

TEACHER AUTONOMY AND CENTRALIZATION:  
PREDICTING SCHOOL EFFECTIVENESS

by

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## ABSTRACT

The question guiding this inquiry considered an anticipated relationship between teacher autonomy and centralization and their contribution to an explanation of school effectiveness. This study examined surveys from 109 public schools in North Alabama to see whether the variables of teacher autonomy and centralization of authority were predictors of school effectiveness while controlling for SES. Faculty members of the participating schools completed the survey instruments. All data were aggregated to the school level.

Teacher autonomy and centralization served as independent variables with school effectiveness serving as the dependent variable. Teacher autonomy was measured using the Teaching Autonomy Scale (TAS). Centralization was measured by the enabling school structure measure (ESS). School effectiveness was measured using the School Effectiveness Index (SE Index).

The prediction that autonomy and centralization would be related was not found. There was no relationship between autonomy and school effectiveness. Only centralization was related to effectiveness. That relationship between centralization and school effectiveness was a strong negative relationship.

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## CONTENTS

ABSTRACT .....	ii
ACKNOWLEDGMENTS .....	iii
LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
CHAPTER I: INTRODUCTION.....	1
Background of the Study .....	1
Purpose of the Study .....	3
Definition of the Concepts .....	3
Statement of the Research Problem/Research Questions .....	4
Scope and Limitations.....	5
Summary .....	5
CHAPTER II: REVIEW OF THE LITERATURE .....	7
Conceptual Framework.....	7
Teacher Autonomy.....	7
Centralization.....	18
School Effectiveness.....	25
Intervening Variables.....	28
Theoretical Framework.....	29
Rationale and Hypotheses.....	30
CHAPTER III: METHODOLOGY .....	32

Overview.....	32
Data Sample .....	32
Participants.....	32
Data Collection Procedures.....	32
Variables .....	34
Instrumentation .....	34
Teacher Autonomy.....	34
Centralization.....	35
School/Organizational Effectiveness .....	36
SES.....	36
Data Analysis Procedures .....	37
Conclusion .....	37
<b>CHAPTER IV: ANALYSIS OF DATA AND RESEARCH FINDINGS.....</b>	<b>38</b>
Descriptive Statistics.....	38
Correlation Analysis .....	39
Hypothesis Testing.....	40
Post Hoc Analysis .....	41
Conclusion .....	42
<b>CHAPTER V: FINDINGS, DISCUSSION, AND IMPLICATIONS .....</b>	<b>43</b>
Findings.....	43
Discussion of Findings.....	44
Theoretical Implications .....	44
Practical Implications.....	48

Future Research .....	50
REFERENCES .....	54
APPENDIX A TEACHING AUTONOMY SCALE .....	57
APPENDIX B ENABLING SCHOOL STRUCTURE MEASURE .....	60
APPENDIX C SCHOOL EFFECTIVENESS INDEX.....	62
APPENDIX D IRB APPROVAL .....	64

## LIST OF TABLES

Table 1	School Configuration from Data Sample.....	33
Table 2	Descriptive Statistics for Research Variables .....	39
Table 3	Alpha Coefficients of Reliability Using the School as Unit of Analysis.....	39
Table 4	Correlations (Pearson) Among the Four Variables.....	40
Table 5	Linear Regression of Effectiveness on Predicted Variable.....	40
Table 6	Correlation of Study Variable: High School Sample.....	41
Table 7	Linear Regression of Effectiveness on Predicted Variable: High School Sample .....	42

LIST OF FIGURES

Figure 1 Plot of two autonomy dimensions for each occupation .....46

CHAPTER I:  
INTRODUCTION

This study is an investigation of the concepts of teacher autonomy and centralization and how each variable relates to school effectiveness. This chapter offers a background for the study as well as the purpose for the research. Key concepts will be defined and the research problem outlined. Finally, the scope and limitations will be discussed and a summary presented.

**Background of the Study**

This study owes its inception to the inaugural issue of *Organization Science* in which Huber, Miller, and Glick (1990) created a variable they termed centralization-effectiveness. Huber et al. (1990) posited a theory in which centralization is used to predict effectiveness in organizations. A key component of the study was the role of professionalization on the centralization and effectiveness of organizations. Components of this theory may generalize to school organizations as well.

The effectiveness of our public schools has been the focus of numerous government reform movements. This began in 1958 with the National Defense Education Act (NDEA). The NDEA was followed by the Elementary and Secondary Education Act (ESEA) in 1965. In 2002, Congress authorized the No Child Left Behind Act (NCLB). The most recent legislation to tackle school effectiveness is the Every Student Succeeds Act (ESSA) 2015. The ESSA retains the standardized testing requirements required by NCLB but claims to limit the federal government's role regarding enforcement.

School reform movements have placed higher demands of accountability upon educators. These reform movements have tended to favor more control at the federal, state, and local level. This control from the top down would seem to favor more centralization in implementing reforms. This could be considered a move away from professionalism and autonomy of teachers. State mandated educational reforms have clearly had an effect upon instructional practices in public schools. What is not clear is the level of control teachers perceive to have in the face of recent reform movements and what effect this may have on school effectiveness.

This study focused on the two constructs of teacher autonomy and centralization of authority and how each affects school effectiveness. Centralization may be either hindering or enabling (Hoy 2003; Hoy & Sweetland 2001). Centralization can enable problem solving, cooperation, and collaboration. It can buffer teachers from outside pressures (Hoy, 2003; Hoy & Sweetland 2001). Centralization can also make it easier for administrations to enact reform models. This would seem to be why it has been favored as of late.

Centralization is not always positive. When professional work is controlled in a top-down fashion, teachers often resist (Hoy & Sweetland 2001). Teachers working in schools like this often feel that their professionalism is being challenged. This can result in dysfunction and less school effectiveness.

There is not a great deal of research on the concept of teacher autonomy. The literature that is out there has defined teacher autonomy in various ways, including freedom from external forces, teacher power, and control over classrooms and work (Charters 1976; Friedman 1999; Pearson 1993). I am focusing on teacher autonomy as a construct of the teacher's control over his/her work and environment. There is also a clear association between teacher autonomy and

teacher professionalization (Bidwell 1965; Forsyth & Danisiewicz 1985; Miskel, McDonald, & Bloom, 1983).

### **Purpose of the Study**

The primary purpose of this study is to fill in the gaps in the literature in order to present a clearer picture regarding the relationships between centralization, teacher autonomy, and school effectiveness. Teacher autonomy as a theoretical construct has an extremely limited amount of prior research. Miskel et al. (1983) support the idea that professionalism and school effectiveness are linked. This concept of teacher autonomy is closely associated with teacher professionalism and may also be linked to school effectiveness; however, the research supporting this link is sparse.

Another goal of this study is to discover the relationship between centralization and effectiveness. The research history is limited here as well. Huber et al. (1990) make the argument that professionalized organizations are more effective when decentralized. One would expect schools to be more effective when there is less centralization but there is a lack of research to back up this assertion.

Again, there is a gap in the literature regarding teacher autonomy and school effectiveness. Furthermore, this research is important and significant due to the fact that school administrators could use this knowledge to make informed decisions in their school regarding how much autonomy teachers enjoy in their classrooms and how closely decision making is kept to administration or shared with faculty.

### **Definition of the Concepts**

*Teacher autonomy*--the perception that teachers have regarding whether they control themselves and the work environment.” Pearson and Hall, (1993). Teacher autonomy was

measured by the Teaching Autonomy Scale (TAS). The TAS is an 18-item scaled designed to measure the perception teachers have of their own autonomy in the following areas: (a) selection of activities and materials, (b) classroom standards of conduct, (c) instructional planning and sequencing, and (d) personal on-the-job decision making. This is a 4-point Likert-type scale ranging from 1 (*definitely false*) to 4 (*definitely true*).

*Centralization*--the locus of control for organizational decision making (Hoy, 2003; Hoy & Sweetland 2001). Centralization was measured utilizing the enabling school structure measure (ESS form) created by Hoy and Sweetland (2001). The ESS is a 12-item Likert-type measure. Three items measure enabling centralization and three items measure hindering centralization.

*School/Organizational Effectiveness*--the ability of an organization to mobilize its centers of power for action--production and adaptation. Effective organizations are those that produce more and higher quality outputs and adapt effectively to environmental and internal problems than do other, similar organizations (Mott, 1972). School effectiveness was measured by the school effectiveness index (SE Index). The SE Index is a Likert-type scale used to measure school effectiveness (Hoy, 2009).

*SE*--Socioeconomic status (SES) was controlled for in this study. SES was measured using the proportion of students receiving a free and reduced lunch.

### **Statement of the Research Problem/Research Questions**

1. Does teacher autonomy contribute to an explanation of school effectiveness?
2. Does centralization of authority contribute to an explanation of school effectiveness?
3. Will teacher autonomy contribute more to an explanation of school effectiveness than centralization?

Based on these questions, the researcher developed the following hypotheses:

H<sub>1</sub>: Teacher autonomy will contribute to an explanation of school effectiveness.

H<sub>2</sub>: Centralization will contribute to an explanation of school effectiveness.

H<sub>3</sub>: Teacher autonomy will contribute more to an explanation of effectiveness than centralization.

### **Scope and Limitations**

This study was limited by its sample of schools. The data came from a convenience sample of 109 public schools in northern Alabama. A major limitation of the study is that the sampling of schools was not a stratified random sample. An attempt was made to sample schools with differing levels of socioeconomic status and size, as SES and size are important variables measured in this study. An assumption can be made that measurements of school effectiveness identified in northern Alabama will produce similar results in other parts of the region. However, one should still be cautious regarding the generalizability of data collected from northern Alabama to schools around the nation.

This study was limited as well by the type of data collected. The data collected consisted primarily of perceptual data. The teachers' perceptions of their schools were measured for this study. Another limitation of this study is the fact that the data were single role/intra-positional data. In other words, the data were collected only from teachers. Finally, this study was limited due to being a cross-sectional study and not longitudinal. This sample was a snapshot, which did not take into account change over time.

### **Summary**

It is very important for school leaders to have an understanding of variables that affect school effectiveness. This study proposed that there is a direct connection between the constructs

of teacher autonomy, centralization, and school effectiveness. Furthermore, I proposed that teacher autonomy will contribute more to an explanation of school effectiveness than centralization.

In conclusion, the results of this study may be used by school leaders to create a learning environment more beneficial for fostering school effectiveness. The following chapter will include a review of the literature designed to give the reader a better understanding of these variables.

## CHAPTER II: REVIEW OF THE LITERATURE

The purpose of this chapter is to provide a research history of teacher autonomy, centralization, and school effectiveness. This chapter will provide the conceptual development of these variables. A theoretical framework will be laid out and testable hypotheses proposed to examine the effect of teacher autonomy and centralization upon school effectiveness.

### **Conceptual Framework**

#### **Teacher Autonomy**

The concept of autonomy within organizations is somewhat ambiguous and has been defined in diverse ways. Hall (1969) defined autonomy as “the feeling that the practitioner ought to be allowed to make decisions without external pressures from clients, from others who are not members of his profession, or from his employing organization.” Forsyth and Danisiewicz (1985) use Hall’s definition in making their case for autonomy as an element of power that professionals wield.

Teacher autonomy has been conceptually defined in several ways. A review of the literature provides different perspectives regarding autonomy in the classroom. For Charters (1976), autonomy is defined as freedom from external forces. Pearson (1993) views teacher autonomy in terms of teachers having control over their work. Friedman (1999) sees autonomy as a means of encouraging and strengthening the power of teachers in the personal and professional sense, not just as a buffer against pressures exerted on the teacher. Mintzberg (1979)

and Miskel, Fevurly, and Stewart (1979) describe autonomy in terms of teachers as professionals working within the operating core. They control their classrooms and work relatively independently from their colleagues. In this context teacher isolation is an important concept related to autonomy.

Teacher autonomy is often associated with professionalism. Autonomy as a characteristic of professionals working in organizations is reflected in the literature. Bidwell (1965) makes note of this when he writes “an important facet of school-system organization is the autonomy granted to--or perhaps demanded by--the teacher as a professional to make discretionary judgments about procedures to be used during the time a student group is in his charge” (p. 975). Bidwell describes teaching as a profession and autonomy as a characteristic of professional work.

The concepts of teacher autonomy and professionalism are intertwined. Professionals engage in complex work that requires them to have some control over that work. “Control over his work means that the professional works relatively independently of his colleagues, but closely with the clients he serves” (Mintzberg, 1979, p. 349). In this respect, teachers could be considered much like other professionals as they strive to maintain control over their work and work most closely with clients.

Mintzberg (1979) describes schools as a professional bureaucracy. These professional bureaucracies rely on the skills and knowledge of their operating core in order to function. Teachers are the operating core in a professional bureaucracy. Teachers are specially trained and indoctrinated professionals who have control over their work (Mintzberg, 1979). The teacher has specialized skills and is given the autonomy to work with clients in the complex environment that is today’s schools.

This control over one's work is the primary component in teacher autonomy. Bidwell (1965), writing about teacher autonomy and structural looseness of school systems, states the following:

Control over his own work means that the professional works relatively independently of his colleagues, but closely with the clients he serves. For example, "Teacher autonomy is reflected in the structure of school systems, resulting in what may be called their structural looseness. The teacher works alone within the classroom, relatively hidden from colleagues and superiors, so that he has a broad discretionary jurisdiction within the boundaries of the classroom." (Bidwell, 1965, pp. 975-976)

Miskel et al. (1983) found support for Mintzberg's model and his contention that teachers are professionals working within a professional bureaucracy. They studied the variable of teacher isolation, which they define as "the number of hours teachers spend in school working independently of other adults" (p. 53). Miskel et al. (1983) found that as teacher isolation increases, so do the values of effectiveness criteria ( $r = .25$ ,  $\beta = .35$ ,  $F = 20.5$ ). They also found that the variable of communication among teachers "did not make a significant and unique contribution to any of the equations" (Miskel et al., 1983, p. 76).

Several researchers have connected autonomy to professionalism. Forsyth and Danisiewicz (1985) proposed a model of professionalization in which there are two types of autonomy employed by individual practitioners: autonomy from client and autonomy from organization. This model proposes that true professions have autonomy from client as well as autonomy from the employing organizations. Forsyth and Danisiewicz (1985) tested this model using a Likert-type scale that measured the attitudinal autonomy of college students going into eight professions. These professions included prestigious professions such as medicine and law,

Etzioni's (1969) semi-professions, and engineering and business administration. Etzioni (1969) labeled education a semi-profession, along with nursing, social work, and librarianship.

The results of this study found that education students were more client autonomous and less organization autonomous (Forsyth & Danisiewicz, 1985). For this reason, Forsyth and Danisiewicz (1985) label education as a semi-profession. Although this study measured the attitudes of college student regarding their perceived professions, it did not measure the autonomy of teachers working in the profession. It does potentially tell us what college students perceive about their future autonomy. The perception seems to be that teachers are autonomous from their clients (students) but not autonomous from the organization (administration).

Meyer and Rowan (1977) made the argument that credentialing and certification of teachers provides the ceremonial basis for what they term a logic of confidence. This logic of confidence allows for teachers to not be closely monitored by the organization. The logic of confidence also protects teachers somewhat from outside interference. Meyer and Rowan's (1977) concept of logic of confidence provides support for teacher autonomy.

Herriott and Firestone (1984) go on to write about Meyer and Rowan's (1977) "logic of confidence," which is described as a "taken-for-granted, good faith assumption that others are, in fact, carrying on their specified activities" (p. 45). This confidence is not based on an inspection of activities, but on the knowledge that the person or activity in question is properly certified or accredited. The certification process itself takes on sacred properties and is not questioned. As long as the logic of confidence applies, a person can do his or her work with the knowledge that others will not interfere. As a result, the school's work gets done (Herriott & Firestone).

The power to be autonomous in the classroom may stem from a combination of isolation and the logic of confidence. Teachers working in a school that more closely resembles a loosely

coupled system find themselves more isolated from administrators and other teachers. They have the freedom to make choices regarding how they wish to instruct their students. This autonomy remains as long as there is confidence the teacher is making good decisions. Teacher certification is the initial attribute endowing a teacher with confidence.

Friedman (1999) defined teacher autonomy in terms of power. He conceptually defined autonomy as “a means of encouraging and strengthening the power of teachers in the personal or professional sense, not just as a buffer against pressures exerted on the teacher.” Friedman (1999) conceptualized teacher autonomy as occurring on two distinct axes: the decision-level axis (principle or routine) and the decision-content axis (pedagogical or organizational). Friedman went on to create the Teacher Work Autonomy Scale (TWA) in an attempt to operationalize teacher autonomy.

One aspect of teachers utilizing autonomy in the classroom is their power to create instructional groups. Barr and Dreeben (1983) describe teachers creating instructional groups as an important piece of the pie when looking at the levels of a school organization. Teachers do not control which students attend which school. They do not control which students are assigned to their class. However, once those students are assigned to their class, teachers make important decisions that will affect those students based on which groups they are assigned to.

When describing this decisional process Barr and Dreeben(1983) write:

In effect, teachers responded to the aptitude composition of their classes initially by creating different kinds of new social arrangements (instructional groups) and then, over the course of the year, by rearranging the pattern of groups depending on the workability of the initial plan: whether the groups were the right size and--we think--the right

composition. These processes of group formation and change we consider to be productive activities. (p. 155)

The importance of this activity should not be ignored. Basically, teachers create their own levels of schooling in their classroom based on criteria they create and evaluate themselves.

Concepts closely related to teacher autonomy are teacher empowerment and teacher participation. Bacharach, Bamberger, Conley, and Bauer (1990) define empowerment in regard to two domains: organizational and classroom. This concept of teacher empowerment is linked to teacher participation in decision making in the classroom and the organization. The extent to which these decisions are important has more to do with the perceived importance of these decisions rather than the amount of these decisions (Bacharach et al., 1990).

Teachers often understand challenges and work processes better than administrators, so their participation in decision making means that better information is available to facilitate better teaching (Bacharach et al., 1990). Teacher participation can also enhance trust in the organization (Sweetland & Hoy, 2000). Sweetland and Hoy (2000) found when teachers are empowered to participate in decision making schools are more effective. This relationship holds even when controlling for SES.

Not only has teacher autonomy been defined in diverse ways but several different instruments have been created to measure it. Charters (1976) created the Sense of Teacher Work Autonomy Scale (SAS). The SAS measure the teacher's beliefs regarding freedom from external interference, pressure, or control. External constraints are perceived interferences coming from outside the classroom. Wilson (1993) created the Self-Empowerment Index (SEI). The SEI measures the individual's perceived personal internal power. The SEI is actually a measure of self-empowerment, and for this reason its validity as a measure of autonomy is a concern.

Friedman (1999) created the Teacher Work Autonomy Scale (TWA). The TWA measures the generation of teacher power. Teachers who work independently and are free to initiate new activities are considered to have autonomy. Friedman (1999) described teacher autonomy as those who are “free to change existing work procedures in an effort to adapt them to changing conditions” (p. 60).

Teacher autonomy is conceptually defined by Pearson and Hall (1993) as “the perception that teachers have regarding whether they control themselves and the work environment.” Pearson and Hall, (1993) operationalized their conception of teacher autonomy with the Teaching Autonomy Scale (TAS). Pearson and Hall (1993) wanted to create a survey instrument that accurately measured teacher perceived autonomy, so they used the 35-item Teaching Environment Scale designed by Hall (1988). They chose the Teaching Environment Scale because the items measure the degree of perceived autonomy in the following areas: selection of activities and materials, classroom standards or conduct, instructional planning and sequencing, and on-the-job-decision making. Pearson and Hall (1993) narrowed this instrument down to a 20-item scale that had an internal consistency coefficient of .91 and renamed this instrument the Teaching Autonomy Scale (TAS).

Pearson and Hall (1993) used a 35-item survey in study one. These 35 items were pared down to 20 items with the highest item-total correlations. The refined instrument with 20 items was utilized for study two. Reliability of the instrument was determined using Cronbach alpha internal consistency. Two of the items were deleted because of poor item-total correlations. Factor analysis was used to determine the construct validity of the TAS. To determine the reliability and validity of the TAS, Pearson and Hall (1993) administered the instrument to 270 teachers in a Florida public school. After analyzing the data, Pearson and Hall (1993) determined

that perceived teacher autonomy was not a single trait but consisted of two dimensions: general teaching autonomy and curriculum autonomy. The dimension of general teaching autonomy referred to classroom standards of conduct and on-the-job discretion. Curriculum autonomy referred to material selection, instructional planning, and sequencing.

Pearson and Moomaw (2005) used the TAS to examine the relationship between perceived teacher autonomy and on-the-job-stress, work satisfaction, empowerment, and professionalism. This study examines the relationship between teacher autonomy and on-the-job-stress, work satisfaction, empowerment, and professionalism. Pearson and Moomaw (2005) theorized that autonomy was related to job satisfaction and stress for teachers. They also theorized that teacher autonomy is one dimension of teacher empowerment as well as a necessary antecedent for professionalism.

Teacher autonomy was conceptually defined as “the perception that teachers have regarding whether they control themselves and the work environment” (Pearson & Hall, 1993). Teacher autonomy was operationally defined by the Teaching Autonomy Scale (TAS). The TAS is an 18-item scale designed to measure the perception teachers have of their own autonomy in the following areas: (a) selection of activities and materials, (b) classroom standards of conduct, (c) instructional planning and sequencing, and (d) personal on-the-job decision making. This is a 4-point Likert-type scale ranging from 1 (*definitely false*) to 4 (*definitely true*).

Teacher stress was conceptually defined as referring to “the experience by teachers of unpleasant emotions such as anger, tension, frustration, anxiety, depression, and nervousness” (Kyriacou 1989). Teacher stress was operationally defined by three items from the instrument that inquired into teachers’ perceptions of their current instructional load, paperwork load, and the stress of the work environment (Pearson & Moomaw 2005).

Job satisfaction was conceptually defined as how content an individual is with the nature of their work and conditions. Job satisfaction was operationally defined by two items that inquired into teachers' perception of their current salary and employment (Pearson & Moomaw 2005).

Pearson and Moomaw (2005) conceptually defined empowerment as the teachers' perceptions of their influence on a variety of classroom and school wide issues. Empowerment was operationally defined by three items on the instrument that inquired into teachers' perceptions of the administration in considering their opinions on matters that directly affect them, involving them in the development of school policies that affect their work, and how often their concerns were taken into account in administrative decisions (Pearson & Moomaw 2005).

Teacher professionalism was conceptually defined by Pearson and Moomaw (2005) as the movement to upgrade the status, training, and working conditions of teachers. It is operationally defined by three items that inquired into teachers' perceptions of recognition for high performance, openness, and accessibility of the administration, and activity on school-level committees (Pearson & Moomaw 2005).

Pearson and Moomaw (2005) hypothesized that "autonomous teachers would demonstrate less on-the job stress, greater work satisfaction, perceived empowerment, and a high degree of professionalism." They examined these relationships using the Pearson product-moment correlation coefficient. All of the correlations between variables were significant ( $p < .05$ ). As curriculum autonomy increased, on-the-job stress decreased. As general teaching autonomy increased so did empowerment and professionalism. Pearson and Moomaw found the strongest relationship between perceived empowerment and professionalism.

Pearson and Moomaw (2005) hypothesized that “autonomous teachers would demonstrate less on-the-job stress, greater work satisfaction, perceived empowerment, and a high degree of professionalism.” Pearson and Moomaw (2005) used the TAS to collect data from 171 teachers in public schools in Florida. They examined these relationships using the Pearson product-moment correlation coefficient. All of the correlations between variables were significant ( $p < .05$ ). As curriculum autonomy increased, on-the-job stress decreased. As general teaching autonomy increased so did empowerment and professionalism. Pearson and Moomaw (2005) found the strongest relationship between perceived empowerment and professionalism.

The findings of the Pearson and Moomaw (2005) study were significant. Pearson and Moomaw (2005) concluded that teacher autonomy should be promoted by administrators. They found that perceptions of general teaching autonomy were linked with the need for teachers to control their work environments and have on-the-job decision making authority. Pearson and Moomaw (2005) suggested that perceptions of curriculum autonomy were consistent with the need for teachers to have decision making authority regarding learning exercises, materials, and instructional planning.

Pearson and Moomaw (2006) further validated and continued to refine the TAS measure of autonomy so that it may be used by researchers. Pearson and Moomaw (2006) analyzed the data using confirmatory factor analysis (CFA). The TAS was divided into two groups of items-- curriculum autonomy and general teaching autonomy. Curriculum autonomy was conceptually defined as the ability of a teacher to choose what she or he teaches as well as the skills and objectives and materials used. Curriculum autonomy was operationally defined by the items on the TAS that related to teaching guidelines, goals and objectives, what I teach, material selection, and content and skills (Pearson and Moomaw 2006).

Pearson and Moomaw (2006) conceptually defined general teaching autonomy as how a teacher chooses to teach the curriculum and structure the class time. This was operationally defined by the items on the TAS that related to creative approach, student learning, behavior standards, discretion, class time and scheduling, alternative procedures, own guidelines, limited latitude, space control, evaluation and assessment, teaching methods, and time scheduling (Pearson & Moomaw 2006).

Internal consistency reliability was estimated to be  $\alpha = .83$ . The reliability of the curriculum autonomy and general teaching autonomy subscales was found to be  $\alpha = .80$  for both. The correlation between the subscales was  $r = .49$ . This study confirmed the TAS as a valid measurement of teacher autonomy. “The items are also logically consistent with the literature; researchers therefore might use it in future studies of the autonomy construct” (Pearson & Moomaw 2006).

Teacher autonomy has been found to be closely related to job satisfaction (Kim & Loadman 1994; Pearson 1995). Kim and Loadman (1994) found autonomy to be one the intrinsic variables linked to job satisfaction. Pearson (1995) found that teachers with high perceived autonomy were more satisfied with their profession. Furthermore, Pearson (1995) found that teachers with a higher perception of their autonomy had a higher regard for their students. Teachers also named a lack of autonomy as one of the primary reasons for leaving the profession.

Teacher autonomy is an important variable and warrants further study. It is closely associated with professionalism. Teachers who feel that they have autonomy in the practice of their profession have higher job satisfaction and a higher regard for their students. Teacher autonomy clearly affects teaching and learning.

## **Centralization**

Centralization is a characteristic of structure. It is the locus of control for organizational decision making (Hoy, 2003). Hoy and Sweetland (2001) describe centralization in terms of the degree to which employees make decisions in the organization. High centralization means administration holds most of the power to make decisions while low centralization indicates the power to make decisions is shared in the organizations (Hoy 2003; Hoy & Sweetland 2001).

Centralization may also be either hindering or enabling (Hoy 2003; Hoy & Sweetland 2001). Too much centralization in an organization can be coercive (Hoy & Sweetland, 2001). Top down control in schools can obstruct innovation. This type of an organization gets in the way of teachers working as professionals to solve problems and/or innovate in their own classroom. According to Hoy and Sweetland (2001), hierarchies often respond to outside pressure in dysfunctional ways such as autocratic supervision, over standardizing work processes, and standardizing work outputs. Hoy and Sweetland (2001) give us five characteristics of hindering centralization: frustrates problem solving, promotes control, autocratic, rigid, discourages change, and disciplines subordinates. The workers themselves do not appreciate this type of control over the work. “Participants usually react negatively to unilateral attempts to control them because it is a violation of the norm of egalitarianism that is so pervasive in American society” (Hoy, 2003; Hoy & Sweetland 2001).

Yet, centralization may also be enabling. Centralization can buffer teachers from outside pressures and allow for structures that facilitate teaching and learning (Hoy 2003; Hoy & Sweetland 2001). Hoy and Sweetland (2001) list the following five characteristics of enabling centralization: facilitates problem solving, enables cooperation, collaborative, flexible,

encourages innovation, and protects participation. Enabling centralization can help teachers solve problems rather than acting as an obstruction to their work (Hoy & Sweetland 2001).

Hage and Aiken (1967) define centralization in terms of the distribution of power in an organization. In an attempt to measure centralization, Hage and Aiken (1967) pointed to two aspects that make up the centralization of an organization. The first indicator is participation in decision making. This measure represents how much workers in different positions participate in decisions regarding allocation of resources and determination of organizational policies.

The second indicator proposed by Hage and Aiken (1967) was a measure of the power to make work decisions, which they called hierarchy of authority. The term hierarchy of authority refers to work decisions associated with each social position. In creating an instrument to measure centralization, Hage and Aiken (1967) explored the relationship between centralization and two other structural variables, formalization and degree of complexity. Hage and Aiken (1967) found participation in decision making to be a better predictor of structural properties than hierarchy of authority.

The measure of centralization created by Hage and Aiken (1967) consists of two indexes. The first index consists of four items that measure participation of decision making. Examples of items in this index include the following: “How frequently do you participate in the decisions on the adoption of new policies?” and “How frequently do you participate in the adoption of new programs?” Respondents were asked to rate each item from 1 (*never*) to 5 (*always*). The second index was labeled the index of hierarchy of authority. This index consists of five items such as the following: “There can be little action here until a supervisor approves a decision,” and “Even small matters have to be referred to someone higher up for a final answer.” Responses on this index range from 1 (*definitely false*) to 4 (*definitely true*) (Hage & Aiken, 1967, pp. 78-79).

Huber et al. (1990) define centralization as “the nearness of decision making authority to the topmost level of the organization’s hierarchy.” Huber et al. (1990) were interested in the relationship between centralization and the contingency variables of environmental turbulence, organizational size, efficiency, professionalization, and industrial sector. Of particular interest to the construct of autonomy is the relationship between centralization of decision making and the professionalization of the organization.

Huber et al. (1990) make the argument that professionalized organizations are decentralized for two reasons. First, professionals are more likely to demand decision-making authority rather than nonprofessionals. Without the autonomy to make decisions, professionals and the organization may find themselves in conflict. Second, Huber et al. (1990) argue that socialization among professionals pressures them to maintain high performance standards. One may use the example of the lawyer working within a law firm to illustrate these two lines of reasoning. Lawyers are socialized from law school to their practice to always maintain the highest standards possible. They also demand the authority to make decisions because they are the ones with the expertise.

Huber et al. (1990) also point out that nonprofessionals may find hindrances to maintain high standards in their organizations. Socialization by unions and Theory X management (McGregor 1960) is specifically mentioned as influences that may result in lessened effectiveness. Socialization by union members could be a factor that would prevent some workers from maintaining high standards and/or high production.

This led to Huber et al. (1990) to make the following hypothesis:

H<sub>4</sub>: Centralization is more positively related to effectiveness in nonprofessionalized organizations than in professionalized organizations.

Based upon this hypothesis, Huber et al. (1990) expected to find a negative relationship between centralization and professionalization. Instead they found a positive correlation. The mean correlation for the three cases involving professional organizations was 0.18 while the mean correlation for the 35 cases involving nonprofessional organizations was -0.21.

The question one may ask here is why this hypothesis was not supported by the data. First there were only three cases from two studies involving professionalized organizations. Huber et al. (1990) posit the professionalization variable may have been confounded with “unmeasured features of these two studies.” This confounding may have limited the generalizability of this test of the hypothesis.

Secondly, Huber et al. (1990) suggest that their initial reasoning for their hypothesis was too simplistic. There were only three samples of professional personnel in this study and each of those three dealt with the transformation of human life. The example given was a drug abuse treatment facility. Huber et al. (1990) propose that these types of professionals make decisions which could have large negative consequences. Organizations such as drug abuse facilities may find themselves dealing with litigation, external regulation, and professionals acting in ways functional for their profession but dysfunctional for the organization. Huber et al. (1990) suggest these factors may limit these types of organizations from delegating autonomy.

An argument can be made that a larger sample of professionals working in a variety of organizations is needed to fully explore this hypothesis. Furthermore, it may be necessary to split those professional organizations by type. Many professional organizations may allow for more autonomy due to the type of decisions made by the professional. Organizations that do not deal with life and death decisions on a daily basis may allow for more autonomy in regard to decision making from their professional personnel.

When the organization favors less centralization and more autonomy, it can be described as a loosely coupled system. Herriott and Firestone (1984) described two images of schools: the rational bureaucracy and the anarchy or loosely coupled system. Herriott and Firestone (1984) found that schools in the cluster that most closely resembled rational bureaucracies exhibited high levels of both goal consensus and centralization of influence (p. 51). They found that elementary schools tend to conform to the image of the rational bureaucracy while secondary schools are more representative of the loosely coupled system.

On loosely coupled systems, Herriot and Firestone (1984) write, “interdependence is minimized, and individuals work in solitary settings in which they are free to make important decisions guiding their work on their own” (p. 45). Teachers in high schools find themselves working in relative isolation from their peers and administrators. This isolation provides them with an environment in which they have autonomy with regard to instruction.

The concept of loosely coupled versus tightly coupled is an important one for school administrators to be aware. Herriott and Firestone (1984) note that “there is evidence that it is easier to implement change programs in schools where couplings are relatively tight” (p. 51). This points to the possibility that academic reforms are easier to implement in elementary schools rather than high schools. High school teachers may be afforded more isolation and confidence in their ability to instruct students. In other words, they have more autonomy.

According to Bidwell (1965), there are two forces at work, one pressing for more professionalism and one pressing for more centralization. Bidwell (1965) describes the nature of the teaching task as calling for more professionalism and more structural looseness. Bidwell (1965) also notes that the “demands for uniformity of product” and the “long timespan over which cohorts of students are trained” call for a more bureaucratic organization or more

centralization. These forces are at play in the organization of each school. Although professionalism and autonomy are not the same concept, they are related. Professionalism is one of the conditions which allow for more autonomy in an organization (Huber et al., 1990)

Centralization and autonomy are not two sides of the same coin. There are some important distinctions between the two variables. Centralization refers to the location in the organization where decisions are made. The closer to the top of the hierarchy, the more centralization. Teacher autonomy is a broader concept. Autonomy includes a teacher's perception regarding his or her decision making ability. Teacher autonomy also encompasses a teacher's perception of his or her power to select activities and materials, ability to set standards, maintain discipline, and plan and sequence instruction (Pearson & Hall, 1993). Autonomy is the perception teachers have of their professional freedom to maintain control of their work environment. Autonomy may include a teacher's desire for isolation (Bidwell, 1965; Miskel 1983). Some teachers are allowed the professionalism to work autonomously in the classrooms.

Conway (1976) studied the assumption that there is a relationship between participation in decision making and organizational effectiveness. He found that teachers may find themselves in one of three states: "decisionally deprived" if participating in fewer decisions as desired, "decisional equilibrium" if participating in as many decisions as desired, and "decisionally saturated" if participating in more decisions than desired (Conway. 1976). Not every teacher wants to make all of the decisions or the same kinds of decisions. Effective schools match the desire of the teacher with opportunities to realize those desires (Conway. 1976). Forced participation in decision making is not autonomy. This leads to an explanation of the difference between the variables of centralization and autonomy. Centralization is the location in the structure of the organization decisions are made. Autonomy is the freedom to make a variety of

decisions. This autonomy may be different for different teachers working in a school who have the professional freedom to make such choices.

Is there a contradiction between professional autonomy and centralization? Can one have an organization that is both bureaucratic and professional? It turns out that you can. Henry Mintzberg (1983) describes schools as similar to hospitals and legal firms as they combine forms of centralization and formalization. However, Mintzberg (1983) also argues that schools are dysfunctional professional bureaucracies because the bureaucratic pressure from administration works against professional discretion:

Specifically, faced with having to accomplish complex work, the organization must engage people who have been highly trained to do it. In other words, it must hire “experts” or “professionals.” In essence, a professional is someone whom the capacity to carry out some complex, specialized work has been internalized through extensive training. His specific activities are guided by technocratic rules; rather, all of his tasks are guided by internalized procedures, or “programs,” accompanied by a body of specialized knowledge, learned before he took his first job and subsequently applied in his professional work. (p. 164)

Mintzberg (1983) describes schools as dysfunctional hybrids. These dysfunctional hybrids are dependent on a single external influencer for support, i.e. government. This may encourage the influencer to “exercise close control” which can result in more than usual centralization and formalization (Mintzberg 1983, p. 457). This is that conflict between bureaucratic pressure and professional discretion mentioned earlier.

Schools are also not professional bureaucracies in the same sense as legal firms and hospitals even though they share important attributes. Schools differ in that they have an order

problem arising out of the compulsion of students to go to school as well as the compulsion of schools to accept all comers. In this sense, schools are more akin to prisons and mental institutions. In Hoy's (2001) Pupil Control studies he found that "school bureaucracies need not be custodial structures." Hoy (2001) also remarked, "As teachers continue to become more professional and expert in their teaching, administrators need to become more flexible, cooperative, and enabling in both their leadership and in development of rules and procedures that guide school activities."

### **School Effectiveness**

Organizational effectiveness has been a difficult concept to define and measure. There does not appear to be a consensus in the literature regarding how to define organizational effectiveness nor how to measure it. A review of the literature provides evidence that school effectiveness has traditionally been defined in terms of goal attainment (Hoy & Ferguson 1985; Hoy & Miskel 2008). However, the goal model of school effectiveness can be problematic. Organizations often have multiple goals that are many times inconsistent, incompatible, and overlooked (Hoy & Ferguson 1985).

Schools are organizations whose goals tend to change over time and many times the focus is on administrator's goals rather than those set by clients or the public (Hoy & Ferguson 1985). Hoy and Ferguson (1985) also pointed out that official goals are often not the operative goals and analyzing their operation can be difficult and misdirected. Many organizations like schools do not produce products that are easily measurable. School effectiveness is a complex concept and measuring it only in terms of performance outcomes is insufficient (Hoy & Miskel 2008).

In contrast to the goals model, the systems model has been used to evaluate the effectiveness of organizations. The systems model rejects the idea that specific goals can be identified with demands being put onto organizations so dynamic and numerous. The systems model is concerned with the organization's ability to compete, survive, grow, and secure resources (Hoy & Ferguson 1985). Hoy and Ferguson (1985) had the following to say about utilizing a systems model to measure organizational effectiveness:

Thus, to evaluate the effectiveness of an organization, it is necessary to determine the internal consistency of the organization, the efficiency of use of its resources, the success of its coping mechanisms, and its ability to compete with others for resources, especially scarce ones. (p. 120)

The systems model has primarily been used by researchers who view organizations as open systems. Schools are now viewed by most scholars as representative of open systems (Hoy & Ferguson 1985). Hoy and Ferguson (1985) go on to define organizational effectiveness "as the extent to which any organization as a social system, given resources and means, fulfills its objectives without incapacitating its means and resources and without placing undue strain upon its members (p. 121).

Hoy and Ferguson (1985) utilize the following four criteria from Parsons (1960) to conceptualize organizational effectiveness: adaptation, goal attainment, integration, and latency (AGIL). The Parsonian framework for conceptualizing organizational effectiveness is as follows:

- (1) Adaptation--organizational adaptation in the form of successful accommodation to internal and external forces,
- (2) Goal Attainment--organizational productivity in terms of the extent to which the organization is successful in setting and accomplishing its internal goals,

- (3) Integration--organizational cohesiveness in the form of the absence of intra-organizational conflict,
- (4) Latency--organizational commitment in the form of members' motivation and commitment to the organization.

There is a comparison that can be made between the Parsons' (1960) AGIL model of effectiveness and Huber et al.'s (1990) two definitions of effectiveness. Huber et al. (1990) used the two subconstructs productivity and efficiency to measure organizational effectiveness. For Huber et al. (1990), productivity refers to effectiveness measured in "nonratio terms" or "output." There is a clear correlation between this definition of productivity and Parsons' (1960) definition of goal attainment. Huber et al.'s (1990) subconstruct of efficiency is defined as effectiveness measured in ratio terms or "output divided by input." This concept could be compared to the Parsonian framework's concepts of integration and latency.

Hoy and Ferguson (1985) measured the four dimensions of organizational effectiveness and compared the results to the Index of Perceived Effectiveness (IPOE). Hoy and Ferguson (1985) found a strong correlation between the measures of effectiveness corresponding to the Parsonian model and the simple test of effectiveness that is the IPOE. "The fact that the Mott index was so strongly related to the other measures of effectiveness raises the question as to whether this short, subjective index of effectiveness might be a reasonable index of school effectiveness in subsequent research" (Hoy & Ferguson 1985, p. 130).

Mott (1972) measured organizational effectiveness for organizations by creating a framework to have members of the organization judge the efficiency, flexibility, adaptability, and innovation of their organization. Mott (1972) went on to define effective organizations in the following way:

We define organizational effectiveness as the ability of an organization to mobilize its centers of power for action--production and adaptation. Effective organizations are those that produce more and higher quality outputs and adapt effectively to environmental and internal problems than do other, similar organizations. (p. 17)

Mott (1972) created the Index of Organizational Effectiveness (IOE) to measure the three dimensions of productivity, adaptability, and flexibility in organizations. Mott's organizational research was primarily centered around the fields of medicine and science. Miskel et al. (1979) adapted Mott's research to fit school organizations.

Perceived organizational effectiveness is the "evaluation of a school's productivity, adaptability, and flexibility" (Miskel et al., 1983, p. 55). Effective schools produce outcomes in greater quantity and of better quality, are more flexible, and able to adapt in the face of the ever changing needs of students and society (Miskel et al., 1983, p. 55).

Miskel et al. (1979) adapted Mott's index to create the index of perceived organizational effectiveness (IPOE). The IPOE is a Likert-type scale used to measure school effectiveness (Miskel et al., 1979). It consists of 8 items such as "Of the various things produced by the people you know in your school, how much are they producing?" and "How informed are the people in your school about innovations that could affect the way they do their job?"

### **Intervening Variables**

There is a possible intervening variable to consider for this study. Socioeconomic status (SES) must be taken into account as it may have an effect upon centralization, autonomy, and effectiveness. Socioeconomic status (SES) has been found to be a powerful shaper of student performance (Coleman et al., 1966; Jencks, 1972). Coleman et al. (1966) and Jenks (1972) found that SES overwhelms the association between school properties and achievement. However,

there are school properties that have been found to predict school achievement regardless of SES. Hoy, Tarter, and Woolfolk-Hoy (2006) found that the three properties of academic emphasis, collective efficacy, and faculty trust form a construct known as academic optimism, which has been demonstrated to be positively related to student achievement after controlling for SES. Taking this into account, it seems necessary to control for the variable of SES.

### **Theoretical Framework**

The theory of this research is that teacher autonomy will contribute more to an explanation of school effectiveness than centralization. A review of the literature indicates a relationship between centralization and organizational effectiveness. Autonomy appears to be related to organizational effectiveness as well. The question at the heart of this study is which variable contributes more. Because autonomy is closely associated with professionalized organizations and professional organizations have been shown to be closely linked with organizational effectiveness, the implication is that autonomy will be a strong predictor of organizational effectiveness.

Centralization has been shown to contribute to goal consensus and centralization of influence, which can contribute to organizational effectiveness. However, centralization may also be associated with hindering structure and decreased morale, which would result in decreased organizational effectiveness.

Potential intervening variables must be considered in this study. The variable of SES could play a role in the effects of either centralization or autonomy upon effectiveness.

## **Rationale and Hypotheses**

This study explored the relationships between teacher autonomy, centralization of authority, and their effect upon school effectiveness. The hypotheses for this study are as follows:

H<sub>1</sub>: Teacher autonomy will contribute to an explanation of school effectiveness.

The literature suggests a relationship between the variables of teacher autonomy and school effectiveness. Teacher autonomy has been found to be linked to professionalism (Pearson & Moomaw 2005). According to Huber et al. (1990), professionals that are denied autonomy reduce organizational effectiveness.

Miskel et al. (1983) found teacher isolation to be a significant predictor of organizational effectiveness ( $r = .25$ ,  $\beta = .35$ ,  $F = 20.5$ ). It can be argued that teacher isolation is one of the components of teacher autonomy.

H<sub>2</sub>: Centralization will contribute to an explanation of school effectiveness.

The literature found a correlation between centralization and organizational effectiveness. Huber et al. (1990) found that centralization contributed to organizational effectiveness in professionalized organizations.

H<sub>3</sub>: Teacher autonomy will contribute more to an explanation of effectiveness than centralization.

Pearson and Moomaw (2005) found a link between autonomy and professionalism. There is an expectation that professionalism and teacher autonomy will have a great influence upon school effectiveness. Therefore, I predicted autonomy to contribute more toward an explanation of effectiveness than centralization.

Based on these assumptions, the following hypotheses were tested in this study:

H<sub>1</sub>: Teacher autonomy will contribute to an explanation of school effectiveness.

H<sub>2</sub>: Centralization will contribute to an explanation of school effectiveness.

H<sub>3</sub>: Teacher autonomy will contribute more to an explanation of effectiveness than centralization.

CHAPTER III:  
METHODOLOGY

**Overview**

This chapter will briefly describe the research problem, data collection procedures, variables, operational measures, and data analysis procedures.

**Data Sample**

The population sample in this study came from 109 public schools consisting of different grade configurations to include elementary, middle, and high schools. Table 1 outlines the different grade configurations sampled for this study. These schools were all located in North Alabama. The school sample was determined based upon proximity and the willingness of the schools to participate. It is not a random sample. However, an attempt was made to sample diverse schools from multiple districts that vary in socioeconomic status as evidenced by their free and reduced lunch percentages.

**Participants**

Data were collected from teachers at each school. Each respondent was guaranteed anonymity, confidentiality, and the option to refuse participation. Also, respondents were advised that they could skip any question or discontinue participation at any time.

**Data Collection Procedures**

This inquiry was carried out using a non-experimental quantitative survey design that measured the relationship between autonomy, centralization, and effectiveness. The surveys were administered at regularly scheduled faculty meetings.

Following IRB approval, data collection began after permission had been received from principals, and superintendents, when necessary. The surveys included an explanation of the study, a consent form, and instructions for completing the surveys. Participants were instructed to read the consent indicator prior to completing the surveys. They were asked not to give identifying information. Participants were assured that the data will be held confidential and no school or person will be identified. For variables in which data were collected from The Alabama State Department of Education (ALSDE), data were collected from the ALSDE website. Strict IRB protocols were observed.

Table 1

*School Configuration from Data Sample*

School Level Configuration	Number
K	1
K-1	1
K-2	5
K-3	3
K-4	9
K-5	18
K-6	8
K-12	2
1-2	2
2-3	1
3-5	5
3-6	1
4-5	2
4-6	1
5-6	2
6-12	6
6-8	10
7-12	7
7-8	5
9	2
9-12	17
10-12	1

## **Variables**

The independent variables were teacher autonomy, centralization, and socioeconomic status (SES). The dependent variable is school effectiveness. SES was a control variable for this study. SES was measured for this study using the proxy variable of free and reduced lunch. ALSDE data were utilized to determine the proportion of students at each school receiving free or reduced lunch. The greater the proportion of students receiving free and reduced lunch, the lower the socioeconomic status.

## **Instrumentation**

Three instruments were used to collect data for this study. Quantitative data were collected using the following: (a) the Teaching Autonomy Scale (Pearson & Hall, 1993), (b) the Enabling School Structure Measure (Hoy & Sweetland 2001), and (c) the School Effectiveness Index (Hoy, 2009). Data were also collected for each school to include the proportion of students receiving a free and reduced lunch and the most recent student enrollment.

### **Teacher Autonomy**

Teacher Autonomy was measured using the Teaching Autonomy Scale (TAS). Teacher autonomy is the perception that teachers have regarding whether they control themselves and the work environment” (Pearson & Hall, 1993). The TAS is a 4-point Likert-type scale ranging from 1 (*definitely false*) to 4 (*definitely true*). The TAS consists of 18 items designed to measure the perception teachers have of their own autonomy in the following areas: (a) selection of activities and materials, (b) classroom standards of conduct, (c) instructional planning and sequencing, and (d) personal on-the-job decision making. Examples of the TAS items include the following: “I am free to be creative in my teaching approach,” “Standards of behavior in my classroom are set primarily by myself,” and “I have little say over the scheduling of use of time in my classroom.”

Pearson and Moomaw (2006) found the TAS to be both reliable and valid. Internal consistency reliability was estimated to be  $\alpha = .83$ . The reliability of the curriculum autonomy and general teaching autonomy subscales was found to be  $\alpha = .80$  for both. The correlation between the subscales was  $r = .49$ . This study confirmed the TAS as a valid measurement of teacher autonomy. “The items are also logically consistent with the literature; researchers therefore might use it in future studies of the autonomy construct” (Pearson & Moomaw 2006). A copy of the instrument is found in Appendix A.

### **Centralization**

Centralization was measured utilizing the enabling school structure measure (ESS form) created by Hoy and Sweetland (2001). Centralization is the locus of control for organizational decision making (Hoy, 2003; Hoy & Sweetland 2001). The ESS is a 12-item Likert-type scale. The reliability of the scale is .90 or higher (Hoy & Sweetland, 2001). The construct and predictive validity have been supported as well (Hoy & Sweetland, 2001). Items on the scale measuring enabling centralization are as follows: “The administrative hierarchy of this school enables teachers to do their job,” “The administrative hierarchy of this school facilitates the mission of the school,” and “The administrators in this school use their authority to enable students to do their job.” Items on the ESS measuring hindering centralization include the following: “The administrative hierarchy obstructs student achievement,” “The administrative hierarchy of this school obstructs innovation,” and “In this school the authority of the principal is used to undermine teachers.” A copy of the instrument is found in Appendix B.

In essence, the ESS instrument is used to measure decentralization. Higher scores on the ESS measure equate to more decentralization, and lower scores on the ESS instrument mean less decentralization. To use the ESS to measure centralization requires one to reverse this

relationship. Higher scores on the ESS equate to less centralization. A more parsimonious explanation of the operationalization of centralization for this study was attained by taking the enabling school structure score and subtracting it from 1. This is analogous to the way that SES is typically measured utilizing schools' percentages of free and reduced lunch.

### **School/Organizational Effectiveness**

The School Effectiveness Index (SE Index) is an 8-item Likert-type scale used to measure school effectiveness (Hoy, 2009). The SE Index measures the overall effectiveness of a school in regard to five dimensions: quantity and quality of product, efficiency, adaptability, and flexibility. The response range for the scale is 6, ranging from *strongly disagree* to *strongly agree*. The higher the score, the higher the effectiveness of the school. Examples of items on the SE Index are as follows: “The quantity of products and services in this school is high,” “Most everyone in the school accepts and adjusts to changes,” and “Teachers in this school anticipate problems and prevent them.”

The reliability of the SE Index is high with alpha coefficients ranging from .87 to .89 (Hoy & Ferguson 1985; Hoy, Tarter, & Kottkamp, 1991; Miske et al., 1979). The validity of the SE Index was supported using a comprehensive study with multiple criteria of school effectiveness including student achievement, commitment of teachers, and assessments of experts (Hoy & Ferguson, 1985). A copy of the instrument is found in Appendix C.

### **SES**

Socioeconomic status (SES) was controlled for in this study. SES was measured for this study using the proxy variable of free and reduced lunch. ALSDE data were utilized to determine the proportion of students at each school receiving free or reduced lunch. The greater the proportion of students receiving free and reduced lunch, the lower the socioeconomic status.

## **Data Analysis Procedures**

Quantitative methodology was applied in this study to investigate the possible effects that teacher autonomy and centralization have on school effectiveness. The unit of analysis for this study was the school. Teacher survey measures were collected and the data entered into the Statistical Package for the Social Sciences (version 24). Descriptive statistics were computed including means, standard deviations, and ranges for the independent variables (teacher autonomy, centralization, and SES) and the dependent variable (school effectiveness). Data were aggregated to the school level. Multiple regression was used to detect the effects of the independent variables on the dependent variable. A step-wise Regression Analysis was utilized. Control variables were entered in step one and independent variables in step two. Multiple regression techniques were used to find intercorrelations among the dependent and independent variables. These results were used to evaluate hypotheses.

## **Conclusion**

This study explored the relationships between the variable of teacher autonomy and centralization on school effectiveness while controlling for socioeconomic status (SES). A final analysis of the data from 109 public schools was utilized to determine which independent variable has a greater effect on the dependent variable. The independent variables were teacher autonomy and centralization of authority. Previous research established the theoretical constructs, operational measures, and the reliability of the measures used in this study.

CHAPTER IV:  
ANALYSIS OF DATA AND RESEARCH FINDINGS

Chapter IV presents the findings of this study concerning the relationships between teacher autonomy, centralization, and effectiveness. The findings from this study are based on the survey methodology described in Chapter III. The unit of analysis for this study was the school. Mean school variables were calculated for all variables.

This chapter is organized into four sections. The first section provides descriptive statistics for each research variable. Section two presents findings for correlations among the three research variables. Section three presents data for multiple regressions. Section four provides a brief summary of the data and findings.

Permission to participate was obtained from 109 schools. The Teacher Autonomy Scale and Enabling School Structure, were administered to faculty members during regularly scheduled faculty meetings. There was a total of 1,417 respondents from 109 schools. The schools consisted of different grade configurations ranging from Pre-kindergarten to Grade 12.

**Descriptive Statistics**

This section provides the descriptive statistics for all dependent, independent, and control variables. All variables have been aggregated to the school level since the school was the unit of measurement. The dependent variable for this study was effectiveness. The independent variables were teacher autonomy and centralization. The control variable was SES.

Table 2 includes the descriptive statistics for the research variables. Statistics included in the figure include the sample (N), mean (M), standard deviation (SD), variance (V), and the

minimum and maximum scores for each variable. The mean scores for the variables teacher autonomy, centralization, and effectiveness were calculated at the school level. School means were then used to calculate an overall mean for each variable.

Table 2

*Descriptive Statistics for Research Variables*

Variables	N	M	SD	Minimum	Maximum
Effectiveness	92	4.8873	.50595	3.69	6.00
Teacher Autonomy	92	1.9765	.34357	1.17	3.22
Centralization	92	1.9369	.52193	1.14	3.63

Each of the three survey instruments was tested individually to assess reliability. The school was used as the unit of analysis. Instruments should have a coefficient of .70 or greater to be determined reliability (Muijs, 2004). Reliability was confirmed for each of the three instruments using the school as the unit of analysis. The reliabilities of the measures were acceptable and ranged from .88 to .90 (see Table 3).

Table 3

*Alpha Coefficients of Reliability Using the School as Unit of Analysis (N =92)*

Variables	Instruments	Number of Items	Cronbach's Alpha	Cases
Effectiveness	SEI	8	.883	92
Teacher Autonomy	TAS	18	.861	92
Centralization	EES	12	.904	92

**Correlation Analysis**

Pearson correlation coefficients were computed for all dependent and independent variables. The results of those correlation analyses are found in Table 4. A significant inverse relationship was found between centralization and effectiveness (-.51,  $p < .01$ ). No significant relationships were found between the other variables. SES was not found to be an important factor in this study.

Table 4

*Correlations (Pearson) Among the Four Variables (n = 92)*

Variables	1	2	3	4
1. Effectiveness	--			
2. Teacher Autonomy	-.13	--		
3. Centralization	-.51**	.16	--	
4. SES	-.04	.06	.15	--

\*\* $p < .01$

A multiple regression analysis was utilized to examine the effects of the variables in this study. Table 5 shows the regression of effectiveness on the predictor variables. This shows the unique relationship between each variable and effectiveness. In Table 5 we again see a significant relationship between centralization and effectiveness ( $\beta = -.51, p < .001$ ),

Table 5

*Linear Regression of Effectiveness on Predicted Variable (N = 92)*

Variable	Beta	Significance
Teacher Autonomy	-.02	ns
Centralization	-.51**	$p < .001$

AdjR<sup>2</sup> = .243, \*\* $p < .001$

### Hypothesis Testing

Hypothesis 1: Teacher autonomy will contribute to an explanation of effectiveness.

Correlation statistics indicated that the research hypothesis was not supported. A correlation of (-.13, ns) indicated there is no relationship between teacher autonomy and centralization. A multiple regression analysis also yielded no significant relationship between teacher autonomy and centralization ( $\beta = -.02, ns$ ).

Hypothesis 2: Centralization will contribute to an explanation of effectiveness.

As shown in Table 4, correlation statistics support the second hypothesis. A significant inverse relationship was found between centralization and effectiveness ( $-.51, p < .01$ ). As

centralization increases, effectiveness decreases. A multiple regression analysis verified this relationship as well. In Table 5 we see a significant inverse relationship between centralization and effectiveness ( $\beta = -.51, p < .001$ ),

Hypothesis 3: Teacher autonomy will contribute more to an explanation of effectiveness than centralization.

This research hypothesis was not supported. No significant relationship was found between teacher autonomy and school effectiveness. On the other hand, a significant relationship was found between centralization and effectiveness. Therefore, this hypothesis was rejected.

### **Post Hoc Analysis**

Taking note of Herriott and Firestone’s (1984) finding that high schools were significantly less centralized than elementary schools, and the nature of the current sample that includes many elementary and middle schools, it was decided to perform a post hoc analysis testing the hypotheses using the high schools ( $n = 27$ ) that were a subset of the sample. Table 6 outlines the correlational results and Table 7 shows the regression results from this post hoc analysis.

Table 6

*Correlation of Study Variable: High School Sample (n = 27)*

Variables	1	2	3	4
1. Effectiveness	--			
2. Teacher Autonomy	-.22	--		
3. Centralization	-.36	.20	--	
4. SES	-.08	.20	.03	--

*Note.* No significant relationships.

Table 7

*Linear Regression of Effectiveness on Predicted Variable: High School Sample (N = 27)*

Variable	Beta	Significance
Teacher Autonomy	-.10	ns
Centralization	.35	ns
SES	.15	ns

AdjR<sup>2</sup> = .06, ns

No significant correlations were found between the study variables when broken down to high schools from the study. The regression of effectiveness on variables in the study when only including the 27 high schools also found no significant relationships. However, the sample size may have been too small to detect an effect with only 27 high schools in the study.

### **Conclusion**

The results of this study only supported one of the research hypotheses. Teacher autonomy did not contribute toward an explanation of school effectiveness in this study. However, centralization had a very strong inverse relationship with school effectiveness in the total school sample. This relationship did not occur within the small set of high schools included in the sample.

This negative relationship between centralization and school effectiveness is important as it indicates that as there is an increase in centralization, the effectiveness of those schools decreases. This relationship carries with it important ramifications for school administrators. The results and importance of these findings will be discussed in the next chapter.

CHAPTER V:  
FINDINGS, DISCUSSION, AND IMPLICATIONS

Chapter V is organized into four sections. The first section provides a summary of the findings. The second section gives the theoretical implications of the study. The third section provides practical implications. The fourth section outlines suggestions for future research.

**Findings**

Five findings were noted in this study and are noted below.

1. Teacher autonomy did not have a measurable effect upon school effectiveness.

Hypothesis 1, teacher autonomy will contribute to an explanation of effectiveness, was not supported by the data.

2. Centralization was very much related to school effectiveness. The study found that less centralization contributes to more school effectiveness. Hypothesis 2, centralization will contribute to an explanation of effectiveness, was found to be supported by this study.

3. Contrary to the predicted relationship, centralization had a greater effect on effectiveness than teacher autonomy. In fact, centralization made the only significant contribution to effectiveness in this study. Hypothesis 3, teacher autonomy will contribute more to an explanation of effectiveness than centralization, was not supported by the data collected for this study.

4. Teacher autonomy did not have a measurable effect upon school effectiveness when broken down to high schools only. In fact, none of the variables were found to have significant relationships utilizing the subset of data from high schools.

SES had no effect upon the hypothesized relationships in this study.

### **Discussion of Findings**

A significant relationship was found between centralization and school effectiveness. Centralization was found to have an inverse correlation with school effectiveness. There was found to be a  $-.509$  ( $R = .51, p < .001$ ) correlation between centralization and school effectiveness.

No significant relationship was found between teacher autonomy and school effectiveness. Contrary to initial thought, teacher autonomy does not appear to play a significant role in school effectiveness.

Free and reduced lunch was not significantly correlated with teacher autonomy, centralization, or school effectiveness. Contrary to initial thought, teacher autonomy did not have a greater impact upon school effectiveness in high schools as opposed to elementary. As a matter of fact, there were no significant relationships found in the small subset of high schools ( $n = 27$ ) included in the data set. The results of this study found that socioeconomic status of the school did not influence the variables of teacher autonomy or centralization regarding school effectiveness. This means that centralization's negative impact upon school effectiveness occurs without regard to the SES of the school.

### **Theoretical Implications**

The hypothesis arguing that teacher autonomy will contribute to an explanation of school effectiveness was not supported. The literature suggests a relationship between the variables of teacher autonomy and school effectiveness. Teacher autonomy has been found to be linked to professionalism (Pearson & Moomaw 2005). According to Huber et al. (1990), professionals that are denied autonomy reduce organizational effectiveness. Miskel et al. (1983) found teacher

isolation to be a significant predictor of organizational effectiveness. It was hypothesized that teacher isolation is one of the components of teacher autonomy.

The fact that this hypothesis was not supported could be due to the way in which autonomy was measured. Teachers do not control their curriculum in most schools at this time. It could be that teacher autonomy in this day and age would be best measured by looking at innovation in the delivery of the lessons as opposed to selection of curriculum.

Another problem with the way autonomy was measured is that the instrument used did not specifically measure the teacher's power to create instructional groups in the classroom.

The hypothesis asserting that centralization will contribute to an explanation of school effectiveness was supported by the study. The literature found a correlation between centralization and organizational effectiveness. Huber et al. (1990) found that centralization contributed to an explanation of organizational effectiveness in professionalized organizations. The results of this study found centralization to be inversely related to school effectiveness. This could be due to an excess of centralization stifling professionalization and resulting in less effective schools.

The hypothesis arguing that teacher autonomy would lead more to an explanation of school effectiveness was not supported. Teacher autonomy was not found to have a significant relationship with school effectiveness at all. This study found the opposite result. Centralization had a strong negative effect upon school effectiveness.

Centralization was negatively related to effectiveness in the total school sample, but not in the high school sample. Given the small size of the sample ( $n = 27$ ), and that high schools have less centralization as a group than other schools, there may not have been enough variation in this small sample, resulting in a restriction of range.

However, the overall negative influence that centralization has together with the lack of effect of teacher autonomy raises an interesting problem. As professionals, teachers are relatively limited both in what they teach and how they teach. The history teacher, for example, does not teach math in history class. Moreover, the number of pedagogical practices is relatively limited. Thus, teachers are professionals who have vertical discretion in teaching, that is, they determine the introduction and final evaluation of a lesson, but they have restricted horizontal discretion, that is, they teach the assigned curriculum. This notion of professional job performance draws on Mintzberg's (1979) analysis of teachers as semi-professionals. The idea of limited autonomy with respect to clients and its attendant influence on professional autonomy with clients has been demonstrated by Forsyth and Danisiewicz (1985).

Forsyth and Danisiewicz (1985) theorized a model of professionalism based upon power and autonomy. Professional power was defined using two dimensions of attitudinal autonomy: autonomy from client and autonomy from employing institution. Forsyth and Danisiewicz (1985) studied a sample of 1000 students representing eight dimensions of autonomy.

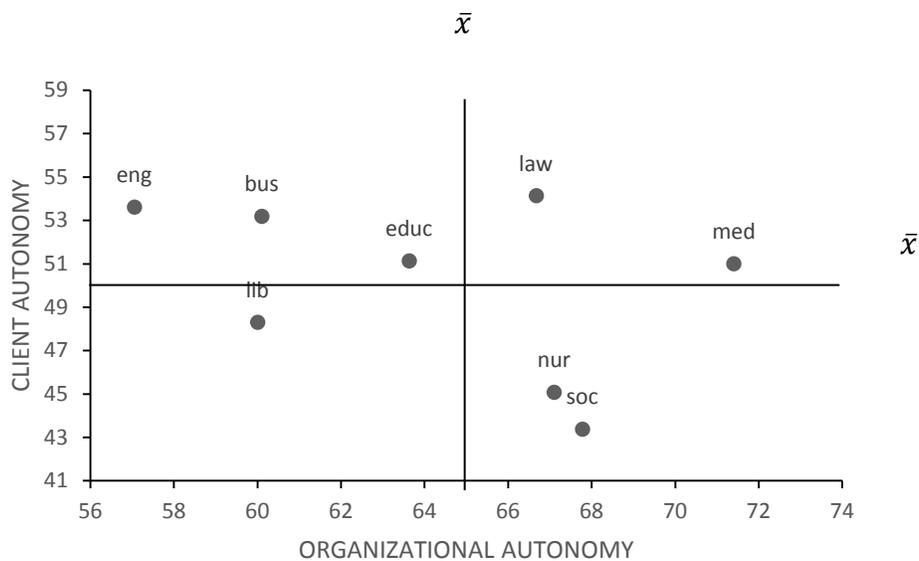


Figure 1. Plot of two autonomy dimensions for each occupation (Forsyth & Danisiewicz, 1985).

In Figure 1 we see that Forsyth and Danisiewicz (1985) found education students scored above the mean on client autonomy only. This means educators have autonomy from clients but not autonomy from their organization. According to Forsyth and Danisiewicz (1985), this leads one to conclude, much as Etzioni (1969) did, that that education is a client-autonomous semi-profession. Teachers expect to have the power to be autonomous with respect to their clients, the students. They do not have appear to have an expectation to remain autonomous from the organization, the school.

However, the Forsyth and Danisiewicz (1985) study is only one conceptualization of the teacher as a professional. Bidwell (1965) and Mintzberg (1979) view teachers as full-scale professionals working in the school organization. According to Bidwell (1965), “The teacher works alone within the classroom, relatively hidden from colleagues and superiors, so that he has a broad discretionary jurisdiction within the boundaries of the classroom” (pp. 975-976). This concept of working independently from colleagues and closely with the clients that one serves is also used by Mintzberg (1979) to define the teacher as a professional.

The overall implication of this study seems to be this: Teachers desire participation, not autonomy. The centralization measure captures specifically the degree of cooperation between faculty and administration. While the measure stays true to the idea of centralization as restricted decision making, autonomy is an idea of little participation. It may be that the autonomy measure is not the way to tap the relative discretion teachers may enjoy in the classroom.

I presented and tested a theory that argued teacher autonomy would be stronger in the prediction of school effectiveness than was centralization. This theory was not demonstrated as presented in this study. Centralization is a broader concept than teacher autonomy and affects

more aspects of the school environment. Centralization was shown to be a strong inverse predictor of effectiveness.

### **Practical Implications**

The results of this study have practical implications for practicing school administrators and teachers. Teacher autonomy may not be the best way to conceptualize the importance of teacher decision making in schools. Conway (1976) found a relationship between participation in decision making and organizational effectiveness. He found that teachers may find themselves in one of three states: “decisionally deprived” if participating in fewer decisions as desired, “decisional equilibrium” if participating in as many decisions as desired, and “decisionally saturated” if participating in more decisions than desired (Conway 1976). Not every teacher wants to make all of the decisions or the same kinds of decisions. Effective schools match the desire of the teacher with opportunities to realize those desires (Conway 1976). Forced participation in decision making is not autonomy. School administrators should strive for that sweet spot that matches teachers with the amount and types of decision making they desire.

Too much centralization in an organization can be coercive (Hoy & Sweetland 2001). Top down control in schools can obstruct innovation. This type of an organization gets in the way of teachers working as professionals to solve problems and/or innovate in their own classroom. According to Hoy and Sweetland (2001), hierarchies often respond to outside pressure in dysfunctional ways such as autocratic supervision, over standardizing work processes, and standardizing work outputs.

Hoy and Sweetland (2001) give us five characteristics of hindering centralization: frustrates problem solving, promotes control, autocratic, rigid, discourages change, and disciplines subordinates. The workers themselves do not appreciate this type of control over the

work. “Participants usually react negatively to unilateral attempts to control them because it is a violation of the norm of egalitarianism that is so pervasive in American society” (Hoy, 2003; Hoy & Sweetland 2001).

A principal can take steps to eliminate hindering centralization and foster enabling centralization. Enabling centralization can buffer teachers from outside pressures and allow for structures that facilitate teaching and learning (Hoy, 2003; Hoy & Sweetland 2001). Hoy and Sweetland (2001) list the following five characteristics of enabling centralization: facilitates problem solving, enables cooperation, collaborative, flexible, encourages innovation, and protects participation. Enabling centralization can help teachers solve problems rather than acting as an obstruction to their work (Hoy & Sweetland 2001).

Considering the evidence that too much centralization is harmful to school effectiveness, school administrators could look at many of the 12 items on the ESS form for guidance in structuring a school without negative centralization (Hoy, 2003). The first item, “Administrative rules in this school enable authentic communication between teachers and administrators,” leads school principals in the direction of creating two-way lines of communication between teachers and administrators without barriers. The second item, “In this school red tape is a problem,” should guide principals to be the person who streamlines processes that can sometimes result in teachers getting bogged down in unnecessary bureaucracy. The third item, “The administrative hierarchy of this school enables teachers to do their job,” should guide principals to be the leader that teachers view as someone who enables them to do their job effectively rather than a roadblock.

Item 8, “The administrative hierarchy of this school obstructs innovation,” and Item 9, “Administrative rules in this school are substitutes for professional judgment,” lay out the

importance for school principals to encourage teacher innovation and allow teachers to use their professional judgment whenever possible. Item 12, “The administrators in this school use their authority to enable teachers to do their job,” is a particularly important one. A school principal can be the hero who protects the teachers in his or her school from outside distractions and interference. A school principal can be the leader who uses his or her authority to make the teachers’ job easier and in turn improves school effectiveness.

This study found centralization to be a powerful predictor of school effectiveness in that less centralization leads to more effectiveness. This effect occurs regardless of the SES of the school. A practicing administrator could use these findings to make a difference in his or her school. An administrator could be the advocate for less centralization. In fact, that administrator can take steps to ensure that the types of hindering centralization mentioned above do not take place in the school. One way to do this is to advocate for a system of shared leadership with teachers. The principal could design a model of leadership utilizing teacher leaders to guard against too much centralization affecting school leadership. Teachers could play a more active role in analyzing school data and making decisions.

### **Future Research**

From the results of this study, it would appear that centralization is a powerful predictor of school effectiveness and teacher autonomy is not. However, a future researcher could consider how school effectiveness is conceptualized and measured. The effectiveness measure utilized in this study is a broad measure and does not talk about academic achievement or goal attainment. Future research might consider a measure of teacher effectiveness in terms of pedagogical effectiveness, perhaps, conceptualized as the degree that the organizational school contributes to

the teacher's sense of effective classroom performance. In other words, future research might ask the opinion of teachers about how much the administration influences classroom performance.

Future research could be focused on high schools. This study contained a mixture of all levels of schools. Although an attempt was made to analyze the data from a subset of high schools, the number in that sample was low (27). This sample size may not have been sufficient to get quality data. Herriott and Firestone (1984) found elementary schools to be more centralized and high schools to be more loosely coupled. Herriott and Firestone (1984) found significant differences between elementary and high schools other than the obvious age differences between students. They found that it is easier to implement change programs in elementary schools.

Herriott and Firestone (1984) also found that student achievement can be increased more in elementary schools where centralization tends to be higher. Furthermore, high schools have different structures than elementary schools to include a broader range of curricular elements and more specialization of staff (Herriott & Firestone, 1984). A future study with an adequate sample focusing on the autonomy that takes place in high schools may find a different result than this study with its limited sample.

One aspect of teacher autonomy not measured by the TAS is the power teachers utilize to create instructional groups in their classrooms. School districts assign students to schools. Schools assign students to classrooms. But teachers create instructional groups inside those classes which have important effects upon student learning (Barr & Dreeben, 1983). Teachers design groups based upon student characteristics such as aptitude and behavior, then they alter their instruction in various ways to meet the need of each group. Further investigation of the

power of teachers in creating, maintaining, and teaching to instructional groups could be an interesting endeavor not touched on by this study.

Future researchers may need to consider that teacher autonomy probably does not occur in classrooms as it once did. Education reforms such as evaluating teachers based primarily on standardized test score gains, fast track teacher preparation and licensure, and scripted narrowed curriculum have contributed to the de-professionalization of teaching (Milner, 2013). This de-professionalization of the teaching profession has eroded teacher autonomy due to teachers being pressured to teach the test or teach using scripted curriculum. The addition of individuals without a teaching background being licensed to teach in our schools makes it seem as though anyone can teach. The de-professionalization of teaching has almost certainly been a factor in a decline in teacher autonomy.

This de-professionalization of teaching is directly related to the trend of centralizing instructional programs. For many teachers, the curriculum they teach is decided for them. Standardized curricula make it difficult for teachers to respond to the needs of their classes (Milner, 2013). Bidwell's (1965) description of teachers as working alone in classrooms, hidden from colleagues and superiors, and having broad discretion may no longer apply. Education reforms along with structural changes in the classroom such as inclusion and co-teaching may have eroded the previous conceptualization of teacher autonomy.

Future research may examine how the variables were conceptualized for this study. Centralization was the broadest variable measured. Teacher autonomy was somewhat narrower in focus. However, a future study could narrow the focus of autonomy even further by focusing on teacher innovation in the delivery of lessons. As today's curriculum has been heavily centralized, teachers do not have as much autonomy regarding what they teach. They may have

considerably more autonomy in the delivery of their lessons. It could be that teachers who practice great innovation in their delivery lead to increased school effectiveness. This narrower focus on autonomy as innovation of delivery may result in a better snapshot of how autonomy occurs in the classroom today.

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APPENDIX A  
TEACHING AUTONOMY SCALE

## Teaching Autonomy Scale

Read each item and circle the number that corresponds with your agreement with the statement

- (1) definitely true
- (2) more or less true
- (3) more or less false
- (4) definitely false

1. I am free to be creative in my teaching approach.

1      2      3      4

2. The selection of student-learning activities in my class is under my control.

1      2      3      4

3. Standards of behavior in my classroom are set primarily by myself.

1      2      3      4

4. My job does not allow for much discretion on my part.

1      2      3      4

5. In my teaching, I use my own guidelines and procedures.

1      2      3      4

6. I have little say over the content and skills that are selected for teaching.

1      2      3      4

7. The scheduling of use of time in my classroom is under my control.

1      2      3      4

8. My teaching focuses on those goals and objectives I select myself.

1      2      3      4

9. I seldom use alternative procedures in my teaching.

1      2      3      4

10. I follow my own guidelines on instruction.

1      2      3      4

11. I have only limited latitude in how major problems are resolved.

1      2      3      4

12. What I teach in my class is determined for the most part by myself.

1      2      3      4

13. I have little control over how classroom space is used.

1      2      3      4

14. The materials I use in my class are chosen for the most part by myself.

1      2      3      4

15. The evaluation and assessment activities are selected others.

1      2      3      4

16. I select the teaching methods and strategies I use with my students.

1      2      3      4

17. I have little say over the scheduling of use of time in my classroom.

1      2      3      4

18. The content and skills taught in my class are those I select.

1      2      3      4

(Pearson & Hall, 1993)

APPENDIX B  
ENABLING SCHOOL STRUCTURE MEASURE

Form ESS

**Directions:** The following statements are descriptions of the way your school is structured. Please indicate the extent to which each statement characterizes behavior in your school from **never** to **always**.

	Never	Once in a while	Sometimes	Fairly Often	Always
1. Administrative rules in this school enable authentic communication between teachers and administrators.	<input type="checkbox"/>				
2. In this school red tape is problem.	<input type="checkbox"/>				
3. The administrative hierarchy of this school enables teachers to do their job.	<input type="checkbox"/>				
4. The administrative hierarchy obstructs student achievement.	<input type="checkbox"/>				
5. Administrative rules help rather than hinder.	<input type="checkbox"/>				
6. The administrative hierarchy of this school facilitates the mission of this school.	<input type="checkbox"/>				
7. Administrative rules in this school are used to punish teachers.	<input type="checkbox"/>				
8. The administrative hierarchy of this school obstructs innovation.	<input type="checkbox"/>				
9. Administrative rules in this school are substitutes for professional judgment.	<input type="checkbox"/>				
10. Administrative rules in this school are guides to solutions rather than rigid procedures.	<input type="checkbox"/>				
11. In this school the authority of the principal is used to undermine teachers.	<input type="checkbox"/>				
12. The administrators in this school use their authority to enable teachers to do their job.	<input type="checkbox"/>				

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APPENDIX C  
SCHOOL EFFECTIVENESS INDEX

### SE--Index

<b>Directions:</b> Teachers produce a variety of product such as lesson plans, new curricula, student learning as well as	Stro	Disa	Som	Som	Agre	Stro
1. The <i>quality</i> of products and services produced in this school is outstanding	<input type="checkbox"/>					
2. The <i>quantity</i> of products and services in this school is high.	<input type="checkbox"/>					
3. The teachers in my school do a good job <i>coping</i> with emergencies and disruptions.	<input type="checkbox"/>					
4. Most everyone in the school <i>accepts</i> and <i>adjusts</i> to changes.	<input type="checkbox"/>					
5. When changes are made in the school, teachers accept and adjust <i>quickly</i> .	<input type="checkbox"/>					
6. Teachers in this school are well <i>informed</i> about innovations that could affect them.	<input type="checkbox"/>					
7. Teachers in this school <i>anticipate</i> problems and prevent them.	<input type="checkbox"/>					
8. Teachers in this school use available resources <i>efficiently</i> .	<input type="checkbox"/>					

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APPENDIX D  
IRB APPROVAL

May 1, 2017

Roxanne Mitchell, Ed.D.  
ELPTS  
College of Education  
Box 870302

Re: IRB#: 17-OR-157 "Rigatoni Study"

Dear Dr. Mitchell:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on April 30, 2018. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent form to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,



Carpantano T. Myles, MSM, CIM, CIP  
Director & Research Compliance Officer

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