1991

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Beth Ellen Ruiz

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Development of a causal model of perceptions of boards of education which will predict effectiveness in their schools

Ruiz, Beth Ellen, Ph.D.
Iowa State University, 1991
Development of a causal model of perceptions of boards of education which will predict effectiveness in their schools

by

Beth Ellen Ruiz

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF PHILOSOPHY

Department: Professional Studies in Education
Major: Education (Research and Evaluation)

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Department

Signature was redacted for privacy.

For the Education Major

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa
1991
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CHAPTER I. INTRODUCTION

Background

_Schools in Crisis, Horace's Compromise, The Shopping Mall High School_ are but a few of the numerous books and reports that have scrutinized public education in the last decade. But, this is America where we value our freedom of speech and ability to examine and criticize that which we deem amendable. Public education has been attacked from all directions throughout the 1980s. The afore mentioned titles allow a glimpse of the scope and magnitude of these problems, but because of an increased awareness, much research has been inspired to determine if those attacks are valid and thereby providing possible avenues to ameliorate the inadequate.

Critiques have lead to alterations and public instruction has been required to throw away the chalk and slate of educational equilibrium and adjust to the dynamic impulses of our time. One educational arena subject to criticism has been the general topic of lowering achievement as demonstrated by lax promotional standards, reduced graduation requirements, and a decline in scholastic aptitude scores. This concern for the visible final results of education has caused educators and researchers to
consider spawner variables such as classroom size, social economic discrepancies, curriculum content (back to the basics), and techniques (whole language) to name a few of the possible causes cited. Other recent studies have attacked the problem from a holistic approach, and thus explain it in one term, ineffective schools. Ronald Edmonds pioneered our thinking along the lines of what can be done to produce Effective Schools. His research indicates that there are identifiable qualities common to effective schools and that in combination will raise level of achievement.

What is an effective school? It is more than a facility with the latest technological gadgets, but rather it is best described in terms of how it operates. According to the findings of Edmonds (1977), an effective school has strong instructional leadership with a focus on instruction. It has a safe and positive environment with positive attitudes toward its students and their abilities to be able to learn. An effective school also believes in measuring student progress. These qualities that correlate highly with schools that are obtaining positive scholastic results are commonly called "the correlates". Most people consider these correlated attributes to be socially acceptable methods of operating any successful business; direction, authority, positiveness, optimism, and measurement of the
profits. American education is in crisis because we have not heeded what research has found to be true and practice proven solutions (Expecting the best, 1987). It is as if we need to be reminded of the Ten Commandments and the Golden Rule.

To be able to identify the necessary attributes of an effective school is only the beginning of the process. There are numerous possibilities available for execution, but it is not the intent of this research to discuss the exact implementation process. Rather the purpose of this study is to identify perceived attitudes in members of school boards of education that will allow this process to occur. School reform is not accomplished through legislation and national policy, but rather effected at the local level (Orlich, 1989). Concerned citizens maintain a leverage over board members. The board of education is held directly accountable to the public, thereby providing the link between the community and the staff (Phillips, 1989). It is the role of the board of education and superintendent to give direction to the district. This direction must blend together legislation from the state and national levels with the needs of the locality in line with effective schools research (Purkey & Smith, 1985). At the decision making and policy generation level the board can involve
professional insight from the staff and encourage a collective sense of responsibility. The attitudes and perception of the school board members are important. The superintendent and board determine a school system's perspective. "The difference between optimism and pessimism, progress and stagnation, hope and despair is a function of the board's outlook," (Staff, 1990). If change is to occur district wide so there is measurable evidence of the efficacy of the schools, it must come from a board that has identifiable qualities in the areas of policy generation, goal setting, program evaluation, and public relations.

Statement of Purpose

This two phase study is designed first of all to assess the perceived actual and ideal functions of school board members. It will also examine differences that might have occurred in perceptions over the past ten years and differences between Iowa school boards and school boards of other states. The second phase will investigate the complex relationships among perceptions of Iowa school board members in providing an environment for effective schools. The perceptions of the school board members will be examined by factor analysis. The theoretical relationships of the
factors with district effectiveness ratings will provide the basis for the causal model, Boards for Effective Schools (BES). The BES path analysis model will be tested by use of multiple regression techniques.

Statement of Assumptions

The assumptions that have been made with regard to this study are as follows:

1. The responses of the school board members are accurate measures of their professional roles on the school board.

2. There is a relationship between the perceptions of school board members and the effectiveness of the districts' schools.

3. Individual schools may be effective, but the district as a whole may not be effective.

4. School effectiveness is more than test scores. Districts should be evaluated not only on the teaching of basic skills, but also on the importance given to the individual child and integration of the child into the community at large.

5. Professionals that are outside of the school district can unbiasedly determine the effectiveness of the district.

6. In general school districts are stable over time and change is slow.

Limitations of the Study

A major limitation in the study is the use of a sample of school districts that have requested the assistance of an
outside agent to work with the school board members. The sample consists of 1119 board members in 197 school districts across the United States. Although the survey was completed prior to an orientation/evaluation process, the school board members may not be typical of the larger population of school board members that are not in via the same process.

A second limitation is the change of board members over time due to the election process. Constituent school board members may change, therefore the district perceptions are subject to change. The perceptions may not be stable over long time intervals because of the fluctuation in school board membership.

Research Hypotheses

1. There is a perceived need to change behaviors of school boards, i.e., there is a difference in the mean perceived ideal and the mean perceived actual ratings on all paired items.

2. Perceptions of how the school board operates is different for those districts within Iowa than those not in Iowa.

3. Perceptions of how the school board operates have changed in the past ten years.

4. Perceptions on policy formation affect school effectiveness ratings.

5. The perceived relationship of the school board to the community affects school effectiveness ratings.
6. Perceptions on evaluation affect school effectiveness ratings.

Explanation of Dissertation Format

This dissertation will be presented in the alternate dissertation format approved by the Graduate College at Iowa State University. Chapter One is a general introduction to the study. Chapter Two reviews the related literature. Chapter Three presents the methodology and rationale for the two articles that follow. Pertinent reviews of literature, methods and findings are presented in the two journal articles which comprise Chapter Four. The articles are entitled "SECTION I. A Ruler for School Board Members" and "SECTION II. Causal Relationships between Role Perceptions of School Board Members and Effective Schools." Chapter Five provides an overall summary of both phases of the study with recommendations for further research.

SECTION I. A Ruler for School Board Members

This article summarizes the general perceptions of the school board members. Areas of emphasis include highly rated and lowly rated items on the survey "School Board Orientation/Evaluation Instrument®". The instrument provides three aspects of school board operationality to be evaluated, the perceptions of the current level of operation...
of the district school board, the perceptions of how the board should function, and the difference of the first two provide a measure of felt need to change. This article will be submitted to the American School Board Journal.

SECTION II. Causal Relationships between Role Perceptions of School Board members and Effective Schools

The results from the second phase of the study are summarized in this article. The hypothesized relationships among aspects of school board member perceptions are depicted in the proposed theoretical causal model, Boards for Effective Schools (BES). The model is tested and a revised model is suggested. Caveats and recommendations for the study are proposed. The results of phase two of the study will be submitted to the The Journal of Educational Research.
CHAPTER II. REVIEW OF RELATED LITERATURE

Traditional Definition of Effective Schools

The effective schools movement has provided us with a definition of what an effective school is, one in which there is no interaction between social and economic status, of the family and ethnicity with respect to school achievement. This can be simplified to a more common definition. The level of expectation or academic achievement of a child cannot be predetermined based on family background attributes such as race and social economic status (SES). In addition to defining an effective school, Ronald Edmonds (1979), one of the initiators in the movement, observed that certain characteristics were commonly found in schools that were effective. These qualities that were highly correlated with model schools became known as the "Correlates." The five conditions were

1. The presence of strong instructional leaders, usually a principal that was dedicated to providing the proper structure for quality teachers
2. Focus on learning in the classroom and increased time on instructionally related tasks
3. A positive school climate where children feel safe
4. High expectations for all children and the belief that all children can learn
5. Frequent monitoring of student learning is both provided for and expected
6. A clear school mission
7. Positive home-school relations

The last two attributes are commonly suggested although not stated originally by Edmonds (Tomlinson, 1981).

This idea that schools can make a difference conflicts with the Carnegie Report of the 70's where it was assumed that the contribution of the school was minimal. The effective school literature attempts to demonstrate otherwise. The school can be a positive influence on children, even those who are a risk, whether it be disadvantaged socially or otherwise (Weil, 1989). Many studies have confirmed these findings and added to the list of qualities that correlate highly with effective schools.

It is beyond the scope of this study to be exhaustive of all of the commonalities and discrepancies in these studies, rather I shall attempt to summarize statistical designs, units of analyses, evaluation attributes, and reliability measures of school effectiveness studies.

Statistical Designs

Frequently the measures used to determine student achievement are nationally standardized achievement tests, such as the Iowa Tests of Basic Skills (ITBS), the Stanford
Achievement Tests, California Tests of Basic Skills - Espanol (CTBS Espanol), the Scholastic Aptitude Tests (SAT), Iowa Test of Educational Development (ITED), Tests of Achievement and Proficiency (TAP), and individual state batteries of exams such as those available from California or North Carolina. Different approaches are utilized in analyzing these data to calculate an index of efficacy. These scores are sometimes referred to as School Effectiveness Indices (SEI's). The purpose of the SEI's varies from study to study. Occasionally the indices have been used to evaluate the effectiveness of instruction, to categorize schools as being effective or noneffective, to determine merit school programs for honor (Mandeville & Anderson, 1986) (Abalos et al., 1985) or to award monetary stipends to schools and/or their personnel.

Cut off points, indices, or standards that indicate effective schools are not consistent across studies. An effective school could be one

- In which the observed scores exceed the predicted (Webster & Olson, 1984; Salganik, et al., 1980).

- In which the achievement scores are at or above the district, city-wide, state or national mean (Lezotte, et al., 1974; Edmonds, 1977; Brookover, et al., 1981; Clark & McCarthy, 1983).

- Where discrepancy in scores is proportionate across race and/or SES levels (Dorman, 1981; Edmonds, 1982; Gauthier, 1982).
• Where the percent of students achieving at stanines of greater than four increases (McCormack-Larkin and Kritek, 1982; Clauset and Gaynor, 1983).

• Where the percent increment in key preestablished areas meets improvement criterion (Reidsville City Schools, 1990).

• Where the average grade equivalent in math and reading using the Stanford Achievement Test and the ITBS was above the city average. (Edmonds, et al., 1977)

The methods employed in identifying schools ranged from complicated statistical designs to a simple comparison of percentages. Analysis of variance (Abalos and others, 1986), discriminant analysis (Edmonds & Frederiksen, 1979), regression (Helmstadter & Walton, 1986), trend analysis (Myerberg, 1986), factor analysis (Klein, 1981) percentage comparison (Reidsville City Schools, 1990), path analysis (Clauset & Gaynor, 1983), t-test (Buttram & Kruse, 1988) exemplify the variety in the techniques utilized.

Aggregation of Data

Another aspect of data analysis is the question of disaggregation or aggregation of test scores by race, SES, environmental variables, grade, subtest scores, size of school, and geography. All have been investigated, but relating the diverse measures, techniques, and findings is like a mono-colored puzzle. All of the pieces belong to the whole picture of effective schools and will provide a
unified work of art, but the interconnectedness may be difficult to determine. Buttram and Kruse (1988) suggest that there may not be a single formula for effective schools. As noted previously, there is an inconsistency or maybe an evolution of what the term effective school means. Personal interviews with regional educational and curriculum consultants (Helvik, Hewett, Kerr, Neff, Palmer, 1991), provided additional perspective on the meaning of the words "effective schools." This phrase stimulates different mental images among educators. Within diversity though, there are commonalities that practitioners agree upon. In differing words, there was consensus with the importance of the traditional five correlates in providing the climate for an effective school, but these criteria are not ends in themselves. The measuring device to ascertain whether a school was effective would be the degree to which the school reflected the goals and meets the needs of the local community. This definition implies that the community must be well defined and have a sense of purpose and direction. If the community senses unity and becomes involved in education, demanding and expecting the school to be an integral part of the community, then there will automatically be a focus on learning. Funds will be appropriated for well kept safe schools. Teachers and
principals will communicate and work with parents in providing the climate of expectation.

Reliability Measures

In addition to measuring devices another quest in the research of effective schools has been the reliability of results. Again studies dealing with the stability of effective school indicators provide a wide range of opinions. Mandeville (1987) reported that as grade level increased from first to fourth grade so did the consistency of scores when predicting reading and math scores ($R^2 = .4$ to $R^2 = .7$ for reading and $R^2 = .3$ to $R^2 = .4$ for math at the respective grade levels). From a previous study Mandeville and Anderson (1986) determined that a cross subject/same student stability coefficient was between an $r$ of $.60$ to $.70$, but for cross grade/different student the correlation was $r = .06$ for reading and $r = .13$ for math. Matthews et al. (1981) found that year-to-year same grade school effectiveness indicators had unstable correlations of -.24 and -.44. Forsyth (1973) found two year correlations in the areas of quantitative thinking and vocabulary to be $r = .11$ and for social skills to be $r = .50$. In another study it was found that other effective school indicators such as discipline and student attendance were stable indicators of
reading and mathematics based on consecutive year correlations for both elementary and secondary schools (Rowan, Bossart, & Dwyer, 1983). Frechtling (1982) found consistencies to be low over time, r = .24 for reading and r = .32 in mathematics. Moore (1987) found that ten percent of the schools demonstrate effectiveness/ineffectiveness for two consecutive years and only five percent show effectiveness over three years. This study also found that gain scores provide negative correlations over time and cannot be used to show merit schools. Frederick and Clauset (1985) confirmed that the stability and consistency over time is questionable, although the scores are more consistent than would be expected by chance (Good & Brophy, 1986) as cited in Moore (1987). The available evidence does not provide generalizable information about stability of school effects.

Evaluation Attributes

Another approach toward determining the effectiveness of schools has been through the use of instruments sampling the perceptions of the educational stake holders (Rowan et al., 1984). Typically the survey polls faculty, aids, principals, administrators, board of education members, students, and community at large. Pink (1985) found that in both control and project groups, the perceptions of their
schools differed little from the characteristics described by the traditional correlate definition of an effective school. Moreover the teachers in the project schools that received emphasis on school improvement tactics felt the effects were positive, and wanted to continue implementing them even after the study had ended. The faculty liked the greater involvement in the decision making process. In a different study, questions called Dimensions of Excellence Scales (DOES) were devised by Buttram and Kruse (1988) to measure improvement. At the end of each year, school administrators and faculty rated the level attained in the plan of action for implementing school improvement. A series of t-tests were used to identify if significant improvement had occurred on the challenge-dimensions. Small schools in Kansas were sampled by Horn (1987) to determine effectiveness based on 31 self-rating items. All ratings were found to be high. Through the use of these self-rating instruments one can ask, "To what extent do the Hawthorne Effect and school loyalty enter into the perceptions of the respondents?"

Teacher attributes are another area of interest in effective schools. It is the teacher that ultimately communicates with the child and creates the atmosphere of expectancy and success, organized learning tasks, and
monitors educational activities and progress. The correlates of effective schools weigh heavily on the influence of the teacher on the student. Edmonds (1981) believed that ineffective schools could depress creative teachers, conversely effective schools would be able to raise mediocre teachers to instructional levels greater than the teachers themselves ever anticipated. What are some of the qualities that teachers in effective schools possess? Edmonds and Frederiksen (1979) found that teachers who effectively teach low SES pupils do not separate them according to ability. The teachers also agree that culturally disadvantaged children do not benefit from programs of compensatory education, but hold that a common standard of instruction can be applied to all. Pupils of varied abilities learn together and there are few teachers of remedial courses. Pupil performance was not found to be consistently related to the teachers' age nor gender. This was confirmed by Webster and Olson (1984). In addition to gender and median years of experience, they found that teacher ethnicity had little influence on school rankings.

In studies where the emphasis is placed on the learner rather than the staff or physical environment, varying instruments have been utilized. A commonality for these instruments is standardization. The Iowa Tests of Basic
Skills (ITBS) is one of the most widely used measures in public school districts around the nation. It has been employed to evaluate individual pupil status, programmatic effects, and achievement adjustment/coping mechanisms in students demonstrating geographic mobility as well as many other aspects of the educational process (Klein, 1981; Ingersoll, Scamman, & Eckerling, 1988; Witt, Han & Hoover, 1990). Even though this Eckerling, 1988; Witt, Han, & Hoover, 1990). Even though this achievement measure is widely used there is concern as to the results being an adequate measure for identifying effective schools. Perkins and Duncan (1987) showed that the ITBS does not demonstrate mastery in different reading comprehension skills. According to the results of another study (Klein, 1981) the degree of unique information obtained from the total battery of tests that require four hours of student/teacher testing time, is likely to be considerably less than the eleven subscales that are indicated by the final report that each child receives. When factor analysis and principal components were applied to the results from the ITBS, a one factor solution among the subtests was obtained, not the 11 distinct ones as is typically reported. It was also found that with the fourth and eighth grade student scores, internal consistency and reliability were high (Klein, 1981).
Unit of Analysis

Researchers in the effective school movement have been concerned by questions such as, "At what level does aggregation take place? What is the unit of analysis? Is the student the indicator or an effective school or is it the school in a collective sense? Should the concept of effectiveness be broadened to include the district?"

Matthews et al. (1981) and Pink (1985) chose the school as the unit of analysis for regression techniques in identifying effective schools. This is consistent with Mandeville and Anderson (1986), Frechtling (1982), O'Connor (1972), Dyer et al. (1969). Drahozal, (1988) showed that school averages in ITBS scores were less variable than pupil scores, but Frederick and Clauset (1985) argue that data should not be aggregated because it masks performance of pupils functioning at either end of the scale. One possible suggestion would be to aggregate at the achievement cohort level. Utilizing a regression technique, Abalos et al. (1985) showed that school based regression analysis appeared more acceptable for large school districts in predicting merit schools. It has also been a practice of schools to report data differently depending on the scores. If schools' scores are above national norms, then the data are reported using the school as the unit of analysis, providing
a percentile rank greater than pupil percentile rank. On the other hand, if the schools' scores are below the average norm, then the tendency is to report pupil percentile ranks because they are greater than school average percentile ranks. White (1983) found a moderately strong correlation between income and achievement scores when groups were used as the unit of analysis (r=.73) and a weak correlation when the individual scores were used, (r=.22). This apparent contradiction occurs because the magnitude of correlations tend to increase with increasing levels of aggregation, (Langbien, 1977). In an effective schools pilot project, Pink (1985) used the school as a unit of change for six elementary schools. Previous year's ITBS scores were used as a covariate. Nine of the 18 grade level comparisons were statistically different, seven of the grade-levels in project schools were found to be different, while two of the grade-levels in control schools showed change.

Rationale for Use of Regression

Many types of regression studies have been conducted in the area of effective schools. Why has regression been used in so many studies? Matthews et al. (1981) suggests that regression allows the researcher to control for causes, but more importantly the results can be depicted graphically and understood without a strong background in statistics.
The elementary grades have been most frequently selected as target strata of the educational community for regression analyses. One such model uses family background variables and possibly previous achievement levels to predict current achievement. The rationale behind this process is that after having controlled for variables that have traditionally have been predictors of achievement, if there is a large positive residual then the school could be classified as one that has been effective in breaking down the barriers of race and other social-environmental qualities. Therefore the school has achieved greater gains than would be anticipated. Small residuals around the regression line would be expected from traditional education, maintaining status quo. Webster and Olson (1984) found that prediction generally improved with increasing grade level. Achievement became more dependent upon earlier years' achievement. Concurring with these findings that achievement is more accurately predicted for older than younger students, Mandeville and Anderson (1986) also found that across grade levels, reading is predicted more precisely than math achievement. Specifically mathematics performance is not a significant predictor of second grade mathematics achievement. In a later study Mandeville and Herdari (1988)
used the Basic Skills Assessment program as a predictor along with SES in an Ordinary Least Squares regression model and obtained a median correlation of .95 for predicting reading scores. Considering instructional reading passages and measuring of the reading process it was suggested that after grade three, differences in achievement levels become more distinct due to their complexity. They require a broader base of passive vocabulary and knowledge that might not be acquired in the home environment of disadvantaged children, thus accounting for the high predictability of reading scores (Matthews et al., 1981).

The scores of sixth grade students were employed in a stepwise regression model, which entered social class variables ahead of other school descriptors. It was found that for poor black pupils, the variance in school achievement associated with social class variables was only six percent of the total explained variance (Edmonds & Frederiksen, 1979). For middle-class white pupils, 81% of the total explained variance was related to social class. (In general, the degree of involvement of social class variables was greater for white pupils than for black pupils, and greater for middle class pupils than for poor pupils.) Prime factors which condition a school's instructional effectiveness appeared to be principally economic and social, rather than principally racial. It was
noted that effective and less effective schools differ in number of characteristics related to programs, personnel, and methods of instruction.

The use of multiple regression techniques as an indicator of school effectiveness has also been applied at the college level using college grade point average given SAT scores and also controlling for social economic status and race. Hand and Prather (1990) found that schools obtaining high positive residuals tended to be more rural and below the state average on both SES and race. Regression analysis was also used by Abalos et al. (1985) for delegating schools as meritorious. They found their technique more acceptable for districts with a large number of schools. The authors admit that many questions remain for further study in identifying merit schools.

Rationale for Expert Opinion

An area of concern in using regression coefficients was the fact that they were influenced by outliers making them unstable and highly variable when considered across grade levels. Helmstadter and Walton (1986) compared three regression alternatives. One used only family related variables and the other two alternative models included these same demographics plus school ability variables as
predictors for effective schooling. It was found that by using ethnicity, gender, age, and language spoken at home the residuals correlated .70 and .84 with the other two models respectively. The simpler model was suggested as a possible alleviate for the complete index without demonstrating a great deal of distortion and providing a more parsimonious interpretation.

Those studies based on criterion related cut-off points rather than norm referenced scores encounter other sources of difficulty. What constitutes a meaningful cut-off point for deciding effective/noneffective schools, especially considering that national norms are biased by SES which favors schools with high SES, is not easily determined. Frederick and Clauset (1985) suggested that different minimum mastery levels be applied to different strata of the population, and considering achievement over several years rather than a point in time due to the inconsistency in results obtained from their research.

Comparison studies of the various statistical methods determining school effectiveness have been conducted. One such study (Frechtling, 1982) compared five methods of evaluating school effectiveness; trend analysis, school level residual gain scores, individual level residuals, traditional ranking of schools by fifth grade test scores,
and expert opinion (focusing on the area of reading).
Inconsistencies were found among the methods when nominating schools as to their effectiveness. Of the 117 schools in question, 47 different schools were nominated as effective by a least one method, 11 of these 47 were nominated by two of the five methods. Trend analysis identified only three schools, expert opinion on the opposite end of the continuum nominated 27 schools. The other three methods spread between these extremes, individual level residuals with 22, school level residuals with 7 and traditional ranking, 8.
Similar findings were obtained through the identification of ineffective schools. Correlations between these methods are low positive and low negative, with the strongest correlation between individual residual scores and expert opinion ($r=-.49$). With the small numbers involved, these correlations can be greatly affected by slight deviations. These methods do not correlate well with each other or from year to year -- a rather disturbing finding for those trying to identify effective schools! "The possibility should therefore, not be dismissed concerning the use of expert opinion in determining school effectiveness," (Frechtling, 1982). Similarly, another study of 37 schools (Matthews et al., 1981) found much overlap in identifying schools, with no two methods selecting the same subset. The methods used
were regression, covariance, equipercentile, and idiot's regression. In two cases a school was selected as a high outlier by some methods and as a low outlier by others.

Application of Research

Where has all of the research taken us? Johnstone (1989) suggests that practitioners should ask three questions of any innovation.

1. What problem in the school setting does educational research on this topic propose to solve?

2. What has the research taught us so far, and what further research should be done?

3. What support will application of research-based principles and techniques from this area require in the schools?

The original question of effective schools was that of equity and quality both racially and economically. The findings of these first studies indicated a need for a children's educational bill of rights. As a nation we became aware that educational expectations and opportunities were not the same for all children. Even after more than a decade of attention, children from poor and minority families continue to exhibit disproportionately high failure rates on standardized tests. There are discrepancies, and we have created many sophisticated ways of confirming or negating the existence of those differences in our schools.
but progress has been made. Individual schools and districts are making a difference in the lives of learners. To answer the final question of what we have learned and how we can apply it, remains difficult.

The heavy use of standardized test scores to extrapolate their meaning to the effectiveness of a school appears to have stretched the purpose for which the tests were designed. Usually standardized achievement tests do not accurately reflect the curriculum of a given school. The use of these scores can be accurately applied to the individual level for meeting the needs on a personal basis rather than on a collective basis. School effectiveness is more than a set of reading or mathematics scores. It should be a comprehensive assessment not limited to one or two areas (Frederick, 1987). Assessment should cover a wide range of curricula, grade levels, and types of students. The effective schools movement has been equated to basic skills outcomes and has neglected the affective domain and the social and emotional objectives. The current techniques of measurement are narrow and yield results that do not correspond to the objectives of many schools. Standardized achievement scores are readily available, tempting researchers to assume that pupil performance can be analyzed solely by these measures (Frederick & Clauset, 1985). This
ignores the variety of school goals and yields measures of effectiveness that are invalid and unreliable (Good & Brophy, 1986; Mandeville & Anderson, 1986; Bossart & Dwyer, 1983).

Inconsistency of results across grades strikes hard at the effective school movement (Mandeville & Anderson, 1986). The designs of past research have contrasted the "effective" schools with those that are considered "less effective" on certain organizational qualities or traits, but the causal relationships among the variables remains unknown. The use of aggregated data has provided global descriptions but ignored the within variance. The school has become a "black box" (Bossart & Dwyer, 1983). Johnstone (1989) concurs that the effective school literature has achieved little consensus on exactly what works in what situations, or on how to appropriately measure what is effective. How do the concepts of effective schools correspond to the work being done in instructional design and student cognitive processing? Considering the larger picture of educational research in a multidimensional setting, what happens when one area is emphasized? Push on one side of a balloon and the other side bulges. An administrator attempting to be an instructional leader may find that adverse effects are felt in the non-instructional areas. An emphasis placed upon
testing reduces instruction time. In order to raise scores some educators have been accused of teaching to the test. This practice requires the use of "kits" and drill and practice situations that harm the normal development of good reading skills. Decisions on curriculum are shifted from the teacher to the test designer and threatens the dignity of students (Steadman, 1985). Hitting the basics too hard has hurt the development of higher-order skills and brought down the test scores of the higher achieving students (Borkow, 1982) as cited in Steadman.

Another concern mentioned by Bossart and Dwyer (1983) is the question of generalizability. "School" effectiveness is frequently discussed when in reality only one or two grade levels in a few limited curriculum areas have been sampled. Instructionally effective schools are more than a few effective teachers. They are effective organizations dealing with children over the career of their school experience (Mann, 1984). If the norm of the population is neither effective nor ineffective rather somewhere on the continuum between these two points, then the research is dealing with outliers. From a statistical point of view, is it possible to generalize to the total population based on a "random sample" of outliers? Other basic concerns suggested are in the area of whether the characteristics of effective
Schools are invariant across grade levels, organizational patterns, SES, ethnicity, and a host of other background variables. Stability across grade coefficients raise flags of concern (Rowan & Bossart, 1983) (Mandeville & Herdari, 1988). Interpretations of pupil scores for school achievement and curriculum evaluation are not direct, but ITBS scores are called upon to do just that (Drahozal, 1988). Also the practice of using data from the lower elementary, particularly the use of test scores from first grade may not be a true indicator of school effects, but rather an indicator of social maturity or home environment.

The Causal Leap

Effective school researchers, must begin to think causally and to represent causal thinking and concepts in a formal theory of effective schools. Without such conceptualization we will continue to accumulate facts and cases unrelated lists of effective school characteristics and little coherent knowledge for use in application (Johnstone, 1989).

Noting that the importance of administrative leadership is tightly linked with the building principal, and that all other people in instructional process are instrumental in providing conditions for effective instruction as Edmonds
suggested, "Could it be the community also has part in the process of creating a positive climate with high expectations?" Buttram and Kruse (1988) demonstrated that there are black schools that educate children well. There are all poor schools that demonstrate the educability of poor children. Is this suggesting that we need to reconsider zoning and bussing laws, and instead to relocate students of similar subcultures for the use of techniques that are site specific and more appropriate for their culture and learning styles? As Sudlow (1985) questioned, "Effective, according to whose standard?" Should every school be compared to the state standard for minimum competency? What is minimum competency? For whom should the school be effective? At what level should the data be aggregated? What will be measured? Will the data be gathered at a single point in time or longitudinally? Because there is such a disparity in the research findings on effective schools, perhaps it would be better to start at the very beginning of the process, using what we have learned and start with a definition.

A New Definition

What is an effective school? Could it be that the definition originated by Edmonds is not functional for all
situations? He was looking for some commonalities in large
city elementary schools that had diverse populations. Many
studies have hooked on this train of thought, but perhaps it
is necessary to start with a different definition. An
effective school is one that achieves its goals (Hawley,
1985). Because there are no parameters added onto the
statement qualifying for certain subpopulations, the
efficacy is bound up in the goal statement of each school or
district. Now the measuring stick is responsive to the
local level, where education takes place. The attention has
been shifted from top down dictates, to one of local
ownership, more typical of our democratic style. In order
to be measured, the goals must be clearly articulated. To
be effective the participants need to have a felt ownership
or at least concur with the stated goals. There must be a
community focus on the goals and the goals must be shared by
the majority of the affected people. Clauset and Gaynor
(1983) developed a path model in which an exogenous
variable, one not affected by the other variables within the
model, was school policies for allocating time. Time
allotment is based on priorities, and priorities are based
on a set of goals or tasks that need to be accomplished.
The authors of the path model stress the importance of
understanding the organizational and environmental structure
of a school system. A generic model must allow for individual differences in schools, districts, and/or state mandates.

The Iowa Business and Educational Roundtable (1991) has opened a whole new concept of evaluating effectiveness. It has set as a state goal for Iowa to provide a world class education. All children must be prepared to live, work, and compete in a global society. The state goal is to educate young people in order to contribute as productive employees, self-sufficient, responsible citizens and family members. The vision for education in Iowa continues with the goal of equipping all high school graduates with robust skills in reading, writing, speaking, mathematics, foreign language, problem solving, and thinking within multicultural communities. A plan of action to obtain local ownership has been to forge a partnership between business, parents, and communities working with the school district. Goals without accountability are empty. Recognizing that current assessment of basic skills is not adequate to evaluate this world class education, the Roundtable has called for multiple approaches that determine school and district performance, not individual student performance. The Roundtable has suggested that for some goals a multiple choice criterion referenced test may be satisfactory, but in
other instances, new performance based assessment strategies are needed to measure student's ability to apply skills. New methods to sample writing and problem-solving skills are imperative. Measuring dropouts and post graduation success require new strategies. It is recommended that the state board of education develop and adopt a reliable and valid total assessment program that will reflect the new state goals.

Educationally, the 70's was characterized by the Back to the Basic movement. The 80's saw the relation of this movement to the **School Improvement Models** and **Effective Schools**. What will the 90's bring? Will it be the translation of effective schools into world class schools meeting the needs of the children where they are? Previous literature from the effective schools has given very little attention to the critical role that school boards and superintendents play in mobilizing school sites and leading the reform effort (Muth & Azumi, 1987). If the Iowa Business and Educational Roundtable are accurate in assessing the needs not only the education in Iowa, but of education in the nation, then it is time to allow the local school boards to take center stage.
Effective School Board

The research literature available on effective school boards is sparse. The American Can Company Foundation (1986) sponsored a national study of the local school board, with a sample size of over 200 school board chairpersons. This study confirmed that citizens believe in the local school board as a necessary local governance of education. Despite this approval, the public knows little about boards' functioning. The states' increased visibility in education creates further confusion about the responsibilities of the local unit. It was noted that school board members are agents of the state or extensions of state government to meet local needs, but ultimate responsibility for education rests with the state. The report also noted that states do charge school boards and localities to make policy and govern local public education. This willingness and capacity of the board to lead as suggested will be a prime determinant in the success or failure of school improvement efforts.

Levine (1985) agreed that reform cannot be imposed from the top down. Rather the people responsible for the school outcomes must be responsible for enacting change. She likened the school to a well run company, and proposed that a lesson in business be transferred to education. The
success of the organization depends upon creating conditions that will increase the effectiveness of the people in the organization. This will necessitate a workable balance between centralization and decentralization for successful school reform. Orlich (1989) cautioned that massive reform would be doomed at the outset, but individual schools can make changes whereas national policy will fail. This belief is echoed by Muth and Azumi (1987) noting that change and innovation have generally been slow, difficult, often impossible in American education. If policy analysts and policy makers continue to act as though states exercise full control of the reform agenda, and boards continue to go unrecognized or unaddressed as potential facilitators to change, we will fail to produce thoughtful and systematic analyses of how boards make decisions, and they in turn shape children's educational future.

Legal Responsibilities

School boards derive their authority from the public. They are controlled by the democratic process, hence the public expects board members to provide the leadership and establish an educational system based on community values (Phillips, 1989; Weil, 1989). Pauly (1987) suggests that citizens be actively involved in setting annual goals. Goal
setting and policy development was cited by 31 percent of the sampled chairpersons as being the most important task of the board (The American Can Company, 1986). Boards would do well to have a policy on staff involvement in decision making. This would encourage teachers in each school to develop a collective sense of professional responsibility (Phillips, 1989). The attitude of the school board members is extremely important; it can determine the system's outlook. The difference between optimism and pessimism, progress and stagnation, hope and despair is a function of the board's outlook (Staff, 1990).

Personal and Collective Qualities of the Board

The importance of board assessment has been noted by several studies, but Madeline Hunter (as quoted in Goldberg, 1990) emphasizes this need in her statement "Rigor and time are two things required by a school district to effect change. If you don't have time to follow-up, you're wasting time and money." This thought was repeated by Davies (1989), the importance of board evaluation and training is to get a good return on school resources and investment time. Without evaluation one is never sure goals have been achieved. Johnson (as cited in Davies, 1989), enumerates essential steps for school boards

- Formulate a mission statement and goals.
• Assess strengths and weaknesses.
• Review the organizational structure and community political environment.
• Specify objectives, priorities, strategies, and resources.
• Allocate resources to achieve goals.
• Implement plans.

Carpenter (1988) identifies ten qualities of exemplary board members

1. One whose first interest is to help the schools
2. Never forget you hold a position of public trust
3. A team player who forges relationships
4. Does not cater to special interests
5. Hires the best superintendent, evaluates fairly, and removes a superintendent if need be
6. Open to be evaluated
7. Stays informed
8. Maintains the primary function as policy making, not administration
9. Works to ensure adequate funding
10. Sets goals and evaluates progress

Concluding Remarks from the Review of Literature

After reviewing the literature on assessing effective schools and qualities of effective school board members, it is clear that research is needed to identify variables that
relate these two entities. A limitation is that no studies were found initiating this process. No previous causal models indicated possible relationships between the influence of school board members and student outcomes. Therefore a heuristic approach to model building was undertaken. A specific concern of the researcher is the adequacy of variables and the interrelationship among these variables with regard to school effectiveness ratings.
CHAPTER III. METHODOLOGY

The purpose of this chapter is to describe the data collecting instruments, the intent of the items, and the population sampled. The variables included and methods of data analysis are presented. When necessary, a rationale for procedures is also discussed.

Principle Data Source and Collection

This study used data collected as part of an ongoing consulting and school board orientation service offered by a professional evaluator. The initial step in the process of evaluation was for each member of the participating school board to receive a copy of the orientation/evaluation instrument. The questionnaire was completed and returned in a sealed envelope to the superintendent or chairperson. All of the completed instruments were mailed to the evaluator prior to the consulting session. The responses were compiled and discussed during the orientation meeting. A copy of the copyrighted instrument that each board member was to complete is found in Appendix A. The instrument consisted of 70 items that were designed to determine the perceptions of each member of the board as to the school board's present operational state, and also the perceptions of how an ideal school board should function. There were
two response sets for each of the 70 questions, providing 140 answers in total (70 "IS" and 70 "OUGHT" answers.) Response choices were based on a five point scale of

1. Board "ALWAYS" performs this way.
2. Board "USUALLY" performs this way.
3. Board "RARELY" performs this way.
4. Board "NEVER" performs this way.
5. I "DON'T KNOW".

Those items left blank or rated as five were treated by the researcher as missing data.

Population, Sample, and Unit of Analysis

Over the past ten years school board members from districts across the United States have participated in this orientation/evaluation process. A random subset of these districts (197) comprise the data utilized in this study. In the selected subset of school boards that received the orientation/evaluation service, there were 1119 board members. Not all school board members of each district in the sample chose to respond to the questionnaire. The maximum number of board members reporting per district was eight, and the minimum was three, which provides an average number of five board members reporting per district sampled. Location and year in which the survey was completed are
found in Table 1. Of the 197 districts in the sample, the largest single contributing state was Iowa with 141 of the school districts. The variable "YEAR" was not specifically collected until 1988.

TABLE 1. Geographic location and contact year of school boards

<table>
<thead>
<tr>
<th>Contact Year</th>
<th>Outside of Iowa</th>
<th>Within Iowa</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Valid Percent</td>
<td>N</td>
</tr>
<tr>
<td>Before 1988</td>
<td>45</td>
<td>80.4</td>
<td>98</td>
</tr>
<tr>
<td>1988</td>
<td>4</td>
<td>7.1</td>
<td>10</td>
</tr>
<tr>
<td>1989</td>
<td>1</td>
<td>1.8</td>
<td>14</td>
</tr>
<tr>
<td>1990</td>
<td>6</td>
<td>10.7</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>(28.4)</td>
<td>141</td>
</tr>
</tbody>
</table>

For comparison purposes in this study, the district perception was of greater interest than considering the perceptions of the individual school board member. To obtain a district rating for each question, the responses of all of the members for each of the 140 possible answers were totaled and divided by the number of responding board members. All statistical analyses performed on these 140 items used the district (mean) response as the unit of analysis unless stated otherwise.
Purpose of the Studies

The purpose of Study 1 was to assess perceived actual and ideal functions of school board members and also to examine the differences of district school board perceptions over time and the differences between Iowa district school boards and those of district school boards from other states. The purpose of Study 2 was to determine the underlying component factors of perceptions of Iowa school board members and test the relationships among them and effective school districts by means of a path model. The total sample of school boards (197 districts) was used for Study 1. Considering the large number of districts from one state and the possibility of eliminating the between state variability, the factor analysis procedure and development of the Boards for Effective Schools (BES) path model utilized only data from Iowa school districts.

"Effective School" Data Source and Collection

In order to determine the BES path model, school board information and a dependent variable indicating school district effectiveness were needed for each of the participating school districts in Iowa. One measure typically used to measure the effectiveness of a school is the ranking on standardized instruments such as the Iowa
Test of Basic Skills (ITBS.) The grade levels at which ITBS is required in Iowa and the date of administration is at the discretion of the district. Some districts test in the Fall and others in the Spring, some test every year and others only at key points in the educational process. Release of these data is also subject to district approval. In addition to the lack of control, logistic constraints, and political reasons, a review of related literature indicated inconsistencies when using these measures. It was decided not to use ITBS scores as a measure of effectiveness. A second source of information on school districts in Iowa is collected by the Department of Education. After a closer look at the instruments and codebooks for the data that the state agency collects, it was decided that these data likewise would not be able to provide the level of discriminatory information needed to complete the study. Another possibility was entertained and that being personal interviews with Area Education Agency (AEA) specialists. (The 1974 Iowa Legislature created 15 Area Education Agencies for the purpose of ensuring equal educational opportunities for children. The three divisions of the agencies, Educational Service, Media Services, and Special Education, provide support for local school district teachers and administrators. This assistance is offered in
various forms such as supplying materials, research assistance, staff development, and child referral.)

Conversations with curriculum consultants, education specialists, and evaluation specialists provided helpful insights into a functional definition of effective schools in Iowa. Each interviewee was asked his/her view of what constitutes an effective school. Subsequent questions were asked based on their personal definition, but all questioning lead the educational specialist to two additional questions, "What do you believe is the role of the school board in creating an effective school?" and "Do you view effective education as a function of the school or of the school district?"

After reconsidering the responses from the AEA representatives and pertinent literature, it became necessary to modify the traditional definitions set down by Edmonds and Lezotte to one that would more appropriately reflect the population of Iowa schools. From the responses of these practitioners, a new definition more adequate for the predominately rural, and ethnically homogeneous schools of Iowa was formulated. An effective school district was defined as "a district which meets the needs of children not only in the areas of teaching basic skills, but also in helping the children to feel good about themselves. The
school district should reflect the values of the community, hence education is viewed as a community activity." One of the assumptions of the researcher was that if a relationship exists between the school board and effectiveness, then there must be "district" effectiveness rather than "school" effectiveness. The Iowa definition reflects the concept of district and the characteristic population of Iowa communities.

The effective school district instrument

To obtain a district effectiveness rating, an additional instrument was created. Using the amalgamated definition given above as a basis for evaluation, each school district was to be compared to districts nationally in three critical areas: (student) self image, teaching of basic skills, and community values.

The following criteria were considered in selecting individuals to rate/evaluate district efficacy: knowledge of a large number of school districts to enable differentiation among districts in the specified areas; familiar with the internal processes of each district; impartial and separated from the district, not a stakeholder. It was decided that those individuals that best qualified in these areas were located within the AEAs. Each of the 15 Area Education Agencies were contacted by
telephone to gain additional information regarding regional emphases in educational concerns and to gain commitment to complete a survey of selected school districts residing within their particular region. The school effectiveness survey was sent to the identified specialists in each of the 15 Area Educational Agencies. An exemplary copy of this survey appears in Appendix B. The raters were asked to compare each of the selected districts in the AEA to districts nationally in three areas. "At what percentile would each of these districts in your AEA be rated, in the top 50%, 75%, 90%, 95%, 98%, 99%?" To control for some additional variance in demographic qualities that have typically shown to be indicators in effective schools, the specialists were also asked to classify the districts as to predominant socio-economic makeup ("mostly Blue collar", "Equal", "mostly White collar"), and cultural/ethnic balance ("Homogeneous" or "Diverse"). For purposes of this study, the dependent variable "school effectiveness" will be operationally defined as a composite mean of the three areas identified by the AEA specialists, the teaching of basic skills, positive self image, and incorporation of community values, adjusted for the effects of social economic status (SES) and cultural/ethnic makeup. Both surveys used in this study received approval from the Iowa State University Committee on the Use of Human Subjects (Appendix C.)
Data Analysis

The remainder of the chapter presents the data analysis for each of the two studies. For both Study 1 and Study 2, analyses used SPSSX Data Analysis System, Release 3.0 and SAS Data Analysis, Release 6.0. The level of significance for all statistical tests was set at $\alpha=0.05$.

The purpose of Study 1 was to examine the differences of district school board perceptions, over time, and also the differences between Iowa school boards and those of school boards from other states. The purpose of Study 2 was to determine the underlying component factors of perceptions of Iowa school board members and test the relationships among them and effective school districts by means of a path model. To accomplish these purposes, the following steps were undertaken.

1. Frequencies on all variables were obtained for the purpose of checking for logical responses and to clean up input errors.
2. A discrepancy score for each individual was calculated by subtracting "OUGHT" minus "IS" for each of the 70 items, providing an indicator of the felt need for improvement.
3. A mean district response was obtained for each "IS", "OUGHT", and "DISCREPANCY" item.
4. Using the district as the unit of analysis, sample means and variances were calculated for each "IS", "OUGHT", and "DISCREPANCY" variable.

5. It was decided that the invariance of "OUGHT" variables implied that the "DISCREPANCY" score was a mirror of the corresponding "IS" variables. Therefore the "DISCREPANCY" variables were not utilized for inferential statistical tests.

6. Factor analysis was applied to "IS" variables for the Iowa subsample.

7. Scree plots were examined in conjunction with the results of the Chi Square test for number of factors necessary, and percentage of unexplained variability accounted for by the eigenvalues.

8. It was decided to use an eight-factor model to describe the variability in perceptions of board members.

9. A varimax rotation revealed eight distinct factors. Each factor was once again analyzed in a factor analysis to determine if there might be more than one construct within the factor. This "bucket method" provided confidence that each factor was a single construct.
10. The eight factors, with accompanying numbers in parentheses to indicate the ranked degree of variability accounted for, were named; Board Member Qualities (1,) Evaluation Procedures (2,) Policy Setting (3,) Community Involvement (4,) School Board Meeting (5,) Professionalism (6,) Public Relations (7,) Equity (8.)

11. A reliability check for the total instrument and the individual factors was done providing a Cronbach alpha statistic.

12. A theta coefficient was calculated by hand to provide another estimate of reliability of the factors.

13. Univariate statistics and the Shapiro-Wilk Statistic were obtained for each variable to test for normality of the data to proceed with multivariate analyses.

14. Due to the lack of normality presented at the univariate level, Power Transformations according to the formula of

\[ Y_i = \frac{(X_i^\lambda - 1)}{\lambda} \]

- for positively skewed distributions \( \lambda < 1 \)
- for negatively skewed distributions \( \lambda > 1 \)
did not provide suitable methods to normalize the data.

15. Another technique, ranking the data, provided the necessary normal distributions at the univariate level to apply both univariate and multivariate statistical tests.

16. A correlated or paired t-test provided information to answer Research Hypothesis one "Is there a perceived need to change behaviors of school boards?" This question of felt need, would be answered by a significant difference between the perception of actual board performance to the perception of how a board should perform.

17. Using a procedure in SAS, PROC DISCRIMINANT, it was found that the variance-covariance matrix of the Iowa sample was not equal to the variance-covariance matrix of the outside of Iowa subsample, but the variance-covariance matrices across time were the same. Due to the fact that the larger variance was associated with the larger Iowa sample, the F test would tend to be more conservative, therefore not adding to the Type I error (Hinkle, Wiersma, & Jurs, 1988.)
18. Separating the sample by Inside of Iowa and Outside of Iowa, t-tests on the ranked data were performed at the univariate and multivariate levels, research Hypothesis two. "Perceptions of how the school board operates is different for those districts within Iowa than those not in Iowa."

19. Separating the sample by year of contact with the orientation/evaluation process, an Analysis of Variance was performed at the univariate and multivariate levels. The results of this step provided an answer to Hypothesis three, "Perceptions of how the school board operates have changed in the past ten years."

20. The theoretical BES path model was created.

21. The dependent variable, district effectiveness, was created as a mean of the three measures of effectiveness, community values, teaching basic skills, and helping children have a positive self image. To provide an adjusted score, the composite mean was regressed on the district demographic information of SES and cultural diversity. The residual scores were used as the district effectiveness scores, having partialed out the effects of economic and ethnic diversity.
22. Pearson product-moment correlation coefficients were determined between factors and with unit weighted composite variables. Correlation coefficients were also obtained between the factors, the district demographic information, and the district school effectiveness rating, adjusted and unadjusted.

23. Path coefficients were calculated and the model tested. The testing of the model answered the Research Hypotheses four, five, and six, "Perceptions on policy formation, public relations, and evaluation affect school effectiveness rating."

Clarification of Certain Steps

**District mean responses**

Step three addresses one of the primary goals of study one, assessing the perceived functions of school board members. District mean responses were obtained for all 70 "IS", "OUGHT", and "DISCREPANCY" items. The means for each set were ranked and the five extreme items from each set are graphically presented in Figure 1 the perceived actual operational status of school boards, Figure 2 perceived ideal board, and Figure 3 the areas of greatest perceived
discrepancy in the operational status in school boards. The findings of these three figures are the basis of the journal article, "A ruler for school board members" (Section I.)

FIGURE 1. Extreme responses for perceived "IS" items
Refrains from Interboard Communication
Seeks citizens advice for problems
Confinces to social setting, policy, and evaluation
Policy for energy conservation
Public hearings before policy decisions
Cooperates with superintendent
Policy for safety of staff and students
Policy for privacy of student records
Curriculum without discrimination
Discretely treats privileged information

FIGURE 2. Extreme responses for perceived "OUGHT" items

Invariability

In the fifth step the question of variability of the "OUGHT" variables was determined to be negligible. The "OUGHT" items were questions relating to the ideal operational status of school boards. On a four point scale, one being always and four signifying never, the mean of all 70 items across the 197 school board districts was 1.25
FIGURE 3. Extreme responses for perceived "DISCREPANCY" items

(Table 2) compared to 1.87 as the mean district perception on the 70 "IS" items (questions relating to how the school board is presently operating.) Considering the variance of each of the 70 "OUGHT" items, the minimum variance was 0.01 and the maximum variance was 0.15 with an average variance of 0.05. In contrast, the 70 "IS" item minimum and maximum
variances were 0.06 and 0.56 respectively with an average "IS" variance of 0.20. Considering these variance estimates it was determined that the "OUGHT" variables were, for practical purposes constants and could be considered as such. Mathematically, a linear transformation of a variable by a constant will not change the relative positions of the original variables. This provided a rationale for the choice of the "IS" responses for the factor analysis rather than either the "OUGHT" or "DISCREPANCY" scores.

TABLE 2. Descriptive statistics on the means of the 70 item orientation/evaluation instrument

<table>
<thead>
<tr>
<th>Component Variables</th>
<th>Number of Items</th>
<th>Mean†</th>
<th>Range of Mean Values</th>
<th>Average Variance</th>
<th>Range of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;IS&quot;</td>
<td>70</td>
<td>1.87</td>
<td>1.43</td>
<td>0.20</td>
<td>0.50</td>
</tr>
<tr>
<td>&quot;OUGHT&quot;</td>
<td>70</td>
<td>1.25</td>
<td>0.81</td>
<td>0.05</td>
<td>0.14</td>
</tr>
</tbody>
</table>

† Rating scale: always performs=1, usually performs=2, rarely performs=3, never performs=4

Factor analysis

In the process of determining an appropriate number of factors to explain the variability of the perceptions of district school boards (Step 7,) several descriptive
techniques and statistical tests were considered simultaneously:

1. A scree plot, (named for its resemblance to scree, the geological term for an accumulation of stones or rocky debris lying on a slope or at the base of a hill) is a graphic representation of the eigenvalues in descending order of variability explained (Figure 4.)

2. A Goodness of Fit Chi Square test using the maximum likelihood ratio principle from a SAS subprocedure of PROC FACTOR, provided an estimate of the number of components necessary. Although the Chi Square test indicated that an excess of 13 factors would be sufficient, the meaningfulness of their interpretation mandated less factors to be included (Koehler, 1991.) Kaiser's rule of using components with eigenvalues larger than one, was also followed.

3. Percent increase in new variability being explained by each factor was calculated. A cutoff point of three percent was set. Figure 5 depicts the contribution of each factor in explaining the total variability of district school boards on the orientation/evaluation instrument.
FIGURE 4. Principal component scree plot of eigenvalues

It is important to note that from the unrotated factors a general board quality factor explained almost one-third of the total variability (Figure 4.) With unrotated factors many variables load moderately high on more than one factor. Therefore a varimax rotation was used to ameliorate this situation forcing each variable to load high on only one factor. Percent new variability accounted for in the
rotated factors is depicted in the scree plot of Figure 6. The general board quality factor was destroyed by the rotation and the eight factors shown in Figure 7 with their accompanying component variables emerged. Heading each column is the underlying construct that the researcher interpreted from the cluster of individual items listed below it. The items are presented in order of strength of association with the factor after a varimax rotation.

FIGURE 5. Percent variability explained by each of the rotated factors
Numbers in parentheses are the rank order of the accompanying eigenvalue, one indicating the factor with the largest eigenvalue.

FIGURE 6. Scree plot of percent new variability accounted for on each of the rotated factors

Once the factors were determined, the question remained, "Were these factors single construct factors, or did they contain more than one underlying concept?" To
Board Member Qualities

62 Remain open minded
70 Support majority decisions
24 Committed to adopted board policy
63 Productive and efficient meetings
59 Does homework for meetings
3 Policy is implemented by administration
42 Works well with superintendent
36 Leaves superintendent alone
1 Confinces to goals, policy, and evaluation
48 Requests staff info through superintendent
41 Superintendent is the official spokesperson
4 Policy for administrative actions
45 Uses channels for complaints
2 Board function is development of policy
65 Discretely treat privileged information
66 Communication is done by the law
47 Community views are important
43 Promotes school/community relations
61 Seek consequences of actions
55 Board officers selected by ability

Public Relations

21 Circulate policy manual
22 Recall policy manual annually
68 Public recognition of staff/students
35 Invite specialists to board

Professionalism

29 Understands state instructional program
50 Reads board journals
19 Avoids intra-board business
49 Attends professional meetings
14 Policy for employee concerns
17 Policy to encourage professional development

Community Involvement

26 Seeks citizens advice for problems
67 Encourages public participation
44 Public hearings on policy decisions

Evaluation Procedures

37 Evaluate superintendent by job targets
39 Written superintendent job targets
28 Staff creates performance objectives
27 Systematic evaluation of goals
38 Board evaluated sup. formally
31 Evaluate program by objectives
18 Job descriptions, eval. for all
25 Form district educational goals
23 Long-range goals and objectives
30 Time for status reports
5 Curriculum materials by staff input
34 Curriculum development by staff and students
54 Annually sets board goals
40 Channels public opinion to superintendent

Policy Setting

11 Cost effective nutritious food
12 Policy for transportation
6 Policy for payroll/insurance
10 Policy for energy conservation
7 Policy for purchasing/accounting and monitoring
13 Policy for safety
8 Monitoring maintenance
9 Policy for use of facilities
15 Policy for privacy of records

School Board Meeting

56 Superintendent and chair build agenda
60 Outsiders procedure to address board
57 Policy for new items in agenda
53 Ongoing orientation of board
58 Superintendent materials, 4 days prior to meet
52 Orientation for new members

Equity

33 Opportunity for handicapped
32 Curriculum without discrimination
46 Public hearings on discrimination
69 Prompt dissemination of information

FIGURE 7. Factor constructs and component variables of the orientation/evaluation instrument
answer this question, the SAS procedure PROC FACTOR was applied to the variables contained in each of the eight factors, the "bucket method". For each "bucket" a similar procedure to that described above using scree plots and percentages of variability explained was used to test the factors for multi-dimensionality. The researcher concluded that each of the eight factors was unidimensional.

Reliability

In Steps 11 and 12 a total instrument reliability and a reliability for each of the generated factors were performed. The resultant alpha and theta coefficients are found in Table 3.

Cronbach's alpha is more frequently encountered as a measure of the consistency of responses, but one of the assumptions in using this statistic is that all of the items measure a single phenomenon equally. Results from the factor analysis indicate that not all items measure the same construct to an equal degree. Theta is the alpha coefficient for a scale in which the weighting vector has been chosen. For this reason the theta coefficient was also calculated.

\[ \theta = \left[ \frac{N}{N - 1} \right] \left[ 1 - \frac{1}{\lambda_1} \right] \]

where \( \theta \) represents theta, \( N \) equals the number of items, and \( \lambda_1 \) is the largest eigenvalue. Factor analysis is designed
TABLE 3. Cronbach alpha and theta reliability coefficients for the school board orientation/evaluation instrument and its factors

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Cronbach's Alpha</th>
<th>Number of Items</th>
<th>Theta Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total instrument</td>
<td>0.97</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Board member qualities</td>
<td>0.94</td>
<td>20</td>
<td>0.94</td>
</tr>
<tr>
<td>Evaluation procedures</td>
<td>0.93</td>
<td>14</td>
<td>0.95</td>
</tr>
<tr>
<td>Policy setting</td>
<td>0.85</td>
<td>9</td>
<td>0.91</td>
</tr>
<tr>
<td>Community involvement</td>
<td>0.76</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>School board meeting</td>
<td>0.73</td>
<td>6</td>
<td>0.83</td>
</tr>
<tr>
<td>Professionalism</td>
<td>0.75</td>
<td>6</td>
<td>0.80</td>
</tr>
<tr>
<td>Public relations</td>
<td>0.72</td>
<td>4</td>
<td>0.82</td>
</tr>
<tr>
<td>Equity</td>
<td>0.53</td>
<td>4</td>
<td>0.80</td>
</tr>
</tbody>
</table>

† Theta coefficient could not be calculated

to determine which items are more highly related and to what extent; using the theta coefficient more appropriately determines the reliability of these factors. Alpha is unusually less than theta \((a < \theta)\) and is considered a "lower bound" for the reliability of multiitem scales, (Carmines and Zeller, 1979.)

**T-test, anova, and manova procedures**

In Step 16 (Hypothesis one) a paired t-test comparing the district mean perception of how the board "IS" operating with the corresponding district mean perception of how the
board "OUGHT" to perform, was done. On all 70 items a significant difference beyond the .01 probability level was obtained. The numerator of the t-test comparison was "IS" - "OUGHT".

On every item a negative t-value was obtained, providing consensus that there is a perceived need to improve operating levels in every area stated on the instrument.

Step 18 (Hypothesis two) posed the question of a possible difference in the mean vectors of the "IS" items for those school districts in Iowa versus those districts located outside of Iowa. The decision to compare Iowa to all other states was based on the possible influence of the perceptions of Iowa school board members as being different from other states and thus accounting for the fact that Iowan students receive high scores on the American College Testing program (ACT.) Univariate and multivariate t-tests were performed comparing the sampled school districts in Iowa with the sample of schools outside of Iowa. The statistical tests were computed on the transformed data.

The results reported in Table 4 are actual means rather than ranked means to provide a greater understanding of the results. None of the means on the eight factors obtained by factor analysis proved to be significantly different for the two geographic populations. Two of the individual items
showed significant difference (Table 4.) Considering all 70 items collectively, the comparison of mean vectors from districts within Iowa to the mean vector of those districts outside of Iowa, the multivariate $\tau^2$ test showed no difference in the mean vector response perceptions. Generally speaking, Iowa school boards perceive themselves performing similarly to those districts outside of Iowa.

**TABLE 4. Significant t-test results on items of the school board instrument by geographic location**

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
<th>N</th>
<th>$X$</th>
<th>$S$</th>
<th>T-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adopts policy for maintenance of school property and requires a monitoring system</td>
<td>In Iowa</td>
<td>141</td>
<td>1.70</td>
<td>0.41</td>
<td>-2.01 *</td>
</tr>
<tr>
<td></td>
<td>Out of Iowa</td>
<td>56</td>
<td>1.83</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>Communication among board members is in accord with the state open meeting laws</td>
<td>In Iowa</td>
<td>141</td>
<td>1.66</td>
<td>0.32</td>
<td>2.09 *</td>
</tr>
<tr>
<td></td>
<td>Out of Iowa</td>
<td>56</td>
<td>1.55</td>
<td>0.27</td>
<td></td>
</tr>
</tbody>
</table>

MANOVA

Wilk's lambda

| 70 items | $F=1.13$ | $df=70,123$ |

* Significant at the .05 level of probability
In Step 19 a univariate and Multivariate Analysis of Variance (MANOVA) from the SAS procedure PROC GLM provided the information to answer Hypothesis three, the effect of time on perceptions of actual operations of district school boards. Only one factor indicated a significant difference among the four time periods. The mean scores on that factor, "Qualities of Board Members", indicated that before 1988, district board members tended to rate themselves as performing these attributes less often than in more recent years. Even though there are more significant differences over time at the univariate level, there is not a clear trend or response pattern from earlier years to the present (Table 5.) Considering all 70 items collectively, the comparison of mean vectors from districts sampled prior to 1988 and those in each of the past three years, the mean vectors do not demonstrate a significant difference in perceptions. Statistical tests were administered to the transformed data, but once again, the mean values reported in Table 5 are actual mean scores and not ranked values.

Pearson product-moment correlations

Table 6 summarizes the correlations between the factors necessary in determining the path coefficients (Step 22.) The diagonal elements of the table are the correlations between the factor scores generated from the SAS procedure
TABLE 5. Univariate and multivariate analysis of variance of selected items and factors of the school board instrument by year of response

<table>
<thead>
<tr>
<th>Factor / Item</th>
<th>Year</th>
<th>N</th>
<th>X*</th>
<th>F-value</th>
<th>Year Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor: Qualities of Board Members</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 1988</td>
<td>141</td>
<td>1.88</td>
<td></td>
<td>3.98 **</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>14</td>
<td>1.67</td>
<td></td>
<td></td>
<td>B 89 90 88</td>
</tr>
<tr>
<td>1989</td>
<td>15</td>
<td>1.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>25</td>
<td>1.77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policies for monitoring systems of maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 1988</td>
<td>141</td>
<td>1.80</td>
<td></td>
<td>4.93 **</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>14</td>
<td>1.65</td>
<td></td>
<td></td>
<td>B 90 88 89</td>
</tr>
<tr>
<td>1989</td>
<td>15</td>
<td>1.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>25</td>
<td>1.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assures circulation of policy manual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 1988</td>
<td>141</td>
<td>2.17</td>
<td></td>
<td>3.08 *</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>14</td>
<td>1.92</td>
<td></td>
<td></td>
<td>89 B 88 90</td>
</tr>
<tr>
<td>1989</td>
<td>15</td>
<td>2.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>25</td>
<td>1.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluates programs by district objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 1988</td>
<td>141</td>
<td>2.44</td>
<td></td>
<td>3.21 *</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>14</td>
<td>2.22</td>
<td></td>
<td></td>
<td>B 89 88 90</td>
</tr>
<tr>
<td>1989</td>
<td>15</td>
<td>2.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>25</td>
<td>2.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoids intrusion into administrative function of superintendent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 1988</td>
<td>141</td>
<td>1.92</td>
<td></td>
<td>7.53 **</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>14</td>
<td>1.49</td>
<td></td>
<td></td>
<td>89 B 90 88</td>
</tr>
<tr>
<td>1989</td>
<td>15</td>
<td>1.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>25</td>
<td>1.71</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significance at the .05 level of probability
** Significance at the .01 level of probability
† Years with a common line are not significantly different at alpha = .05
← B represents years before 1988
* rating scale: always performs=1, usually performs=2, rarely performs=3, never performs=4
TABLE 5 (continued)

<table>
<thead>
<tr>
<th>Factor / Item</th>
<th>Year</th>
<th>N</th>
<th>X</th>
<th>F-value</th>
<th>Year Difference†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluates superintendent formally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before 1988</td>
<td>141</td>
<td>1.87</td>
<td>3.30 *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>14</td>
<td>1.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>15</td>
<td>1.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>25</td>
<td>1.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensures superintendent is the official spokesperson for the district</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before 1988</td>
<td>141</td>
<td>1.83</td>
<td>3.53 *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>14</td>
<td>1.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>15</td>
<td>1.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>25</td>
<td>1.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Works together with superintendent, respects area of responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before 1988</td>
<td>141</td>
<td>1.76</td>
<td>5.31 **</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>14</td>
<td>1.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>15</td>
<td>1.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>25</td>
<td>1.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requests staff information through the superintendent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before 1988</td>
<td>141</td>
<td>1.89</td>
<td>2.68 *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>14</td>
<td>1.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>15</td>
<td>1.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>25</td>
<td>1.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrains from interboard communication, away from board table</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before 1988</td>
<td>141</td>
<td>2.40</td>
<td>4.56 **</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>14</td>
<td>2.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>15</td>
<td>2.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>25</td>
<td>2.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discretely treats privileged information from executive sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Before 1988</td>
<td>141</td>
<td>1.48</td>
<td>2.80 *</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>14</td>
<td>1.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>15</td>
<td>1.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>25</td>
<td>1.31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MANOVA - 70 "IS" variables by Year

Hotelling-Lawley Trace 194  1.13  df=210,364
of FACTOR ANALYSIS (weighted combinations of "IS" items according to factor loadings) with the unit combinations of the same variables employing compute statements. All correlations are significant beyond the .01 level of significance. These correlations were obtained from the subsample of 84 Iowa school districts used in testing the theoretical path model.

Table 7 demonstrates the correlation coefficients between the eight school board factors derived from the School Board Orientation/Evaluation Instrument© and the information from the effective school instrument data. It is important to note the scale for the factors is coded in the opposite direction as to the scale used in rating school effectiveness. A larger value implies a more effective school whereas as smaller value on a factor denotes a quality is present more frequently. Likewise, as the values increase on SES, the community demonstrates stronger economic power. Therefore, an $r = .55$ between Effective School Rating and SES implies that as one rating is increased we expect an increase in the other rating. An $r = -.16$ between the factor equity and SES implies a much weaker relationship, but as districts tend to rate themselves higher in equitable treatment of students, staff, etc., the district tends to be more white collar, the opposite being
true, that as the community tends toward blue collarness, the boards tend to rate themselves lower on equity.

TABLE 6. Correlations between weighted factor scores and unit weighted computed factors as diagonals elements, off-diagonals represent correlations between factors

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
<th>Factor 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Board Qualities</td>
<td>0.998* 0.76</td>
<td>0.66</td>
<td>0.69</td>
<td>0.64</td>
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* All correlations are significant beyond $p = .01$
† $N = 84$
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<th>Factors / District Variables</th>
<th>Cultural Diversity†</th>
<th>Socio-economic Status‡‡</th>
<th>Effective School Rating</th>
<th>Adjusted Effectiveness Rating†††</th>
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<tbody>
<tr>
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<td>-0.09</td>
<td>-0.01</td>
<td>0.02</td>
</tr>
<tr>
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<tr>
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<td>-0.06</td>
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<td></td>
<td>.55**</td>
<td>0.00</td>
</tr>
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</table>

* significant at .05 probability level  
** significant at .01 probability level  
† Cultural Diversity was coded: Homogeneous=1, Diverse=2  
‡‡ SES was coded: Mostly Blue Collar=1, Equal=2, Mostly White Collar=3  
††† Residuals after regressing the Effective School Rating on SES and Cultural Diversity
Model building

In Step 20 the BES path model was created using a combination of approaches to determine the causal flow of the identified factors. The second article, "Causal relationships between role perceptions of school board members and effective schools" (Section II) discusses the theoretical justification for the factors. In summary, the identified dimensions of school board perceptions were the result of a factor analysis based on the Iowa subset of the School Board Orientation/Evaluation Instrument®. Six of the eight factors concurred with previously identified factors in the literature. The factors were classified into three categories, antecedents, processes, and outcomes. This provided a logical flow of causality.

antecedents → processes → outcomes

The identified antecedent factors were School Board Meeting, Board Member Qualities, and Professionalism. Processes included Public Relations, Community Involvement, and Evaluation Procedures. Equity, Policy Setting, and Effective Schools exemplified outcomes.

Due to the lack of research relating these factors to school effectiveness, experts in the areas of school policy, school administration, and school board evaluation were called upon to provide empirical input in the causal
ordering of the factors within each group. Figure 8 is the resulting theoretical model. The numbers in the boxes indicate the determined causal order. Board Member Qualities is the only exogenous dimension believed to be inherent in board members when they were elected to the board. Attitudes toward Professionalism and School Board Meetings are results of those qualities.

Of the three processes, Evaluation Procedures which implies goal setting by the nature of component items, was designated as initiator of the Processes. Community Involvement and Public Relations were designated as fifth and sixth. The most discussion of ordering came from the placement of order of these two factors.

Of complete agreement was the fact that a basic purpose of Policy Setting was to provide equity. If there is educational equality both for students and staff, then the stage is set for effective schools.

Model testing

Figure 9 depicts the path coefficients, significance levels, and measurement error of the theoretical model. 

\[ e = \sqrt{1 - R^2} \]

Standardized path coefficients, indirect effects and lack of fit to the zero order correlations are presented in Table 8. The fully recursive model, which provides all possible paths
FIGURE 8. Theoretical path model
to each successive variable, was also created to provide a standard for testing the goodness of fit of the theoretical model to the data. The $W$ statistic was found to be 74 (Pedhauser, 1979.) The theoretical model had 16 paths less than the fully recursive model providing a comparison with a Chi Square distribution with 16 degrees of freedom. The statistic was found to be significant, i.e., the model was not a good representation of the data, and some of the paths that were determined to be nonexistent (equal to zero) were in fact different than zero.

Figure 10 depicts the theoretical path model after eliminating all nonsignificant paths. A revised model, based on the elimination of nonsignificant paths from the fully recursive model, was developed (Figure &rpath..) Paths were eliminated one at a time in order to maintain the integrity of the theoretical model. Two nonsignificant paths remained to provide a bridge for the flow of causality.
FIGURE 9. Path coefficients for the theoretical model
TABLE 8. Path effects of the theoretical model

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Correlation</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
<th>Lack of Fit $r - (DE+IE)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionalism (2)</td>
<td>Board Member Qualities</td>
<td>$r_{12} = .72$</td>
<td>$P_{21} = .72$</td>
<td>-</td>
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<tr>
<td>School Board Meeting (3)</td>
<td>Board Member Qualities</td>
<td>$r_{13} = .64$</td>
<td>-</td>
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</tr>
<tr>
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<td>Professionalism</td>
<td>$r_{23} = .63$</td>
<td>$P_{32} = .62$</td>
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<tr>
<td>Evaluation Procedures (4)</td>
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</tr>
<tr>
<td></td>
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<tr>
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<td>0.51</td>
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<tr>
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<td>0.26</td>
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<tr>
<td></td>
<td>Community Involvement</td>
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<td>$P_{65} = .21$</td>
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<td>0.34</td>
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<td>Policy Setting (7)</td>
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<td>$r_{47} = .62$</td>
<td>$P_{74} = .03$</td>
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### TABLE 8 (continued)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variable</th>
<th>Correlation</th>
<th>Direct Effect</th>
<th>Indirect Effect</th>
<th>Lack of Fit r - (DE+IE)</th>
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<td><strong>Effective Schools (Y)</strong></td>
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- "r" denotes correlation coefficients.
- "P" denotes partial correlation coefficients.
FIGURE 10. Significant path coefficients from the theoretical model
All path coefficients are in standardized units

- Nonsignificant path
- Significant path at alpha = .05
- Significant path at alpha = .01

FIGURE 11. Revised path model
CHAPTER IV. JOURNAL ARTICLES

Two journal articles comprise chapter four, they are:

Section I. A ruler for school board members

and

Section II. Causal relationships between role perceptions of school board members and effective schools
SECTION I. A RULER FOR SCHOOL BOARD MEMBERS

Beth E. Ruiz, Ph.D.

From the Department of Professional Studies in Education
Iowa State University
Ames, Iowa 50011
NUMBERS, DATA, TRENDS, PERCENTAGES, STATISTICS we are possessed with an incessant desire to measure! At a very early age, (upon leaving the hospital after birth) children have already acquired an impressive list of "stats". This information is just the beginning of an endless trail of numbers that will follow these young individuals around throughout their entire lives. Our culture has invented many instruments to quantify observations. We use a variety of tools and devices to measure, scales and yard sticks, thermometers and grades, assets and years of education, SAT (Scholastic Aptitude Test) scores and half time scores, job classifications and titles. We are surrounded by information to process. Some of it is already in a processable form with a built-in measuring stick right next to it. We not only quantify immediately, but the data are also qualified at the same time according to generalizable standards, a baby born at 3 pounds is small and one born at 10 pounds is big. Other information achieves a measurable number of tick marks on a scale, but the interpretation is situation specific (the average teacher's salary is $22,000 in the U.S.A., in Costa Rica the average salary is 480,000 colones). There is no escaping, we are and will continue to be bombarded by data, but the choice of what to do with the information is yours.
In a recent issue of the *Phi Delta Kappan*, numerous pages were dedicated to The 23rd Annual Gallup Poll of the Public's Attitude Toward the Public Schools. Another special "ruler" was utilized to "measure" public opinion. In the quest to find a measuring device for school board members one such "ruler" has been implemented in measuring board member perceptions for over ten years. The purpose of this instrument was to sensitize and orient school board members.

The participants were encouraged to do some introspective thinking about the operational status of their particular school board and to idealize board member performance. The information included in this article is a compilation of measurements taken from school districts throughout the United States as a part of an ongoing consulting and orientation service offered by a professional evaluator. From this nationwide project a sample was drawn that included 16 states (ranging geographically from New York to New Mexico) and 197 school districts, totaling 1119 school board members. The maximum number of responding board members per district in this study was eight and the minimum number responding per district was three, with an average of five board members per district. For purposes of measuring district perceptions, the responses from all of
the school board members of a given district were averaged together to obtain a single district value for each question asked.

The seventy item survey attempted to reveal perceptions in general and specific areas of a school board's sphere of influence, a) functions b) roles and c) behaviors. Each board member was asked to respond to 70 statements in two ways using a four-point scale for each item (Board ALWAYS performs this way. Board USUALLY performs this way. Board RARELY performs this way. Board NEVER performs this way.) The first set of answers addressed the concept of how the board member viewed the current operational status of the board (the "IS" aspect) and the second set of ratings was concerned with the perceptions of how a school board should function (the "OUGHT" aspect). The difference between these two responses was considered an indicator of the felt need for improvement (referred to as the "DISCREPANCY" score).

Three questions were posed with the information gathered by this instrument. 1) Do school board members know what they are supposed to do? 2) What do board members perceive they are doing? 3) Do board members see themselves as functioning in accord with their perceived ideal? Answers to questions one and two were addressed directly by the "OUGHT" and "IS" aspects of the "measuring
The third question was the self assessed need, the difference between "OUGHT" AND "IS" ratings. Let's talk about what was measured on this three-sided "ruler".

1) **Is there consensus or do school board members need training as to what are the functions, roles, and behaviors that they should be performing?** From the responses to the "OUGHT" statements close to uniform measurements indicated that school board members have a very clear picture of what needs to be done. Each of the statements concerning the aspects of what school board members "OUGHT" to do were rated similarly across the 197 school districts. Of the 70 "OUGHT" items the area that was rated the highest by districts was one which board members recognized the importance of their position as public servants demonstrating a need for integrity and honor in performing their duties "To respect and treat with discretion privileged information growing out of executive sessions." It was rated almost universally as what board members **should do always**! Of the top five aspects, the next three areas that were considered to be of greatest importance as functions of school board members were in the areas of goal setting and policy formation with respect to the needs of students and staff. They were (in order of importance) "Provide equal access to curriculum and cocurricular
activities by all students." "Adopt a policy which safeguards the privacy of student records." and "Adopt policy to ensure safety of staff and students." The fifth highest expectation stressed the importance of maintaining proper channels of communication, "The office of the superintendent is the official spokesman for the district, and all official communication between the school board, citizen, and professional staff is conducted through that office."

On the opposing end of the continuum in prioritizing "OUGHTS" the following five areas were considered of lesser importance. "Refrain from communicating with each other away from the board table about board activities." (This question produced the largest variety of response.) Two areas of community involvement "Seek and use citizen's advice when solving difficult problems." "Seek through surveys, advisory committees or public hearings, community reactions and opinion before making major policy decisions." The remaining two lower priorities were in the area of policy setting. "Excluding areas mandated by state code, the board should confine itself to goal setting, policy making and evaluation of the superintendent and programs of the district." and "Adopt policies governing energy conservation, and require a system for monitoring energy use."
2) In the first section of the instrument, perceptions of the ideal school board were polled. In the second part board members responded to: How does your district measure the degree of current functionality? Perceptions of how the districts operate were not as uniform, providing greater variety in self-rated assessments of operation. Districts perceive themselves as putting the basic needs of students high on the agenda. Three of the five areas of highest self report relate to the rights and needs of individual students. "Provide equal access to curriculum and cocurricular activities by all students, regardless of sex, national and ethnic origin, race, religion, and financial status." "Provide adequate educational opportunity for students with mental, physical, social or emotional handicaps." "Adopt a policy which safeguards the privacy of student records." The remaining two areas of high self rating were concerned with how the board relates to the stakeholders, "Specify a procedure for citizens, including students, to use in addressing the board." "Hold public hearings on the annual budget, new construction plans and other important issues before taking final action."

The areas that districts rated themselves lowest on were setting objectives and evaluating to those objectives. Self-rated as rarely perform were: "Conduct annually a
board evaluation exercise which culminates in setting board goals (not to be confused with district goals) for the upcoming year. "Regularly evaluate the instructional program in light of the district's educational objectives."
"Clarify in writing, at least once a year, expectations (job targets) for the superintendent." Also rated as rarely occurring were two areas of communication. "Provide that all copies of the policy manual are recalled by the central office annually to be checked for accuracy of contents."
"Refrain from communicating with each other away from the board table about board activities."

3) Comparing the two aspects of the "measuring stick" "OUGHT" and "IS" on a statement by statement basis provides another dimension of measurement. These "DISCREPANCY" scores responds to, Do board members perceive a need to change behaviors? The items that received the largest discrepancy score indicate the greatest felt need for change. These areas were closely aligned to the areas where the districts rated themselves lowest. All areas previously described as aspects of low self rating on goal setting and evaluation were the areas where they perceived the most change needed to occur. Four of the five areas stated above as rarely perform were the same areas where boards perceived most change needed to occur. The fifth statement referring to interboard member communication was replaced by "Require
systematic evaluation goals" as an area that was worthy of more board member attention. Likewise the areas where districts rated themselves as usually performing were the areas where least discomfort about change was felt. The one area of high self rating that was not in the "least need for change" was the area of addressing the board. This highly rated "IS" item was substituted for avoid recessing to an executive session during a regular board meeting." Boards generally concur that recessing in not widely practiced.

What does this mean for your board? If your board is typical you should:

1. **Pay more attention** to goal setting in your district. Take time as a board to be deeply involved in the goal setting area. Role model for your district.

2. **Pay more attention** to the evaluation efforts in your district. Are you performing your role in evaluating your superintendent? Do you as a board regularly evaluate your instructional program? Are you role modeling by conducting a self evaluation of your work?

If you as a board continue your efforts in policy setting, providing adequate finances for your district as well as attending to the two areas previously mentioned, your board will meet the standard of being a quality board.
Now you know how many districts across the county perceive the functioning of their boards. You also know what many board members view as the most important aspect of their tasks, how does your board compare to the "ruler"? Will you take the suggestions to improve your measurements?
SECTION II. CAUSAL RELATIONSHIPS BETWEEN ROLE PERCEPTIONS OF SCHOOL BOARD MEMBERS AND EFFECTIVE SCHOOLS

Beth E. Ruiz, Ph.D.

From the Department of Professional Studies in Education
Iowa State University
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ABSTRACT  This study examined the causal relationships between eight factors determining the perceived importance of school board functions and effective schools. Measures were obtained from 84 school districts in a mid-western state. Two instruments were used, a self report survey for school board members, and a school effectiveness rating determined by regional educational specialists. The school board data were factor analyzed, and eight constructs emerged. A regression model adjusting school effectiveness ratings for two demographic characteristics was used to obtain the dependent variable for the path model. Path analysis findings did not verify that there was a causal relationship between perceived school board functions and effective school districts.

In recent years attention in education has been focused on how to improve our methods of instruction. New technology and progressive methods have been implemented by administrative and instructional leaders. Educators have been encouraged to experiment with a variety of teaching and learning styles in an effort to facilitate the acquisition of skills and thought processes. Along with the surge in awareness of improving instruction, equally there has been a push for accountability. Traditional methods of measuring student performance have provided incongruous results to which schools are "doing the job" and why. Because many studies are conducted at the elementary level, it is often
conjectured that the findings are distorted by the strengths and weaknesses of individual teachers. How is effective education measured? Is effectiveness collective or individual? Is effectiveness a function of the "school" or of the "district"? If a K-12 philosophy of effective education is accepted then what are causal factors? It is the purpose of this study to examine the effectiveness of education based on perceived school board intervention.

The effective school movement suggests the use of standardized achievement test scores as a measure of instructional effectiveness (Salganik, et al., 1980; Clark & McCarthy, 1983; Mandeville, 1987). There have been reservations even about these normed test results due to the lack of stability over time (Moore, 1987; Frechtling, 1982). Even though these achievement measures are widely used, there is concern as to the results being adequate indicators for identifying effective schools. Perkins and Duncan (1987) showed that the Iowa Test of Basic Skills (ITBS) does not demonstrate mastery in diverse reading comprehension skills. Lack of consensus on the aggregation or disaggregation of scores has been another area of controversy. Researchers have been accused of using aggregation techniques to their advantage to demonstrate a case in point (Abalos et al., 1985). Academic level for
addressing effectiveness is equally nebulous. Most commonly analyzed has been the elementary school (Pink, 1985; Webster & Olson, 1984; Mandeville & Herdari, 1988).

What alternatives remain to the who, what, and how of assessing effective education? The use of alternative measures to assess school effectiveness was considered by Helmstadter and Walton (1986). They compared three multiple regression models, one using only demographic descriptors, a second using the descriptors plus a standardized test score, and a third model was like the second, but adding one more academic achievement score. The correlation between the residuals of the second two models with the first were found to be .70 and .84. They suggested the simpler model as a viable option for determining school effectiveness.

Frechtling (1982) compared five methods of evaluating school effectiveness; trend analysis, gain scores, individual residual scores, school ranking, and expert opinion. The conclusion was that expert opinion should not be dismissed as a manner of determining school effectiveness.

**School Effectiveness Measure**

Due to the fact that there remains ambiguity in the adequacy of traditional school effectiveness assessments, and that the expert opinion is equally plausible, for this study, such an assessment was employed. The highly
efficient residuals from the previously discussed regression model that contained demographic predictors was additional rationale for the use of two social descriptors, socio-economic status (SES) and cultural diversity in the proposed regression model.

Considering that educational effectiveness is not a commodity that begins and ends with certain grade levels, but rather a function of the whole educational process, district effectiveness was chosen as the unit of analysis rather than building or "school" effectiveness.

Method

Instruments

In selecting individuals to rate/evaluate district efficacy, the following criteria were considered: knowledge of a large number of school districts to enable differentiation among districts in specified areas; familiarity with the internal processes of each district; and being impartial and separated from the district. It was decided that those individuals best qualified in these areas were regional educational consultants. They would be familiar with the internal processing of each district as a whole within their region of influence. The raters had two tasks, evaluation of the school district in three academic/psycho-social domains and determining two
demographic attributes of the corresponding community. The three domains considered in evaluating district effectiveness were the teaching of community values, the teaching of basic skills, and the ability to meet the needs of the children in creating a positive self image. These three attributes of effective education were identified as the result of personal interviews with educational practitioners and specialists in a midwestern state. The interviews were conducted for the purpose of redefining "effective schools" to be more representative of the state's population distribution and current educational impetus.

To control for some known variability, the regional experts were also asked to identify two community attributes, cultural diversity (whether "homogeneous" or "diverse") and SES ("mostly blue collar", "equal", "mostly white collar"). A composite score of the three domains of effectiveness was regressed on SES and cultural diversity. The residuals provided the district "school effectiveness" rating.

The School Board Orientation/Evaluation Instrument© is a copyrighted survey used to obtain feedback on how school board members perceive their performance in their specific and general roles as school board members. A typical item of the 70 item instrument might be "Clarifies in writing, at least once a year, its expectations (job targets) for the
superintendent." The board members evaluated their respective boards and responded on a 4 point scale from ALWAYS to NEVER. The responses from all of the school board members of a given district were averaged together to obtain a single district value for each of the 70 items on the questionnaire.

The effectiveness rating was matched up to the previously collected school board perception data. The Iowa subsample represents a portion of the school board data that had been collected from board members throughout the continental United States over a ten year period (Ruiz, 1991, Section I, herein).

**Sample**

The Iowa sample that is discussed here is a subset of 84 districts of the 197 school districts (1119 school board members) from 16 states that was randomly sampled from the districts that received orientation and/or evaluation services from a professional evaluator over a ten year period. The "effective school" data was collected from the 15 regions that service the state of Iowa. The two measures were collected independently.

The rationale for choosing the state of Iowa came from the fact that in recent years Iowa has been rated Number One or close to the first in the nation on the American College
Testing program (ACT). Is there something unique about perceived roles of school board members in Iowa that provide for quality education? Is there a causal relationship between what school board members perceive they do and "school effectiveness"?

Procedure

Factor Analysis

Factor analysis, a data reduction technique, was applied to the school board perception data in an attempt to determine a reduced number of underlying dimensions. These dimensions are referred to as factors or constructs. The 70 item survey was found to contain eight factors (see Figure 12). The factor that contained the largest number of constituent items was that of Board Member Qualities. The twenty items collectively consider qualities such as remaining open minded, supporting majority decisions, adherence to adopted policy, doing homework, and proper channeling of complaints. Two factors, Evaluation Procedures and Policy Setting, were so designated due to the nature of the items that formed these constructs. They contained 14 and 9 items respectively. The Community Involvement factor items, three in all, were viewed as dealing with how the board perceives the community provides input and participates in board actions whereas the Public
Relations construct (four items) was a reflection of how the board members perceived they have communicated with the stake holders. The factor denoted, Professionalism, with six items composing it, exemplified a deeper commitment by attending meetings, reading journals, and demonstrating a broader view of school board membership. School Board Meeting represents a clerical factor consisting of six items addressing the board meeting, its agenda, and ongoing orientation. The eighth construct labeled Equity, (four items) exemplified perceptions on equal opportunities in both education and the dissemination of information.

The ultimate goal of the factor analysis was the utilization of factors in creating a causal model relating perceptions of school board members to effective schools, the Boards for Effective Schools (BES) path model. Carpenter (1988) identified ten qualities of an exemplary board member. Of those ten traits, three reflect board member qualities, three allude to goal setting/evaluation procedures, two deal with professionalism, and two refer to policy setting. Johnson (as cited in Davies, 1989) suggested another quality not mentioned by Carpenter, and that being the importance of public relations. Pauly (1987), Weil (1989), and Phillips (1989) stress the importance of community involvement. All but two of the factors obtained in the present study have been mentioned in
Board Member Qualities
62 Remain open minded
70 Support majority decisions
24 Committed to adopted board policy
63 Productive and efficient meetings
59 Does homework for meetings
3 Policy is implemented by administration
42 Works well with superintendent
36 Leaves superintendent alone
1 Confines to goals, policy, and evaluation
48 Requests staff info through superintendent
41 Superintendent is the official spokesperson
4 Policy for administrative actions
45 Uses channels for complaints
2 Board function is development of policy
65 Discretely treat privileged information
66 Communication is done by the law
47 Community views are important
43 Promotes school/community relations
61 Seek consequences of actions
55 Board officers selected by ability

Public Relations
21 Circulate policy manual
22 Recall policy manual annually
68 Public recognition of staff/students
35 Invite specialists to board

Professionalism
29 Understands state instructional program
50 Reads board journals
10 Avoids intra-board business
49 Attends professional meetings
14 Policy for employee concerns
17 Policy to encourage professional development

Community Involvement
26 Seeks citizens advice for problems
67 Encourages public participation
44 Public hearings on policy decisions

Evaluation Procedures
37 Evaluate superintendent by job targets
39 Written superintendent job targets
28 Staff creates performance objectives
27 Systematic evaluation of goals
38 Board evaluated sup. formally
31 Evaluate program by objectives
18 Job descriptions, eval. for all
25 Form district educational goals
23 Long-range goals and objectives
30 Time for status reports
5 Curriculum materials by staff input
34 Curriculum development by staff and students
54 Annually sets board goals
40 Channels public opinion to superintendent

Policy Setting
11 Cost effective nutritious food
12 Policy for transportation
6 Policy for payroll/insurance
10 Policy for energy conservation
7 Policy for purchasing/accounting and monitoring
13 Policy for safety
8 Monitoring maintenance
9 Policy for use of facilities
15 Policy for privacy of records

School Board Meeting
56 Superintendent and chair build agenda
60 Outsiders procedure to address board
57 Policy for new items in agenda
53 Ongoing orientation of board
58 Superintendent materials, 4 days prior to meet
52 Orientation for new members

Equity
33 Opportunity for handicapped
32 Curriculum without discrimination
46 Public hearings on budget
69 Prompt dissemination of information

FIGURE 12. Factor constructs and component variables of the orientation/evaluation instrument
previous studies as important attributes in board members. The two not cited previously were school board meeting and equity. The task of determining how these characteristics operate and relate to produce effective schools remains to be discussed.

Model building

The factors were classified into three categories, antecedents, processes, and outcomes. This provided a logical flow of causality.

antecedents → processes → outcomes

The identified antecedent factors were School Board Meeting, Board Member Qualities, and Professionalism. Processes included Public Relations, Community Involvement, and Evaluation Procedures. Equity, Policy Setting, and Effective Schools exemplified outcomes. The American Can Company (1986) surveyed school board chairpersons. Thirty-one percent of the respondents identified policy development as the most important task of the school board. Considering the identified factors operating in the proposed model, the purpose of setting policy would be to provide an equitable learning and working environment. Theoretically, these qualities being satisfied the school could do best its job of providing a learning environment. How the other factors effect Policy Setting was of prime concern. It was
hypothesized that how school board members perceive themselves in the areas of personal qualities initiated the operational status of the board. As stated by the Staff in *The American School Board* (1990), "the attitude of the school board members is extremely important it can determine the systems' outlook." This attitude shapes Professionalism, which in turn sets the climate for the quality of School Board Meetings. Public Relations and the process of Setting Policy were hypothesized to be functions of the School Board Meeting as well as influenced by the personal attributes of the school board member. The perceived extent of Community Involvement was also envisioned as a function of the board member's self perception and the personal attitude toward Professionalism.

The whole process of goal setting and Evaluation is an integral set in Policy Setting. Davies (1989) stated the importance of board evaluation and training is to get a good return on school resources and investment time. Without evaluation, one is never sure goals have been achieved. Therefore it was hypothesized that Evaluation Procedures precede Policy Setting. Two factors, Policy Setting and Community Involvement directly influence Equity, and all factors indirectly effect Equity through these two constructs. Finally the Effective School was hypothesized
to be a direct function of Community Involvement and Equity with all of the other factors influencing indirectly via these two avenues.

Due to the lack of research relating these factors causally to school effectiveness, experts in the areas of school policy, school administration, and school board evaluation were called upon to provide empirical input in a proposed ordering of the identified factors within each group. Figure 13 is the resulting theoretical model. The numbers in the boxes indicate the determined causal order. Board Member Qualities is the only exogenous dimension believed to be inherent in board members when they were elected to the school board. Attitudes toward Professionalism and School Board Meetings were considered results of those qualities.

Of the three processes, Evaluation Procedures which, implied goal setting by the nature of the component items, was designated as initiator of the Processes. Community Involvement and Public Relations were designated as fifth and sixth. The most concern for ordering came from the placement of these two factors.

Of complete agreement was the fact that a basic purpose of Policy Setting was to provide equity. If there was to be educational equality both for students and staff, then the stage would be set for effective schools.
FIGURE 13. Theoretical path model
Path Analysis

The fact that the arrows in the diagram are of differing length reflects space limitation and is not indicative of the importance of the factor. The diagram depicts the causal ordering among the factors as they were hypothesized to relate to effective schools. The three parts of the effective school component represent the composite score of the three areas rated by the regional specialists. By using a regression approach to obtain residuals, this rating was then adjusted for SES and cultural diversity of the community as perceived by the educational specialist. One of the advantages of path analysis is that it enables one to measure the direct and indirect effects that one factor has on another. The arrows between two factors indicate a direct relationship, but following arrow paths to another factor through other factors indicates the indirect effect of the first factor on the later factor.

Model testing

Figure 14 depicts the path coefficients, significance levels, and measurement error of the theoretical model.

\[ e = \sqrt{1 - R^2} \]

The fully recursive model, which provides all possible paths to each successive variable, was also created to provide a
standard for testing the goodness of fit of the theoretical model to the data. The W statistic was found to be 74 (Pedhauser, 1979). The theoretical model had 16 paths less than the fully recursive model providing a comparison with a Chi Square distribution with 16 degrees of freedom. The statistic was found to be significant, i.e., the model was not a good representation of the data, and some of the paths that were determined to be nonexistent (equal to zero) were in fact different than zero. It is noteworthy that the model appears to provide an accurate explanation of the causal flow of the internal functionings of the board, but there is a causal breakdown at the factor Equity.

**Discussion**

A revised model based on the elimination of nonsignificant paths was developed (Figure 15). Paths were sequentially eliminated in order to maintain the integrity of the theoretical model.

A more parsimonious explanation of the relationships among these factors was obtained, but it accounted for less of the total variability. Even though the data do not support the existence of the two nonsignificant paths, the author feels on the basis of theory and logic that these nonsignificant paths should be included. It is the task of future researchers to determine if in reality such links
FIGURE 14. Path coefficients for the theoretical model
All path coefficients are in standardized units

- Nonsignificant path
- Significant path at alpha = .05
- Significant path at alpha = .01

**FIGURE 15. Revised path model**
exist. Possibly other unmeasured constructs will provide the bridge between school board functions and effective school districts. Even assuming this to be true, probing questions need to be addressed. Are these data erroneous? Is the theoretical model completely out of line with the actual operations of school boards? Are the reported perceptions consistent with behavior? Do we have valid measures for all constructs? Is there any relationship between what school boards do and outcomes in the classroom? Particularly disturbing is the negative response to the last question, which the findings from this study appear to indicate.


CHAPTER V. SUMMARY AND RECOMMENDATIONS

This chapter presents a summary and discussion of the major findings of the current study. In addition, recommendations for future research are presented.

Findings

Based on the data collected from school board members and regional educational consultants, the following conclusions were drawn in answer to the research hypotheses.

Hypothesis one

The first research hypothesis, "There is a perceived need to change behaviors of school boards, i.e., there is a difference in the mean perceived ideal and the mean perceived actual ratings on all paired items," was answered affirmatively from the results of a t-test pairs. All mean differences or "DISCREPANCY" scores were highly significant for the 70 items of the School Board Orientation/Evaluation Instrument®. School board members perceive they should improve operating levels of their respective school boards.

Hypothesis two

Research hypothesis number two stated that, "Perceptions of how the school board operates is different for those districts within Iowa than those not in Iowa," was
refuted. The data did not support this conjecture. Considering all mean responses collectively, Iowa school boards perceive themselves performing similarly to those districts outside of Iowa.

**Hypothesis three**

"Perceptions of how the school board operates is different for those districts within Iowa than those not in Iowa," the third hypothesis was not confirmed by the data. Although some individual items demonstrated that mean responses over the years were not the same, there was not a recognizable trend across the years. Considering the mean responses from all 70 items from districts sampled prior to 1988 and those in each of the past three years, there was no significant difference in board member perceptions.

**Hypothesis four**

Hypothesis four, "Perceptions on policy formation affect school effectiveness ratings," was theorized to have an indirect effect on the effective school rating. The data did not support this hypothesis.

**Hypothesis five**

The fifth hypothesis stated that, "The perceived relationship of the school board to the community affects school effectiveness ratings," was theorized as having both
a direct and an indirect effect on effective school ratings. Both paths were found to be nonsignificant.

**Hypothesis six**

The final hypothesis, "Perceptions on evaluation affect school effectiveness ratings," was theorized as having a direct effect on effectiveness ratings. It was found that this effect was indirect.

**Summary**

The present research had two purposes. First the study was designed to assess the perceived actual and ideal functions of school board members and also to examine the differences of district school board perceptions, both over time and geographically. The second purpose of the study was to determine the underlying component factors of the perceptions of Iowa school board members and based on these factors, develop and test a causal model of these relationships as related to the effectiveness of the school districts.

Both studies used existing data, collected over a ten year period of time on school board members in an ongoing consulting service. Study one relating to purpose one, used a random sample of 197 school districts, totaling 1119 school board members from 16 states. Study two relating to
purpose two, used a substrata of the previous random sample, made up of 84 school districts from Iowa. In addition to the school board member data provided in study one, study two utilized a measure of district effectiveness, supplied by regional educational specialists.

A review of the literature revealed: many studies discussing the assessment and classification of effective schools; few studies analyzing the qualities and attributes of school board members; and no studies relating the functions of school boards to effective school districts.

Analysis of the data for study one included: 1) an item by item comparison of means for the 70 "IS", "OUGHT", and "DISCREPANCY" items 2) univariate and multivariate comparisons of "IS" means by geographic location and contact year.

Analysis of the Iowa subsample data for study two included: 1) factor analysis of the School Board Member Orientation/Evaluation Instrument® 2) Cronbach alphas and theta coefficients to estimate factor internal consistencies 3) Pearson product-moment correlations between district effectiveness measures and unit weighted factors and factor loadings 4) path analysis of the theoretical model of Boards for Effective Schools (BES).
The findings of this study support the view of homeostasis across time and geographic location. School board members generally perceive their duties the same, inside of Iowa and outside of Iowa, and over the past ten years. Districts rate themselves highly in the areas of equitable treatment of students in the areas of access to curriculum and educational opportunities. There is little variability in their responses as to how they "OUGHT" to be functioning, but the most important quality was to perform their duties as public servants with integrity and honor. The areas where it was perceived most improvement needed to occur, was in setting of objectives and evaluating to those objectives.

Results of the factor analysis of the 70 "IS" items from the School Board Orientation/Evaluation Instrument® provided the components for the theoretical model. Eight subscales were identified. The eight dimensions were: Board Member Qualities, Evaluation Procedures, Policy Setting, Community Involvement, School Board Meeting, Professionalism, Public Relations, and Equity. These factors showed moderate to high internal consistency estimates on the theta coefficient that ranged from .80 to .94. Cronbach alphas were slightly lower ranging from .53 to .94 on the factors and .97 for the total instrument.
Pearson product-moment correlations of the factors with their unit weighted composite variables were very high, over .99. Factors correlated to factors moderately, ranging from .29 for a low to .70 as a high. The eight factors had very low correlations with the effective district rating, very close to zero and nonsignificant.

The theoretical model drew upon both theory and empirical knowledge. Testing the model indicated that Board Member qualities directly affect Evaluation Procedures, Professionalism, and Community Involvement. Professionalism directly affects Policy Setting, and the School Board Meeting. The factor School Board Meeting in turn directly affects Public Relations and Policy Setting. Policy setting directly affects Equity. All other direct paths were not significant. The failure to find Equity to have a direct effect on Effective Schools (as controlled for SES and cultural diversity) was unexpected. The proposed model did not provide a plausible causal relationship of the data.

Recommendations for Further Study

The results of this study indicate that in general school board members appear to perceive similarly what they should be doing. However, mere knowledge of obligations does not guarantee involvement and commitment. Motivational
strategies need to be developed to encourage school board members to perform their duties at a level commensurate with their perceived level of expectancy.

A limitation of the study is the use of self-report instrument to measure all independent variables for the path model. The validity of response as a true measure of actual board member behavior is questionable. Particularly suspect is the validity of the factor Equity. The items composing this construct were rated highly by most districts. School board members perceive they are providing for equal educational opportunities, but by observing the correlation matrix, $r = -.13$ between Equity and district Effectiveness (the negative value is due to the factor coding of 1 as most frequent or high, and Effectiveness was coded with 99 being high). Four other factors demonstrate similar negative relationships with district school effectiveness, but the strongest relationship, although weak is that between Equity and Effectiveness, there is a slight tendency for boards rating themselves as demonstrating more equity to be rated as more effective. Do these assessments accurately reflect the constructs and district effectiveness? Alternative sources of assessing school board functionality are suggested. Verification of the identified dimensions of school board membership is also recommended.
Cautious interpretation of causality are warranted due to the small sample size and use of the same data for both model building and model testing purposes. Therefore further research is needed to explore the relationships of the BES theoretical and revised path models with other samples of school board members.

In conclusion, the findings of this study support the view that school board members' perceptions are similar throughout the United States and have not changed considerably in the past ten years. What needs to be addressed is, "Have the needs of children and school districts remained the same?" and "Is there a need to reorganize the elected branch of education?"


Carpenter, D. A. (1988). Exemplary board members are made, not born, and here are the markings. American School Board Journal, 176(10), 24-25.


ACKNOWLEDGEMENTS

To my mentor and major professor, I wish to express my sincere thanks and appreciation. Dr. Netusil, you have been a source of encouragement, professional and fatherly advice, and a friend throughout my graduate studies. I have learned and captured many, many important lessons from you. A part of you I will always carry with me, thank you. I also thank your wife, Jan, for her sensitivity when I was feeling discouraged.

I also wish to express thanks to my committee members, Dr. Donna Merkley who has been a friend and a patient listener, Dr. Carl Roberts who gently channeled my erratic thinking, Dr. Fred Lorenz who agreed to fill in as an adoptive committee member when Dr. Carl Roberts left on sabbatical, Dr. Richard Warren for his insightful comments, and Dr. Richard Manatt for his assistance in the area of effective school research.

Yuani and Yendra, my precious children, it has been hard on you to have to make do with a part-time Mom, and I thank you for the hugs and kisses of support. Thanks to my brother, Michael. You knew I would make it long before I could see the reality of it all. Thanks to my sisters, Joan and Elizabeth for being good aunts. I thank my mother, who was not granted a long enough life to see this milestone
come to pass, but I believe she is smiling now. Thanks, Mom.

I am appreciative of my Christian family who has prayerfully supported me, taken children for afternoons, sent cards, given words of advice, and have been there when I needed to talk. When situations looked hopeless, you reminded me where my strength comes from, and to look beyond the task at hand to the reason why I have been placed on this earth.

For the students in Research Evaluation 553 this past summer, I thank you for being wonderful. You made my "last" teaching experiences at Iowa State University very special, and I'm appreciative of your continued friendship, Shahram, Voya, Phyllis, Sidiga, Jan, Suzanne, and Tom. Roger Hansen, Jill Shannon, Martha Larson how do I say thank you for friendship shared?

I have so much to be thankful for and so many special people to acknowledge. I don't ever want to forget any of you; may God bless you as richly as you have given unto others and to me.
APPENDIX A. SCHOOL BOARD ORIENTATION/EVALUATION INSTRUMENT®

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SCHOOL BOARD ORIENTATION/EVALUATION INSTRUMENT

Following are a number of statements regarding school board functions, roles and behavior.

First, indicate by circling the appropriate number in the column to the right (behind) the statement indicating your perception of the degree to which that statement is accepted by an IDEAL school board. "The way our board ought to be." Complete all 70 items, circling one number behind each statement.

Next, indicate by circling the appropriate number in the column to the left (in front) of the statement indicating your perception of the degree to which the statement is being performed by your CURRENT school board. "The way our board is." Complete all 70 items again, circling one number in front of each statement.

SCALE OF PERCEPTIONS

1. Board ALWAYS performs this way. 3. Board RARELY performs this way.
2. Board USUALLY performs this way. 4. Board NEVER performs this way.
5. I am not sure.

<table>
<thead>
<tr>
<th>Our CURRENT board</th>
<th>The IDEAL board</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Way it is&quot;</td>
<td>&quot;Way it ought to be&quot;</td>
</tr>
<tr>
<td>A U R N ?</td>
<td>A U R N ?</td>
</tr>
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1 2 3 4 5

1. Excluding areas mandated by state code; confines itself to goal setting, policy making and evaluation of the superintendent and programs of the district.

1 2 3 4 5

2. Accepts the development of school policies as one of its primary functions.

1 2 3 4 5

3. Adheres to adopted policy - leaving the implementation of policy to the administrative staff.

1 2 3 4 5

4. Adopts a clear policy as to the kinds of matters which need not be brought to the board's attention and which may be handled by administrative action.

1 2 3 4 5

5. Establishes a policy and process for the adoption of textbooks, library books, and other curriculum matter. This process relies on professional staff opinion but also includes parent and student input.

1 2 3 4 5

6. Adopts policies to ensure efficient administration of payroll and insurance programs.

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<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>7.</td>
<td>Adopts policies to ensure efficient administration of purchasing and accounting, and requires a system for monitoring these programs.</td>
</tr>
<tr>
<td>8.</td>
<td>Adopts policies and approves budgets to ensure proper maintenance of buildings, grounds, and other properties of the district and requires a monitoring system for maintenance.</td>
</tr>
<tr>
<td>9.</td>
<td>Adopts a policy for public use of district facilities.</td>
</tr>
<tr>
<td>10.</td>
<td>Adopts policies governing energy conservation, and requires a system for monitoring of energy uses.</td>
</tr>
<tr>
<td>11.</td>
<td>Adopts policies and budgets to ensure a nutritious and cost-effective food service and requires a system for monitoring that service.</td>
</tr>
<tr>
<td>12.</td>
<td>Adopts policies and approves budgets to ensure an adequate transportation system and requires a monitoring system for transportation.</td>
</tr>
<tr>
<td>13.</td>
<td>Adopts policies to ensure safety of staff and students.</td>
</tr>
<tr>
<td>14.</td>
<td>Adopts a policy which makes provisions for the concerns of employees to be examined, and an impartial adjudication rendered.</td>
</tr>
<tr>
<td>15.</td>
<td>Adopts a policy which safeguards the privacy of student records.</td>
</tr>
<tr>
<td>16.</td>
<td>Adopts a policy which provides a procedure for hearing student complaints.</td>
</tr>
<tr>
<td>17.</td>
<td>Adopts a policy which encourages professional growth and increased competency of the faculty and staff by encouraging attendance at professional meetings in their areas of expertise.</td>
</tr>
<tr>
<td>18.</td>
<td>Adopts policies requiring job descriptions and sound evaluation systems for all district employees.</td>
</tr>
</tbody>
</table>
19. Adopts a policy which advocates refraining from nepotism in employment and maintains freedom from conflict of interests and avoids business transactions with individual board members, the superintendent or with firms in which they have an interest.

20. Adopts a policy which outlines a code of ethics for board members.

21. Assures that the policy manual is placed in wide circulation throughout the school and community, and that all who have a need to know—whether staff member, student, or citizen—have free and easy access to policy information.

22. Provides that all copies of the policy manual are recalled by the central office annually to be checked for accuracy of contents.

Goal Setting—The Board:

23. Regards setting goals and objectives, making long-range plans, and establishing priorities as one of its major responsibilities.

24. Is fully committed to goals, policies, and programs once they are adopted by the board.

25. Provides a policy on generating the district's educational goals. The board plays a major role in generating the district's goals.

26. Seeks and uses citizen's advice when solving difficult problems.

27. Requires systematic evaluation, both formative and summative, of the district's progress toward the accomplishment of its educational goals.

28. Requires the superintendent and staff to annually establish performance objectives, review progress and set new objectives consistent with board-set district goals.

(Please turn page)
Our CURRENT board -
"Way it is"
A U R N ?
1 2 3 4 5

29. Understands the basic instructional program mandated by the Legislature and the State Board of Education.

30. Allocates substantial time for securing reports, and discussion of educational programs and accomplishments concerning curriculum innovations and the evaluation of the educational program.

31. Regularly evaluates the instructional program in light of the district's educational objectives.

32. Provides equal access to curriculum and cocurricular activities by all students, regardless of sex, national and ethnic origin, race, religion and financial status.

33. Provides adequate educational opportunity for students with mental, physical, social or emotional handicaps.

34. Encourages the participation of the professional staff, the students and the public in the development of the curricula.

35. Encourages the superintendent to invite staff specialists and faculty, as needed, to board meeting to supply the board with the best possible information and advice on recommended proposals for decision which it must make.

Superintendent Relations - The Board:

36. Avoids intrusion into the administrative function of the superintendent except where executive actions contravene district policy or goals.

37. Develops with the superintendent an up-to-date job description and statement of performance expectations and job targets against which the superintendent is annually evaluated.

38. Adopts a formal evaluation procedure for the superintendent where the board plays a major role.

(The IDEAL board -)
"Way it ought to be"
A U R N ?
1 2 3 4 5

Program Evaluation - The board:
1 2 3 4 5

The IDEAL board -
"Way it ought to be"
Our CURRENT board -
"Way it is"
A U R N ?
1 2 3 4 5

39. Clarifies in writing, at least once a year, its expectations (job targets) for the superintendent.

40. Provides channels to the superintendent for complaints from the public about policies, curriculum, instructional materials, or personnel for resolution according to established policy.

41. Ensures that the office of the superintendent is the official spokesman for the district, and that all official communication between the school board, citizens, and professional staff is conducted through that office.

42. Works together with the superintendent in a spirit of mutual confidence, and respects each other's area of responsibility.

Community Relations - The Board:

43. Has commitment to maintaining an informed and involved citizenry and has identified district persons with authority and responsibility to carry out a program of school-community relations.

44. Seeks—through surveys, advisory committees or public hearings—community reactions and opinion before making major policy decisions.

45. Channels specific complaints and requests concerning the schools through the superintendent to the appropriate school official.

46. Holds public hearings on the annual budget, new construction plans and other important issues before taking final action.

47. Works to understand what groups in the community think about the schools.

(PLEASE TURN PAGE)
Our CURRENT board -
"Way it is"
A U R N ?

1 2 3 4 5

1 2 3 4 5 48. Requests information through the superintendent, and not directly from staff members without the superintendent's knowledge.

1 2 3 4 5 49. Participates in activities such as regional, state, and national association meetings.

1 2 3 4 5 50. Receives and reads one or more periodicals published for board members.

1 2 3 4 5 51. Refrains from communicating with each other away from the board table about board activities.

1 2 3 4 5 52. Provides that a systematic program orientation program is conducted by the staff and board for newly elected or appointed members as to the nature of their duties and responsibilities, and to acquaint them with board policies and operating procedures.

1 2 3 4 5 53. Provides that an ongoing orientation program is conducted by the superintendent and staff to furnish board members with information and learning opportunities pertinent to their responsibilities.

1 2 3 4 5 54. Conducts annually a board evaluation exercise which culminates in setting board goals (not to be confused with district goals) for the upcoming year.

Procedures - The Board:

1 2 3 4 5 55. Selects board officers on the basis of ability.

1 2 3 4 5 56. Provides that the board chairperson and the superintendent confer before each meeting to build the agenda, review the upcoming business, clarify agenda items, and anticipate possible problems.

1 2 3 4 5 57. Assures that procedures which permit board members to include items in the agenda are specified in the board's operating policy manual.

The IDEAL board -
"Way it ought to be"
A U R N ?

Board Relations - The Board:

1 2 3 4 5

1 2 3 4 5 48. Requests information through the superintendent, and not directly from staff members without the superintendent's knowledge.

1 2 3 4 5 49. Participates in activities such as regional, state, and national association meetings.

1 2 3 4 5 50. Receives and reads one or more periodicals published for board members.

1 2 3 4 5 51. Refrains from communicating with each other away from the board table about board activities.

1 2 3 4 5 52. Provides that a systematic program orientation program is conducted by the staff and board for newly elected or appointed members as to the nature of their duties and responsibilities, and to acquaint them with board policies and operating procedures.

1 2 3 4 5 53. Provides that an ongoing orientation program is conducted by the superintendent and staff to furnish board members with information and learning opportunities pertinent to their responsibilities.

1 2 3 4 5 54. Conducts annually a board evaluation exercise which culminates in setting board goals (not to be confused with district goals) for the upcoming year.

Procedures - The Board:

1 2 3 4 5 55. Selects board officers on the basis of ability.

1 2 3 4 5 56. Provides that the board chairperson and the superintendent confer before each meeting to build the agenda, review the upcoming business, clarify agenda items, and anticipate possible problems.

1 2 3 4 5 57. Assures that procedures which permit board members to include items in the agenda are specified in the board's operating policy manual.

(PLEASE CONTINUE)
Our CURRENT board - "Way it is"

1. Receives background and other written materials supporting the agenda from the superintendent at least 4 days in advance of board meetings.

2. Does their homework and comes to the meeting prepared to contribute to discussions without wasting time by asking for information that has already been provided.

3. Specifies a procedure for citizens, including students, to use to address the board.

4. Asks the administrative staff for pertinent information (both pro and con) relative to all action matters under board consideration, including probable consequences of all alternatives under consideration.

5. Individually remain open-minded on matters on the agenda until called to vote the issue.

6. Conducts meetings in an efficient manner and assures productive use of time.

7. Avoids recessing to an executive session during a regular board meeting. Executive sessions are held only before or after regular meetings.

8. Respects and treats with discretion privileged information growing out of executive sessions.

9. Assures that communication between various board members is conducted in official board meetings and in accordance with state open meeting laws.

10. Encourages (rather than merely tolerates) public participation in board meetings with appropriate ground rules.

11. Recognizes publicly significant accomplishments of its individual students and teachers.

12. Assures that information about board decisions is promptly disseminated both internally and externally.

The IDEAL board - "Way it ought to be"

1. Receives background and other written materials supporting the agenda from the superintendent at least 4 days in advance of board meetings.

2. Does their homework and comes to the meeting prepared to contribute to discussions without wasting time by asking for information that has already been provided.

3. Specifies a procedure for citizens, including students, to use to address the board.

4. Asks the administrative staff for pertinent information (both pro and con) relative to all action matters under board consideration, including probable consequences of all alternatives under consideration.

5. Individually remain open-minded on matters on the agenda until called to vote the issue.

6. Conducts meetings in an efficient manner and assures productive use of time.

7. Avoids recessing to an executive session during a regular board meeting. Executive sessions are held only before or after regular meetings.

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10. Encourages (rather than merely tolerates) public participation in board meetings with appropriate ground rules.

11. Recognizes publicly significant accomplishments of its individual students and teachers.

12. Assures that information about board decisions is promptly disseminated both internally and externally.

(Please turn page)
Our CURRENT board - "Way it is"  A U R N ?

The IDEAL board - "Way it ought to be"  A U R N ?

1 2 3 4 5 7. Individually supports majority decisions of the board even if on the minority side of the issue.

PLEASE LIST ANY ADDITIONAL CONCERNS YOU WISH DISCUSSED HERE.

MAILING DIRECTIONS

Please place a 3-digit number of you choosing here_______. Record and retain this number so that this questionnaire can be returned to you when the board meets to consider this information. (It is to be the only identifying mark on this instrument.)

Place this questionnaire in the accompanying envelope, seal and return it to your superintendent.

Your prompt attention to this task will facilitate the analysis of the data and hasten the meeting to review the results.

THANK YOU
APPENDIX B. EFFECTIVE SCHOOL INSTRUMENT
Recently I spoke with you to learn practitioners' views on effective schools. Based on these personal interviews I have begun a project to identify factors that produce effective schools in Iowa. I would like to broaden this perspective with more detail on your views. Iowa schools are #1 in the nation! We Iowans are proud of how well we educate our children, and I think we can share this information with others.

The purpose of this questionnaire is to provide additional information to that which has already been collected from school board members. This will allow us to determine commonalities in philosophies that make our schools effective. This research is being done in collaboration with Dr. Anton Netusil, who is my major advisor, and is in conjunction with work on my dissertation in Professional Studies in Education at Iowa State University.

The information supplied will be completely confidential, your name will not be identified with any of the information you provide. In the report of findings of this study, names of participants will not be associated with the data in order to protect your anonymity. You can help us in this effort by enclosing your completed survey in the self-addressed envelop and returning it promptly. Once I receive the questionnaire all records relating to the person who has completed it will be destroyed. This is in accord with the requirements of the Human Subjects Committee at Iowa State University, and will be strictly adhered to. If I don't receive the questionnaire within a week and a half after my mailing date, I will call you.

Thank you in advance for your cooperation in this research project. If you have any questions, feel free to contact us at N247-Lagomarcineo Hall (515) 294-1241.

Beth Ruiz, Ph.D. candidate

Anton Netusil, Ph.D.
Please tell me what you think of when someone mentions an effective (good) school. Use sentences, phrases, or separate words to convey your thoughts.

Also please indicate something about the effectiveness of the districts in your AEA. It is important for you to consider districts rather than individual schools, so please keep in mind that all responses should be based on the school district as a whole. From a pilot survey the following definition was developed: "An effective school district provides a k-12 learning environment where (1) youth feel good about themselves (2) students are equipped with the basic skills needed for survival in a global community, and particularly: (3) students demonstrate the values of their local community.*

Comparing each district to the national norm, at what percentile rank would each of the districts in your AEA be rated. In addition to this ranking, categorize the type of district as predominately Blue Collar, Equal Balance, or predominately White Collar, and last of all is the district Homogeneous or Diverse in cultural/ethnic make-up.

<table>
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<th>Socio-Economic Makeup</th>
<th>Cultural/Ethnic Makeup</th>
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<td>Mostly Homogeneous</td>
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<td>Equal</td>
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<th>Community Values</th>
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APPENDIX C. HUMAN SUBJECTS COMMITTEE
Title of Project: Development of a Causal Model of Perceptions of Boards of Education Which Will Predict Effectiveness in Their Schools

1. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Beth Ruiz
Typed Name of Principal Investigator

Date
Signature of Principal Investigator

Professional Studies
Department

N247 Lagomarcino Hall
Campus Address

294-9631
Campus Telephone

3. Signatures of other investigators

Anton J. Netusil
Major Professor

Date
Relationship to Principal Investigator

4. Principal Investigator(s) (check all that apply)

☐ Faculty ☐ Staff ☑ Graduate Student ☐ Undergraduate Student

5. Project (check all that apply)

☐ Research ☑ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)

15 # Adults, non-students # ISU student # minors under 14 # minors 14 - 17 other (explain)

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

I am looking at the possible relationship between philosophies of school board members and effective school districts. This questionnaire attempts to determine the effectiveness of school districts when compared to other districts across the nation. The questionnaire will be sent to regional evaluation specialists/curriculum consultants after they have verbally consented to participate. They have been selected to participate due to the nature and location of employment, one for each of the 15 Area Education Agencies (AEAs) in Iowa. Telephone reminders will be the follow-up technique to obtain all of the data.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:

☐ Signed informed consent will be obtained. (Attach a copy of your form.)

☐ Modified informed consent will be obtained. (See instructions, item 8.)

☐ Not applicable to this project.
Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

1. Title of Project: Development of a Causal Model of Perceptions of Boards of Education Which Will Predict Effectiveness in Their Schools

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Beth Bush 6/25/91
Typed Name of Principal Investigator

Professional Studies N247 Lagomarcino Hall 294-9631
Department Campus Address Campus Telephone

3. Signatures of other investigators Date Relationship to Principal Investigator
Anton J. Netusil 7/1/91 Major Professor

4. Principal Investigator(s) (check all that apply)
☒ Faculty ☐ Staff ☒ Graduate Student ☐ Undergraduate Student

5. Project (check all that apply)
☒ Research ☒ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
1300 # Adults, non-students # ISU student # minors under 14 # minors 14 - 17

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)
I am desiring to use the data that have been collected by my major professor over the last 10 years in his consulting with school boards. This work has been completed outside of university time and resources. I wish to use the data to investigate possible causality of responses and effective schools.

The data consist of likert scale responses from school board members evaluating the present status and ideal status of their school board attributes based on issues of policy, goal setting, program evaluation, and relations.
The survey is given to all board members of a district that choose to receive consulting services. Consulting is done on a national basis. No individual identification numbers are used. Survey instruments are classified by district name only.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent: ☐ Signed informed consent will be obtained. (Attach a copy of your form.)
☐ Modified informed consent will be obtained. (See instructions, Item 8.)
☒ Not applicable to this project.
Checklist for Attachments and Time Schedule

The following are attached (please check):

12. [ ] Letter or written statement to subjects indicating clearly:
   a) purpose of the research
   b) the use of any identifier codes (names, #s'), how they will be used, and when they will be
      removed (see Item 17)
   c) an estimate of time needed for participation in the research and the place
   d) if applicable, location of the research activity
   e) how you will ensure confidentiality
   f) in a longitudinal study, note when and how you will contact subjects later
   g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13. [ ] Consent form (if applicable)

14. [ ] Letter of approval for research from cooperating organizations or institutions (if applicable)

15. [ ] Data-gathering instruments

16. Anticipated dates for contact with subjects:

<table>
<thead>
<tr>
<th>First Contact</th>
<th>Last Contact</th>
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<td>7/10/91</td>
<td>7/21/91</td>
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Month / Day / Year                                   Month / Day / Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual
tapes will be erased:

   7/31/91
   Month / Day / Year

18. Signature of Departmental Executive Officer       Date       Department or Administrative Unit

   Patricia M. Keith
   Name of Committee Chairperson

19. Decision of the University Human Subjects Review Committee:

   □ Project Approved      □ Project Not Approved      □ No Action Required

   Patricia M. Keith
   Name of Committee Chairperson

                      Date   Signature of Committee Chairperson