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An analysis of selected variables of organizational structure and their relationship to the rate of adoption of school reorganization in Iowa school districts from 1956 - 1962

by

Karilee Freeberg Watson

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CHAPTER I. INTRODUCTION

It has been apparent that there has always been and that there is, even at the present time, resistance to the adoption of innovations in education. Miller (1967) comments that mentioning terminology associated with educational innovation has been known to elicit such responses as:

"We have tried that before."

"We will try it later."

"It costs too much money."

"The Board will not go along."

"We haven't the time."

"It is too difficult an undertaking."

"We need more research."

A relatively new phenomenon in the area of educational innovation, however, is the heightened interest concerning resistance. This interest, according to Miller (1967), has grown because of the increasing gap between what is known about good educational theory and what is happening in schools. The gap, and width of the gap, Miller (1967) states, has brought about a search for ways to decrease it.

Most past research has treated educational innovation and the adoption of educational innovation as if it were accepted or resisted on an individual basis. It has ignored the organizational structure that may act to impede or facilitate the innovation's adoption (Carlson, 1965; Rogers, 1971). In more recent research, according to Rogers (1971), the structure of a system, whatever that system may represent, can act to impede or facilitate new ideas through what are called system effects. These system effects, which may include norms, social distinctions,

hierarchy, and size, influence the behavior of individual members within the system and the ultimate response of the system itself to the adoption of the innovation. The system effects, Rogers (1971) states, may do more to explain the adoption of an innovation than any other single factor. Rogers (1971) contends that an innovation that changes the structure of the system from what it has always been creates an increased resistance to the innovation and extends the rate of adoption of the innovation. Chin and Benne (1976) write that "focusing on the processes and instruments of change does not provide and adequate picture of the complications of change and changing.". They state that research should be directed at the targets or systems to which change is directed.

It is this particular aspect, the organizational structure receiving the innovation, that will be emphasized in this study. Because of this emphasis, it was necessary to select an educational innovation that changed the structure of a system from what it had been previously. School reorganization was the educational innovation selected.

Purpose of the Study

The fundamental task of this study is to analyze the relationship that exists between the organizational structure of the school districts receiving the innovation of school reorganization and the rate of adoption of school reorganization by the school districts. The analysis of the organizational structure will be confined to those school districts in the state of Iowa that adopted school reorganization during the period of 1956 to 1962.

Objectives of the Study

The objectives of the study are:

1. to identify the common characteristics of organizational structure in the school districts.
2. to determine the degree to which each of the identified characteristics appear in the organizational structure of the school districts.
3. to determine whether or not there is a relationship between the organizational structure and the rate of adoption of school reorganization in the school districts.
4. to determine whether or not there is a relationship between any characteristic of the organizational structure and the rate of adoption of school reorganization in the school districts.

Hypotheses to be Tested

The hypotheses to be tested in this study are:

1. There is no significant correlation between any of the sub-variables that constitute the variable size in this study. These sub-variables are geographic area of the school district in square miles, number of buildings in the school district, number of busses utilized by the school district, number of vans utilized by the school district, the average miles travelled by the school district's vehicles per day, the average miles travelled by the kindergarten pupils of the school district per day, and the total miles travelled per day by the vehicles of the school.

2. There is no significant correlation between any of the sub-variables that constitute the variable complexity in this study. These sub-variables are number of teachers, number of students K-12, number of students 1-12, number of students K-3, number of students 1-3, number of students 4-6, number of students 7-9, number of students 10-12, number of children between the ages of 5-21, and number of children between the ages of 7-16.

3. There is no significant correlation between any of the sub-variables that constitute the variable formalization in this study. These sub-variables are number of directors, type of district, number of grade levels, number of ungraded levels, kindergarten, one-room elementary, two or more room elementary, separate organization junior high including ninth grade, junior-senior high 7-12, regular high school four years, and superintendency.

4. There is no significant correlation between any of the sub-variables that constitute the variable financial state in this study. These sub-variables are bonded indebtedness, school receipts, schoolhouse expenditures, general fund receipts, general fund expenditures, special courses receipts, special courses expenditures, salaries of teachers, principals and superintendents, instructional costs, transportation costs, operation of plant, maintenance, fixed costs, schoolhouse fund levey in dollars, general fund levy in dollars, and special courses levy in dollars.

5. The rate of adoption of school reorganization cannot be predicted by the organizational structure (comprised of the variables size, complexity and formalization) of the school districts at a significance level of .05.

6. The rate of adoption of school reorganization cannot be predicted by the organizational structure and the financial state of the school district at a significance level of .05.

Statistical Assumptions of the Study

The following assumptions underlying multiple regression analysis are met in the data collected for this study.

1. The observed rates of adoption are normally distributed at values of the independent variables.

2. The observed rates of adoption have equal variances at independent variable points. The rates of adoption values are then assumed to be normally distributed and to have equal variances at independent variable points.

3. It is assumed that error or residual are random and normally distributed with equal variances at independent variable points.

Delimitations or Scope of Investigation

The public reorganized high school district, as it is defined by constitutional and statutory legislation in Iowa is the unit of analysis for this study.

A stratified sample of reorganized high school districts will be drawn from the total population of reorganized high school districts. Generalizations will be made to the total population of reorganized school districts that reflect the same characteristics of the stratified sample, i.e., size and geographical region.

Definition of Terms

There will be several terms used consistently throughout this study that, for purposes of clarity, should be defined. An operational definition has been formulated for the term "school reorganization." School reorganization will mean the restructuring of two or more consolidated school districts into one community school district.

Organizaticnal structure, according to Champion (1975), is the description of the arrangement of formalized positions or departments in an organization. In this study, organizational structure will consist of the description of school district size, school district complexity, and school district formalization.

Champion (1975) reports that the variable size has an extensive array of definitions. It is usually defined in the setting of the research being conducted. Size will be represented in this study by the geographic dimension of the school district (area in square miles), number of busses and vans, and the average and total miles travelled by the vehicles of the school district.

Champion (1975) claims that few attempts have been made to define the variable complexity precisely. Champion (1975) asserts that complexity can take a number of forms within an organization. Since this study deals with the organization of school districts, the areas of complexity that are most apparent are found in the student and instructional population and the arrangement of that population within the school districts. Complexity will be represented in this study by the number of teachers, number of children enrolled K-12, the number of children enrolled 1-12, the number of children K-3, the number of children 1-3, the number of children 4-6, the number of children 7-9, the number of children 10-12, the number of children between the ages of 5-21, and the number of children between the ages of 7-16.

Formalization, according to Champion (1975), is the degree to which roles, authority relations, communications, norms and sanctions or procedures are present in an organization. Formalization will be represented in this study by the number of directors, type of district, number of grade levels, number of ungraded levels, kindergarten, one-room elementary, two or more room elementary, separate organization junior high including ninth grade, junior-senior high 7-12, regular high school four years, and superintendency.

The definitions for innovation, adoption, and rate of adoption are taken from the Rogers' (1971) research in diffusion and adoption. He defines innovation as an idea, thing, or practice perceived as being new or different to a client system. In this study school reorganization is the innovation that is seen as a new practice due to its perceived difference from consolidation.

Rogers (1971) defines the client system as the individual, group or organization receiving the innovation. In this study the school districts receiving the innovation of school reorganization are the client systems.

Adoption is defined by Rogers as the acceptance of an innovation. In this study adoption is considered to be complete when two or more separate school districts merge to become one community school district.

Rate of adoption, according to Rogers (1971), is the time that elapses between the initial development or the introduction of an innovation by the client system. In this study the passage of the school reorganization law by the Iowa state legislature in 1953 is considered to be the initial development of the innovation of school reorganization. The acceptance of school reorganization, for the purposes of this study, has occurred when two or more school districts merge to form one community school district. The rate of adoption, therefore, is the time lapse between the passage of the law in 1953 and the merger of two or more school districts.

CHAPTER II. REVIEW OF THE LITERATURE

Introduction

The review of the literature will focus upon research, conducted in education, that has utilized the concepts of diffusion and adoption. Part One, entitled Early Education Studies in Diffusion and Adoption, will examine the research conducted primarily during the late 1930's and early 1940's. These studies emphasize the rate of adoption for an innovation in school districts. This section of the review of the literature will conclude with the implications that can be drawn from these studies. Part Two, entitled Transitional Education Studies in Diffusion and Adoption, will survey research efforts in the late 1950's and early 1960's. These studies demonstrate the movement toward the analysis of variables affecting the rate of adoption of innovations in school districts. This section of the review of the literature will end with conclusions that may be drawn from these studies. Part Three, entitled Directions for Further Education Research in Diffusion and Adoption, will present suggestions that have been offered by researchers for the future emphasis of educational research examining the diffusion and adoption of innovation in school districts. This section of the review of the literature will end in a summation of these suggestions.

Part One: Early Education Studies in Diffusion and Adoption

The Pennsylvania Study was conducted from 1937 to 1940 by Paul R. Mort and Francis G. Cornell (1941) and was an intensive examination of

thirty-six representative Pennsylvania school systems to discover to what degree they had made needed changes in practive. For this study, a checklist of 183 needed changes or, as Mort and Cornell (1941) termed them, "adaptations" were used. Fifty-eight of these changes had to do with the nature of the curriculum, thirty-nine of the changes had to do with provisions for seeing that the individual pupil and opportunity came together, forty-two items had to do with the teaching personnel, and the last forty-four items dealt with the school plant and business management. Mort and Cornell (1941) found that every adaptation occurred in at least one community but that eight occurred in only one or two communities. Fifty percent of the adaptations were found in eleven or more communities or they were found to be 30 percent or more diffused. This also meant, according to Mort and Cornell, (1941) that half were 30 percent or less diffused. Less than a fourth of the adaptations were more than 50 percent diffused and only a tenth were as much as 90 percent diffused.

As part of the Pennsylvania Study, Mort and Cornell (1941) reduced the checklist of diffusion to a more limited list of nine adaptations in a wider sample of 344 school districts. The adaptations chosen for the limited list and the expanded sample were kindergarten, reorganized high schools, special classes, homemaking for boys, adult leisure classes, extracurricular activities, elimination of final examinations, integrated curricula, and supplementary reading.

Mort and Cornell (1941) found that it took twelve years for the number of kindergartens to increase from 5 percent to 10 percent in all the districts. The time spans, for the most part, on all adaptations

were two, three, and four years. With the exception of the adaptations of special classes and reorganized high schools, it took approximately two or three years for adaptations to change from the 3 percent level to the 5 percent level, a similar amount of time to diffuse through the next five percent to attain the 10 percent level, and generally two or three years for each additional 10 percent.

From this study, Mort and Cornell (1941) concluded that the growth of the nine adaptations followed four divisions of development. These were defined as pre-introduction, experimentation, early diffusion, and implementation. The first stage of development represents that phase which involves inventive combination and theoretical development. The second stage represents that period in the life history of an adaptation immediately following its original introduction. During this phase, an adaptation is being applied practically in the actual situation. The third stage, Mort and Cornell (1941) contend, has been reached when an adaptation of more than 3 percent of the districts has occurred. The diffusion of the adaptation is considered to remain at this stage until the period of marked change in rate of increase is observable or until diffusion has taken place in at least 25 percent of the districts. When the adaptation has reached this point, it then passes to the fourth stage, the secondary period of diffusion. By this time it has existed long enough to be generally accepted by the educational profession as valid and needed.

Mort and Cornell (1941) note that when the adaptation is in the second stage it has not yet reached wide acceptance. They pointed out that abortive attempts at introduction and frequent abandonments of the

change occur at this stage. Problems on the third level are chiefly problems of diffusion or the passing of the change from one community to another. On this level, however, the experimentation has not entirely disappeared but procedures have been developed and schools are in a position to take on changes as early introducers before the merits of the adaptation are fully recognized. The data for the Pennsylvania Study was collected through interviews and questionnaires distributed and completed by the superintendents or other administrators of the school districts in the sample.

Mort and Cornell (1941) conducted a study to check the validity and reliability of their checklist in the Pennsylvania Study for adaptations during the spring of 1936 in the four provinces of the Union of South Africa. Forty-seven South African educators were asked to give their judgements as to the applicability of the items in the list to South African conditions of adaptability. No item received more than five negative votes. Only six out of the 211 received three, four, or five negative notes. Sixty-six percent of the items received no negative votes.

During the summer of 1936 the same list was presented to eighty graduate students in school administration, secondary education, and elementary education in Columbia Teachers College. From this group no item received more than nine negative votes. More than one half of the items received no negative votes. According to Mort and Cornell (1941), the list as a whole was as acceptable to South African educators as to American educators.

A more reliable measure of the applicability of the list to South African conditions was obtained by Mort and Cornell (1941) in a study conducted under the direction of Dr. Malherbe that examined all educational writings in the Union of South Africa since 1920. This study, Mort and Cornell (1941) report, examined a total of 3,710 references having to do with the adjustment standards submitted to the 47 South African educators and were classified according to source, the item on the checklist to which it applied, and its position in support of the item or at variance from it. The findings of this study indicated that approximately 88 percent of these documentary references supported one or another of the twenty-two general statements used at that time, 95 percent of the sub-statements were in substantial agreement, 103 of the remaining references were definitely in opposition to checklist items, sixty-seven references approved items with qualification and the actual number of references classified per item in the checklist varied from 0 to 121. Ninety-five percent of the items had the positive unqualified approval of 75 percent or more of the references respectively allocated to them. Mort and Cornell (1941) refined the items they included on their checklist to measure the adaptability of school systems and they concluded that the findings in South Africa increased the validity and reliability of their checklist and its use in the United States.

Philo Farnsworth (1940) studied the diffusion and adoption of five selected innovations in educational service. These were the library extension in the schools of New York, classes for "educationally exceptional" children in the schools of Connecticut, state supervisory agents in the schools of Connecticut, vocational education in the schools of Massachu-

setts, and medical inspection in the schools of Massachusetts. Farnsworth (1940) used a combination of historical and case study methods. He found that the date of 1827 had been fixed as the date of invention for school libraries and that eight years elapsed before the idea took form in prescriptive law with the introduction of school district libraries in 1835. Fifty-seven years passed before the adoption of the basic law which provided library extension service in 1892. In terms of the establishment of classes for "exceptional" children in Connecticut, Farnsworth (1940) found from the time of introduction in 1817 to the advocacy of rooms for defective children in 1903 a period of eighty-six years elapsed. From 1903 to 1921, when legislation opened the way for general introduction of this type of service, seventeen years passed. The period of diffusion extended from 1921 to the present, (1940), but in 1931 this process, according to Farnsworth (1940), was speeded by state grants-in-aid or promotional assistance. State supervisors of instruction in Connecticut evolved from 1702 to 1903 in Farnsworth's (1940) findings. The introduction of this service with added state aid came during the time from 1903 to 1907 and the diffusion of this service dates from 1907 to the present (1940). Vocational education in Massachusetts was introduced between 1640 and 1870 and Farnsworth (1940) describes this as the growth and development period of the idea of free industrial training. The time period from 1870 to 1906 is described as the period of introduction of various types of free industrial education and from 1906 to 1938 represents the period of diffusion of this service. Farnsworth (1940) defines the period of 1840 to 1894 as the invention stage of medical inspection in the schools of Massachusetts. From 1894 to 1906 may be considered

the period of introduction of the service and the diffusion period was from 1906 to 1909 when all cities and towns were reported as complying with the law.

Farnsworth (1940) concludes his research by offering essential characteristics or traits of the recurring or general pattern by which adaptation processes were established in the five innovations in educational service. These were: (1) some circumstance, condition, or event accentuated the need, (2) a leader or small group recognized the need and made the condition of need articulate, (3) solutions were proposed to ameliorate the condition of need, (4) trial attempts at solution were initiated, generally by private individual groups, (5) financial aid from private, local, or state sources helped in the introduction of the services, (6) studies of conditions were made to determine the extent of the need, (7) official approval of proposed solutions were sought, (8) lay and professional individuals and groups advocated official approval by various methods, (9) official approval was given with an agency designated to promote and supervise the service, and (10) some form of state and federal stimulation such as grants-in-aid has encouraged further introduction and development of the services.

Edward Bateman (1940) studied the process of change involved in the adoption of the county-unit system of school districts in the state of Utah. His study concerns itself with the emergence of the idea of the county unit in Utah, the development of the idea, the first adoption of the county unit, the diffusion of the adaptation, and its final maturity as a state-wide practice under mandatory law. Although the study is

basically historical in nature, the emphasis on the discovery and patterns of factors of adaptability makes it essentially a study in social change.

Bateman (1940) reports that the counties of the state which voluntarily consolidated during the period from 1905 to 1951 (Group A) were smaller in average area, were nearer the larger cities, and were in closer proximity to the state institutions of higher education than were the counties that did not consolidate (Group B). The counties in Group A had a much lower percent of their population residing in incorporated villages, towns, and cities than did the counties in Group B. Counties in Group A had a percent of increase in population during the decade preceding their consolidation nearly three times as great as the percent of increase which the Group B counties had between 1900 and 1910. The two groups of counties did not show a material difference in density of population as measured by rural population per square mile of farm land. The counties of Group A had approximately a 10 percent greater assessed valuation per school child than the counties of Group B. Bateman (1940) states the existence of private and religious schools did not materially influence the development of the county-unit school district. He indicates the existence of the academies of the dominant church may have taken care of early needs for high school education. Bateman (1940) contends evidence available shows the factor of membership of a majority of the population in one church was not a major influence in the development of the county-unit school district. One major influential factor, according to Bateman (1940), probably was the possession of authority by the county commission of each county to consolidate school districts without recourse to popular approval.

According to Bateman (1940), there was little difference between the two groups of counties in the per capita school expenditures. Sixty-five percent of school revenue, however, was raised from local sources and Bateman (1940) states this contributed to a desire to consolidate school districts in order to equalize the burden of taxation. He stated the diffusion of the county-unit plan was probably retarded by the more restricted taxing power the county school district possessed.

Bateman (1940) concludes the two factors of major importance in influencing the development of the county-unit school district were the needs of high school facilities in the rural areas of the state and the effectiveness of personal leadership in securing favorable action toward consolidation by the county commissioners of the various counties and by the legislature. Bateman (1940) states the time elapsing between the first noted expression of the need of larger school units and the emergence of the county-unit idea in Utah was ten years, the period from 1871 to 1881. The time lapse between the emergence of the county-unit idea and the first county school district organization was twenty-four years, from 1881 to 1905. The period of diffusion in Utah was ten years, from 1905 to 1915.

Bateman (1940) offers certain implications of this study to situations in other states. These are: (1) the attempt to secure consolidation of school districts by a majority vote of electors in each local school district does not find any support from the process of consolidation in Utah, (2) if school district consolidation is secured by action of elected representatives of the people, the action will soon be supported by popular approval, (3) this type of school organization

should be tried out in a district that has strong leadership, that is in close proximity to a city having similar types of organization, and that is undergoing a rapid growth in population and a needed expansion of school facilities, (4) a large district organization is one of the persistent school needs, and (5) there may be recurring periods of favorableness for achieving consolidation.

Conclusions to be Drawn from Early Studies in Diffusion and Adoption

Donald Ross (1958) in his examination of the educational research conducted in the 1930's and 1940's dealing with the diffusion and adoption of innovations poses the following as major facets of the theory of adaptability:

1. New designs in education will emerge from the combination of hundreds of inventions and new insights into educational psychology and social change.
2. Change in the educational system will proceed according to characteristic rates and in characteristic patterns. These rates and patterns will be influenced by differences among communities, by differences in educational structure, and by differences in patterns of school administration.
3. Local school districts will vary in their ability to adapt. Some will be pioneers, some early followers, some late followers, and some laggards.
4. Community characteristics which influence the adaptability of districts generally will remain constant.

5. Regardless of the progressiveness of attitude toward change, change actually takes place only when new know-how is introduced into the practices of the schools. Accordingly, the invention of ways of meeting new needs or of finding new insights into old needs is a critical problem.
6. Regardless of the many legal and social factors which tend to make some school districts more adaptable than others, adaptability is the product of the action of individuals. Surrounding environment makes adaptability easier or more difficult, but the actual adaptation must be done by people.
7. Two theories account for the apparent spread of an educational innovation through the schools of the land. According to the theory of diffusion, an invention starts in one system and then spreads to other systems in the vicinity or elsewhere. The other phenomenon is the theory of independent invention. There is a possibility that insight into need becomes widespread among school people throughout the land. Since a long period elapses between the first expressions of insight into a need and the actual development of a workable invention, there is sufficient time for the insight to diffuse or to become noted by many people.

Ross (1958) concludes that educational change proceeds very slowly. He states a period of about fifty years may elapse between insight into a need and the invention of a solution which will be accepted. Although little is known about the period of invention, it is clearly characterized, according to Ross (1958), by many fits and starts, by the invention of many solutions which are abandoned because they prove unsatisfactory.

After an invention which is destined to spread throughout the school appears, fifteen years typically elapse before it is found in 3 percent of the school systems. Ross (1958) claims there is no certainty that this is always or ever diffusion. It may be wholly or in part independent invention in various places. After practices have reached the 3 percent point of diffusion, their rate of spread will accelerate. An additional twenty years usually suffices for an almost complete diffusion in an area the size of an average state.

Ross (1958) claims there are indications that the rate of spread throughout the nation is much slower. When diffusion is almost complete, it slows down. Many additional years may be required for diffusion to reach the laggard school districts. School systems, according to Ross (1958), do not seem to be geared to the fact that the knowledge of available inventions is necessary if they are to improve and that the individuals operating the schools must master this knowledge.

Part Two: Transitional Education Studies in Diffusion and Adoption

In his study, Atwood (1964) examined the resistance of a faculty to the innovation of a centralized guidance program using the theory of anthropological interaction. The theory of anthropological interaction is explained by Atwood (1964) to mean an approach that deals with observable happenings in space and time. Reality is a sequence of happenings which must be placed in order of their occurrence. The first task of the researcher is to look for connections among the elements in space and time. The researcher places a phenomenon in its primary context of events.

The social context is described by the linked events in which some of the same people interact. The temporal context is the prior state of both of these. Atwood (1964) states the result of this approach is a number of cases of social action described in their natural setting. The cases are then compared and a classification of similarities and differences are formulated. Using the theory of anthropological interaction, educational innovations are treated as changes in patterns of social action and as the emergence of new patterns of events.

Atwood's (1964) study, using anthropological interaction, was conducted in the John Quincy Adams High School in a large Eastern city. The study describes the school from its beginnings in the 1920's to the time of the study. Included in this description is the philosophy of the school, its organizational structure and changes that have occurred in the structure, an analysis of the employees of the district and the student population of the district. The study then focuses on the guidance program of the district. Through interviews with the staff and written documents, Atwood (1964) then makes the following conclusions concerning the resistance to the adoption of a centralized guidance program.

The teachers, pre-1952, experienced a decrease in the frequency with which they initiated action for others and initiated action successfully. By centralizing the program the principal inadvertently took away the initiative in some of the guidance events from the teachers. The teachers experienced an increase in the frequency of events in which they had to respond to someone else. The teachers experienced more irregularity in the time between their initiating action on a case and the

report to them of what had been done. The teachers experienced violations of valued characteristics of their interaction which had become part of their identity. They were used to going to a man, colleague, or an older person. Under the centralized guidance program they had to go to a woman or younger people.

The new teachers, post-1952, had not been in the system long enough to develop stable patterns of interaction that would be effected by change. They did not resist the centralized guidance program and believed they used the program. Atwood (1964) states, however, they did not use the program significantly more than the pre-1952 teachers.

Atwood (1964) finds that resistance to the centralized guidance program occurred because the innovation decreased initiating action on the part of teachers. It required more response than had previously been required. It caused a time lag between action and response, and violated values of personal identity of teachers. Atwood (1964) concludes by stating that his study occurred when the innovation was not stabilized in the district and when the district was undergoing further interaction changes. He notes that other studies using this approach, anthropological interaction, should be utilized to further establish its usefulness in examining change in school systems.

Paul E. Marsh (1964) examines the diffusion and adoption of the Physical Science Study Committee (PSSC) curriculum to the high school systems in the United States. The National Science Foundation, according to Marsh (1964), required that PSSC prove itself at three successive levels: scientific acceptability, educational feasibility, and commercial diffusion. PSSC relied solely on the scientific community to establish accept-

ability. In the long run, Marsh (1964) found that this focus cost the program support among professional educators. Some school people greeted PSSC with suspicion and disapproval. Their opposition commonly came from lack of knowledge about and understanding of the PSSC and its program.

Marsh (1964) finds that a portion of the diffusion of PSSC came about because of the launching of Sputnik I by the Russians. According to March (1964) the nation's newspapers published accounts concerning PSSC as a response to the perceived Russian superiority and created a general awareness of PSSC and its curriculum. Marsh (1964) identifies the National Science Foundation institutes as a second element in the diffusion of PSSC. All of the 40-odd physicists who directed the 66 institutes between 1957 and 1961 used materials with PSSC content. Marsh (1964) reports that of 2,100 teachers who participated in PSSC institutes up to 1961, less than half of them had adopted the new materials. Some 150 teachers used PSSC supplies without ever participating in an institute and ten teachers went to institutes only after they had used PSSC materials. Marsh (1964) found that the PSSC syllabus had been widely adopted in Chicago and Los Angeles where no PSSC institute had been held. Ninety percent of the 1,050 early PSSC users participated in their first PSSC institute during the same academic year in which they adopted the PSSC syllabus. Although institutes are given by Marsh (1964) as an element in the diffusion of PSSC, he does not believe they were a decisive factor of adoption.

Of more importance to adoption, according to Marsh (1964), is what he describes as local clustering and firsthand experience. Local clustering means the geographic distances between teachers. In his findings, Marsh (1964) reports that adoption of PSSC occurred from teacher to teacher

and from district to district in close proximity to one another. He finds that PSSC was most commonly adopted in tight groups and clusters of schools. The single greatest element reducing acceptance of PSSC was the lack of opportunity for teachers to see how it worked in a classroom. If there were no PSSC classrooms in the teacher's geographical area, there was rejection of PSSC. Finally, Marsh (1964) found that the flexibility of PSSC increased its acceptance. Marsh (1964) concludes his study by pointing out that PSSC depended too much on the scientific community and did not involve professional educators in the development or diffusion process. According to Marsh (1964) PSSC became an innovation that depended almost entirely on the classroom teacher for its acceptance or rejection in the high school science curriculum.

Robert S. Fox and Ronald Lippitt's (1964) study of the instigation and support of teacher innovations in improving classroom learning climate began in 1959 at the University of Michigan. The study was based on the premise that pupils learn through interaction with others and motivation to learn is influenced by their position in the classroom social structure, peer group standards and supporting or conflicting pressures that are part of their life space. The study involved thirty teachers and their classrooms from school systems in southeastern Michigan over periods from two to three years. The researchers attempted to analyze the professional growth process of teachers that would stimulate the emergence of innovations in teaching practice relevant to the improvement of mental health and learning conditions and the conditions within a school system necessary to facilitate the spreading of teaching practice innovations.

Stimulation and support were provided to the teachers at three different levels of intensity. The maximum involvement level included a six week fulltime workshop session that stressed collection of data relevant to classroom diagnosis, setting goals, making plans to implement in the next school term, evening clinic sessions throughout the school term each month involving a research staff member, and individual consultation with a project staff member usually once a month. The medium involvement level included attending one of four area meetings where project goals were reviewed, general trends and diagnostic implications of the data were discussed and support given for trying innovative ideas, a meeting with a staff member individually to go over the teacher's classroom data, and additional consultation with a staff member upon request. The minimum involvement level included feedback and interpretation of classroom data and no requests for individual consultation. Nine teachers were at the maximum level of involvement, ten teachers were at the medium level of involvement and eleven teachers were at the minimum level of involvement. Fox and Lippitt (1964) used case study and survey techniques to collect their data.

At the time Fox and Lippitt (1964) wrote this article they had drawn the following conclusions concerning the spread of innovations among teachers. Those teachers involved at the maximum level were more likely to bring about change and spread innovation than the other two groups of teachers. The most beneficial way to bring about change in the climate of the classroom was through diagnosis of the social structure of the classroom. Innovative efforts by individual teachers were acceptable to other teachers they worked with but communication channels within a school

system did not make this easy. Most systems operated so that sharing among teachers was minimal. Trained outsiders were essential to making educational innovations visible and available. To stimulate active adoption efforts, by appropriate colleagues of innovators, required overcoming the attitude that using someone else's discovery is a lesser value than creating your own. In promoting instructional improvement the collaborative effort of school administrators, teachers, and outside resource people were the most productive leadership arrangement rather than reliance on any one of these alone.

Lasar G. Gotkin and Leo S. Goldstein (1964) examined some of the ways programed instruction has been adopted for use in the schools, some of the effects the introduction of this innovation has had on the curriculum and on classroom structure and some problems of learner achievement and motivation which are emerging as the innovation spreads.

In their analysis, Gotkin and Goldstein (1964) report that programed instruction has apparently moved out of the awareness stage and in general appears to be known to educators. Gotkin and Goldstein (1964) believe that the role of the teacher interacting with programed instruction has not yet been defined and will need further study. In terms of the effect of programed instruction on curriculum and the classroom structure, Gotkin and Goldstein (1964) report that it has been used as homework, as bringing new subject matter curricula to students and teachers, and as a basis for individualizing instruction within the classroom. In the conclusion of their analysis of program instruction Gotkin and Goldstein (1964) state that there is no evidence that students learn more effectively or efficiently than conventionally taught students. However, Gotkin and Goldstein

(1964) believe programed instruction does break the traditional lockstep of classroom procedure and this is a stride to individualizing instruction.

Richard O. Carlson (1965), in his study of the adoption of educational innovations, chose to focus his efforts upon the variables associated with the role of the school superintendent. He used the innovations of modern mathematics, programed instruction, team teaching, foreign language laboratories, foreign language instruction in elementary grades and accelerated programs in secondary schools. The data on which this study was based consisted mainly of the dates on which the above innovations were adopted (if they were adopted) by the selected school systems; characteristics of the superintendents including (a) personal characteristics, (b) habits of communication, and (c) status in the social structure of superintendents; and characteristics of innovations.

Two research sites were selected by Carlson (1965), Allegheny County, Pennsylvania and the state of West Virginia. At the time the data were gathered there were 68 superintendents in Allegheny County. Data were collected from 61 of the 68 superintendents. The data collection figures for West Virginia was 55 total superintendents and 45 responding to the collection.

Carlson's findings pertaining to the adoption of modern mathematics and the superintendent's position in the social structure indicate that early adopters of modern math tended to score higher than late adopters on measures of social network involvement and position in the status structure. Of the twenty-three superintendents who adopted the new practice in either the first, second, or third year, ten superinten-

dents had scores above the median on all seven social structure measures. Of the thirty-one superintendents who adopted the practice in either the fourth, fifth, or sixth year, no superintendent scored above the median on all seven social structure measures.

Carlson (1965) found that opinion leaders and their effect on the adoption of modern math was inconclusive. In Allegheny County he found opinion leaders were identified as almost exclusively in the highest status level and as mainly drawing their advisees from the upper two status levels. The lower men were in the status structure of superintendents, the more they sought advice from non-leaders and the less they sought advice from opinion leaders. Over half of the advice-seeking contacts made by superintendents in the lowest status level were made with superintendents who were not opinion leaders. Among the superintendents there was a general tendency to seek advice from those higher in the status structure rather than from those lower or at the same level in the status structure. In Allegheny County advice was sought more often from superintendents than from any other occupational category of persons and distance separating advisees and potential advisors did not regulate the advice contacts of the superintendents.

In West Virginia it was found employees of the State Department of Education were contacted for advice about new educational practices more frequently than were superintendents in the state, college professors, or persons called "others." It was also noted in West Virginia the superintendents tended to seek advice from advisors higher in the status structure than the advisees. It was also observed distance between advisees

and potential advisors regulated advice contacts between superintendents. When superintendents asked one another for advice, they tended to ask the superintendents in the neighboring counties. The fact distance governed contacts for advice among superintendents was assumed to explain the apparently discrepant facts that opinion leaders in the state were drawn rather equally from all status levels and their advisees over-represented the lower half of the status structure among the superintendents.

Carlson's (1965) findings on the power of the variable of expenditure per child to account for rate of adoption and amount of adoption of new educational practices indicated no correlation between the two. Carlson's (1965) study does not support past research on adoption of educational innovations that found financial expenditure to be a major predictor of a school system's adaptability.

Carlson's (1965) findings are inconclusive concerning the characteristics of the innovations studied and the rate of adoption. The main impact of Carlson's (1965) study appears to be his analysis of the characteristics of the superintendents and the effect of those characteristics on the adoption of an innovation. A second major import of Carlson's study is the refutation of the relationship between school financial status and the adoption of innovation.

Conclusions to be Drawn from Transitional Education Studies in Diffusion and Adoption

The education studies of diffusion and adoption during the 1950's and 1960's range in their emphasis over a wide variety of innovations.

The studies do have some common characteristics. Among these are the continued emphasis on the individual as the key to the adoption of a new educational practice, recognition of the importance of and effect climate appears to have on the introduction and adoption of innovations, and awareness of factors affecting the adoption of an innovation more complex than the financial capability of a school system to pay.

Part Three: Directions for Further Education Research in Diffusion and Adoption

Brookover and Erickson (1975) discussed the educational system not as an isolated social system, but one open to interaction with other social forces. Just as education may have some impact on other aspects of the society, so the other aspects of society affect the processes of change within the educational institutions. Brookover and Erickson (1975) note significant research on this process has occurred but much of this research has focused on the adoption of new educational practices with particular reference to the diffusion and adoption of new media in the schools. Brookover and Erickson (1975) believe too little attention has been given to the analysis of the process of changing school organization or the basic school curriculum.

According to Brookover and Erickson (1975), the empirical analysis of the process of change in school organization has not provided verified conclusions concerning factors affecting such change. One of the most widely held theories, Brookover and Erickson (1975) report, is that the participation of the members of the organization in the decision-making process is essential. Research evidence to support this "law" of change

is spotty and inadequate. According to Brookover and Erickson (1975), empirical evidence provides slight basis for any conclusions about the effect of a participation process in comparison to strategies where the administrators initiate change without rank and file involvement in the decisions. Other factors, Brookover and Erickson (1975) point out, such as the characteristics of the proposed changes and of the school organization in which they are introduced may affect the extent to which changes in school organization are adopted. Brookover and Erickson (1975) state there is neither adequate theory or empirical research evidence to make any generalizations concerning such changes in schools.

Brookover and Erickson (1975) acknowledge that considerable research on changes in educational practice has occurred, but they believe that most has involved the adoption of a new technology such as television or other media with only limited attention to the organizational changes involved. An analysis of organizational changes, according to Brookover and Erickson (1975), might establish a basis for predicting whether or not an innovation may fail in the schools.

Mere exposure to a new product, even though it is superior Brookover and Erickson (1975) state, does not change social organization. Brookover and Erickson (1975) conclude by stating that until there is a better theory and more comprehensive knowledge of school organizational changes we cannot predict the outcome of proposed changes in education.

Rogers (1971) writes that the diffusion field has placed great emphasis upon the nature of the innovation as a basis for different diffusion research traditions. He cites, for example, rural sociologists

studying agricultural innovations, educational diffusionists investigating new teaching ideas, and so on. Rogers (1971) believes that this focus on the message object may be a result of the applied research interest of early diffusion investigators as well as the nature of their research sponsorship, whether by colleges of agriculture or teachers colleges. The general result of this overemphasis upon the object of the message according to Rogers (1971) has not been entirely beneficial. Rogers states that the traditions in each field are strengthened and act as partial barriers to the free exchange of diffusion findings and methods. The tradition in each field retard the search for generalizations cross discipline lines, and theoretical potentials have not been fulfilled.

Rogers (1975) states that most of the innovations that have been studied resulted from physical or biological science research rather than social science research. Therefore, according to Rogers (1971), more is known about how fertilizers, weed sprays, and antibiotic drugs spread and much less is known about the diffusion of new ideas in political behavior or human learning. Rogers (1971) reports some think the innovations studied have been relatively inconsequential. He points out these "cosmetic" innovations have usually dealt only with changes in how a social system functions and seldom with its basic social structure. Rogers (1971) concludes we know much less today about the way in which restructuring innovations (e.g., a new organizational form) diffuse than about how functional-technical innovations (e.g., automobile seat-belts or a new food product) spread.

Rogers (1971), addressing his statements to research conducted in education, states it often occurs in bureaucratic structures and many

more of the innovation-decisions are authority or collective decisions rather than optional innovation-decisions. Rogers (1971) points out most of the past research has treated educational innovations as if they were individually adopted even though many are not. Rogers (1971) states a further shortcoming of the research in education is the researchers have largely ignored consideration of communication channels and how the social structure acts to impede or facilitate diffusion. Rogers (1971) believes these conceptual shortcomings need to be overcome in future studies of educational diffusion.

Owens (1970), in his examination of the research in education devoted to diffusion and adoption, notes for many years Paul Mort's thesis of the adequacy of financial support as the key factor in determining how much a school system exhibits adaptability has recently come into question. Owens (1970) states this thesis heavily influenced the thinking of school administrators with regard to factors enhancing change and innovation in schools. The troublesome question has been raised, according to Owens (1970), of the possibility of school districts having high per-pupil costs and inferior schools. Owens (1970) reports, since 1965, increasing attention to the possibility that cost-quality relationships in education are actually curvilinear, and have an optimum point beyond which additional expenditure fails to yield increased school output. According to Owens (1970), more recent research in diffusion and adoption tends to emphasize the influences of social structure on the amount and rate of change. Owens (1970) believes that recent research emphasizing the relationship between organizational change and innovation indicate money spent is only one factor in the adaptability of schools and within limits it is probably not even the major factor.

Chin and Benne (1976) in their analysis of applied research and linkage systems for diffusion of research results, have found reasons why they have not been more effective in producing changes in instruction. The reasons, according to Chin and Benne (1976), seem to lie both in the plans of the studies which produced materials and designs and in the potential users of the findings. Adequate linkage between consumers and researchers frequently were not established. Planned and evaluated demonstrations and experimentations connected with the use of materials were frequently slighted. Training of consumer teachers to use the new materials adaptively and creatively was frequently missing.

Spurred by these findings, according to Chin and Benne (1976), evaluation research addressed to educational programs may not foster diffusion and adoption of innovations because it does not focus on two-way communication between researchers and teachers and it does not involve collaboratively the ultimate consumers of the results--the students. Another drawback that appears to Chin and Benne (1976), is the neglect of the question of how to get a fair trial for an innovation and how to install an innovation in an already going and crowded school system. Chin and Benne (1976) note that few strategies for diffusion and adoption even consider this factor. Chin and Benne (1976) believe the central problem, to be considered for diffusion and adoption research, is the assumption of a relatively passive recipient of input diffusion situations. Actions within the process of diffusion are interpreted from the standpoint of an observer of the process. A clearer view, according to Chin and Benne (1976), of the processes of diffusion must include the

actions of the receiver as well as those of the transmitter in the transactional events which are the units of the diffusion process. Strategies for making diffusion processes more effective must be transactional and collaborative by design according to Chin and Benne (1976).

The directions for further research in diffusion and adoption appears to indicate that (1) researchers should give up the tendency to view the adoption of an innovation as an independent and individual action, (2) that researchers should begin to analyze the organization itself in order to be able to determine what facilitates or impedes change, (3) that researchers should begin to think in terms of predicting the degree to which an organization is capable of adopting change, and (4) the researcher should pay less attention to the characteristics of the innovation and more attention to the recipients of the innovation.

CHAPTER III. METHODS OF PROCEDURES

This chapter on research procedures will contain a description of the sample, a description of the sources of information used for data collection, and a description of the steps taken in carrying out the study.

Description of the Sample

The sample selected for this study was drawn in the following stages. From a list of high school districts that included both reorganized and unreorganized schools, all districts that had not reorganized were eliminated. Next, those reorganized districts that contained a student population of 1500 and over were eliminated from the list.

The sample was selected so certain size districts in the population and certain geographical areas in the population would be represented in the sample in proportion to their numbers in the population itself. In order to achieve stratification by size, the size stratification of school districts defined by the Department of Public Instruction in the state of Iowa was used. These are: 0-499, 500-749, 750-999, and 1000-1499. In order to achieve stratification by geographical area, all of the districts in the reorganized high school population were identified by county and by geographical area. The areas are designated as Area I, northwestern Iowa; Area II, northeastern Iowa; Area III, southeastern Iowa; and Area IV, southwestern Iowa. The boundaries of the areas were defined by Highway 30, traversing the state east-west, and Interstate 80, traversing the state north-south.

Using a table of random numbers, three districts were selected from strata 0-499 and 500-749 in each of the four areas and two districts were selected from strata 750-999 and 1000-1499 in each of the four areas. The total existing number drawn was forty reorganized school districts. This number represents 139 school districts in 1956.

Sources of Data Collection

The data came from the Secretary's Annual Reports and the Transportation Annual Reports of the school districts included in this study. The Secretary's Annual Report is a document that describes the state of the school district at the end of the fiscal year. Each school district in the state of Iowa is required to submit its report to the Department of Public Instruction.

The Transportation Annual Report is a document that describes the school's transport system at the end of the fiscal year. All school districts in Iowa that receive state reimbursement for their transportation system must submit a Transportation Annual Report to the Department of Public Instruction.

The Secretary's Annual Reports and the Transportation Annual Reports from 1956 to 1962 were housed in the State Historical Archives in Des Moines, Iowa. For their use in this study, they were transported to the Iowa State University Library in Ames, Iowa.

Secretary Annual Reports for Decatur, Fayette, Grundy, Guthrie, Hancock, Hardin, Harrison, Henry, and Humboldt counties were missing from the Archives for the year 1956-1957. Secretary Annual Reports for

Adair, Appanoose, Calhoun, Cedar, Clay, Clinton, Dallas and Fayette counties were missing from the Archives for the year 1958-1959.

Transportation Annual Reports were not in the Archives for the years 1956-1957. Transportation Annual Reports for Buchanan, Clayton, Clinton, Dallas, Fayette, Iowa, Jefferson, Johnson, and Lyon were missing from the Archives for the year 1958-1959. Transportation Annual Reports for Buchanan, Clayton, Clinton, Dallas, Fayette, Iowa, and Jefferson were missing from the Archives for the year 1959-1960.

Description of the Research Procedures

The data derived from documented occurrences reported in official records collected by the Department of Public Instruction. In order to maintain objectivity, the variables were selected prior to the examination of the documents.

One of the variables originally selected for this study could not be analyzed. The variable designated curriculum, selected prior to the examination of the data, was not recorded in the sources of information.

Selection of Variables

Champion (1975) notes the classification of variables is somewhat complicated when conducting organizational research because not all researchers agree which variables are organizational and which ones are interpersonal, individual or both, because there seems to be an excessive number of exceptions to classificatory schemes once they have been constructed and agreed upon, and because variables take on many different meanings and have any number of different implications depending upon the setting in which the research is conducted.

When discussing organizational structure, Champion (1975) states that variables in this category tend to describe the arrangement of formalized positions or departments in an organization. They also, according to Champion (1975) describe the amount of differentiation or specialization in it. Champion gives three crucial variables pertaining to organizational structure. These are: (1) size, (2) complexity, and (3) formalization.

On the basis of Champion's (1975) analysis of research conducted dealing with organizational structure, the variables selected for this study were size, complexity, and formalization. Sub-variables were assigned to each of these primary variable classifications of organizational structure. These sub-variables were based on the organizational structure of school districts in the state of Iowa.

Sub-variables for the variable size will be used in this study as independent variables. Size will be measured in this study by the geographic dimension of the school district, the number of buildings, the number of vehicles and the average and total number of miles travelled for tranpsortation.

Sub-variables for the variable complexity will be used in this study as independent variables. Complexity will be measured in this study by the number of teachers, the number of children enrolled K-12, the number of children enrolled 1-12, the number of children enrolled K-3, the number of children enrolled 1-3, the number of children enrolled 4-6, the number children enrolled 7-9, the number of children enrolled 10-12, the number of children ages 7-16 years, and the number of children ages 5-21 years.

Sub-variables for the variable formalization will be used in this study as independent variables. Formalization will be measured by the type of district, number of directors, number of grade levels, number of ungraded levels, kindergarten, one-room elementary, two or more room elementary, separate organization junior high including ninth grade, junior-senior high 7-12, regular high school four years, and the superintendency.

The fourth variable is not defined as a variable of organizational structure. The variable financial state was selected for the study primarily because of the treatment it has received in the Columbia Teachers College studies of diffusion and adoption and because of Carlson's (1965) findings concerning this variable and its lack of significant effect on the adoption of innovations. In this study, financial state will be measured by the amount of bonded indebtedness, schoolhouse receipts, schoolhouse expenditures, general fund receipts, general fund expenditures, special courses receipts, special courses expenditures, salaries of teachers, principals, and superintendents, instructional costs, transportation costs, operation of plant costs, maintenance cost, fixed costs, schoolhouse fund levy in dollars, general fund levy in dollars, and special courses levy in dollars.

Beginning in April, 1977 and ending in August, 1977, the data for the selected variables were collected from the Secretary's Annual Reports and the Transportation Annual Reports, 1956 to 1962.

Determining Rate of Adoption

The rate of adoption for the school districts is the dependent variable in this study. Rogers (1971) defines rate of adoption as the rela-

tive speed with which an innovation is adopted by members of a social system. The rate of adoption, according to Rogers, is usually measured by the length of time required for members of a system to adopt an innovation. Rate of adoption is measured using an innovation or a system rather than an individual as the unit of analysis. The innovation in this study, school reorganization, became mandated law in the state of Iowa in 1953. Rate of adoption is computed from that point until the time that two or more school districts merged.

Statistical Tests Selected for the Study Relevant to the Hypotheses Being Tested

The Pearson Product Moment Correlation Coefficient was used to determine the relationship among significant sub-variables that constitute size, complexity, and formalization--the three primary variables of organizational structure.

The Pearson Product Moment Correlation Coefficient was used to determine the relationship among the sub-variables that comprise the variable financial state.

Multiple regression analysis was used to determine if size, complexity and formalization (as measured by sub-variables) representing organizational structure will predict the rate of adoption of school reorganization in the school districts of the sample.

Multiple regression analysis was used to determine if organizational structure and financial state will predict the rate of adoption of school reorganization in the school districts of the sample. On the basis of

researcher judgment and preliminary data analysis any sub-variable significantly associated with another sub-variable was removed from the data analysis because of difficulties encountered with high intercorrelations.

All statistical tests related to the hypotheses being tested will be implemented on data collected for the school districts in the sample for the year 1956. This data is considered the base year data. After 1956, as districts began to reorganize, the size of the sample fluctuates. In order to avoid contamination of the data by outside environmental factors or interactions within the variables the base year data will be used for the purpose of prediction.

Statistical Tests Selected for the Study Pertinent to the Hypotheses Being Tested

The Pearson Product Moment Correlation Coefficient was used to ascertain whether or not there were any significant association among the variables size, complexity, and formalization that makeup organizational structure and the rate of adoption of school reorganization in the school districts in the sample.

The Pearson Product Moment Correlation Coefficient was used to determine whether or not there were any significant association between the variable financial state and the rate of adoption of school reorganization in the school districts in the sample.

One-way analysis of variance was used to describe any differences among the school districts due to geographical location in the state, or

due to size stratification i.e., 0-499, 500-749, 750-999, 1000-1499. The results from the one-way analysis variance should be viewed as a descriptive profile that attempts to provide further information on the school districts during the adoption period of school reorganization in the base year of 1956.

CHAPTER IV. RESEARCH FINDINGS

This chapter on research findings will include the description of the analytic techniques and the findings obtained from the use of the techniques.

Description of Analytic Techniques

Analytic Techniques Applied to Test Hypotheses

The Pearson Product Moment Correlation Coefficient was applied to test the following null hypotheses:

1. There is no significant correlation between any of the sub-variables that constitute the variable size.

   H_o: $\rho = 0$; H_A: $\rho \neq 0$; $\alpha = .001$

2. There is no significant correlation between any of the sub-variables that constitute the variable complexity.

   H_o: $\rho = 0$; H_A: $\rho \neq 0$; $\alpha = .001$

3. There is no significant correlation between any of the sub-variables that constitute the variable formalization.

   H_o: $\rho = 0$; H_A: $\rho \neq 0$; $\alpha = .001$

4. There is no significant correlation between any of the sub-variables that constitute the variable financial state.

   H_o: $\rho = 0$; H_A: $\rho \neq 0$; $\alpha = .001$

The stepwise forward regression technique was used to test the following null hypotheses:

5. The rate of adoption of school reorganization cannot be pre-

dicted by the organizational structure of the school districts.

H_o: All of the $\beta_i = 0$; H_A: Some of the $\beta_i \neq 0$; $\alpha = .05$

6. The rate of adoption of school reorganization cannot be predicted by the organizational structure and the financial state of the school districts.

H_o: All of the $\beta_i = 0$; H_A: Some of the $\beta_i \neq 0$; $\alpha = .05$

The stepwise forward regression procedure inserts variables in turn until the regression equation is satisfactory. The order of insertion is determined by using the partial correlation coefficient as a measure of the importance of variables not yet in the equation.

Findings Relevant to Hypotheses

Hypothesis 1: There is no significant correlation between any of the sub-variables that constitute the variable size.

The two variables that constituted size were geographical area of the school district in square miles and number of buildings. The correlation between these variables is .1869 ($\rho = .055$) which is not significant at the .001 level. There is insufficient evidence to reject Hypothesis 1.

Hypothesis 2: There is no significant correlation between any of the sub-variables that constitute the variable complexity.

The intercorrelations among the ten variables used to measure complexity are reported in Table 1. All the intercorrelations among number of teachers, number of students by grades, and number of students by ages are significant at the .001 level. Hypothesis 2 is rejected. There are significant interrelationships among the complexity variables.

Hypothesis 3: There is no significant correlation among any of the sub-variables that constitute the variable formalization.

The three variables constituting formalization were type of district, number of grade levels, and two or more elementary classrooms. The correlation between type of district with number of grade levels is .1083 (ρ = .179) and type of district with two or more elementary classrooms is -.1150 (ρ = .170). The correlation between number of grade levels and two or more elementary classrooms is .0748 (ρ = .268). The correlations are not significant at the .001 level. There is insufficient evidence to reject Hypothesis 3.

Hypothesis 4: There is no significant correlation among any of the sub-variables that constitute the variable financial state.

Nine variables were used to measure financial state. Thirteen of the thirty-six intercorrelations were significant at the .001 level. The following variables are significantly correlated with salaries at the .001 level. These are instructional costs, transportation costs, operation of plant, maintenance and general fund levy in dollars. Instructional costs are significantly correlated at the .001 level with each of the following variables: transportation costs, operation of plant and general fund levy in dollars. Transportation costs are significantly correlated at the .001 level with each of the following variables: operation of plant and general fund levy in dollars. The following variables are significantly correlated at the .001 level with operation of plant. These are maintenance, fixed costs and general fund levy in dollars. The significant

correlations among financial variables are reported in Table 2. The non-significant correlations among financial variables are reported in Table 3. There is insufficient evidence to reject Hypothesis 4 for the correlations reported in Table 3. Hypothesis 4 is rejected for the significant interrelationships reported in Table 2.

Hypothesis 5: The rate of adoption of school reorganization cannot be predicted by the organizational structure of the school districts at a significance level of .05.

The first variable, number of students 10-12, entering the stepwise forward regression equation is one that represents complexity. The variable has a B coefficient of -.0105. The F value for this variable is 1.66. The variable, number of students 10-12, is not significant at the .05 level {F(1, 67, 4.00)}.

With the entry of the second variable, number of students 1-3, the variable number of students 10-12 becomes significant. The B coefficient of this variable changes to -.04243 and the F value changes to 9.84. The second variable, number of students 1-3, is also one that represents complexity. It has a B coefficient of .03275 and an F value of 8.27. These two variables are significant at the .05 level {F(1, 67, 4.00)}.

The rest of the sub-variables measuring size, complexity, and formalization have F values that are not significant. Therefore, the selected model using the .05 level of significance is:

$$Y = b_o + b_1X_1 + b_2X_2 + \text{error}$$

or:

$$Y = 6.02071 + (-.04243)X_1 + (.03275)\ X_2$$

Where:

Y = rate of adoption of school reorganization

X_1 = number of students 10-12

X_2 = number of students 1-3

The multiple R squared for this model is .133. There is sufficient evidence to reject the null hypothesis that you cannot predict rate of adoption of school reorganization by the organizational structure of the school districts.

Hypothesis 6: The rate of adoption of school reorganization cannot be predicted by the organizational structure and the financial state of the school district at a significance level of .05.

The variable maintenance is the first entry in the stepwise forward regression equation. This variable represents financial state. Maintenance has a B coefficient of .00023 and F value of 5.36. This is significant at the .05 level {F(1, 67, 4.00)}.

The variable number of students 10-12 entered on the second step of the regression equation. Number of students 10-12 has a B coefficient of -.01685 and F value of 4.37. This is significant at the .05 level {F(1, 67, 4.00}. The variable maintenance remains significant with a B coefficient of .00029 and F value of 8.17.

The variable number of students 1-3 enters the stepwise forward regression equation on step three. This variable has a B coefficient of .02596 and F value of 5.13. This is significant at the .05 level {F(1, 67, 4.00)}. The other two variables in the equation, maintenance and number of students 10-12 remain significant at the .05 level {F(1, 67, 4.00)}.

The rest of the sub-variables measuring organizational structure and financial state have F values that are not significant.

Therefore, the selected model using the .05 level of significance is:

$$Y = b_o + b_1X_1 + b_2X_2 + b_3X_3 + \text{error}$$

or:

$$Y = 5.66741 + (.00023)X_1 + (-.04081)X_2 + (.02596)X_3$$

where:

Y = rate of adoption of school reorganization

X_1 = maintenance

X_2 = number of students 10-12

X_3 = number of students 1-3

The multiple R squared is .195 for this model. There is sufficient evidence to reject the null hypothesis that rate of adoption of school reorganization cannot be predicted by the organizational strucuture and financial state of the school districts.

Interpretation of Findings Relevant to Hypotheses

Interpretation of the Non-Significant Correlation Between the Sub-Variables of Size: Hypothesis 1.

Geographical area of the school district and number of buildings were not significantly correlated. This may be a reflection of the large area covered by rural consolidated districts, during the time period of this study, and the transportation of students to one central location for their education.

Interpretation of the Significant Correlations Among the Sub-Variables of Complexity: Hypothesis 2.

All of the intercorrelations among the variables that constitute complexity are highly significant at the .001 level. This may be due to the fact that the complexity variables are measuring student enrollment of the school districts. Even though each complexity variable measures certain portions of the student enrollment, all of the measures contribute to total enrollment in the school districts (Table 1).

Interpretation of Non-Significant Correlations Among the Sub-Variables of Formalization: Hpothesis 3:

None of the variables that constituted formalization were significantly correlated. The variables, type of district, number of grade levels, and two or more elementary classrooms, represent distinct aspects of the school districts. These variables do not measure related areas.

Interpretation of the Significant Correlations Among the Sub-Variables of Financial State: Hypothesis 4.

The thirteen significant intercorrelations of the variables that constitute financial state are all measures of expenditures in school districts. Although each variable measures a different area of expenditure, they are all part of the total expenditures of the school districts. This may explain the interrelationships among the variables that are reported in Table 2.

Table 1. Pearson product moment correlation coefficients for the sub-variables of complexity.

Sub-Variable	r	p
Number of Teachers with:		
Number of Students K-12	.9727	.001
Number of Students 1-12	.9670	.001
Number of Students K-3	.9497	.001
Number of Students 1-3	.9095	.001
Number of Students 4-6	.9407	.001
Number of Students 7-9	.9448	.001
Number of Students 10-12	.9139	.001
Number of Students Ages 5-21	.8764	.001
Number of Students Ages 7-16	.8738	.001
Number of Students K-12 with:		
Number of Students 1-12	.9974	.001
Number of Students K-3	.9808	.001
Number of Students 1-3	.9534	.001
Number of Students 4-6	.9578	.001
Number of Students 7-9	.9755	.001
Number of Students 10-12	.9254	.001
Number of Students Ages 5-21	.9001	.001
Number of Students Ages 7-16	.9030	.001
Number of Students 1-12 with:		
Number of Students K-3	.9718	.001
Number of Students 1-3	.9594	.001
Number of Students 4-6	.9752	.001
Number of Students 7-9	.9778	.001
Number of Students 10-12	.9268	.001
Number of Students Ages 5-21	.8938	.001
Number of Students Ages 7-16	.8964	.001
Number of Students K-3 with:		
Number of Students 1-3	.9707	.001
Number of Students 4-6	.9556	.001
Number of Students 7-9	.9402	.001
Number of Students 10-12	.8604	.001
Number of Students Ages 5-21	.8719	.001
Number of Students Ages 7-16		

Table 1 (Continued)

Sub-Variable	r	p
Number of Students 1-3 with:		
Number of Students 4-6	.9347	.001
Number of Students 7-9	.9211	.001
Number of Students 10-12	.8233	.001
Number of Students Ages 5-21	.8300	.001
Number of Students Ages 7-16	.8331	.001
Number of Students 4-6 with:		
Number of Students 7-9	.9397	.001
Number of Students 10-12	.8708	.001
Number of Students Ages 5-21	.8766	.001
Number of Students Ages 7-16	.8847	.001
Number of Students 7-9 with:		
Number of Students 10-12	.8877	.001
Number of Students Ages 5-21	.8905	.001
Number of Students Ages 7-16	.8903	.001
Number of Students 10-12 with:		
Number of Students Ages 5-21	.8406	.001
Number of Students Ages 7-16	.8435	.001
Number of Students Ages 5-21 with:		
Number of Students Ages 7-16	.9905	.001

Table 2. Pearson product moment correlation coefficients for the sub-variables of financial state.

Sub-Variables	r	p
Salaries of Teachers, Principals and Superintendents with:		
Instructional Costs	.5354	.001
Transportation Costs	.7201	.001
Operation of Plant	.8864	.001
Maintenance	.3821	.001
General Fund Levy in $	.7680	.001
Instructional Costs with:		
Transportation Costs	.4604	.001
Operation of Plant	.4854	.001
General Fund Levy in $	.3901	.001
Transportation Costs with:		
Operation of Plant	.7314	.001
General Fund Levy in $	.7544	.001
Operation of Plant with:		
Maintenance	.4446	.001
Fixed Costs	.3449	.001
General Fund Levy in $	.8235	.001

Interpretation of the Non-Significant Correlations Among the Sub-Variables of Financial State: Hypothesis 4.

There are twenty-three non-significant intercorrelations reported in Table 3. These variables may measure distinct areas of expenditures within a school district.

Interpretation of the Selected Model for Predicting Rate of Adoption of School Reorganization by Organizational Structure: Hypothesis 5.

The selected model, for the school districts in the sample, indicates the greater the enrollment in grades 10-12 and the lower the enrollment in

Table 3. Pearson product moment correlation coefficient for the sub-variables of financial state.

Sub-Variables	r	p
General Fund Receipts with:		
Special Courses Receipts	-.1586	.146
Salaries Tchrs, Prin, Supts	.1218	.151
Instructional Costs	.1182	.161
Transportation Costs	.1483	.105
Operation of Plant	.0835	.240
Maintenance	.0924	.217
Fixed Costs	-.0947	.213
General Fund Levy in $	.0066	.478
Special Courses Receipts with:		
Sal. Tchrs, Prin, Supts.	.0562	.357
Instructional Costs	.2431	.054
Transportation Costs	-.0539	.363
Operation of Plant	.1241	.208
Maintenance	-.0595	.349
Fixed Costs	-.1263	.204
General Fund Levy in $	.0903	.278
Salaries of Teachers, Principals and Superintendents with:		
Fixed Costs	.1912	.053
Instructional Costs with:		
Maintenance	.1517	.102
Fixed Costs	.0964	.212
Transportation Costs with:		
Fixed Costs	.2092	.039
Maintenance	.3334	.002
Maintenance with:		
Fixed Costs	.2188	.031
General Fund Levy in $	.3268	.002
Fixed Costs with:		
General Fund Levy in $	.2942	.006

grades 1-3, the more rapid the rate of adoption of school reorganization will occur with about 13 percent of the variation in the rate of adoption explained.

Interpretation of the Selected Model for Predicting Rate of Adoption of School Reorganization by Organizational Structure and Financial State: Hypothesis 6.

The selected model, for the school districts in the sample, indicates the lower the expense of maintenance, the greater the enrollment in grades 10-12, and the lower the enrollment in grades 1-3, the more rapid the rate of adoption of school reorganization will occur with about 19 percent of the variation in rate of adoption explained.

Findings and Interpretations Pertinent to Hypotheses

Rate of Adoption of School Reorganization and the Variables of Organizational Structure and Financial State.

The Pearson Product Moment Correlation Coefficient was used to test whether or not there were any significant intercorrelations between the rate of adoption of school reorganization and the variables that constituted organizational structure and financial state.

There were no significant intercorrelations between rate of adoption of school reorganization and any of the variables constituting organizational structure and financial state (Table 4).

The intercorrelations, except for rate of adoption with geographical area ($r = .0230$) and rate of adoption with maintenance ($r = .2358$), are negative intercorrelations.

Table 4. Pearson product moment correlation coefficients for rate of adoption of school reorganization with the variables of organizational structure and financial state.

Rate of Adoption With:	r	p
Geographical Area	.0230	.423
Number of Buildings	-.1317	.132
Number of Teachers	-.1195	.155
Number of Students K-12	-.0833	.240
Number of Students 1-12	-.0889	.226
Number of Students K-3	-.0254	.415
Number of Students 1-3	-.0059	.480
Number of Students 4-6	-.0896	.224
Number of Students 7-9	-.0615	.301
Number of Students 10-12	-.1683	.079
Number of Students Ages 5-21	-.1122	.171
Number of Students Ages 7-16	-.0754	.263
Type of District	-.0466	.347
Number of Grade Levels	-.0944	.212
Salaries Teachers, Principals and Superintendents	-.1348	.126
Instructional Costs	-.1045	.201
Transportation Costs	-.0745	.266
Operation of Plant	-.1045	.188
Maintenance	.2358	.022
General Fund Levy in $	-.0463	.348

These negative correlations indicate that if a school district delayed adoption of school reorganization then there were fewer buildings in the district, fewer teachers and students in the district, and greater costs for salaries, instruction, transportation, operation of plant, and general fund levy in dollars.

The positive correlations indicate that if a school district adopted school reorganization early then the school districts were larger in geographical area and had lower maintenance costs.

Descriptive Profile for the Sub-Variables Representing Size by Area (Northwest, Northeast, Southeast, Southwest) in the state of Iowa.

The descriptive profile (Table 5) indicates school districts in Northwestern Iowa have the largest average geographical area in square miles. Southwestern Iowa school districts had the smallest average geographical area in square miles.

The number of buildings appear to be the same in the school districts regardless of where they are located in the state.

Table 5. Sub-Variables representing size by area (northwest, northeast, southeast, southwest) in the state of Iowa.

Sub-Variables of Size	Area	Mean	Std. Dev.	F[a]
Geographical Area of School District in	NW	348.9331	230.5910	.413
	NE	308.8887	250.6678	
	SE	315.6499	316.7161	
	SW	257.5237	193.7908	
Number of Buildings	NW	1.8667	1.5523	.372
	NE	1.7780	1.6647	
	SE	1.6000	1.5932	
	SW	1.4762	1.9284	

[a]ANOV among area of the state.

Descriptive Profile for the Sub-Variables Representing Complexity by Area (Northwest, Northeast, Southeast, Southwest) in the state of Iowa.

The descriptive profile indicates that larger numbers of students were located in the northeastern and southeastern areas of the state. Northwestern Iowa, however, had the largest number of students in grades 7 through 9. Southwestern Iowa had the smallest teacher and student population (Table 6.)

Table 6. Sub-Variables representing complexity by area (northwest, northeast, southeast, southwest) in the state of Iowa.

Complexity Sub-Variables	Area	Mean	Std. Dev.	F[a]
Number of Teachers	NW	15.4467	6.9884	.495
	NE	15.0000	8.0586	
	SE	14.8500	6.1325	
	SW	12.9524	6.5305	
Number of Students 1-12	NW	261.9331	137.9851	.583
	NE	276.0554	172.0962	
	SE	275.8499	139.2586	
	SW	222.8095	141.4604	
Number of Students K-3	NW	100.5333	55.0193	.590
	NE	106.6667	72.6238	
	SE	99.8500	52.5510	
	SW	82.5714	58.5743	
Number of Students 4-6	NW	63.7333	37.7784	.577
	NE	66.4444	38.8045	
	SE	70.7500	39.1554	
	SW	55.5238	37.1088	
Number of Students 7-9	NW	65.6667	34.5391	.649
	NE	63.7776	44.3818	
	SE	63.8500	34.2902	
	SW	50.8571	36.7957	
Number of Students 10-12	NW	54.3333	34.9298	.483
	NE	63.7647	39.6855	
	SE	59.9000	34.1989	
	SW	51.0500	30.9938	
Number of Students Ages 5-21	NW	284.5332	143.1546	.977
	NE	292.9443	191.0470	
	SE	293.6499	216.8822	
	SW	210.1905	166.6779	

[a]ANOV among area of the state.

Table 6 (Continued)

Complexity Sub-Variables	Area	Mean	Std. Dev.	F
Number of Students Ages 7-16	NW	166.0714	92.0496	.787
	NE	180.2778	120.0111	
	SE	185.0000	131.7573	
	SW	134.4286	110.6406	

Descriptive Profile for the Sub-Variables Representing Formalization by Area (Northwest, northeast, southeast, southwest) in the state of Iowa.

The number of grade levels and type of district do not appear to differ due to the location of the school districts in the state (Table 7).

Table 7. Sub-Variables representing formalization by area (northwest, northeast, southeast, southwest) in the state of Iowa.

Formalization Sub-Variables	Area	Mean	Std. Dev.	F[a]
Type of District	NW	1.8000	.8619	.091
	NE	1.8333	.9852	
	SE	1.9500	.8870	
	SW	1.8571	.9103	
Number of Grade Levels	NW	12.8000	.4140	1.505
	NE	12.3333	1.1882	
	SE	12.5000	.5130	
	SW	12.1906	1.0779	

[a]ANOV among area of the state

Descriptive Profile for the Sub-Variables Representing Financial State by Area (Northwest, northeast, southeast, southwest) in the state of Iowa.

The descriptive profile indicates instructional costs are greater in northeastern and southeastern areas of the state. Northwestern Iowa had the largest amount of expenditures for salaries, operation of plant, and general fund levy in dollars. Southeastern Iowa had the smallest amount of expenditures for salaries, transportation costs, operation of plant, maintenance and general fund levy in dollars. The northwestern area of Iowa had the lowest expenditures for instructional costs (Table 8).

Descriptive Profile for the Sub-Variables Representing Size by the Size Stratum (0-499, 500-749, 750-999, 1000-1499) in the state of Iowa.

According to the descriptive profile (Table 9), there were more schools in the size stratum 0-499 and 500-749 in the base year of 1956. There appears however, to be no differences in the variable number of buildings regardless of the size stratum in which the district is contained.

Descriptive Profile for the Sub-Variables Representing Complexity by the Size Stratum (0-499, 500-749, 750-999, 1000-1499) in the state of Iowa.

The size stratum 500-749 and 1000-1499 contain more of the student population than the size stratum 0-499 and 750-999. None of the size stratum are significantly different among the sub-variables of complexity (Table 10).

Table 8. Sub-Variables representing financial state by area (northwest, northeast, southeast, southwest) in the state of Iowa.

Financial State Sub-Variables	Area	Mean	Std. Dev.	F[a]
Salaries	NW	49,556.91	25,129.80	.602
	NE	42,205.96	28,563.15	
	SE	46,845.00	24,106.75	
	SW	38,777.00	24,710.91	
Instructional Cost	NW	2,810.67	2,360.66	.799
	NE	3,827.47	3,200.09	
	SE	4,614.84	3,808.09	
	SW	3,853.41	3,707.54	
Transportation Costs	NW	7,146.89	3,364.68	.506
	NE	7,467.93	4,182.27	
	SE	7,666.37	4,705.68	
	SW	6,294.53	2,442.67	
Operation of Plant	NW	10,131.33	5,729.40	1.525
	NE	9,340.64	4,578.67	
	SE	8,997.80	3,949.63	
	SW	7,203.85	3,203.56	
Maintenance	NW	4,133.30	4.058.53	
	NE	4,151.07	2,630.58	
	SE	2,652.88	2,175.44	
	SW	2,580.92	1,437.88	
General Fund Levy in $	NW	62,639.13	29,761.79	1.164
	NE	56,461.38	32,669.26	
	SE	53,348.00	37,146.29	
	SW	42,573.47	32,624.92	

[a]ANOV among area of the state.

Table 9. Sub-Variables representing size by the size stratum (0-499, 500-749, 750-999, 1000-1499) in the state of Iowa.

Size Sub-Variable	Stratum	Mean	Std. Dev.	F[a]
Geographical Area of School District	0-499	349.3459	241.5548	.521
	500-749	262.6152	271.3965	
	750-999	305.3528	229.5304	
	1000-1499	268.1665	270.3567	
Number of Buildings	0-499	1.7692	1.3056	.708
	500-749	1.6923	.8549	
	750-999	1.2941	.5879	
	1000-1499	1.8333	1.6539	

[a]ANOV among size stratum of the state.

Descriptive Profile for the Sub-Variables Representing Financial State by the Size Stratum (0-499, 500-749, 750-999, 1000-1499) in the state of Iowa.

The size stratum 500-749 and 1000-1499 have the highest costs in salaries, operation of plant and general fund levy in dollars. Size stratum 0-499 and 1000-1499 have the highest instructional costs. Transportation costs are highest in size stratum 750-749 and 1000-1499. Maintenance costs are highest in size stratum 500-749 and lowest in size stratum 1000-1499. General fund levy in dollars is highest in size stratum 500-749 and lowest in 0-499 (Table 11).

Table 10. Sub-Variables representing complexity by the size stratum (0-499, 500-749, 750-999, 1000-1499) in the state of Iowa.

Complexity Sub-Variables	Size Stratum	Mean	Std. Dev.	F[a]
Number of Teachers	0-499	13.3846	5.8588	1.055
	500-749	15.3077	8.2703	
	750-999	13.2353	4.4515	
	1000-1499	16.6111	8.6849	
Number of Students 1-12	0-499	219.7308	23.2439	1.595
	500-749	268.9229	46.5146	
	750-999	247.4706	25.9468	
	1000-1499	315.4443	44.4457	
Number of Students K-3	0-499	83.3846	49.1765	1.252
	500-749	101.3846	64.9070	
	750-999	91.5294	46.1548	
	1000-1499	117.6111	77.1599	
Number of Students 1-3	0-499	65.9231	34.0404	1.772
	500-749	78.0000	43.2358	
	750-999	77.7059	34.7900	
	1000-1499	94.6111	51.1539	
Number of Students 4-6	0-499	54.5385	32.5358	.995
	500-749	67.7692	44.8035	
	750-999	55.8823	28.6244	
	1000-1499	73.8889	47.6357	
Number of Students 7-9	0-499	52.0769	29.4481	1.650
	500-749	61.4615	41.8143	
	750-999	55.8823	28.6244	
	1000-1499	76.3889	48.4126	
Number of Students 10-12	0-499	51.2083	24.4059	1.212
	500-749	57.6154	41.9594	
	750-999	51.8235	25.6472	
	1000-1499	69.9444	45.1448	

[a]ANOV among size stratum of the state.

Table 10 (Continued)

Complexity Sub-Variable	Size Stratum	Mean	Std. Dev.	F
Number of Students Ages 5-21	0-499	230.9231	147.7345	.926
	500-749	288.6152	221.9461	
	750-999	253.5294	131.3792	
	1000-1499	320.1111	236.2384	
Number of Students Ages 7-16	0-499	139.7600	85.7807	
	500-749	182.0000	140.2509	
	750-999	155.9412	84.0241	
	1000-1499	199.0000	152.2413	

Table 11. Sub-Variables representing financial state by the size stratum (0-499, 500-749, 750-999, 1000-1499) in the state of Iowa.

Financial State Sub-Variable	Size Stratum	Mean	Std. Dev.	F[a]
Salaries	0-499	40,403.96	21,785.61	1.534
	500-749	47,308.01	28,647.99	
	750-999	38,837.59	16,683.75	
	1000-1499	54,585.72	32,637.07	
Instructional Costs	0-499	3,502.75	3,497.79	1.089
	500-749	3,191.33	2,487.40	
	750-999	3,487.67	2,376.47	
	1000-1499	5,052.20	4,285.96	
Transportation Costs	0-499	6,576.49	3,443.27	.432
	500-749	6,820.86	3,864.51	
	750-999	7,556.30	3,089.87	
	1000-1499	7,739.09	4,592.62	
Operation of Plant	0-499	8,940.51	4,573.71	.780
	500-749	9,444.17	6,033.53	
	750-999	7,424.30	2,406.27	
	1000-1499	9,438.76	4,233.71	
Maintenance	0-499	3,024.03	2,162.24	1.339
	500-749	4,601.61	4,497.59	
	750-999	3,228.24	2,155.41	
	1000-1499	2,813.77	2,155.41	
General Fund Levy in Dollars	0-499	51,063.88	31,814.51	.427
	500-749	59,228.84	36,415.70	
	750-999	46,958.93	28,146.91	
	1000-1499	56,719.83	39,541.03	

[a]ANOV among size stratum of the state.

CHAPTER V. CONCLUSIONS

The objectives of this study were:

1. To identify the common characteristics of organizational structure in the school districts.
2. to determine the degree to which each of the identified characteristics appeared in the organizational structure of the school districts.
3. to determine whether or not there was a relationship between the organizational structure and the rate of adoption of school reorganization in the school districts.
4. to determine whether or not there was a relationship between any characteristic of the organizational structure and the rate of adoption of school reorganization.

A classification system was used to identify common characteristics of organizational structure in school districts. This system grouped variables present in an organizational structure into three main categories: size, complexity, and formalization. The size category identified physical characteristics of the school districts such as geographical area and number of buildings. The complexity category identified characteristics related to the student population and the professional staff that have implications for programs, staffing and activities within a school district. The third category of formalization identified bureaucratic characteristics of the school district such as the type of district. Many characteristics that could have been included for analysis in the

classification system are not present because the data collection was confined to the base year of 1956. This classification system did function to identify common characteristics among the school districts.

The sources of data collection in this study provided the means to quantify the degree to which the identified characteristics appeared in the organizational structure of the school districts. Since it was possible to determine the degree to which the characteristics were present in 1956, it seems entirely feasible this process could be repeated at the present time with much less difficulty.

The study indicates that there is a relationship between organizational structure and the rate of adoption of school reorganization by school districts. The study also demonstrates that specific characteristics, those related to complexity, effect rate of adoption of school reorganization by school districts.

The financial state of the school district is related to the adoption of school reorganization by the school district. The financial state, in combination with organizational structure, effects the rate of adoption of school reorganization more so than organizational structure alone. Rate of adoption of school reorganization can be predicted by analyzing the organizational structure and financial state of school districts.

All the objectives of the study were met. The following recommendations are made:

1. The classification system should be further refined. Appropriate definitions suitable to organizational structure of educational

systems should be established. Operational definitions that function only in terms of the research setting are not satisfactory. More effort should be expended to produce a classification scheme that could be generalized to the majority of research situations dealing with educational systems. This classification scheme is particular to this study.

2. Although rate of adoption can be predicted by the two selected models in this study, it should be recognized that these two models were generated from the process of school reorganization in only one state. In that state, 13 percent and 19 percent of the variation in rate of adoption was explained by the models. The models should be further tested in other states with state-mandated school reorganization.
3. The effect of the financial state of a school district on the rate of adoption of school reorganization has not been established as a dominant factor by this study. Further research in this area should perhaps consider the possiblity the financial resources of a district do not always determine rate of adoption when it is a matter of modifying or eliminating the present structure of a school district.
4. Rate of adoption of an innovation should be considered from the perspective that it occurs on a collective-authority basis rather than an independent and individual basis.

5. More attention should be given to the school districts and their characteristics rather than the innovation per se and its characteristics.

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APPENDIX A. SCHOOL REORGANIZATION IN IOWA

The Consolidated School Law of 1906 was passed by the state legislature to establish a statewide pattern of school consolidation. The intent of this legislation, however, was never fully realized by 1910, four years after its passage, only ten consolidated districts had been created. According to a report made to The School Systems and Standards Study Committee, in 1900 there were 4,241 operating districts responsible for 12,623 ungraded schools and 632 districts responsible for 5,875 graded rooms. At the end of the consolidated school movement in 1922, there were 4,839 legally organized school districts. By 1953, 4,558 of these consolidated school districts were still in existence.

In 1941 the legislature established a commission for preparation of a new school code. A second commission, in 1943, rewrote Chapter 275, "Reorganization Code" and Chapter 273, "County School Systems." A 1945 legislative enactment permitted rural schools to be closed if tuition costs to another school did not exceed the per pupil operating costs of the rural school. Though this measure did not alter materially the legal organization of schools, it resulted in the closing of numerous one-room rural schools between 1945 and 1953.

The General Assembly in 1945 passed the Supplemental Aid Act that was designed to guarantee that a certain minimum amount of money would be spent for the education of every public school child. Two companion measures were passed at the same time. One was the School Transportation Act to be used to reimburse school districts for transportation costs and The Agricultural Land Tax Credit Act to insure farm owners from being taxed excessively for school purposes (May, 1956).

The General Assembly also enacted at its 1945 meeting a school district reorganization law that put into effect the county-wide planning of school redistricting. The county boards, working in cooperation with the State Department of Public Instruction, were ordered to prepare plans for the reorganization of school districts consistent with the state's newly voiced policy of encouraging the establishment of districts that "are necessary, economical, and efficient and which will insure an equal opportunity to all children of the state" (May, 1956).

Meanwhile, during the period between 1945 and 1947 before this reorganization program went fully into effect, a new outbreak of consolidations occurred. Encouraged by the prospect of greatly increased state aid and hoping to reorganize on their own terms before the new law restricted their actions, new consolidated districts were formed while many other communities discussed the possibility.

Fearing a repetition, according to May, of the mistakes of the earlier era of rapid consolidation the legislature in 1947 imposed a moratorium on all school district changes until June 30, 1953, except those approved by the county boards of education and the State Department of Public Instruction under the new state reorganization law. Since 1953, no new "consolidated" districts have been formed. Instead, "community" districts may be organized but only under the terms of the amended law that gives county and state school officials much greater control over reorganization movements than was the case before.

The 1953 legislation, according to the report to The School Systems and Standards Study Committee, stated in part:

> It is hereby declared to be the policy of the state to encourage the reorganization of school districts into such units as are necessary, economical and efficient and which will insure an equal educational opportunity to all children in the state.

After 1953, the movement was designed to accomplish two objectives: (1) create districts consistent with legislative desires for equal educational opportunities in efficient and economical districts and (2) eliminate non-high school districts.

The final phase of school reorganization was initiated by the Iowa legislature in 1965. The 61st General Assembly passed legislation requiring all areas of the state to become part of a legally constituted school district maintaining a high school by July 1, 1966.

APPENDIX B. SAMPLE SCHOOLS - 1976

Area I

Boone Valley	(272)
Rolfe Community	(341)
Clay Central	(421)
Eastwood Community	(516)
West Harrison Community	(661)
Rockwell City Community	(749)
Lawton-Bronson Community	(756)
Garner-Hayfield Community	(962)
Central Lyon Community	(1053)
Northeast Community School	(1118)

Area II

Lincoln Central Community	(291)
Union-Whitten Community	(321)
Delwood Community	(489)
North Winneshiek Community	(520)
Beaman-Conrad-Liscomb Community	(615)
Valley Community	(733)
Ackley-Geneva Community	(805)
East Buchanan Community	(842)
Starmont Community	(1224)
North Fayette Community	(1423)

Area III

Moulton-Udell Community	(421)
Bennett Community	(439)
Nesco Community	(475)
LDF Community	(630)
Waco Community	(692)
Clear Creek Community	(867)
Van Buren Community	(987)
Williamsburg Community	(1022)
Cardinal Community	(1126)

Area IV

Grand Valley Community	(275)
Orient-Macksburg Community	(431)
Lennox Community	(489)
Panora-Linden Community	(571)
Adair-Casey Community	(584)
Dexfield Community	(635)
Woodward-Granger Community	(753)
East Union Community	(819)
Adel-DeSoto Community	(1150)
Shenandoah Community	(1498)

APPENDIX C. SAMPLE SCHOOLS - 1956

Area I

Boone Valley Independent
Renwick Independent
Rolfe Consolidated
Des Moines Township Consolidated
Royal Consolidated
Cornell Consolidated
Correctionville Independent
Cushing Consolidated
Modale Consolidated
Mondamin Consolidated
Rockwell City Community
Jolley Consolidated
Lawton Community
Bronson Consolidated
Garner Independent
Hayfield Consolidated
Rock Rapids Independent
Doon Independent
Goose Lake Consolidated
Elvira Consolidated
Charlotte Consolidated

Area II

Doliver Consolidated
Gruver Independent
Swan Lake Consolidated
Union Consolidated
Whitten Consolidated
Delmar Consolidated
Elwood Consolidated
Fort Atkinson Independent
Ridgeway Independent
Beaman Consolidated
Conrad Consolidated
Liscomb Consolidated
Elgin Independent
Clermont Independent
Ackley Consolidated
Geneva Consolidated
Aurora Independent
Quasqeton Consolidated
Winthrop Consolidated
Strawberry Point Independent
Lamont Consolidated
Arlington Consolidated
West Union Independent
Hawkeye Independent
Alpha Consolidated

Area III

Moulton Independent
Udell Consolidated
Bennett Community
McCallsburg Consolidated
Zearing Community
Dunbar Consolidated
Ferguson Consolidated
LeGrand Community
Olds Consolidated
Wayland Community
Crawfordsville Consolidated
Lynnville Independent
Searsboro Consolidated
Sully Independent
Cosgrove Independent
Oxford Independent
Tiffin Independent
Keosauqua Independent
Douds-Leando Consolidated
Williamsburg Independent
Conroy Independent
Hilton Township Consolidated
Eldon Independent
Batavia Independent
Agency Independent
Selma Consolidated

Area IX

Kellerton Independent
Beaconsfield Consolidated
Grand River Independent
Orient Consolidated
Macksburg Consolidated
Nevinville Consolidated
Richland Consolidated
Zion Consolidated
Lennox Independent
Sharpsburg Independent
Panora Community
Linden Consolidated
Adair Independent
Casey Consolidated
Redfield Community
Dexter Independent
Woodward Community
Granger Independent
Shannon City Consolidated
Afton Independent
Arispe Consolidated
Lorimer Community
Thayer Consolidated
Adel Independent
DeSoto Consolidated
Shenandoah Independent
Northboro Consolidated

APPENDIX D. RATE OF ADOPTION OF SCHOOL REORGANIZATION FOR SAMPLE SCHOOL DISTRICTS

Years	School District	Area
2	Boone Valley	I
2	Renwick Independent	I
2	Lynnville Independent	III
2	Searsboro Consolidated	III
2	Sully Independent	III
3	Garner Independent	I
3	Hayfield Consolidated	I
3	Union Consolidated	II
3	Whitten Consolidated	II
3	West Union Independent	II
3	Hawkeye Independent	II
3	Alpha Consolidated	II
3	Bennett Community	III
3	Williamsburg Independent	III
3	Conroy Independent	III
3	Hilton Township Consolidated	III
3	Adair Independent	IV
3	Casey Consolidated	IV
3	Adel Independent	IV
3	DeSoto Consolidated	IV
4	Rockwell City Community	I
4	Jolley Consolidated	I
4	Beaman Consolidated	II
4	Conrad Consolidated	II
4	Liscomb Consolidated	II
4	Elgin Independent	II
4	Clermont Independent	II
4	Kellerton Independent	IV
4	Beaconsfield Consolidated	IV
4	Grand River Independent	IV
5	Rock Rapids	I
5	Doon Independent	I
5	Moulton Independent	III
5	Udell Consolidated	III
5	McCallsburg Consolidated	III
5	Zearing Community	III
5	Lennox Independent	IV
5	Sharpsburg Independent	IV
5	Redfield Community	IV
5	Dexter Independent	IV
5	Shannon City Consolidated	IV
5	Afton Independent	IV
5	Arispe Consolidated	IV
5	Lorimer Community	IV
5	Thayer Consolidated	IV
5	Shenandoah Independent	IV

Year	School District	Area
5	Northboro Consolidated	IV
6	Rolfe Consolidated	I
6	Des Moines Township Consolidated	I
6	Royal Consolidated	I
6	Cornell Consolidated	I
6	Fort Atkinson Independent	II
6	Ridgeway Independent	II
6	Aurora Independent	II
6	Quasqeton Consolidated	II
6	Winthrop Consolidated	II
6	Dunbar Consolidated	III
6	Ferguson Consolidated	III
6	LeGrand Community	III
6	Eldon Independent	III
6	Batavia Independent	III
6	Agency Independent	III
6	Selma Consolidated	III
7	Modale Consolidated	I
7	Mondamin Consolidated	I
7	Goose Lake Independent	I
7	Elvira Independent	I
7	Charlotte Independent	I
7	Cosgrove Independent	III
7	Oxford Independent	III
7	Tiffin Independent	III
7	Keosauqua Independent	III
7	Douds-Leando Consolidated	III
7	Orient Consolidated	IV
7	Macksburg Consolidated	IV
7	Nevinville Consolidated	IV
7	Richland Consolidated	IV
7	Zion Consolidated	IV
8	Delmar Consolidated	II
8	Elwood Consolidated	II
8	Strawberry Point Independent	II
8	Lamont Independent	II
8	Arlington Independent	II
8	Olds Consolidated	III
8	Wayland Community	III
8	Crawfordsville Consolidated	III
8	Panora Consolidated	IV
8	Linden Consolidated	IV
10	Doliver Consolidated	II
10	Gruver Independent	II
10	Swan Lake Consolidated	II
10	Woodward Consolidated	IV
10	Granger Consolidated	IV
12	Lawton Community	I
12	Bronson Community	I