teachers was included.

7. Lists of teachers from the fifteen school's were obtained from the State Department of Education.

8. From a list of teachers for each of the fifteen selected schools, forty teachers from each school were randomly selected.

9. The two questionnaires (Appendixes E and F) with an accompanying letter (Appendix G) were dispatched to individual teachers on the appointed day, as indicated in the letter to the principals. A stamped addressed return envelope was enclosed.

10. A letter (Appendix G) was sent to each of the principals requesting each school's eleventh grade Science Research Associates Composite Percentile score for the year 1984-85.

11. The responses from the questionnaires were hand tabulated to generate the data for this study.

12. The Pearson Product Moment Coefficient of Correlation was selected as the statistical instrument to be used.

13. The hypothesis were tested at the 0.05 level of confidence using the Pearson Product Moment Coefficient of Correlation.

14. Conclusions were drawn from the results and recommendations made.

Chapter 4

Analysis of Data

The purpose of this study was to determine if the principal's leadership style had a positive affect on students Science Research Associates Composite Test scores. Two questionnaires were used, the Principal Leadership Style Questionnaire to ascertain the principal's style of leadership and the Likert Profile of a School Questionnaire, to ascertain the school's climate. The school's Scientific Research Associates Composite Percentile score was used as an indicator of the student's achievement. Firstly, it was hypothesized that there was no correlation between principal's leadership style and Science Research Associates Composite Percentile score. Secondly, it was hypothesized that there was no correlation between the principal's leadership style and the school's climate. Thirdly, that there was no correlation between the school's climate and the Science Research Associates Composite Percentile score.

Fifty seven superintendents in the State of Virginia were initially contacted of which forty six replied. Thirty two superintendents gave permission to be included in the study, eight declined and six superintendents

sought further information. Following further contact with seventeen superintendents, ten gave permission, three refused and four failed to reply. As a result forty two school districts representing fifty one schools were included in the study. This represented a 75 percent acceptance rate on the part of the superintendents. None of the fifteen principals declined to participate in the research. Forty full-time teachers were randomly selected from the faculties in each of the schools.

The percentage of questionnaires returned from the forty teachers in the fifteen selected schools is shown in Table 1. Six hundred teachers were sent the questionnaires and three hundred and sixty seven returned them. This represented a 61 percent return. Of the returned questionnaires thirty eight were spoiled which reduced the number of usable questionnaires to three hundred and twenty nine.

The questionnaires classified as spoiled resulted from questionnaires left unanswered. In some cases the teachers indicated that there was no suitable answer. Other teachers appeared to have inadvertantly missed a page of questions.

The Science Research Associates Composite Percentile returns for each school are shown in Table 2. They ranged

Table 1
Returned Questionnaires from Teachers

School	Number Returned	Spoiled	Number Used	Percentage Used
A	19	2	17	42.5 %
B	23	3	20	50.0 %
C	31	3	28	70.0 %
D	30	4	26	65.0 %
E	26	3	23	57.5 %
F	21	2	19	47.5 %
G	21	0	21	52.5 %
H	29	3	26	65.0 %
I	30	2	28	70.0 %
J	22	4	18	45.0 %
K	27	2	25	62.5 %
L	23	3	20	50.0 %
M	19	3	16	40.0 %
N	28	2	26	65.0 %
O	18	2	16	40.0 %

* Number Sent = 40 each school

Table 2
Schools Science Research Associates
Composite Percentiles

School	Percentile
A	56
B	59
C	60
D	53
E	45
F	49
G	57
H	53
I	53
J	36
K	44
L	38
M	45
N	43
O	29

from the twenty ninth percentile to the sixtieth percentile. Schools D, H, and I all recorded at the fifty third percentile. Schools E and M were recorded at the forty fifth percentile. An analysis of the leadership dimensions Concern for Production and Concern for People resulted in the data in Table 3. The mean, range and standard deviation for both dimensions were examined. Nine schools, A, B, D, E, F, J, K, M, and N, rated their principals higher in Concern for People than Concern for Production. Five of these schools, D, J, K, M, and N, were only slightly higher while the remaining four schools, A, B, E, and F, were substantially higher in Concern for People. Six schools, C, G, H, I, L, and O, rated their principals higher in Concern for Production than Concern for People. Two schools, G and I perceived their principals as only slightly higher in Concern for Production than Concern for People. The remaining four schools rated their principals as higher in Concern for Production than Concern for People. The number of respondents from each school did not appear to influence the results.

The range of scores indicated that the teachers perceived the style of leadership of the principal in different ways. The standard deviation scores indicated where two thirds of the staff were placed around the mean

Table 3

The Means, Range and Standard Deviation of the Principals Leadership Style

School	N	Concern for Production			Concern for People				
		Range	Mean	S.D.	Range	Mean	S.D.		
A	17	(32-100)	68	59	19.40	(36-96)	60	69	17.48
B	20	(52-104)	52	52	12.69	(44-96)	52	76	14.33
C	28	(60-108)	48	87	12.13	(40-108)	68	74	24.16
D	26	(28-96)	68	63	18.90	(28-96)	68	64	18.77
E	23	(20-100)	80	53	22.08	(16-88)	72	61	19.95
F	19	(36-84)	55	55	18.57	(52-104)	52	73	21.61
G	21	(36-96)	60	78	14.34	(52-92)	40	75	14.40
H	26	(60-104)	44	84	9.71	(24-92)	68	60	18.61
I	28	(40-104)	64	84	17.44	(40-100)	60	82	13.27
J	18	(36-92)	56	68	14.08	(32-100)	68	74	18.67
K	25	(20-104)	84	70	20.26	(20-104)	84	75	50.20
L	20	(40-104)	64	69	16.83	(36-96)	60	60	16.56
M	16	(36-92)	56	61	15.59	(36-100)	64	66	18.48
N	26	(32-92)	60	63	15.53	(40-100)	60	64	29.78
O	16	(44-92)	48	61	18.49	(28-92)	64	50	17.28

score. In schools D, G, and L the standard deviations were very similar for Concern for Production and Concern for People but the means were different. In the remaining schools the standard deviations were close, except in schools C and H where there was substantial differences. In schools C and H where the teachers were more definite about the principals' Concern for Production, they were not the same uniform opinion when rating the principals on the Concern for People dimension.

The Pearson Product Moment Coefficient of Correlation was used to examine the relationship between the leadership dimensions Concern for Production and Concern for People (Table 4). With thirteen degrees of freedom to be significant a correlation coefficient of $r = 0.514$ at the 0.05 level of confidence and $r = 0.641$ at the 0.01 level of confidence was needed. The test resulted in a correlation coefficient of $r = 0.86$ which was significant at the 0.01 level of confidence.

Testing of Hypothesis

The Pearson Product Moment Coefficient of Correlation was used to test the primary hypothesis. This hypothesis stated that there was no correlation between the principal's leadership style and Science Research Associates Composite Percentile score. For thirteen degrees of freedom to be significant a correlation coefficient of $r = 0.514$ at

Table 4

Correlation Coefficient between Concern for Production
and Concern for People

School	Concern for Production X	Concern for People Y	
A	1008	1178	
B	1584	1512	
C	2436	2072	
D	1644	1676	
E	1220	1395	$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$
F	1040	1384	
G	1647	1571	$= \frac{34007771}{\sqrt{[49411196][31421036]}}$
H	2195	1556	
I	2341	2300	$= \frac{34007771}{39402423}$
J	1217	1336	
K	1760	1864	$= 0.86$ significant at the 0.01 level
L	1384	1199	
M	968	1056	
N	1644	1808	
O	1044	850	

* $r = 0.641$ significant at the 0.01 level

the 0.05 level of confidence was required or $r = 0.641$ at the 0.01 level of confidence. The results of the test showed a correlation coefficient of $r = 0.54$ between the Science Research Associates Composite Percentile scores and Concern for Production (Table 5). This was significant at the 0.05 level but not at the 0.01 level of confidence. The correlation coefficient between the Science Research Associates Composite Percentile scores and Concern for People gave $r = 0.66$ (Table 6). This was significant at the 0.05 level and at the 0.01 level of confidence. The null hypothesis that there was no correlation between the principal's leadership style and Science Research Associates Composite Percentile score was rejected.

The Pearson Product Moment Coefficient of Correlation was used to test the second hypothesis. This hypothesis stated that there was no correlation between the principal's leadership style and the school's climate. With thirteen degrees of freedom to be significant a correlation coefficient of $r = 0.514$ at the 0.05 level of confidence was required and a $r = 0.641$ at the 0.01 level of confidence. The results of the test between the Likert Profile of a School and the Concern for Production dimension showed $r = 0.94$ which was significant at the

Table 5

Correlation Coefficient between Science Research
Associates Composite Percentile Scores and
Concern for Production

School	Composite Percentile X	Concern for Production Y	
A	56	1008	
B	59	1584	
C	60	2436	
D	53	1644	
E	45	1220	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$
F	49	1040	
G	57	1647	$= \frac{494445}{\sqrt{(17250)(49411196)}}$
H	53	2195	
I	53	2341	$= \frac{494445}{923224.31}$
J	36	1217	
K	44	1760	$= 0.536$ significant at the 0.05 level
L	38	1384	
M	45	968	
N	43	1644	
O	29	1044	

* $r = 0.514$ significant at the 0.05 level

Table 6

Correlation Coefficient between Science Research
Associates Composite Percentile Scores and
Concern for People

School	Composite Percentile X	Concern for People Y	
A	56	1178	
B	59	1512	
C	60	2072	
D	53	1676	
E	45	1395	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$ $= \frac{486045}{\sqrt{(17250)(31421036)}}$ $= \frac{486045}{736215.23}$ $= 0.66 \text{ significant at the } 0.01 \text{ level}$
F	49	1384	
G	57	1571	
H	53	1556	
I	53	2300	
J	36	1336	
K	44	1864	
L	38	1199	
M	45	1056	
N	43	1808	
O	29	850	

* $r = 0.641$ significant at the 0.01 level

0.01 level of confidence (Table 7). The results of the test between the Likert Profile of a School and the Concern for People dimension showed $r = 0.97$ which was significant at the 0.01 level of confidence (Table 8). The null hypothesis which stated that there was no correlation between principal's leadership style and school's climate was rejected.

The Pearson Product Moment Coefficient of Correlation was used to test the third hypothesis. This hypothesis stated that there was no correlation between the school's climate and Science Research Associates Composite Percentile score. For thirteen degrees of freedom a correlation coefficient of $r = 0.514$ at the 0.05 level of confidence and $r = 0.641$ at the 0.01 level of confidence were required. The results of the test between Likert Profile of a School and Science Research Associates Composite Percentile score gave a correlation coefficient of $r = 0.55$ (Table 9). This result was significant at the 0.05 level of confidence but not at the 0.01 level. The null hypothesis which stated that there was no correlation between the school's climate and Science Research Associates Composite Percentile score was rejected.

The Pearson Product Moment Coefficient of correlation was used to examine if there was any significant correlation between Science Research Associates Composite Percentile

Table 7

Correlation Coefficient between Likert Profile of
a School and Concern for Production

School	Likert Profile Score X	Concern for Production Y	
A	1497	1008	
B	1874	1584	
C	2687	2436	
D	2058	1644	
E	1713	1220	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$
F	1569	1040	
G	1875	1647	$= \frac{45292722}{\sqrt{(47367234)(49411196)}}$
H	2173	2195	
I	2814	2341	$= \frac{45292722}{48378422}$
J	1532	1217	
K	2136	1760	$= 0.936$ significant at the 0.01 level
L	1654	1384	
M	1284	968	
N	2332	1644	
O	1212	1044	

* $r = 0.641$ significant at the 0.01 level

Table 8

Correlation Coefficient between Likert Profile of
a School and Concern for People

School	Likert Profile Score X	Concern for People Y	
A	1491	1178	
B	1874	1512	
C	2687	2072	
D	2058	1676	
E	1713	1395	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$
F	1569	1384	
G	1875	1571	$= \frac{37317132}{\sqrt{(47367234)(31421036)}}$
H	2173	1556	
I	2814	2300	$= \frac{37317132}{38578849}$
J	1532	1336	
K	2136	1864	$= 0.967$ significant at the 0.01 level
L	1654	1199	
M	1284	1056	
N	2332	1808	
O	1212	850	

* $r = 0.0641$ significant at the 0.01 level

Table 9

Correlation Coefficient between Likert Profile of a
School and Science Research Associates Composite
Percentile Scores

School	Composite Percentile A	Likert Profile Score Y	
A	56	1491	
B	59	1874	
C	60	2687	
D	53	2058	
E	45	1713	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$
F	49	1569	
G	57	1875	$= \frac{497670}{\sqrt{(17250)(47367234)}}$
H	53	2173	
I	53	2814	$= \frac{497670}{903927.42}$
J	36	1532	
K	44	2136	$= 0.55$ significant at the 0.05 level
L	38	1654	
M	45	1284	
N	43	2332	
O	29	1212	

* $r = 0.514$ significant at the 0.05 level

score and the six categories of the Likert Profile of a School. These six categories were leadership processes, decision-making process, communication process, interaction and influence process, goal setting and motivational forces. With thirteen degrees of freedom the a correlation coefficient of $r = 0.514$ at the 0.05 level of confidence was required. Two of the correlation coefficients were significant at the 0.05 level of confidence. The correlation coefficient between Science Research Associates Composite Percentile score and leadership processes gave $r = 0.524$ which was significant at the 0.05 level of confidence (Table 10). The correlation coefficient between Science Research Associates Composite Percentile score and motivational forces gave $r = 0.55$ which was significant at the 0.05 level of confidence (Table 11). The remaining correlation coefficients were not significant at the 0.05 level of confidence (Table 12).

Table 10

Correlation Coefficient between Science Research
Associates Composite Percentile and Leadership
Category of Likert Profile of a School

School	Composite Percentile X	Leadership Y	
A	56	237	
B	59	310	
C	60	453	
D	53	332	
E	45	258	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$
F	49	275	
G	57	316	$= \frac{85215}{\sqrt{(17250)(1531314)}}$
H	53	339	
I	53	480	$= \frac{85215}{162527.42}$
J	36	263	
K	44	376	$= 0.524$ significant at the 0.05 level
L	38	258	
M	45	197	
N	43	382	
O	29	180	

* $r = 0.514$ significant at the 0.05 level

Table 11

Correlation Coefficient between Science Research
Associates Composite Percentile and Motivation
Category of Likert Profile of a School

School	Composite Percentile X	Motivation Y	
A	56	247	
B	59	382	
C	60	472	
D	53	373	
E	45	289	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$
F	49	265	
G	57	324	$= \frac{94410}{\sqrt{(17250)(1703840)}}$
H	53	394	
I	53	505	$= \frac{94410}{171438.74}$
J	36	281	
K	44	354	$= 0.55$ significant at the 0.05 level
L	38	297	
M	45	231	
N	43	424	
O	29	192	

* $r = 0.514$ significant at the 0.05 level

Table 12

Correlation Coefficients between Science Research
 Associates Composite Percentile Scores and
 Four Categories of Likert Profile
 of a School

Categories	Composite Percentile
Decision-Making	r = 0.494 not significant
Communication	r = 0.490 not significant
Interaction-Influence	r = 0.500 not significant
Goal Setting	r = 0.474 not significant

* r = 0.514 significant at the 0.05 level

Chapter 5

Summary, Conclusion, and Recommendations

The purpose of this research was to determine if the principal's leadership style had a positive affect on students Science Research Associates Composite Test score. The problem was to determine the correlation between the leadership style of the principal and the school's Science Research Associates Composite Percentile score, the leadership style of the principal and the school's climate, and the school's climate and Science Research Associates Composite Percentile score.

Summary

The three hypothesis were stated in the null. All hypothesis were tested at the 0.05 level of confidence. The first hypothesis stated there was no correlation between principal's leadership style and Science Research Associates Composite Percentile score. This hypothesis was rejected. The second hypothesis stated there was no correlation between principal's leadership style and school's climate. This hypothesis was rejected. The third hypothesis stated there was no correlation between

school's climate and Science Research Associates Composite Percentile score. This hypothesis was also rejected.

The Principal Leadership Style Questionnaire was used to measure the leadership style of the principals as perceived by the teachers. The Likert Profile of a School Questionnaire was used to measure the school's climate as perceived by the teachers. A random sample of fifteen high schools with school populations between six hundred and nine hundred students were selected from public high schools in the State of Virginia. Forty teachers were randomly selected from each of the fifteen schools to give a total teacher input of six hundred.

Conclusions

The analysis of the two dimensions of leadership style indicated that teachers do perceive differences in the principal's style. These perceptions varied greatly within schools but the dominant principal style was elicited. The reasons for the variations of perception was not part of this research. However, it appeared reasonable to conclude that the teachers' understanding and perceptions of the issues involved in leadership style could be different. The principals perceived as having a 7,7 style or a 7,6 style of leadership were in schools recording the higher Science Research Associates Composite Percentile scores. The 7,7 style indicated

principals who had an above average Concern for Production combined with an above average Concern for People. The ideal according to Blake and Mouton (1985), was a 9,9 style with a 5,5 style being average.

A high correlation was recorded between the leadership style of principal and school's climate (Tables 7 and 8). This would indicate the principal has an important role in creating the ambience of the school. This significant correlation coefficient did not imply that the principal was the only factor related to school's climate. Part of the very high correlation was probably due to similar aspects being tested in both questionnaires.

There was a significant correlation coefficient between the school's climate and Science Research Associates Composite Percentile score (Table 9). The school's climate was either Benevolent authoritative (System 2) tending toward Consultative (System 3), or Consultative (System 3) tending very slightly towards Participative (System 4). The higher percentiles were recorded in Consultive (System 3) tending toward Participative (System 4). This indicated that schools should be pursuing Participative (System 4). The breaking down of the school's climate into the six categories resulted in significant correlations between leadership processes and motivational forces only. The remaining four categories,

decision-making process, goal setting interaction and influence process, and communication processes, while not being significant, were positive and very close to significance.

Recommendations

This research has shown there was a significant relationship between the principal's leadership style and students academic achievement. It has also shown a significant relationship between the principal's leadership style and the school's climate. This was not a cause and effect relationship. However principals should be aware of the relationship and exercise leadership and not abdicate that responsibility.

This research has indicated the importance of the principal as the leader within the school. It has pointed out the style of leadership which seems to be most effective. The identification of suitably qualified people to fulfill this role therefore is extremely important. It is recommended that the selection process include the following steps. The first would be the initial recruitment from the teaching ranks of teachers who display some of the qualities of leadership. The school districts' boundaries should not set the limits in the seeking of potential candidates. The total teaching population should be considered as a source. The recruitment

may be done by principals and superintendents, by teachers' colleagues, or by interested teachers themselves. The second step in the process would be for these recruits to attend quality university supervision and administration courses. It is vital that these courses focus on the principal's leadership style necessary to be an effective leader. The third step in the process would be, that during this period of training further evaluation by the university faculty as to the suitability of the candidate for principal should take place. Those candidates who are appointed principals should have a four year probationary period, during which time the faculty's evaluation should be an important factor in the principal's appointment. Further to this, the principal would be provided with inservice courses in order to grow and develop as the school's leader.

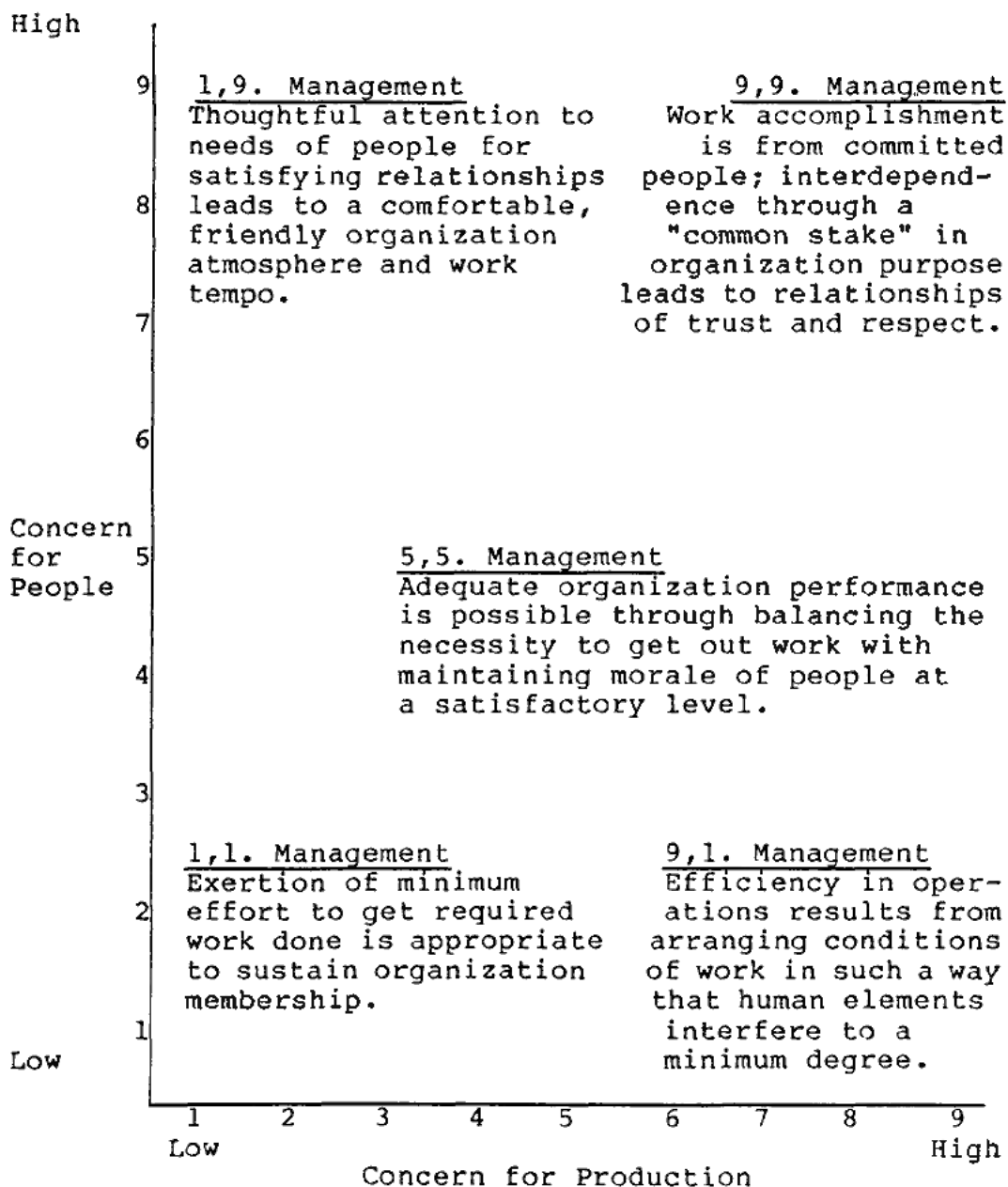
For today's principals inservice education courses should be set up to make them aware of the leadership style which appears to be most effective. Their present style should be ascertained and assistance provided in developing or amending these competencies. Today's teachers also need to be educated through inservice courses in leadership and their role in it. They may be offered preservice and inservice opportunities to develop competencies for participatory decision-making. This

would allow teachers to work within the realm of the principal's leadership role and to function productively in the total operation of the school.

As this study focused on high schools with student populations between 600 and 900 students it would be useful to replicate this study for larger high schools. Also more specific demographic information about the principals and teachers could be included. A longitudinal study over a period of three years examining principal's leadership style, the school's climate, and student achievement may give a more cause and effect relationship.

Appendix A

The Grid



Appendix B

Letter to the Superintendents

January 20 1986

Dear Superintendent:

My proposed thesis, which is in part requirement for the Masters of Education degree from the University of Richmond, is entitled, "Principal's Leadership Style and Science Research Associate Test Scores." This research will focus on the effect that the principal's leadership style may have on the school's climate and SRA scores. It is intended to conduct the study using a random sample of high schools, with student populations between six and nine hundred, in the State of Virginia.

A school from your district has been selected, and therefore I am requesting your permission to approach the principal, seeking his or her, and their faculty's cooperation. This would require the answering of two short questionnaires by the faculty, and the 1984-85 SRA Composite Percentile score for each school from the principal. The results of this project will be of assistance to the education department of the University of Richmond, in the preparation of teachers and principals for the State of Virginia.

Any comments or questions which you may have, concerning any aspect of the research will be welcome. Please delete the appropriate word on the enclosed card. Thanking you for your assistance and cooperation.

Sincerely Yours,

Appendix C
Returnable Card

Dr. John Doe
Superintendent

Yes, you may include our school district in
your study.

No, you may not include our school district
in your study.

Comments:

Appendix D

Letter to the Principals

March 7 1986

Dear Principal:

Presently I am in the process of completing the requirements for the Master of Education degree from the University of Richmond. My research thesis is entitled, "Principals' Leadership Style and Science Research Associates Test Scores." The study is intended to contribute to the understanding of one characteristic of an organization, namely "leadership". It is proposed to conduct this research, with twenty randomly selected State high schools, with student populations between six and nine hundred. All schools will retain their anonymity by the assignation of a designated number.

Dr. J. Doe District Superintendent has agreed to the inclusion of your school district in the study. The research will require the completing by the faculty of two questionnaires. The 1984-85 school average SRA composite score of eleventh grade is required from the principal. The project has been organized to use a minimum of principal's and faculties time, and still obtain the maximum of benefit. Each teacher will be sent the questionnaires by March 26th with a self addressed envelope. The average time needed to complete the questionnaires is thirty minutes.

In the design of this study, particular attention has been given to insuring the confidentiality of the data and the anonymity of all individual respondents. Individual teachers responses will not be identified, and the schools involved in the study will not be referred to by name in the thesis. All data will be treated as group data and schools will be identified only by code.

I very much appreciate your consideration and support in this study. If you or your faculty have any questions, or are interested in the data for your school, I would be pleased to answer your questions and share the results with you.

Yours sincerely

Appendix E

Principal Leadership Style Questionnaire

In the following set of statements, please circle the letter of the statement in each set which best reflects the conditions at your school. Please be sure to circle an item for all 12 sets.

1. The relationship of most teachers to the principal involved:
 - A. Staying out of his way as much as possible
 - B. That of supervisor and subordinate
 - C. A give and take, one-to-one exchange
 - D. A friendly and jovial relationship
 - E. A synchronized and cooperative effort.
2. On the whole, the principal appeared to:
 - A. do very little planning
 - B. cooperatively and extensively plan, allowing for flexibility in procedure
 - C. plan only in a very broad way.
 - D. plan realistically in a way which prescribed most procedures.
 - E. individually plan in such a way as to specifically prescribe almost all procedures.
3. Violations of procedure by teachers were usually dealt with by the principal's:
 - A. turning his head to avoid it.
 - B. taking direct disciplinary action.
 - C. taking a forgive and forget attitude.
 - D. discussing the matter with the teacher in order to understand the violation in its broader context.
 - E. making it clear what the proper procedure was in order to prevent future problems.
4. Teacher's meetings at the school were largely:
 - A. friendly social gatherings.
 - B. open, candid, and authentic communication between teachers and administrators.
 - C. explanations of the decisions which the administrators had already made.
 - D. regarded with apathy by teachers and administrators.
 - E. give and take discussions which the administrators sometimes weighed in their decisions.

5. When conflicts arose among the staff, the principal generally:
 - A. sought a compromise solution - "we split the difference."
 - B. "put his head in the sand."
 - C. examined the problem in the core of its educational base and sought to identify the common stakes of the participants.
 - D. tried to smooth it over by talking teachers out of it.
 - E. dealt firmly in suppressing it.

6. With respect to curriculum changes proposed by teachers the principal:
 - A. discouraged or stifled most significant changes.
 - B. promoted and rewarded many teacher curriculum innovations.
 - C. would first determine if the superintendent's office approved of them.
 - D. encouraged those changes which did not seriously "rock the boat."
 - E. usually did his best to avoid any kind of personal involvement.

7. With respect to teacher hiring, efforts were made by the principal to:
 - A. consider the needs of the job in relation to the abilities of the applicant.
 - B. secure "well rounded" personnel.
 - C. in a minimal way to secure minimally qualified personnel.
 - D. secure personnel who "fit" into the organization.
 - E. get people who know how to teach ("know how to get the job done.")

8. With respect to orienting new teachers, the principal took the approach of:
 - A. putting the new teachers out to "sink or swim" on their own merits.
 - B. orientation of teachers to the point of making them aware of school procedures.
 - C. an extensive orientation which enabled the new teacher to see his work and position in relation to the total school program.
 - D. easing them into the social group by the use of a maximal number of social contacts.
 - E. permitting them to go their own way as they chose.

9. In his teacher evaluation, the principal:
- A. clearly and directly let a teacher know what his limitations were.
 - B. adopted a friendly, non-critical approach.
 - C. attempted to identify the means by which the teacher could achieve mutually agreed upon teaching goals.
 - D. utilized about an equal dose of praise and criticism.
 - E. either did none or did not reveal the results.
10. The descriptive phrase which perhaps best characterizes the behavior of the principal is:
- A. passively satisfied.
 - B. other-directed (took his cues from the environment).
 - C. production oriented.
 - D. respect and trust of others.
 - E. a "realistic" compromiser.
11. The goals of the school seemed to be largely:
- A. centered around linking individual effort and organizational purposes.
 - B. put on a material, quota basis (e.g., "more students achieving at a higher level.")
 - C. very general ones which everybody could support.
 - D. neither explicitly nor implicitly identifiable.
 - E. balanced between pupil achievement and teacher satisfaction dimensions.
12. Relations among teachers at the school generally centered around a theme of:
- A. apathy; teachers did not express much concern for either their work or other staff members.
 - B. cooperation; teachers were highly concerned about the professional and personal welfare of other teachers.
 - C. competitiveness; teachers were highly conscious of how their performance compared with others.
 - D. friendliness; teachers were mostly concerned about getting along well with their peers.
 - E. a balanced approach; concerns were about equally balanced between professional and social matters.

Appendix F

Likert Profile of a School Questionnaire

On the following pages is a list of items that may be used to express your perception of the organizational characteristics of your school. Please circle the appropriate letter.

1. How often is your principal's behavior seen as friendly and supportive by teachers?
A. Rarely B. Sometimes C. Often D. Very frequently
2. How much confidence and trust does your principal have in his\her teachers?
A. A great deal B. Substantial amount C. Some D. Not very much.
3. How much confidence and trust do you have in your principal?
A. Not very much B. Some C. Substantial amount D. A great deal.
4. How free do you feel to talk to the principal about academic matters, such as course content, instructional plans, teaching methods, your work, etc?
A. Very free B. Rather free C. Somewhat free D. Not very free
5. How often are your ideas sought and used by the principal about academic matters?
A. Rarely B. Sometimes C. Often D. Very frequently
6. What is the direction of the flow of information about academic matters?
A. Downward from principal to teacher to pupil. B. Mostly downward C. Down and up D. Down, up and between people
7. What is the direction of the flow of information about non-academic school matters?
A. Downward from principal to teacher to pupil. B. Mostly downward C. Down and up D. Down, up and between people.
8. Are downward communications accepted?
A. Almost always accepted. If not, openly and candidly questioned.
B. Usually accepted, sometimes cautiously C. Some accepted, some viewed with suspicion D. On the surface, yes. Secretly, no. Viewed with great suspicion.

9. How accurate is upward communication?
- A. Usually inaccurate
 - B. Often inaccurate
 - C. Fairly accurate
 - D. Accurate
10. How well does your principal know the problems faced by teachers?
- A. Very well
 - B. Quite well
 - C. Rather well
 - D. Not very well
11. How often do you try to be friendly and supportive to your principal?
- A. Rarely
 - B. Sometimes
 - C. Often
 - D. Very frequently
12. How often do you try to be friendly and supportive to other teachers?
- A. Rarely
 - B. Sometimes
 - C. Often
 - D. Very frequently
13. What is the character and amount of interaction in your school between principal and teachers?
- A. Extensive, friendly, high degree of confidence and trust.
 - B. Moderate, often fair amount of confidence and trust.
 - C. Little, principal and teacher distant from one another.
 - D. Little, usually with fear and distrust.
14. What is the character and amount of interaction in your school among teachers?
- A. Extensive, friendly, high degree of confidence and trust.
 - B. Moderate, often fair amount of confidence and trust.
 - C. Little, principal and teacher usually distant from one another.
 - D. Little, usually with fear and distrust.
15. How much cooperative teamwork is present in your school among principal, teachers, pupils?
- A. Very little
 - B. Relatively little
 - C. Moderate amount
 - D. Very substantial amount throughout school
16. At what level are decisions made about school matters, such as instructional plans, teaching methods, student behavior?
- A. Principal, teachers, and pupils participating in decisions affecting them.
 - B. Broad policy at top; more specific decisions at lower levels.
 - C. Policy at top; specific decisions by teachers, usually checked by principal before action.
 - D. Bulk at top; by principal.

17. Is decision-making in your school based on man-to-man or a group pattern of operation?
- A. Man-to-man only B. Man-to-man almost entirely
C. Both man-to-man and group D. Largely group
18. In general, what does the decision-making process contribute to the desire of teachers and pupils to do a good job?
- A. Not very much often weakens it B. Relatively little
C. Some contribution D. Substantial contribution
19. To what extent are decision makers aware of the problems of teachers?
- A. Generally well aware B. Moderately aware C. Aware of some, unaware of others D. Often unaware or only partially aware
20. To what extent are teachers involved in decisions related to their work?
- A. Not at all B. Occasionally consulted C. Usually consulted
D. Fully involved in all decisions
21. Who holds high performance goals for your school?
- A. Principal, teachers, pupils, parents B. Principal, most teachers, some pupils C. Principal and some teachers
D. Principal only
22. Who feels responsible for achieving high performance goals?
- A. Principal only B. Principal and some teachers C. Principal, most teachers, some pupils D. Principal, teachers, pupils
23. How much secret resistance is there to achieving high performance goals?
- A. Little or no resistance and cooperation B. Some resistance and some cooperation C. Moderate resistance D. Strong resistance
24. In what manner are goals established?
- A. Issued by principal B. Goals issued teachers may comment
C. Goals issued after discussion with teachers
D. Goals usually established by group participation

25. What is the level of performance goals which the principal seeks to have the school achieve?
- A. Extremely high goals
 - B. Very high goals
 - C. High goals
 - D. Average goals
26. What is the general attitude of teachers toward your school as a place to work?
- A. Strongly favorable
 - B. Usually favorable
 - C. Sometimes hostile, sometimes favorable
 - D. Hostile
27. How are teachers motivated in your school?
- A. Fear, threats, punishment, and occasional rewards
 - B. Rewards and some actual or potential punishment
 - C. Rewards, occasional punishment, and some involvement
 - D. Rewards based on group participation and involvement
28. Do motivational forces conflict with or reinforce one another?
- A. Marked conflict of forces reducing support of the school's goals
 - B. Conflict often exists; occasionally forces to reinforce each other
 - C. Some conflict, but often motivational forces reinforce each other
 - D. Motivational forces generally reinforce each other
29. How often are attitudes toward other teachers favorable and cooperative, with mutual confidence and trust?
- A. High degree of confidence and trust
 - B. Some trust and cooperation
 - C. Some distrust
 - D. Frequent hostility
30. How much satisfaction is derived from evaluation teachers receive?
- A. High satisfaction
 - B. Moderate satisfaction
 - C. Some dissatisfaction
 - D. Usually dissatisfaction

Appendix G

Letter to the Teachers

March 26, 1986

Dear Teacher:

The current focus in education is on the effectiveness of teachers within the classroom. The leadership style of the principal would appear to be a related factor. My proposed research thesis is an attempt to address this variable. Its title is "Principal's Leadership Style and Science Research Associate Test Scores". This thesis will center on the relationship between the principal's leadership style and the school's climate and SRA score.

Your school is one of twenty in the State which has been randomly selected. The study requires you to complete the two enclosed questionnaires, and mail them in the self addressed envelope. It is important that all questions be answered. The items are to determine your perceptions of the principal's leadership style and school climate. Your anonymity is guaranteed, the only code mark will be on the envelope indicating the school.

Your superintendent has agreed to the inclusion of your school district in the study. I will share with each school the results of the study should the faculty and the administration express an interest.

I realize the demands made on your time, and I thank you for your cooperation and your contribution to the study.

Sincerely yours,

Appendix H

Second Letter to the Principals

April 30 1986

Dear Principal:

The research material that is required for my thesis is nearly compiled. To complete the necessary data, I require the 1984-85 school average SRA Composite Score of the eleventh grade for your school.

The excellent response by your faculty in completing the questionnaires has ensured the validity of the study. Those teachers who have forgotten to reply to date, may still do so.

My thanks and appreciation for your assistance in providing the necessary information. Any questions that you may have concerning the results, I will be happy to answer.

Yours sincerely

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Vita

Kevin William Whirdy was born on June 4, 1949 in Downpatrick, Northern Ireland. He attended the local primary and secondary schools, before completing his second level education at De La Salle Scholasticate, Waterford, Ireland. After graduating he attended St. Joseph's College of Education, Queen's University, Belfast, where he majored in Physical Education and Mathematics. He has taught for the last twelve years at Gonzaga College, Dublin before enrolling in the Master of Education program at the University of Richmond. This thesis was submitted to the Graduate School as a partial requirement for this degree.