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THE ROLE OF OHIO PUBLIC SCHOOL ADMINISTRATORS IN THE EDUCATIONAL TECHNOLOGY POLICY-MAKING PROCESS

DISSERTATION

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

By

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2002

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ABSTRACT

Technology has forever changed the way in which we work, communicate, learn, are entertained, and educate. With all of its positive aspects, the infusion of educational technology into the public school system brings to the table several important issues. Not only must policymakers at the federal, state, and local levels address issues surrounding acceptable use of technology by students and employees, but they must also address issues pertaining to the allocation of funds to purchase computer hardware and software; the training of current and future administrators and teachers in educational technology; the creation of student technology academic standards; and the effective use of technology in the classroom.

Administrators could potentially play an important role in helping to shape these policies at the national, state, district, and building levels. They could offer a much needed perspective to policy and facilitate its implementation. Moreover, allowing them to become part of the process could reduce administrator turnover. Case law analysis indicates that administrators, by failing to properly implement educational technology objectives of the state legislature, state board of education, or local school board, could be held professionally responsible, be subject to professional sanctions, or be terminated.
Although the administrators' role in the policymaking process seems worthy of study and research, few research studies have been conducted in this area. And in regard to the administrators' role in the educational technology policy-making process, there is practically nothing. Consequently, an exploratory study has been conducted to ascertain (1) the principal's actual level of involvement in creating educational technology policy; (2) the principal's desired level of involvement in creating educational technology policy; and (3) the factors that influence the variance in their responses.

Ohio school principals returned 253 of a total 432 surveys (58.9%). Ninety-nine percent of the returned surveys were usable producing a total $n$ of 251. A factor analysis was performed on the data, and five dependent variables emerged: (1) Actual Level of Involvement at the Building Level; (2) Actual Level of Involvement at the District Level; (3) Desired Level of Involvement at the District Level; (4) Actual Level of Involvement at the State/National Level; and (5) Desired Level of Involvement at the State/National Level.

The relationship various independent variables have with the five dependent variables were examined using analysis of variance (ANOVA), simple linear regression analysis, and multiple regression analysis. Independent variables included: (1) Building Level; (2) District Type; (3) District Poverty Level; (4) District Size; (5) Principal Tenure; (6) Department Head Experience; (7) Teaching Experience; (8) Knowledge of the Policy-Making Process at the State/National Level; (9) Knowledge of the Policy-Making Process at the Local Level; (10) Confidence Using Technology; (11) Gender; (12) Race; (13) Highest Degree Earned; and (14) Undergraduate Major.
Overall, it was found that on average principals have moderate to substantial involvement in the educational policy-making process at the building level; little to moderate involvement at the district level; and no involvement at the state/national levels. It was also found that administrators on average desire to be moderately involved at the district level, but desire almost no involvement at the state and national levels.

It was discovered that District Type and Building Level have an effect on dependent variables "Actual Level of Involvement at the District Level" and "Desired Level of Involvement at the District Level." Overall, urban principals on average are less involved and have less desire to be involved in the educational technology policy-making process at the district level than principals in suburban and rural schools. This is particularly acute for elementary school principals. Other independent variables that had significant effects on the dependent variables include: District Poverty Level, District Size, Knowledge of the Policy-Making Process at the State/National Level, Knowledge of the Policy-Making Process at the Local Level, and Highest Degree Earned.

Excluding administrators from the policy-making process, particularly at the state and national levels, gives cause for concern. It creates an educational policy system that is less effective and efficient than it could potentially become. Administrators could offer a useful and much needed perspective to the policy-making process and could facilitate its implementation. Because the data indicate that their desire to become involved in the policy-making process is the greatest predictor of their actual level of involvement, it is important to instill a greater desire
in administrators to take part in the process. State legislatures could facilitate this by creating a formal, systematic method of involvement such as the creation of a state administrators' educational technology committee. Principal licensure programs could also facilitate this by exposing administrators to the educational policy-making process and teach them how they can become involved. However, other factors need to be uncovered that influence their desire to become involved. These factors might include principals' discretionary time, their perceived personal influence, knowledge of how to become involved in the policy-making process, participation in professional organizations, and interest in policy issues.
DEDICATION

This is dedicated to my eternal companion, Julie Ann Nance,

who means the very most to me, and without whose support, this task could never

have been accomplished.
I wish to thank my adviser, Dr. Philip T.K. Daniel. Thank you for allowing me to participate in the writing of an article that led to this research, for pushing me to broaden my mind, and for tutoring me in legal research methodology. I also thank you for introducing me to a field that I am growing to love, for providing an example of professional excellence, and for being my friend.

I also wish to thank Dr. Helen M. Marks. Thank you for your unwavering support and encouragement, for training me to use quantitative research methodology, and for guiding me to appropriate resources. I will never forget the kindness you have shown me nor the ideals you have demonstrated by word and deed. You have affected my life in many ways.

I wish to thank Dr. William E. Nelson, Jr. for serving on my committee and for providing me with valuable insight. You have stimulated my interest in the policy-making process and motivated me to view it from a new perspective.

I would like to thank Dr. Wayne K. Hoy. Thank you for helping me with the quantitative analysis, particularly with the factor analysis, for helping me construct the research instrument, and for directing me to helpful resources.
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I would like to thank the 251 Ohio public school principals who took time out of their busy schedules to fill out the questionnaire.

I want to recognize my grandmothers, Alice G. Morgan and Naomi Place, for giving me continual support and encouragement throughout my life. Despite having faced difficult personal circumstances, they have managed to make the lives with whom they associate much brighter.

I wish to thank my mother, Nancy Place Nance, for believing in me more than I have believed in myself; and my father, Paul Wesley Nance, for demonstrating what it means to be a true educator. Thank you for being wonderful parents.

Finally, I wish to thank my three daughters, Katelyn Naomi, Mikayla Louise, and Alyssa Jean, and my beautiful wife Julie Ann. Words cannot describe the thanks I wish to express. This accomplishment means nothing to me without your love and support. Julie, if doctorate degrees were awarded for goodness, you would have earned yours a long time ago.
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CHAPTER 1
INTRODUCTION


"There is no reason why anyone would want a computer in their house." – Ken Olson, President, Chair, and Founder of Digital Equipment Corporation, 1977.

"The wireless music box has no imaginable commercial value. Who would pay for a message sent to nobody in particular?" – Advice to David Serroft in the 1920s.

"I think there is a world market for maybe five computers." – Thomas Watson, Chairman, IBM, 1943.

"Computers in the future may weigh no more than 1.5 tons." – Popular Mechanics, 1945.

"But what is it good for?" – Comment on the microchip from IBM Advanced Computing Systems Division, 1968.¹

Context of Problem

In August 1981 IBM released to the world its first personal computer (PC). A year later, Time magazine named the personal computer “Man of the Year.” In 1983, the U.S. government and other research partners implemented the Internet. These events have forever changed our world. In 1999 around 250 million people owned personal computers, and 100 million used the Internet. Computer companies sell tens

of millions of personal computers each year, and since 1988 the number of people who use the Internet doubles each year. Early in the twenty-first century more than one billion people are expected to be on-line.\footnote{Gary Chapman, \textit{Federal Support for Technology in K-12 Education, in Brookings Papers on Education Policy} 307 (Diane Ravitch ed., 2000).}

Not since the Industrial Revolution has the world changed so rapidly. Not only has uniquely capable equipment been distributed at a rapid pace around the world, but also the entire economy has changed. The Internet is the commonly viewed platform for future communications, including voice, data, music, radio, video, government services, marketing, purchasing, and other commercial enterprises. Indeed, computers have forever changed the way we work, communicate, play, are entertained, and how we educate.\footnote{Id. at 307-308.}

More and more jobs require employees to understand how to use a computer. The U.S. Department of Labor estimates that early in the twenty-first century that more than three-quarters of all employees in the U.S. will be using a computer daily. There are estimations that the United States will need ninety-five thousand new technology workers in 2005. But since 1994, only 24,553 college graduates have received a degree in computer science. Although graduates from other fields do find employment in the field of technology, there is concern that there will be a shortage
of qualified employees in the near future. Because of this concern, many government leaders have stressed for a number of years the importance of training children how to use a computer and the Internet.\(^4\)

On August 26, 1981, U.S. Secretary of Education T. H. Bell created The National Commission on Excellence in Education to "examine the quality of education in the United States and to make a report to the Nation."\(^5\) The Commission's report, entitled *A Nation at Risk: The Imperative for Educational Reform*,\(^6\) altered the way our country viewed public education. The report declared that if "an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war."\(^7\) *A Nation at Risk* served as an impetus for nationwide reform in our public school system. Among several other recommendations, the Commission advised educators to ensure that all high school graduates understand how to use a computer. The Commission also recommended that educators teach students how to use technology to study other school subjects and for "personal and work-related

\(^4\) *Id.* at 308-311.


\(^6\) *Id.*

\(^7\) *Id.* at 5.
purposes. The Commission believed that an understanding of technology was an essential component of an education that would "prepare [America's] children for far more effective lives in a far stronger America."9

Although the Commission certainly did not regard technology10 as a panacea for the public school system, it considered technology to be an integral part of educational reform. Federal government officials, particularly during the Clinton-Gore administration, have demonstrated that they believe technology is a fundamental component of an effective public education system. In his 1996 State of the Union Address, President Bill Clinton stated,

Our...challenge is to provide Americans with the educational opportunities we'll all need for this new century. In our school, every classroom in America must be connected to the information superhighway, with computers and good software, and well-trained teachers. We are working with the telecommunications industry, educators and parents to connect 20 percent of California's classrooms by this spring, and every classroom and every library in the entire United States by the year 2000.11

8 Id. The entire recommendation included: "The teaching of computer science in high school should equip graduates to: (a) understand the computer as an information, computation, and communication device; (b) use the computer in the study of the other Basics and for personal and work-related purposes; and (c) understand the world of computers, electronics, and related technologies."

9 Id. at 5.

10 Educational technology can be defined in many ways. For the purposes of this manuscript, the author will rely on the definition that the Colorado Legislature provides: "Technology means the design or use of such things as computers, telecommunications devices and networks, or multi-media techniques for teaching or use in student's later careers" (COLO. REV. STAT. ANN. § 22-81-103 (West 2000)).

11 Chapman, supra note 2, at 311.
The U.S. Congress has stated, "Technology can produce far greater opportunities for all students to learn to high standards, promote efficiency and effectiveness in education, and help propel our Nation's school systems into very immediate and dramatic reform."\(^{12}\)

In 1996, U.S. Secretary of Education Richard Riley released the nation's first plan to integrate technology into the public education system. The plan, entitled *Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge*, sought to establish "a far-reaching vision for the effective use of technology in elementary and secondary education to help the next generation of school children to be better educated and better prepared for the evolving demands of the new American economy."\(^{13}\) From 1995-2000, the Clinton-Gore administration allocated over eight billion dollars to the states to provide funds for purchasing educational technological hardware and establishing educational technology programs.\(^{14}\) Recently the U.S. Department of Education updated its educational

\(^{12}\) H.R. 6, 103rd Cong. § 3111 (1994).


technology initiative and released the *National Educational Technology Plan* in December 2000. This plan provided the nation with five educational technology goals:

Goal 1: All students and teachers will have access to information technology in their classrooms, schools, communities and homes.

Goal 2: All teachers will use technology effectively to help students achieve high academic standards.

Goal 3: All students will have technology and information literacy skills.

Goal 4: Research and evaluation will improve the next generation of technology applications for teaching and learning.

Goal 5: Digital content and networked applications will transform teaching and learning.\(^{15}\)

At the end of the report, the Department of Education made a bold statement, perhaps directed at the forthcoming Bush-Cheney administration. They state, "The use of technology in education must remain a national priority. It must be at the core of the educational experience, not at the periphery. Now is the time to renew our commitment to the future by challenging the nation to take bold action in hastening the coming of the future of education."\(^{16}\)

The Bush-Cheney administration is also showing signs of having educational technology as a national priority. On January 8, 2002, President

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\(^{16}\) Id.
Bush signed into law the No Child Left Behind Act of 2001. An important component of this act was Enhancing Education through Technology, which states that the federal government "believes schools should use technology as a tool to improve academic achievement." It plans to streamline "duplicitive technology programs into a performance-based technology grant program that sends more money to schools."

Although the Supreme Court has remained silent on the role technology should play in education, past cases reveal where the Court might stand on this issue. In Brown v. Board of Education, the Supreme Court defines the fundamental purposes of public education. They state that education, among other purposes, "is a principal instrument...in preparing [students] for later professional training." In Wisconsin v. Yoder, the Court argues that education should prepare individuals to be

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19 Id.

20 Id.


22 Id. at 493.


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“self-reliant and self-sufficient participants in society.” In Plyler v. Doe, the Supreme Court reaffirms what it stated in Brown v. Board of Education and adds that education should provide students with “the basic tools by which individuals might lead economically productive lives to the benefit of us all.” One could make the argument that in today’s highly technical society, an understanding of technology is necessary to prepare students for “later professional training” and to be “self-reliant” and “economically-productive” citizens.

Policymakers at the state level also believe technology is an essential component of educational reform. For example, the California Legislature declares,

The Legislature hereby finds and declares that California’s public school pupils need quality instruction and support in the areas of computer education in order to develop the skills necessary for entry into an increasingly technological society. The Legislature recognizes that computers and other technologies are an integral part of contemporary society and the state educational system.

The New Jersey Legislature maintains, “In order for all of New Jersey’s students to acquire the critical thinking and problem solving skills necessary to become productive citizens in the next century, they will require access to the opportunities provided by modern technology.” The Virginia Legislature asserts, “The General Assembly finds that educational technology is one of the most important components,

24 Id. at 221.
26 Id. at 221.
27 CAL. EDUC. CODE § 44276 (West 2000).
along with highly skilled teachers, in ensuring the delivery of quality public school education throughout the Commonwealth.” Daniel and Nance conducted a search of every U.S. state’s statutes and report that every state including the District of Columbia has enacted legislation dealing with technology and public K-12 education in one form or another. This further demonstrates that educational technology is indeed on the forefront of policymakers’ agendas.

In addition to policymakers, parents also believe that educational technology is an important component of education. The 2000 Phi Delta Kappa/Gallup Poll reveals that 82% of adults polled believed that public schools should “invest more in computer technology for educational purposes.”

Computers and the Internet have rapidly spread into K-12 schools as a result of national and state initiatives, perhaps more rapidly than through the rest of society. The infusion of educational technology into the public school system brings to the table several important issues. Most importantly, policymakers have needed to address how educational technology should be used by both students and employees. There is no consensus as to whether educational technology has or can have a large, small, positive, negative, or negligible effect on student learning. Furthermore, there is much controversy, both in schools and throughout society, surrounding the types of


31 Lowell Rose and Alex Gallup, The 32nd Annual Phi Delta Kappa/Gallup Poll Of the Public’s Attitudes Toward the Public Schools, Phi Delta Kappan, Sept. 2000, at 54-55.
communication the Internet transmits. The Internet carries vast amounts of useful and reliable information to aid in learning and research. It also carries objectionable material such as pornography, hateful and violent speech, information about creating bombs and drugs, and dangerous communication from pedophiles. The Internet can be used for hoaxes, fraud, and misinformation. It can be used as powerful tool for piracy and plagiarism. The negative aspects of computers and the Internet are troublesome for adults, let alone for young people who are still learning right from wrong and helpful from harmful. Teaching youth to learn how to learn educational technology properly can be a daunting task.\(^{32}\)

Recently, the National School Boards Association’s (NSBA) Council of School Attorneys compiled a comprehensive list of legal issues surrounding educational technology.\(^{33}\) Some of these issues include freedom of expression, online pornography, equitable access to technology, privacy, digital copyright, and censorship.\(^{34}\) Not only must policymakers at the federal, state, and local levels address issues of these types, but they must also address issues surrounding the

\(^{32}\) CHAPMAN, supra note 2, at 311.

\(^{33}\) NATIONAL SCHOOL BOARDS ASSOCIATION, LEGAL ISSUES & EDUCATION TECHNOLOGY (1999).

\(^{34}\) Other important issues include Computer Acceptable Use policies, filtering, sexual harassment and discrimination claims, e-mail in litigation, making school web sites comply with the Americans with Disabilities Act, securing technological equipment, First Amendment issues, and collective bargaining matters.
allocation of funds to purchase computer hardware and software; the training of current and future administrators and teachers in educational technology; and effective use of technology in the classroom.

Educational technology policies, as with all other education policies, direct how public school administrators should oversee educational processes. Indeed, administrators are ultimately held responsible for the teaching and learning processes that occur in their schools. It seems plausible that administrators, by failing to properly implement the educational technology objectives of the state legislature, state board of education, or local school board, could be held professionally responsible, be subject to professional sanctions, or be terminated.35 In other words, "accountability" or "reconstitution"36 movements "permit school officials to terminate administrators who do not demonstrate student achievement or who do not meet the objectives of a particular reform movement (such as in instructional technology)."37 Recent court cases have upheld the above statements, particularly in the Seventh Circuit Court of Appeals, and will be discussed in greater detail in a section of Chapter Two.

Many organizations have begun to recognize the important role school administrators play in the educational technology movement and have formed a

35 Daniel & Nance, supra note 30.
37 Daniel & Nance, supra note 30.
consortium entitled "The Technology Standards for School Administrators Collaborative" (TSSA). TSSA advocates for "a national consensus on what PK-12 administrators should know about and be able to do to optimize benefits of technology use in schools" and "represents significant project stakeholders who are committed to producing a set of standards necessary for school administrators to ensure effective use of technology in schools." TSSA has proposed several standards under six primary domains. These domains include: leadership and vision; learning and teaching; productivity and professional practice; support, management, and operations; assessment and evaluation; and social, legal, and ethical concerns. Each of the six domains contains several performance indicators that are found on their website.

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Most importantly for this manuscript, the sixth domain advocates that administrators:

a. ensure equity of access to technology resources that enable and empower all learners and educators.

b. identify, communicate, model, and enforce social, legal, and ethical practices to promote responsible use of technology.

c. promote and enforce privacy, security, and online safety related to the use of technology.

d. promote and enforce environmentally safe and healthy practices in the use of technology.

e. participate in the development of policies that clearly enforce copyright law and assign ownership of intellectual property developed with district resources.40

In addition, a performance indicator under the first domain “leadership and vision” reads, educational leaders “advocate on the state and national levels for policies, programs, and funding opportunities that support implementation of the district technology plan.”41 The first and sixth domain, among other things, emphasize that administrators should take an active role in the educational technology policy-making process.

This line of thinking is consistent with the highly respected Interstate School Leaders Licensure Consortium’s (ISLLC) Standards for School Leaders. ISLLC Standard Six reads, “A school administrator is an educational leader who promotes the success of all students by understanding, responding to, and influencing the larger

40 Id.

41 Id.
political, social, economic, legal, and cultural context. According to the standards, administrators demonstrate meeting this standard in part by shaping public policy to provide a quality education for students.

This mindset differs from many other consortium mindsets, which "neither list nor propose a role for any sort of policy participation for school administrators beyond assessment at the local level," and should be lauded. As previously indicated, failing to properly implement the educational technology objectives of the state legislature, state board of education, or local school board could subject administrators to charges of incompetency, insubordination, nonrenewal of contract, or termination. Allowing administrators to have a more prominent role in the educational technology policy-making process, i.e. having administrators examine the strengths and weaknesses of rules and guidelines at all decision-making levels, could minimize possible professional sanctions.


44 Daniel & Nance, supra note 30.
Statement of the Problem

The conventional paradigm of the policy process is as follows:

State or federal level legislators and agency heads set policy; agency bureaucrats write the guidelines and specifications; administrators at various levels down to the building administrators implement the policy initiative; and research specialists in program and policy implementation evaluation assess the effects of the policy and report back to those who set the policy.\textsuperscript{45}

The above paradigm indicates that administrators typically are only involved in policy implementation, not in policy creation. This paradigm is also evident in the educational technology policy arena. Daniel and Nance report that after conducting a statutory analysis of all fifty states' legislation dealing with educational technology, they found that "on the whole most states have failed to carve a role to be played by school administrators." In fact, they report, "only six states even mention the word 'administrator' in a statute addressing education and technology."\textsuperscript{46} Once again, school administrators are, on the whole, merely expected to comply with government directives and implement educational technology policies without having an opportunity for input. Educational technology policy, as in other areas of education policy, "is something that someone else determines and passes on to the educator. The administrator must act consistent with the policy, carry out its directives, or suffer the consequences of possible suspension or termination."\textsuperscript{47}

\textsuperscript{45} Starratt, \textit{supra} note 43, at 141. See also Daniel & Nance, \textit{supra} note 30.

\textsuperscript{46} Daniel & Nance, \textit{supra} note 30.

\textsuperscript{47} \textit{Id.}
This top-down approach has caused many administrators to become critical of the educational policy-making process.\textsuperscript{48} A recent survey indicates that administrators themselves have adopted a philosophy of "policy compliance" rather than a desire to participate in the policy-making process. The survey participants were asked to rank, in order of importance to their role as a principal, the relevance of three statements: (a) learning about K-12 technology policy issues; (b) learning about ways to become a technology leader in your school; and (c) learning technology skills for personal, professional use. Sixty-eight percent considered personal use to be most important; twenty-eight percent ranked ways to become a technology leader as most important; and only four percent ranked being aware of policy issues as the most important issue.\textsuperscript{49}

In another section of this survey, principals were asked to rate on a scale of one (not relevant) to five (critical) the relevance of fourteen policy issues as they related to their responsibilities as a principal. Issues that related to policy creation were among those that yielded the lowest means ("developing acceptable use policy, 3.31; participating in the development of a technology plan, 3.66), while issues that

\textsuperscript{48} Meza, supra note 43, at 202.

\textsuperscript{49} Lisa A. Heaton & Lisa A. Washington, Developing Technology Training for Principals, Annual Meeting of the American Educational Research Association 11 (Montreal, Quebec, Canada, April 1999), ERIC 429 588.
related to policy implementation were among those that yielded the highest means (implementing an Acceptable Use Policy, 4.10; supporting the implementation of a technology plan, 4.30).50

A qualitative study conducted by Hunt and Lockard reveals that when administrators are involved in the educational technology policy process, their involvement is normally limited to policy dealing with how to acquire equipment such as computers, modems, and networks.51

The administrators’ lack of involvement in the educational technology policy-making process is of concern. Not only could their involvement possibly minimize professional sanctions, but their participation could offer a useful and much needed perspective to the policy process.52 Starratt writes,

Educational administrators throughout the system are in a special position to grasp the strengths and shortcomings of new policies and policy guidelines...School administrators have taught in the classroom, and have memories, at least, of what a complex and dynamic task that is. School administrators have experience of coordinating a host of programs in a school or school system. That experience tends to develop a view of the whole enterprise as a dynamic composite of complementary and limiting forces working in an unpredictable field where everything impacts on everything else. Policy researchers and policymakers tend to forget the totality of the whole enterprise in all its bubbling spontaneity and complexity...Being involved in the day-to-day ebb and flow of teachers’ energies, students’ motivations, parental concerns, system calendars and deadlines, school

50 Id. at 13.


administrators develop a sense of what is educationally appropriate and administratively feasible...and [could] alert policymakers to a host of unforeseen consequences.53

Administrators, who deal with students, teachers, and curricular and instruction issues on a daily basis, could offer valuable insight into how to best spend funds for educational technology, develop state student technology learning standards, develop computer acceptable use policies for employees and students, suggest practical ideas for teacher and administrator professional development in technology, and suggest how to train prospective teachers and administrators to use educational technology effectively.54

Moreover, inviting administrators to become part of the policy-making process would facilitate policy implementation. Policy, made from a distance from those who implement it and live with it, rarely meets policymakers’ intended objectives. Educators are often extremely adept at absorbing innovations and neutralizing their impact. Policy created from state legislatures and state boards of education can be blunted at lower levels by those who wish to maintain the status quo. Studies show that policies that meet their intended purposes often engage its participants in the policy-making process. That is, those who implement policy are involved in the discussions of why it is important, and how it could be successfully integrated into existing operations.55

53 Starratt, supra note 43, at 142, 147.

54 Daniel & Nance, supra note 30.

55 Starratt, supra note 43, at 142. See also Daniel & Nance, supra note 30.
Indeed, school administrators themselves have an obligation to help shape educational policy, "for without engaging in this policy-making role with diligence, educators thereby proclaim that they have abdicated leadership."\textsuperscript{56} Choosing not to take part in the policy-making process is anathema to educational leadership because "shaping educational policy is one of the most significant aspects of educational leadership."\textsuperscript{57}

**Research Questions**

The literature on the administrators' role in the policy-making process is "oddly silent."\textsuperscript{58} And as regards to research addressing the administrators' role in the educational technology policy-making process, there is practically nothing. As such, this research will seek to establish baseline data on which to build future studies in these areas. An exploratory study will be conducted to ascertain (1) the principal's actual level of involvement in creating educational technology policy; (2) the principal's desired level of involvement in creating educational technology policy; and (3) the factors that may influence the variance in the responses. Specifically, the following nine research questions will be investigated:

(1) To what extent are Ohio public school administrators involved in the educational technology policy-making process at the building, district, state, and national levels?

\textsuperscript{56} Daniel & Nance, *supra* note 30.

\textsuperscript{57} *Id.*

\textsuperscript{58} Starratt, *supra* note 43, at 148.
(2) To what extent do Ohio public school administrators desire to be involved in the educational technology policy-making process at the building, district, state, and national levels?

(3) To what extent do district size, district poverty level, district type, principal tenure, and building level affect the principals' actual level of involvement in the educational technology policy-making process at the building, district, state, and national levels?

(4) To what extent do district size, district poverty level, principal tenure, district type, and building level affect the principals' desired level of involvement in the educational technology policy-making process at the building, district, state, and national levels?

(5) To what extent is there a relationship between principals' level of confidence in their knowledge of the policy-making process and the principals' actual level of involvement in the educational technology policy-making process at the building, district, state, and national levels?

(6) To what extent is there a relationship between principals' level of confidence in their knowledge of the policy-making process and the principals' desired level of involvement in the educational technology policy-making process at the building, district, state, and national levels?
(7) To what extent is there a relationship between the principals' level of confidence using technology and the principals' actual level of involvement in the educational technology policy-making process at the building, district, state, and national levels?

(8) To what extent is there a relationship between the principals' level of confidence using technology and the principals' desired level of involvement in the educational technology policy-making process at the building, district, state, and national levels?

(9) Are there other factors such as teaching experience, curriculum supervisor experience, undergraduate major, highest degree earned, gender, or race that influence the principals' actual level of involvement or the principals' desired level of involvement in the educational technology policy-making process at the building, district, state, and national levels?

Although it is important to find answers to the above questions for the entire nation, current resources limit the population of study to Ohio public school administrators.

Significance of Study

No studies have been conducted to ascertain the actual or desired role of the administrator in the educational technology policy-making process. In fact, the author is not aware of any studies that have sought to measure the actual or desired role in the administrator in any area of educational policy. It is his hope that this study will be used to (1) develop further research in the area of educational
technology policy; and (2) develop further research in the public school administrators' role in all areas of educational policy.

In addition, he hopes that this research instrument will be used by other researchers to ascertain the administrators' actual and desired role in educational technology policy in other states, as well as their role in other areas of educational policy.

Overview of Methodology

As previously mentioned, because minimal research has been conducted in this particular area, an exploratory study will be undertaken. Because there is nothing after which to pattern a research instrument, the instrument's validity and reliability are of primary concern. Consequently, the author will first conduct a pilot study and use factor analysis to create valid and reliable constructs. Subsequently, he will conduct the actual study. Analysis of variance and correlational analyses will be employed to identify independent variables that account for significant variance in the dependent variables.

Limitations of the Study

This study has three primary weaknesses. First, because almost no research has been carried out in this area, there is very little on which to base the study and instrument, and nothing with which to compare the results. Subsequent studies will be needed to corroborate the findings. Second, although the study seeks to measure a variety of factors that may account for variance in the dependent variables, there are most likely other factors that account for significant variance. In order to get a good survey return rate, it is important to keep the questionnaire short. There are other
important items that could be included, but there is simply not enough space. Third, the sample is limited to Ohio public school principals. If adequate time and resources were provided, the study would be conducted on a broader scale. These research questions are pertinent to school administrators in every state, not just Ohio.
CHAPTER 2

REVIEW OF THE LITERATURE

There are literally hundreds of books and articles written on policy: what policy is, how it is created and implemented, and how it is carried out. Although worthy of pursuit, all the literature pertaining to the multitude of ways policy is defined and how it may be viewed will not be summarized. Rather, the legal aspect of policy will be the primary focus. After all, it is the law that authorizes governments to establish and control the public schools that currently serve approximately 47.2 million elementary and secondary students throughout the U.S., and it is the law that ultimately holds governments and education leaders accountable for policy decisions.

Nevertheless, a working definition of policy is necessary. West's Encyclopedia of American Law defines policy as "the general principles by which a government is guided in its management of public affairs, or the legislature in its measures." West Legal Desk Reference defines policy as "the general principles by

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60 WEST GROUP, WEST'S ENCYCLOPEDIA OF AMERICAN LAW 98 (1998).
which an organization is guided and managed." 61 Black’s Law Dictionary defines policy as “the general principles by which a government is guided in its management of public affairs.” 62 Daniel defines policy as a “manifestation of choices made and the guidelines for their accomplishment.” 63 First describes policy as a broad guideline that provides an approved course of action in a given situation. 64 For the purposes of this study, policy will be defined as the general principles that guide a government agency in its management of public affairs. Policy will be viewed in the same light that legal policy-makers view it. That is, when referring to policy, the author is essentially referring principles and procedures that, according to the courts, carry the force of law.

These principles and procedures, referred to as “policy statements,” take on many forms. Policy statements may range “from an Act of Congress which sets national direction on an issue to a local school guideline which describes what courses of action the board approves in a given situation.” 65 Policy often emerges


62 BLACK’S LAW DICTIONARY (7th ed. 1999).

63 Interview with Philip T.K. Daniel, Professor of Law and Education, The Ohio State University, in Columbus, Oh. (November 29, 2001).


from several decisions and from one or more decision makers. For example, educational technology policy emerges from decisions made by U.S. Congress, state legislatures, state boards of education, local boards of education, principals, and courts of law. We are able to "look at decisions made and actions taken and, after the fact, discern the policy or the policy direction." \footnote{Id.}

To understand educational technology policy and educational policy in general, it is important to have an understanding of the legal framework of public education. "All policy has its roots in a legal structure." \footnote{Id.} One cannot fully understand educational policy until one understands who has a role in creating policy, how it is created and implemented, and how it is enforced.

The legal framework of public education and the entire country is complex and intricate. The overlapping jurisdictions of federal and state constitutions, the U.S. Congress and state legislatures, federal and state court systems, and state and local educational agencies comprise a convoluted legal system in which educational policy is created and carried out. \footnote{Daniel & Nance, \textit{supra} note 30.} One observer noted, "The legal systems of the United States baffle most foreign visitors. And not a few American citizens stand in awe of them. There is such a multiplicity of courts, laws and jurisdictions that even the

\footnote{Martha M. McCarthy et al., \textit{Public School Law} 1 (1998).}
perceptive observer frequently becomes lost in the legal maze.\textsuperscript{70} The author will seek to untangle the legal intricacies of public education by identifying which legal bodies influence educational policy, describing from where their power emanates, and demonstrating how these various bodies affect educational policy under their jurisdictions.

**The U.S. Constitution**

The U.S. Constitution is the law of the land. All statutes passed by the U.S. Congress, state legislatures, municipal governments, and any rules or regulations created by state and local educational agencies must be in accord with the U.S. Constitution. "The United States Constitution provides a reference point from which to continually revise laws that bear on schooling, an indicator of what states should, or should not, do."\textsuperscript{71} Although the U.S. Constitution refers to a variety of powers, duties, and limitations,\textsuperscript{72} the document does not specifically mention the word "education." Therefore, the Tenth Amendment comes into play. The Tenth Amendment reads, "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."\textsuperscript{73} The Supreme Court has stated that the Tenth Amendment was


\textsuperscript{72} E. EDWARD RETTERTER, JR., THE LAW OF PUBLIC EDUCATION 2 (3d ed. 1985).

\textsuperscript{73} U.S. CONST. amend. X.
intended to "allay fears that the new national government might seek to exercise powers not granted, and that the states might not be able to exercise fully their reserved powers."\textsuperscript{74}

In theory, the federal government has limited powers. Its powers are specified and enumerated in the U.S. Constitution. In contrast, because of the Tenth Amendment, states have inherent or plenary powers, which are limited only by the external checks of the U.S. Constitution (i.e. civil rights and liberties). Because states retain all powers not expressly forbidden in the U.S. Constitution, states have plenary (absolute) power over public education.\textsuperscript{75} A federal district court in Arkansas states this very clearly:

Arkansas or any other state of the Union can set up and maintain a public school system, or can refuse to set up or maintain a public school system, or even abolish an existing state public school system within its boundaries, but if a state elects to and does set up a public school system, it must do so in a manner that does not conflict with the United States Constitution as interpreted by the U.S. Courts...Since there is nothing in the U.S. Constitution directing the establishment and/or maintenance of a public school system, the states have no positive guides to follow in establishing, financing and maintaining public school systems. Each state is left to its own ingenuity and there is no positive guide for the exercise of constitutional and legislative ingenuity by a state and each state must find its own money, provide its own criteria, establish its own zones of attendance and build, administer and maintain its own school system.\textsuperscript{76}

The plenary power of states over education has also been reiterated many times by the U.S. Supreme Court. The High Court states, "The Court has repeatedly emphasized

\textsuperscript{74} United States v. Darby, 312 U.S. 100, 124, 61 S.Ct. 451, 85 L.Ed. 609 (1941).

\textsuperscript{75} TYLL VAN GEEL, THE COURTS AND AMERICAN EDUCATION LAW 66 (1987); see also MCCARTHY, \textit{supra} note 2, at 2; O'REILLY, \textit{supra} note 4, at 3.

\textsuperscript{76} Haney v. County Bd. of Ed., 284 F.Supp. 916, 921 (1968).
the need for affirming the comprehensive authority of the States and of school 
officials, consistent with fundamental constitutional safeguards, to prescribe and 
control conduct in the schools." Courts have held that power over education is 
necessary for state sovereignty, comparable to the powers to tax, exercise police 
power, and to provide for the general welfare of its citizens.

Some courts characterize state control of education as emanating from the 
state's police power. Although the term "police power" has not been fully defined 
by the courts, the term suggests that necessary powers are given to sovereign states to 
preserve the health, morals, safety, order, comfort, and well being of the public.

The Supreme Court has stated,

> What [police] power is, it is difficult to define with sharp precision. It is 
generally said to extend to making regulations promotive of domestic order, 
morals, health, and safety...[I]t extends to the protection of lives, limbs, 
health, comfort, and quiet of all persons, and the protection of all property 
within the State.

The power of the state to provide a public education system for the benefit of its 
citizens fits within this framework.

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77 Tinker v. Des Moines Indep. Sch. Dist., 393 U.S. 503, 507, 89 S.Ct. 733, 21 
L.Ed.2d. 731 (1969).

1998); see also McCarthy, supra note 2, at 2.

79 See Campbell v. Aldrich, 159 Or. 208, 79 P.2d 257, appeal dismissed, 305 U.S. 559 
(1938).

80 Leeper v. State, 103 Tenn. 500 (1899).


82 Alexander, supra note 78, at 86.
State Constitutions

In matters of education as well as all in other matters of the state, "the state constitution is fundamental and is determinative of the broad scope within which the legislature can operate." Next to the U.S. Constitution and federal statutes, state constitutions are the most powerful legal documents in their jurisdictions. All state laws and policy are subject to and cannot be at variance with the state constitution. State legislatures themselves are creatures of state constitutions and could theoretically be modified or even eliminated.

Although the U.S. Constitution gives states plenary power over education, it does not obligate states to create an educational system. Nevertheless, all states through their state constitutions have taken upon themselves the duty to establish a free public education system for their citizens of specified ages. For example, Alabama's Constitution states that the "legislature shall establish, organize and maintain a liberal system of public schools throughout the State for the benefit of the children thereof between the ages of seven and twenty-one years;" Ohio's Constitutions reads, "The general assembly shall make such provisions...as will secure a thorough and efficient system of common schools throughout the state;" New Jersey's Constitution provides "for the maintenance and support of a thorough

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83 Id. at 80.
85 Ala. Const. art. XIV, § 256.
86 Oh. Const. art. VI, 2.

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and efficient system of free public schools for the instruction of all the children in this state between the ages of five and eighteen years;" \( ^{87} \) and New York's Constitution obligates the legislature to "provide for the maintenance and support of a system of free common schools, wherein all the children of this state may be educated." \( ^{88} \)

Alexander and Alexander conducted a study on all fifty states' constitutions and found that although the provisions for the establishment and governance of public schools vary from state to state, five general underlying principles emerged. \( ^{89} \) First, they found that constitutions require state legislatures to bear the responsibility of enacting laws to govern public schools. This responsibility cannot be delegated to state or local agencies. Legislatures can allow for local discretion, but ultimately the responsibility for the maintenance of the public school system rests with state legislatures. \( ^{90} \)

The second underlying principle is that public schools are considered to be, for the most part, one cohesive unit. That is, public schools, however they may be organized across the state, comprise one organization that is subject to the prerogative of the state legislature. State constitutions generally use the word "system" to

\[ ^{87} \text{N.J. Const. art. 8, § IV.} \]

\[ ^{88} \text{N.Y. Const. art. XI, 1.} \]

\[ ^{89} \text{Alexander, supra note 78, at 30-32.} \]

\[ ^{90} \text{Id. at 30.} \]
describe the organizational structure of the public schools. The word "system"
implies orderliness, uniformity, and cohesiveness, not a conglomeration of locally
independent school agencies.91

Third, state constitutions indicate that schools, as public entities, are
controlled by the public and governed by the people. Various early American
experiences including church and private schools, pauper, rate-bill, and academy
schools, and quasiprivate or semipublic schools were rejected in favor of a public
school system. A public school system implies a system that is accessible to all and
is governed and maintained with the public interest, not a private interest, in mind.92

Fourth, state constitutions require that access to public schools be provided
free of charge. Early attempts to establish a public school system were hindered
because state legislatures were reluctant to impose a tax that would completely
support a public system. Many believed that education was a private matter that
should be funded through private resources. However, states soon realized that
having an educated constituency was a matter of public concern. Imposing fees, the
states determined, would potentially exclude many from access to educational
services. All states now have tax systems that completely finance public education.93

Fifth, the concept of a public school system requires that tax resources be
allocated throughout the state in a manner that ensures that all students receive an

91 Id. at 31.
92 Id.
93 Id.
adequate education. Said another way, the state constitutions suggest that the quality of a student's education should not depend on personal or private influence, wealth, or the fiscal capacities of a community. State constitutions seemingly did not intend that its citizens receive widely variant educational experiences due to fiscal fortunes or politics. This principal has served as the foundation for several statewide equity-funding cases that the majority of states have experienced in the last two decades.

Alexander and Alexander's study provides us with some foundational principles upon which educational policy generally must rest. First, the state constitutions indicate that the state legislatures dictate educational policy. Although state legislatures may allow state and local agencies to use discretion (i.e. create other policies), a state or local agency's policy cannot be at odds with policy created by the state legislature. Second, when a state legislature creates a policy for the public school system, all schools within that system are obligated to follow this policy. Third, school policy should be intended to benefit the public interest, not a private interest. And fourth, school policy should be directed to benefit all state citizens, not just those with political influence or substantial personal wealth. Although there are various legal various exceptions and variations to the above principles that the author will discuss later, these principles provide us a good foundation on which educational policy must generally rest.

State Legislatures

State legislatures' powers are different from those of U.S. Congress. Whereas the U.S. Congress has only those powers that the U.S. Constitution delegates to it, a

\[94\text{Id.}\]
state legislature has plenary power and may pass any legislation that is not expressly or implicitly forbidden by the state constitution or that interferes with the powers of federal authority. The Court of Appeals of New York writes, “The people, in framing the constitution, committed to the legislature the whole law making power of the state, which they did not expressly or impliedly withhold. Plenary power in the legislature of all purposes of civil government is the rule.”

As previously stated, states have plenary power over public education. State constitutions give the responsibility for creating, maintaining, and governing the public school system to the state legislatures. Therefore, state legislatures, within constitutional limits, may determine what types of schools to establish; how they will be organized; how to raise revenue and distribute funds; the curricula; pupil academic performance standards; the manner of pupil control; the ages of children who will be required/entitled to attend; the length of the school day and year; teacher and administrator certification standards; compensation of school personnel; and penalties

95 ALEXANDER, supra note 78, at 80.

96 People v. Draper, 15 N.Y. 532, 543 (1857).

97 See, e.g., ALA. CONST. Art. XIV, 256 ("The legislature shall establish, organize, and maintain a liberal system of public schools throughout the State"); ALASKA CONST. art. VII, 1 ("The legislature shall by general law establish and maintain a system of public schools"); COLO. CONST. art. IX, 2 ("The General Assembly shall...provide for the establishment and maintenance of a thorough and uniform system of free public schools"); DEL. CONST. art. X, 1 ("The General Assembly shall provide for the establishment and maintenance of a general and efficient system of free public schools"); FLA. CONST. art. XII, 1 ("The Legislature shall provide for a uniform system of public free schools and shall provide for the liberal maintenance of the same"); ME. CONST. art. VIII ("The Legislatures are authorized...for the support and maintenance of public schools").
for noncompliance with state regulations. Some state legislatures are entitled to create, alter, reorganize, or abolish school districts, even if local citizens object. An excellent example of the plenary power of states over education is the relatively recent establishment of charter schools. Since 1991, twenty-five states and the District of Columbia have enacted laws that authorize the establishment of charter schools, usually limiting the number of charters granted within the state. Charter schools are state-funded schools that operate without many of the rules and regulations imposed on a typical school that resides in a district. They operate on the basis of a charter approved by the state or local board of education.

The plenary power of state legislatures over public education has been well established in the courts at all levels. In 1962 the Ohio State Board of Education sought to revoke a high school charter because the school failed to meet twenty-one of the minimum standards for Ohio high schools. The local school board challenged

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98 See Bolmeier, supra note 84, at 100; William D. Valente & Christina M. Valente, Law in the Schools 8 (4th ed. 1998); McCarthy, supra note 69, at 2.

99 See Marathon Oil Co. v. Welch, 379 P.2d 832, 834-35 (1963) ("In the absence of constitutional restrictions, the question as to whether local boards may exercise their delegated power to change school district boundary lines, without notice and a hearing for property owners, is a matter solely for the determination of the legislature"); Neill v. Cook, 365 S.W.2d 824, 829 (Tex. App. 1963) ("The Legislature has the power to create school districts at will without any kind of notice. It also has the power to change the boundaries of or to abolish school districts, to consolidate them, to group them for high school purposes, to annex school districts to other school districts and to provide the mode and agencies for effecting such action"). But see State v. Board of Educ. of Anaconda Sch. Dist., 741 S.W.2d 747 (Mo. Ct. App. 1987) (Court held that Missouri law requires voters affected to approve district boundary changes).

100 McCarthy, supra note 69, at 2.
the decision in court. The Ohio Court of Appeals stated quite clearly that "the control of schools, be they public or private, providing elementary and secondary education for the youth of Ohio, reposes in the Legislature of our state. When the General Assembly speaks on matters concerning education it is exercising plenary power and its action is subject only to the limitations contained in the Constitution." The Michigan Supreme Court has also maintained that state legislatures have plenary power over education. The Court writes, "The legislature has entire control over the schools of the State...The division of the territory of the State into districts, the conduct of the school, the qualifications of teachers, the subjects to be taught therein are all within its control." Much of the litigation challenging state authority over public schools stems from the misconception that public schools are locally controlled. The Indiana Supreme Court sought to disabuse the public of this notion in 1890. This case has been frequently cited by a number of other courts in various jurisdictions. Seeking to resolve a dispute between the state and a local school board over a textbook law, the Indiana Supreme Court stated,

Essentially and intrinsically the schools in which are educated and trained the children who are to become the rulers of the commonwealth are matters of State, and not of local jurisdiction. In such matters, the State is a unit, and the Legislature the source of power. The authority over schools and school affairs


103 BOLMEIER, supra note 84, at 100-101.
is not necessarily a distributive one to be exercised by local instrumentalities; but, on the contrary, it is a central power residing in the Legislature of the State. It is for the law-making power to determine whether the authority shall be exercised by a State board of education, or distributed to county, township, or city organizations throughout the State.

The Court later adds,

As the power over schools is a legislative one, it is not exhausted by exercise. The Legislature having tried one plan is not precluded from trying another. It has a choice of methods, and may change its plans as often as it deems necessary or expedient; and for mistakes or abuses it is answerable to the people, but not to the courts. ¹⁰⁴

Courts have established that state legislatures have control over, among other things, the establishment of public schools,¹⁰⁵ school districts,¹⁰⁶ school boards,¹⁰⁷ school

¹⁰⁵ State Tax Commission v. Board of Education of Jefferson County, 235 Ala. 388, 393, 179 So. 197 (1938) ("The Legislature has plenary power to devise and set up a system of public schools").
¹⁰⁶ See supra note 31. See also County of Shasta v. County of Trinity, 106 Cal.App.3d 30, 165 Cal. Rptr. 18 (1980) (State legislature has plenary power over reorganization and unification of school district and may divide property and apportion debts); Kosmicki v. Kowalski, 184 Neb. 639, 171 N.W.2d 172 (1969) (State legislature has plenary power in creation and control of school districts and may modify, withdraw powers, or destroy school districts without consent of voters); Chartiers Valley Joint School v. Allegheny County Board of School Directors, 418 Pa. 520, 211 A.2d 487 (1965) (School district is creature of state legislature and has only those powers granted to it from statutes); Hammond Lumber Co. v. Board of Supervisors, 85 Cal.App.2d 568, 193 P.2d 503 (1948) (School district was created for a public purpose and may be created, altered, or abolished by the legislature).
¹⁰⁷ Kellam v. School Board, 202 Va. 252, 117 S.E.2d 96 (1960) ("The legislature has established school boards to act as agencies of the State in carrying out the obligations imposed"); Dobrovolny v. Reinhardt, 173 N.W.2d 837 (Iowa 1970) (Local school board was compelled to follow legislative mandate of attaching a non high school district to a high school district); Cohen v. State, 52 Misc.2d 324, 275 N.Y.S.2d 670 (1962) (Court upheld state law that allowed Mayor of New York City to fill vacancies on the local school board).
board membership,\textsuperscript{108} the public school curriculum and calendar,\textsuperscript{109} school revenues and expenditures,\textsuperscript{110} and control of admission of students.\textsuperscript{111}

The U.S. Supreme Court has also maintained that state legislatures have control over public education. The Court states, "If the legislature of the State has the power to create and alter school districts and divide and apportion the property of such districts no contract can arise, no property of a district can be said to be taken, and the action of the legislature is compatible with a republican form of

\begin{itemize}
\item[\textsuperscript{108}] Lanza v. Wagner, 11 N.Y.2d 317, 229 N.Y.S.2d 380, 183 N.E.2d 670 (1962) (Absent an express constitutional limitation, the state legislature may abolish an office or modify its term, even if this action curtails an incumbent's unexpired term).
\item[\textsuperscript{109}] Jones v. Board of Trustees, 8 Cal.App.2d 146, 47 P.2d 804 (1935) (Court upheld statute that allowed school districts to terminate teachers when they no longer wish students to learn a particular subject); Sturgis v. Allegan County, 343 Mich. 209, 72 N.W.2d 56 (1955) ("The legislature has entire control over the schools of the State subject only to the provisions of the Constitution relating thereto"); Child Welfare Society of Flint v. Kennedy School District, 220 Mich. 290, 189 N.W. 1002, 1004 (1922) ("The legislature of the State has entire control over the schools of the state...[and] the subjects to be taught therein").
\item[\textsuperscript{110}] San Antonio Ind. School District v. Rodriguez, 411 U.S. 1, 93 S.Ct. 1278, 36 L.Ed.2d 16 (1973), \textit{rehearing denied} 411 U.S. 959, 93 S.Ct. 1919, 36 L.Ed.2d 418 (1973) (The Court gives "traditional deference to state legislatures in the areas of fiscal and educational policies and local taxation"); Advisory Opinion, 390 Mich. 166, 211 N.W.2d 28 (1973) ("The Legislature may impose whatever limitations it deems necessary to prevent deficit spending and the issuance of bonds and other evidences of indebtedness").
\item[\textsuperscript{111}] Delta Special School District v. State Board of Education, 745 F.2d 532 (8th Cir. 1984) (Court upholds school district's right to deny transfer of six students to neighboring school district according to state law); See Child Welfare Society of Flint, 220 Mich. at 295.
\end{itemize}
government.\textsuperscript{112} Said another way, the Supreme Court affirms that state legislatures have absolute power to "make and change subordinate municipalities,\textsuperscript{113} which include public school districts.

\textsuperscript{112} Kies v. Lowry, 199 U.S. 233, 239, 26 S.Ct. 27, 29, 50 L.Ed. 167 (1905).

\textsuperscript{113} Id. at 240. The Supreme Court affirmed the state legislature's absolute power over municipal corporations two years later. The following statements have been cited literally hundreds of times by courts at all levels. They are important to this discussion simply because school districts, put simply, are municipal corporations of states.

"This court has many times had occasion to consider and decide the nature of municipal corporations, their rights and duties, and the rights of their citizens and creditors...Municipal corporations are political subdivisions of the State, created as convenient agencies for exercising such of the governmental powers of the State as may be entrusted to them. For the purpose of executing these powers properly and efficiently they usually are given the power to acquire, hold, and manage personal and real property. The number, nature and duration of the powers conferred upon these corporations and the territory over which they shall be exercised rests in the absolute discretion of the State."

* * *

"The State, therefore, at its pleasure may modify or withdraw all such powers, may take without compensation such property, hold it itself, or vest it in other agencies, expand or contract the territorial area, unite the whole or a part of it with another municipality, repeal the charter and destroy the corporation. All this may be done, conditionally or unconditionally, with or without the consent of the citizens, or even against their protest. In all these respects the State is supreme, and its legislative body, conforming its action to the state constitution, may do as it will, unrestrained by any provision of the Constitution of the United States. Although the inhabitants and property owners may by such changes suffer inconvenience, and their property may be lessened in value by the burden of increased taxation, or for any other reason, they have no right by contract or otherwise in the unaltered or continued existence of the corporation or its powers, and there is nothing in the Federal Constitution which protects them from these injurious consequences."

From the preceding court cases, it is evident that state legislature’s power over education cannot be distributed to local governments. Power over educational policy is centralized and resides in the state. The legislature has an unrestricted prerogative to organize, maintain, and prescribe the methods of education and policy for the state education system.\textsuperscript{114} It would seem, then, that state legislatures have complete, absolute power over the public school system. Indeed, the word “plenary” means “full, complete; absolute.”\textsuperscript{115} However, legislative power over educational policy is subject to limits imposed by the U.S. Constitution, federal statutes, and state constitutions.

**Limits of State Legislatures’ Power over Educational Policy**

Because the U.S. Constitution is the law of the land, educational policy enacted by the state legislatures may not be at variance with any U.S. constitutional provision. The Supreme Court in 1958 stated,

> It is, of course, quite true that the responsibility for public education is primarily the concern of the States, but it is equally true that such responsibilities, like all other state activity, must be exercised consistently with federal constitutional requirements as they apply to state action.\textsuperscript{116}

The Supreme Court over the years has laid out how constitutional guarantees affect public education. While each constitutional provision affects public education to some degree, the provisions that have had the most effect on educational policy include the General Welfare Clause, the Commerce Clause, the Obligation of

\textsuperscript{114} ALEXANDER, supra note 78, at 79-80.

\textsuperscript{115} WEBSTER’S NEW WORLD DICTIONARY 1037 (3d ed. 1988).

\textsuperscript{116} Cooper v. Aaron, 358 U.S. 1, 19, 78 S.Ct. 1401, 3 L.Ed.2d 5 (1958).
Contract Clause, the First Amendment, the Fourth Amendment, the Fifth Amendment, the Ninth Amendment, and the Fourteenth Amendment.\footnote{117}{McCarthy, supra note 69, at 15.}

Federal statutes also limit the power of state legislatures over educational policy. The U.S. Constitution states, “This Constitution, and the Laws of the United States which shall be made in Pursuance thereof...shall be the supreme Law of the Land.”\footnote{118}{U.S. Const. art. VI, § 2.} This article, also known as the Supremacy Clause, has been interpreted by the Supreme Court to mean that when a federal and state statute conflict, the federal statute preempts.\footnote{119}{See Gibbons v. Ogden, 22 U.S. 1, 211, 6 L.Ed. 23 (1824) ("The appropriate application of that part of the clause...is to such acts of the State Legislatures as do not transcend their powers, but, though enacted in the execution of acknowledged State powers, interfere with, or are contrary to the laws of Congress, made in pursuance of the constitution...[i]n every such case, the act of Congress...is supreme; and the law of the State, though enacted in the exercise of powers not controverted, must yield to it").} However, this preemption is contingent upon whether the state statute “stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.”\footnote{120}{Hines v. Davidowitz, 312 U.S. 52, 67, 61 S.Ct. 399, 85 L.Ed. 581 (1941).} The Supreme Court later elaborated on this principle. Justice Douglas writes,

The question in each case is what the purpose of Congress was...Such a purpose may be evidenced in several ways. The scheme of federal regulation may be so pervasive as to make reasonable the inference that Congress left no room for the States to supplement it. Or the Act of Congress may touch a field in which the federal interest is so dominant that the federal system will be assumed to preclude enforcement of state laws on the same subject. Likewise,
the object sought to be obtained by the federal law and the character of obligations imposed by it may reveal the same purpose. Or the state policy may produce a result inconsistent with the objective of the federal statute.\textsuperscript{121}

The legal intricacies of this doctrine will not be fully discussed. Generally speaking, unless federal law has intended to remove states from influencing policy in a particular area, states may provide more protection than what the U.S. Constitution or federal statutes provide. Thus, not all "conflicts" between federal and state law lead to the preemption of federal law. However, when a state law frustrates the intended purposes of the U.S. Congress, the state law will be ruled as unconstitutional.\textsuperscript{122}

The above principle was demonstrated in \textit{Lawrence County v. Lead-Deadwood School District}.\textsuperscript{123} In this case, the federal government provided Lawrence County of South Dakota with federal funds under the Payment in Lieu of Taxes Act. The Payment in Lieu of Taxes Act requires the federal government to compensate local governments for loses in tax revenue due to tax-immune status of federal grants located in their jurisdictions, and the costs of providing services to these lands. The Act specifically states that the local unit may use these federal funds for any governmental purpose. A South Dakota statute, however, required local governments to distribute federal funds in the same way they distribute local taxes. That is, the county would need to give 60 percent of the funds to the local school districts. The county refused to give money to the school districts, claiming that the


\textsuperscript{122} VAN GEEL, supra note 75, at 72.

\textsuperscript{123} 469 U.S. 256, 105 S.Ct. 695, 83 L.Ed.2d 635 (1985).
Act allowed them to use the funds on any governmental purpose they selected. The U.S. Supreme Court held that the South Dakota statute violated the Supremacy Clause because (1) the language of the statute indicated that Congress intended to give local governments discretion in how to use the funds; (2) the Department of the Interior, the federal agency that administered the statute, interpreted the statute to mean that states could not impose regulations on local governments as to how to use the funds; and (3) the legislative history suggests that Congress intended to give local governments discretion in how to spend the federal funds. Thus, state policy gave way when the courts reasoned that it was thwarting U.S. Congress’ intentions.124

In a recent trend the courts have also begun circumscribing state education legislation within the bounds state constitutions have established.125 As previously mentioned, several state constitutions contain phrases such as “efficient,” “thorough,” “effective,” “uniform,” and “system.” Courts have utilized these phrases as grounds for striking down state legislation that governs school finance.126 One court has classified these education clauses as “duties.” It writes,

124 See also Yellow Springs etc. School Board of Education v. Ohio High School Athletic Association, 647 F.2d 651 (6th Cir. 1981) (State agencies may not authorize schools to participate in activities that would violate conditions of receiving federal funds even though these activities may be authorized under state law).

125 Alexander, supra note 78, at 80.

126 See Helena Elementary School District No. 1 v. State, 236 Mont. 44, 769 P.2d 684 (1989) (Montana Supreme Court held that current state method for funding schools was unconstitutional); Rose v. Council for Better Education, Inc., 790 S.W.2d 186 (Ky. 1989) (Kentucky Supreme Court held that common school finance system was unconstitutional); Edgewood Independent School District v. Kirby, 777 S.W.2d 391 (Tex. 1989) (Texas Supreme Court held that Texas’s property tax-based system for financing public education was unconstitutional).
The constitution has created a "duty" that is supreme, preeminent or dominant. Flowing from this constitutionally imposed "duty" is its jural correlative, a correspondent "right" permitting control of another's conduct. Therefore, all children residing within the borders of the State possess a "right," arising from the constitutionally imposed "duty" of the State, to have the State make ample provision for their education.\(^{127}\)

This recent trend has created a new standard for which educational policy must adhere.\(^{128}\)

**State Agencies**

Most state legislatures have organized a three-echelon system to administer public education. This system consists of state, regional, and local education agencies. Seventeen states have a two-echelon system, state and local.\(^{129}\) Hawaii operates a single-level educational system.\(^{130}\) State education agencies vary in terms of structure, size, organization, duties, powers, and relationships with other agencies. It is difficult to generalize state education agencies because of notable variations that exist from state to state. Typically, state agencies include a State Board of Education, a Chief State School Officer,\(^ {131}\) and a State Department of Education.

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\(^{128}\) ALEXANDER, supra note 78, at 80.


\(^{130}\) VALENTE, supra note 129, at 35.

\(^{131}\) The Chief State School Officer may also be termed the State Superintendent of Schools or the State Commissioner of Education. See REUTTER, supra note 72, at 96.
Broadly speaking, the State Board of Education’s primary concern is policy formation. More specifically, the Board sets specific guidelines as to how to carry out the will of the state legislature.\textsuperscript{132} State boards have been given broad discretionary power and will be the primary focus of this section.

The Chief State School Officer (CSSO) functions in an executive capacity and helps with duties of both the State Board of Education and the State Department of Education. The CSSO regulates activities and often engages in policy research and long-range planning. In some states, the CSSO is responsible for adjudicating educational controversies.\textsuperscript{133}

The State Department of Education consists of educational specialists who consult with the State Board of Education, the CSSO, and local school boards. The Department often collects data from school districts to verify whether state policies have been properly implemented. It deals with day-to-day administrative services and with planning, research, and statistical services. It also frequently engages in research to improve state educational practices and to recommend policy for adoption.\textsuperscript{134}

All states except Wisconsin have established a State Board of Education. Less than half of the state boards have been established by state constitutions. Generally, the governor appoints all or most of the board members, but thirteen states

\textsuperscript{132} \textit{Id. See also} VAN GEEL, supra note 75, at 66-67.

\textsuperscript{133} McCARTHY, supra note 69, at 5. \textit{See also} VALENTE, supra note 129, at 36.

\textsuperscript{134} \textit{Id.}
have mandated that the citizenry elect its state board members. In two states the board members serve ex officio. That is, they serve on the state board because they hold another public office. The terms of office range from two to fifteen years, with four to six years being the most common. The size of the boards ranges from three to twenty-four members, with five to eleven being most typical.\(^{135}\)

Although a few states grant the Chief State School Officer substantial policy-making power, in most states the State Board of Education has the primary responsibility of carrying out the will of the state legislature. The state board is one level below the state legislature in the educational policy hierarchy.\(^{136}\) Although the authority to organize, provide for, and administer the public school system lies with the state legislature, it is neither possible nor desirable to include in the statutes all the details necessary for the governance of schools. Therefore, all states except Wisconsin have established a State Board of Education to carry out broad legislative mandates by filling in structural details.\(^{137}\) La Morte writes, “Although the duties and responsibilities of state boards of education... vary, their primary function is to adopt the necessary policies, rules, and regulations to implement legislation and constitutional requirements. When not in conflict with constitutional decrees, these polices, rules, and regulations have the force of law.”\(^{138}\) An Illinois court has stated

\(^{135}\) Valente, supra note 129, at 36.

\(^{136}\) Reutter, supra note 72, at 96.

\(^{137}\) McCarthy, supra note 69, at 3. See also Bolmeier, supra note 84, at 155.

that the General Assembly has properly delegated public school responsibilities to subordinate agencies, such as duly-elected school boards, out of "practical necessity."
The state legislature, the court stated, simply could not "conveniently or efficiently attend to the details of establishing, maintaining, and operating public schools."\footnote{Tyska by Tyska v. Board of Education, 117 Ill.App.3d 917, 925-926, 453 N.E.2d 1344 (1983).}

Remmlein elegantly states the legal role state boards of education have in policy:

> In any phase of school management wherein the state board of education has been given powers of operation, the rules and regulations of the state board have the force and effect of law. However, being a creature of the legislature in most states, the state board has only the powers delegated to it or implied in the delegated powers. In the states where the state board is created by constitutional provision, its constitutional powers are very general, and in specific instances it depends upon the legislature for its authority to act. In either case, if the state board acts outside its delegated or implied power, the rule or regulations is void. There is, however, a presumption of authority, and until challenged in court, all rules and regulations of the state board are presumed to be valid and have effectiveness as enforceable as a statute enacted by the legislature.\footnote{MADALINE KENTER REMMLEIN, SCHOOL LAW 3 (1950).}

As Remmlein indicates, the key component to the state boards’ legal authority is its delegated power. State legislatures may, and often do, enact specific legislation to be carried out by state and local education agencies. This legislation often deals with matters that include school calendars, school board election dates, or pupil attendance requirements. However, in most instances, specific legislative direction is not possible and legislatures delegate authority to state and local agencies to administer educational affairs. Because most educational decisions require on-the-
spot judgment or need to be tailored to local needs, legislatures delegate broad discretionary authority to state and local agencies to determine how to meet legislative directives.\textsuperscript{141} The Illinois Supreme Court stated, "[The legislature] may delegate to others the authority to do those things which the legislature might properly do, but cannot do as understandingly or advantageously."\textsuperscript{142} It is the courts that determine whether or not an agency has exceeded or misinterpreted delegated authority.\textsuperscript{143}

Valente argues that the case law and Administrative Procedure Acts vary from state to state, but states generally have adopted three principles that comprise the delegation doctrine:

1) That the authorized action must be delegable in nature, i.e. a statute may not attempt to transfer 'lawmaking' power, which only the legislature itself can exercise; otherwise, it is unconstitutional and void...The test of delegability rests essentially on constitutional principles.

2) That the action taken must fall within the scope of the statutory delegation. Otherwise, it is void, as 'ultra vires'...The scope of authority issue rests on statutory interpretation and legislative intent.

3) That, notwithstanding a valid statutory grant of the power, the administrative authority may not abuse its authority by acts that are arbitrary, capricious, or made in bad faith. Unlike the preceding rules

\textsuperscript{141} \textit{Valente}, supra note 98, at 8. See also \textit{Alexander}, supra note 78, at 82.

\textsuperscript{142} \textit{Hill} v. \textit{Relyea}, 34 Ill.2d 552, 216 N.E.2d 795, 797 (1966).

\textsuperscript{143} \textit{Brandon Valley Independent School Dist. No. 150} v. \textit{Minnehaha County Bd. of Educ.}, 85 S.D. 255, 181 N.W.2d 96, 98 (1970) ("In reviewing questions of law the courts may determine whether or not the agency exceeded or misinterpreted its authority").
which pose primary questions of law, the 'abuse of discretion' rule involves questions of law and fact, and is heavily colored by specific case contexts.\textsuperscript{144} Although the above principles are grounded in different legal rules, courts often tend to run the rules together, misapplying legal labels and misdescribing the rules applied. For example, some courts label any unlawful act by a public school administrator as "ultra vires," disregarding whether the challenged act is based on an unconstitutional principle, an exceeded use of delegated authority, or an abuse of discretion.\textsuperscript{145}

As principle one indicates, legislatures may delegate administrative authority, but they may not delegate lawmaking authority. Lawmaking authority rests exclusively with elected legislatures and may not be delegated to administrative agencies. This principle holds even if agency officials in some states, such as state board members, are elected directly by the people. As the previous section demonstrates, state constitutions give ultimate power over public education to state legislatures, not state agencies. Not allowing legislatures to delegate their lawmaking authority is in the best interest of the people. This basic tenet of democracy was articulated as early as 1691 by John Locke. In his second treatise on civil government, he wrote:

\begin{quote}
The legislature cannot transfer the power of making laws to any other hands, for it being but a delegated power from the people, they who have it cannot pass it over to others...[N]obody else can say other men shall make laws for them; nor can they be bound by any laws but such as are enacted by those whom they have chosen and authorized to make laws for them.\textsuperscript{146}
\end{quote}

\textsuperscript{144} Valette, supra note 129 at 18.

\textsuperscript{145} Id.

\textsuperscript{146} John Locke, Second Treatise on Civil Government, Ch.11, Sec. 141 (1690).
According to the California Supreme Court, an unconstitutional delegation of powers occurs "when the Legislature confers upon an administrative agency the unrestricted authority to make fundamental policy determinations."\textsuperscript{147} The Michigan Supreme Court, however, somewhat clarifies the delegation doctrine. It writes:

There is no doubt that a legislative body may not delegate to another its lawmaking powers...This is not to say, however, that a subordinate body or official may not be clothed with the authority to say when the law shall operate, or as to whom, or upon what occasion, provided, however, that the standards prescribed for guidance are as reasonably precise as the subject matter requires or permits.\textsuperscript{148}

The above statement reveals something of the general theory of delegation that courts follow. To determine whether a delegation of authority is constitutional, courts look to see that the grant of authority is accompanied by sufficient standards to guide discretion.\textsuperscript{149} More specifically, the Supreme Court of Washington writes:

The legislature may delegate these legislative controls to an administrative agency of the state; provided, in so doing, it defines what is to be done, the instrumentality which is to accomplish it, and the scope of the instrumentality's authority in so doing, by prescribing reasonable administrative standards.\textsuperscript{150}

Some argue that this "reasonably adequate standards" guards against "arbitrary use of the delegated administrative authority."\textsuperscript{151}

\textsuperscript{147} Clean Air Constituency v. California State Air Resources Bd., 11 Cal.3d 801, 114 Cal.Rptr. 577, 523 P.2d 617, 626 (1937).


\textsuperscript{149} \textit{VAN GEEL, supra} note 75, at 67. \textit{See also ALEXANDER, supra} note 78, at 82.

\textsuperscript{150} State v. Kinnear, 70 Wn.2d 482, 423 P.2d 937, 940 (1967).

A good example of when a court has ruled that authority was improperly delegated is *School Dist. No. 30 of Washington County v. Decker.* ۱۵۲ The Nebraska State Legislature gave authority to the Superintendent of Public Instruction to "formulate rules and regulations for the approval of all high schools for the collection of free high school tuition money." ۱۵۳ Pursuant to this authority, the state superintendent intended to force a rule that required high schools to maintain a teacher-student ratio of at least 1-5. A rural school district maintained a teacher-student ratio of 1-4 and, according to the state superintendent, could no longer legally collect free high school tuition for nonresident students, maintain an exemption from the free high school tax levy, and be recognized as having a high school in Rose Hill. The rural district claimed that the state legislature unconstitutionally and invalidly delegated this authority and power to the state superintendent. The Supreme Court of Nebraska held that the superintendent could not legally uphold the rule concerning teacher-student ratios because the superintendent could arbitrarily change this number and thereby have power over the life and death of all high schools in the state and the grant or denial of free high school tuition revenue. The court stated that the statute did not contain enough limitations, standards, and rules of guidance to assist the state superintendent in carrying out the legislature’s intentions, thereby improperly delegating authority to a state official.


۱۵۳ Id. at 694.
The courts, however, have generally recognized the increasing complexity of our society and have relaxed their standards of judgment. The courts maintain a stricter standard in areas such as taxation, property rights, and individual rights, but state education agencies typically are given broad latitude to regulate educational matters.\textsuperscript{154} In \textit{School Dist. No. 8 v. Bd. of Educ.},\textsuperscript{155} the Nebraska Supreme Court stated this principle clearly. It writes:

The difference between a delegation of legislative power and the delegation of authority to an administrative agency to carry out the expressed intent of the Legislature and the details involved has long been a difficult and important question. Increased complexity of our social order, and the multitude of details that necessarily follow, has led to a relaxation of the specific standards in the delegating statute in favor of more general ones where a specialized state agency is concerned. It is almost impossible for a legislature to prescribe all the rules and regulations necessary for a specialized agency to accomplish the legislative purpose. The delegation of authority to a specialized department under more generalized standards has been the natural trend as the need for regulation has become more evident and complex.\textsuperscript{156}

The U.S. Supreme Court has also stated that a legislative body "does not abdicate its functions when it describes what job must be done, who must do it, and what is the

\textsuperscript{154} ALEXANDER, \textit{supra} note 78, at 83.

\textsuperscript{155} 127 N.W.2d 458, 176 Neb. 722 (1964).

\textsuperscript{156} \textit{Id.} at 726. \textit{See also} Schinck v. Board of Education of Westwood Consolidated School Dist., 60 N.J.Super. 448, 463, 159 A.2d 396 (1960) ("The exigencies of modern government have increasingly dictated the use of general rather than minutely detailed standards in regulatory enactments under the police power"); Dicken v. Kentucky State Board of Educ., 304 Ky. 343, 199 S.W.2d 977, 981 (1947) ("The line separating that which is purely regulation, and that which is purely legislation, is necessarily indistinct, and becomes more so as the line separating such authority is approached. Therefore, courts...will resolve the doubt in favor of the validity of the act rather than holding it invalid...which is especially true when the act is essential and necessary for the carrying out the broad purpose and intent of the Legislature").

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scope of his authority. In our complex economy that indeed is frequently the only way in which the legislative process can go forward."157

In sum, having broad, even vague, guidelines consistent with the state legislature’s intent is generally sufficient to meet constitutional standards.158 But at the same time, legislation must not be so vague so as to rely almost exclusively on a state agency’s discretion.159 The Supreme Court of Connecticut struck down state legislation that stated that school boards could expel students found guilty of “conduct inimical to the best interests of the school.” The Court acknowledged the importance of approving delegation under broad standards to facilitate the operational functions of state agencies, but also claimed that a statute “which forbids or requires conduct in terms so vague that persons of common intelligence must necessarily guess at its meaning and differ as to its application violates the first essential of due process.”160

Valente’s second principle indicates that action taken by state agencies must “fall within the scope of the statutory delegation.” That is, their power must not exceed the scope of their delegated authority. Because challenging state agencies’ actions in court under principle one now has little legal promise, plaintiffs normally

158 Valente, supra note 129, at 20. See also Reutter, supra note 72, at 99.
159 Reutter, supra note 72, at 99.
challenge state agencies' acts under this principle. If a court finds that the agency has exceeded its delegated authority, it will declare the act “ultra vires” (meaning beyond the powers) and void. To determine the scope of authority, courts will typically examine the statute, determining the powers expressed therein, and the powers fairly implied therefrom to achieve the statute's purpose. Usually included in most state codes is the catch-all provision that grants powers reasonably necessary for the proper and efficient management of the public school system, thus giving state agencies broad discretionary power.

State agencies regularly assume broad implied powers that normally go unchallenged. When challenged, courts have generally upheld educational policy created by the state boards of education, unless the policy violates constitutional provisions or state or federal legislation. For example, in State ex rel. Miller v. Board of Education, the Kansas State Board of Education adopted a regulation that required local schools boards to create policies relating to student and employee conduct in schools. A local school board claimed the State Board of Education lacked proper authority to enact or enforce such a regulation. The Supreme Court of

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161 VAN GEEL, supra note 75, at 68.

162 VALENTE, supra note 129, at 22.

163 Id.

164 See e.g., Elroy Kendall Wilton Schools v. Cooperative Educational Service Agency, District 12, 102 Wis.2d 274, 306 N.W.2d 89 (1981) (authority to acquire space to operate did not expressly grant authority to purchase real estate); Haschke v. School District, 184 Neb. 298, 167 N.W.2d 79 (1969) (power was given to construct a school, not to lease a building).
Kansas held that the State Board of Education had supervisory power over local school districts and enabling legislation was unnecessary for the Board to adopt such a regulation. 165

The Pennsylvania State Board of Education adopted and published statewide regulations entitled “Students Rights and Responsibilities,” which dealt with subjects including corporal punishment, flag salute, suspension and expulsion from school, confidential communications, searches, and student hair and dress. Several school districts filed a suit claiming the State Board overstepped its bounds of authority and declared the regulations to be void and unenforceable. The lower court found for the local school districts stating that the State Board could not establish statewide rules of student conduct. The local school districts, the court said, had exclusive authority in this area. 166 The Pennsylvania Supreme Court, however, reversed the lower court’s decision. It held that the delegation of legislative power to the State Board is “both far-reaching and unequivocal.” The Court stated that “all matters falling within the educational program of the Commonwealth are included in that Board’s domain.” It added, “The Board is not only directed to ‘adopt broad policies and principles’ but also to ‘establish standards governing the educational programs.’ It is then specifically mandated to ‘make all reasonable rules and


The Supreme Court acknowledged the State Board's authority to create and enforce policy governing student conduct for the entire state.

The West Virginia State Board of Education adopted a regulation requiring students to maintain a 2.0 or "C" grade point average to be able to participate in extracurricular activities. A local school board challenged the State Board's authority to enact such a policy, believing that the legislature had given exclusive power to local districts to decide in matters regarding extracurricular activities. The West Virginia Supreme Court ruled for the State Board. The Court stated that it did not believe the legislature intended to give local school boards exclusive control over extracurricular activities and even if it did, such control must yield if policies interfere with the State Board of Education's "exercise of general supervision over [the] state's educational system." 168

The Sixth Circuit Court of Appeals upheld the Ohio State Board of Education's decision to force a larger school district to annex a smaller school district. The smaller school district did not have enough students to meet the state requirements for creating a high school and therefore, under policy created by the State Board, faced dissolution. The Court stated that the State Board violated no


constitutional provision by dissolving the school district, and the failure of the State Board to grant an exception to the rule was not motivated by impermissible considerations.\textsuperscript{169}

In Hawaii, residents of Honolulu and parents of 5\textsuperscript{th} and 6\textsuperscript{th} grade children brought a suit against the Hawaii State Board of Education challenging their authority to adopt a curriculum that instructed children in family life and sex education. Plaintiffs argued that because the Board of Education's power is based upon law and no legislative authority was granted to the Board to adopt such a program, the Board exceeded its delegated authority. In other words, plaintiffs argued that the Board must have a specific authorization from the state legislature before such a program or policy could be adopted. The Hawaii Supreme Court did not agree. It stated that the Board had broad discretionary powers to formulate and enact educational programs for the state and that their actions were well within their delegated authority.\textsuperscript{170}

The North Carolina State Board of Education required all teachers to renew their teaching certificates every five years by earning credits, some of which needed to be earned at a university. A teacher, upset because he had to forego summer employment to earn the required credits, argued that the Board of Education had exceeded its authority when it enacted rules and regulations regarding teacher certification. He claimed that the Board needed statutory authority to adopt such regulations. The Supreme Court of North Carolina pointed out that the state

\textsuperscript{169} Wilt v. Ohio State Bd. of Educ., 608 F.2d 1126 (6th Cir. 1979), cert. denied, 445 U.S. 964 (1980).

constitution granted the State Board power to supervise and administer the public school system in conformity with the state constitution and state legislation. Because these rules and regulations did not conflict with any existing statutes, the Court ruled that the Board had not exceeded its delegated authority.\footnote{Guthrie v. Taylor, 279 N.C. 703, 185 S.E.2d 193 (1971).}

In Maryland a county board passed a resolution to deliver fingerprint cards of its employees to the local police for screening. The Maryland State Board of Education, after a public hearing, passed an order setting the resolution aside and prohibiting all county boards to adopt such a policy. The county board challenged the State Board’s authority to overrule the resolution. The Court of Appeals of Maryland stated that the State Board had “visitatorial power of the most comprehensive character” and that it had the “last word on any matter concerning educational policy or the administration of the system of public education.” The court declined to comment on whether the policy was wise or unwise, only that it was well within the State Board’s authority to decide on administrative policy that determines whether or not county boards could screen their employees in such a manner.\footnote{Wilson v. Board of Educ. of Montgomery County, 234 Md. 561, 565, 200 A.2d 67 (1964).}

There are several cases, however, in which the courts have found that a state board of education exceeded its delegated authority. As previously indicated, this typically occurs when courts find that policy violates constitutional provisions or state or federal legislation. For example, parents brought a suit against the Wyoming State Board of Education because the Board had approved an experimental four-day school
week for a local school district. The Wyoming Supreme Court stated that however laudable the program may be, a Wyoming statute mandated that schools operate for a minimum of 175 days a year. The experimental week would require students to attend school 144 days, well below the state minimum. The Court stated that the Board did not have the authority to approve programs that were contrary to state legislation.173

In another example, the California State Board of Education revoked a teaching certificate when the Board was advised that a teacher engaged in a homosexual relationship for a one-week period. The California Supreme Court ruled that the Board was authorized to utilize disciplinary measures when conduct indicated that a teacher was unfit to teach. The Court found no evidence that a one-week homosexual relationship affected the teacher's ability to teach effectively and ruled that the teacher's certification be reinstated.174

State boards of education also may not abrogate power that state legislatures have specifically delegated to other state agencies such as local school boards. In State v. Whittle Communications and the Thomasville City Bd. of Educ.,175 a local school district entered into a contract with Whittle Communications. Whittle Communications is a company that provides schools with television equipment in exchange for the right to air a short daily news program that includes commercials.

The North Carolina State Board of Education subsequently adopted a rule prohibiting local school districts from entering into contracts that could undermine the state's authority to determine the public school curriculum and declared the local district's contract void. The Supreme Court of North Carolina ruled that the State Board overstepped its delegated authority. The General Assembly, it stated, had given power to local school boards to select and procure supplementary curriculum materials. The Board did not have authority to enact policy that prohibited this delegated power.

Valente's third principle indicates that state agencies may not abuse their authority by "acts that are arbitrary, capricious, or made in bad faith." Courts are not inclined to substitute their own judgment for that of administrative agencies unless they find that the agency's discretion has clearly been made in an arbitrary or capricious manner. The Commonwealth Court of Pennsylvania states, "It is well-established that courts will not intervene in such discretionary acts of school boards...in the absence of bad faith, fraud, capricious action or abuse of power."176

176 Midvalley Taxpayers v. MidValley School, 52 Pa. Commw. 402, 416 A.2d 590, 593 (1980). See also Wolf v. Cuyahoga Falls City Sch. Board of Educ. 52 Ohio St.3d 222, 556 N.E.2d 511, 515 (1990) ("Discretion will not be interfered with by a court absent an abuse of discretion"); Bronestine v. Geisendorfer, 613 S.W.2d 465, 467 (1981) ("The court may not disturb discretionary decisions of school boards and substitute its judgment...It is only in the rare case where the pleader alleges sufficient facts to show that the school board has acted in an unreasonable, arbitrary, and capricious manner that the courts may interfere").
Reutter writes, "That the judiciary is ill-equipped to act as a 'super-school-board' in evaluating complex factors affecting education of children is frequently expressly recorded in opinions of courts."

Regional Agencies

As indicated, most state legislatures have organized a three-echelon system to administer public education. This system consists of state, regional, and local education agencies. Regional agencies, otherwise known as county boards of education or intermediate units, are found in most states and operate between the state and local school district levels. Intermediate units often serve multi-county areas.

These units are not involved in the policy-making process. Rather, they deliver a variety of services to their designated regions, which otherwise could not be delivered as economically or efficiently. These services may include education for handicapped students, vocational education, drug and health education and services, continuing education, staff development, data processing, consultative services, psychological and psychiatric services, cooperative purchasing, and repair and maintenance of equipment. Conceivably, these services could also include educational technology. Some of these services are mandated through legislation, but units may also be empowered to implement optional programs in local school districts in their regions.

177 Reutter, supra note 72, at 116.

178 VaIente, supra note 98, at 10-11. See also O'Reilly, supra note 71, at 12.
Local School Boards

Before discussing the role local school boards play in educational policy, it is important to note that because local school boards, like state boards of education, are agencies of the state, the legal doctrines discussed in the previous section apply to local school boards. Likewise, the legal doctrines discussed below, particularly express and implied powers and discretionary and ministerial authority, apply in their own right to state boards of education.

It has been stated that education is "of national interest, a function of the state government, and subject to local control."179 Although this statement is an oversimplification, it alludes to the fact that education is still very much controlled at the local level.180

The local school district's controlling body is the local board of education, sometimes referred to as a school committee or a board of trustees. A Mississippi court refers to a local school board as "an administrative agency to which certain powers have been delegated by the legislature which are either administrative or legislative in nature."181 An Ohio court defines a local school board as a "quasi corporation acting for the public as one of the state's ministerial education agencies for the organization, administration and control of the public school system of the..."
state," and "a body corporate and politic of the state."\textsuperscript{182} The primary function of the local school board is to enact policy for a specific geographic region of the state, called a school district. Other responsibilities include hiring a superintendent and approving the annual budget.\textsuperscript{183} Every state except Hawaii has created local school boards and has delegated to them specific administrative powers to govern local schools.\textsuperscript{184}

There are approximately 14,891 local districts in the United States. District size ranges from over 100,000 students (sometimes having several hundred thousand) to less than 150 students.\textsuperscript{185} School districts may include an entire state, like Hawaii, or be formed from townships, municipalities, counties, or from other means.

Just as the functions and powers of state agencies vary from state to state, the functions and powers of local school boards also vary. Some states, such as Colorado, have deeply rooted traditions of local control over schools. These states give broad discretion and latitude to the local school boards. Other states, such as Florida, shy away from local control and favor a highly centralized system. Local school boards that operate in these states normally function under a framework of detailed legislative directives. However, as established in previous sections, all states

\begin{itemize}
\item \textsuperscript{182} Wayman v. Board of Education, 5 Ohio St.2d 248, 249, 215 N.E.2d 394 (1966).
\item \textsuperscript{183} \textit{Id}. See also DAVID J. SPERRY & PHILIP T.K. DANIEL ET AL., EDUCATION LAW AND THE PUBLIC SCHOOLS: A COMPENDIUM 95 (1998); O'REILLY, supra note 71, at 19.
\item \textsuperscript{184} MCCARTHY, supra note 69, at 5. See also HUDGINS, supra note 70, at 58.
\item \textsuperscript{185} NATIONAL CENTER FOR EDUCATION STATISTICS, DIRECTORY OF PUBLIC ELEMENTARY AND SECONDARY EDUCATION AGENCIES 1998-1999 xxv (2000).
\end{itemize}
retain control over public education and can restrict or expand the actions and responsibilities of local school boards at any time by enacting legislation.\textsuperscript{186}

Generally, local school board members are elected by the citizenry who reside within the school district.\textsuperscript{187} State legislatures can delineate school board members’ qualifications, their terms and conditions for membership, and methods by which they are selected. Board members, regardless of how they come to office, are state, not local, officers who have sovereign power. In contrast, school employees, including the superintendent and principals, do not have sovereign power and are employed to implement directives.\textsuperscript{188}

There are many procedures a local school board must follow if their decisions are to be considered legally valid. Although the author will not describe the many details and case law surrounding these procedures, generally speaking the local school board must, among others, (1) act as a body; (2) have meetings and records that are open to the public; (3) hold meetings within the geographical boundaries of

\textsuperscript{186} McCARTHY, \textit{supra} note 69, at 5-6.

\textsuperscript{187} There are exceptions to this statement. For example, in some cities the local mayor appoints the school board members. In some states, like Virginia, the school board members are appointed by agencies such as a city council, county board of supervisors, or a selection committee created by a local circuit court judge. See McCARTHY, \textit{supra} note 61, at 6.

\textsuperscript{188} McCARTHY, \textit{supra} note 69, at 7. See also O'REILLY, \textit{supra} note 71, at 11; VALENTÉ, \textit{supra} note 98, at 12; REUTTER, \textit{supra} note 72, at 139.
the school district; (4) call for a formal vote when passing resolutions, motions,
bylaws, rules, or ordinances; and (5) keep minutes, including specific details of
formal actions.\textsuperscript{189}

As a general rule, the legal status of local boards of education is quite clear:
they are administrative units established by the state’s constitution or legislation to
carry out the state’s will. Local boards have no inherent sovereign authority and can
only use those powers which have been specifically delegated to them by the state
constitution or legislature.\textsuperscript{190} The above principal is plainly stated by an Ohio court:

Boards of education...are creatures of statute and their duties as well as their
authority are clearly defined by the State legislation on the subject. Their
authority or jurisdiction is derived solely from statute and is limited strictly to
such powers as are clearly and expressly granted to them or are clearly
implied and necessary for the execution of the powers expressly granted.
They have special powers which are to be strictly construed, and which they
cannot exceed; and since the boards of education have only such authority as
is conferred by law, when they take action outside of and against the plain
provisions of the law, such action is absolutely void.\textsuperscript{191}

A local board of education’s power emanates from generally three sources: the state
constitution, the state legislature, and judicial decisions. A school board cannot
divest itself of any power or duty that it receives from these sources. Likewise, it
cannot grant itself any additional powers or duties. Their powers and duties can only

\textsuperscript{189} SPERRY & DANIEL, supra note 183, at 96-97. See also VALENTE, supra note 98, at
12-15.

\textsuperscript{190} SPERRY & DANIEL, supra note 183, at 95.

\textsuperscript{191} Stanley v. Like, 190 N.E.2d 697, 701 (Ohio Com. Pl. 1962).
be altered by amending the state constitution, enacting subsequent legislation, or reversing a decision by a higher court or superceding a decision with a new opinion.\textsuperscript{192}

As previously stated, the primary responsibility of a local board of education is to create policy for its district. According to O'Reilly, boards of education "should develop and adhere to strong, workable policies so that the district might be operated in an efficient manner."\textsuperscript{193} Their policies, when congruent to policies made by higher governing bodies (i.e. the U.S. Constitution, the state constitution, state and federal statutes, federal and state court rulings, and state board of education policies) carry the force of law. For example, in \textit{Mullin v. Board of Education of East Ramapo School District},\textsuperscript{194} a teachers union developed a "success card" program in which teachers conveyed only positive information to parents. The school board sought an injunction to halt this practice. A New York court ruled for the school board finding that communication with parents is a "fundamental process to education" and should thus be governed by policies created by school boards and administrators.

According to a Louisiana Court of Appeals,

A school board need not have specific legislative authority for every act which may be incidental or necessary to the performance of its duties. It has such implied or additional powers as are necessarily and properly incident to the performance of its statutory duties.\textsuperscript{195}

\textsuperscript{192} O'REILLY, \textit{supra} note 71, at 16. See also HUDGINS, \textit{supra} note 70, at 60.

\textsuperscript{193} O'REILLY, \textit{supra} note 71, at 19.

\textsuperscript{194} 101 Misc.2d 575, 421 N.Y.S.2d 523 (1979).

The Oklahoma Supreme Court expressed a similar principal: "The school board has and can exercise those powers that are granted in express words, those fairly implied in or necessarily incidental to the powers expressly granted, and those essential to the declared objects and purposes of the corporation." As these courts have so neatly stated, powers given to local school boards may be expressly granted or implied. Express powers are powers specifically stated in the state constitution or in legislation (i.e. levying taxes or establishing a specific program). Implied powers are powers not specified but are necessary for the board to carry out the intentions of the state legislature (i.e. employing a school architect; using funds to recruit qualified teachers).197

Similar to principal one of the delegation doctrine described in the last section, implied powers are given to local boards of education out of expediency. State constitutions, statutes, and regulations cannot possibly delineate all the details of public school administration.198 Reutter states,

Because obviously it is not possible to foresee, and legislate with particularity on, every problem which may arise in school administration, the courts have agreed that in addition to express powers, local boards may exercise powers necessarily implied to enable them to carry out the express powers granted.199

196 Board of Education of Oklahoma City v. Cloudman, 92 P.2d 837, 841 (Okla. 1939).

197 HUDGINS, supra note 70, at 62.

198 O'REILLY, supra note 71, at 17.

199 REUTTER, supra note 72, at 140.
Many current educational practices were first implemented by local school boards without receiving specific authorization from state legislatures. This list of practices includes educational data processing, programmed instruction, nongraded groupings, the use of paraprofessionals, and the use of educational technology. Many educational services were likewise implemented including pupil health services, school food services, guidance and counseling services, and machine accounting practices and procedures. The legal principal of implied powers also applies to municipal corporations.

It is important to note, however, that the implied powers of the boards only apply to educational matters. In Barth v. School Dist. of Philadelphia, a local school district entered into an agreement with the City of Philadelphia to initiate a program designed to curb juvenile delinquency. The Supreme Court of Pennsylvania ruled that the school district had no statutory authority to help fund such a program. A local school board, for example, could not lower the speed limit on a road near one of their schools or install a stop sign for student safety. Such actions would step outside the bounds of its implied powers.

When in doubt, a court is generally inclined to find against implied powers because local school boards have no inherent powers. Notwithstanding, particularly in

200 O’REILLY, supra note 71, at 17.
201 REUTTER, supra note 72, at 140.
203 O’REILLY, supra note 71, at 17. See also REUTTER, supra note 72, at 140.
modern times, courts have become more liberal and have construed implied powers more broadly. 204 However, one must keep in mind that in no instance can a local board enlarge its powers so to be incongruent with state policy. For example, the Supreme Court of Arkansas ruled that a local school board overstepped its authority when it adopted a teacher tenure policy that granted teachers tenure beyond which was authorized by law. 205 In another example, the California Legislature passed a law requiring educators to have written consent from parents before they could use corporal punishment against their children. After this law was passed, a “fundamentals” school, which emphasized discipline and fundamentals, sent a letter to all parents stating that they must sign the consent form or transfer their children to a nonfundamental school. The California Court of Appeals ruled that parents could withhold their consent for corporal punishment and still have their children fundamental schools. 206

It is also important to note that local school boards do not have unfettered control of public money that has been allocated to the school district. 207 A local school board in Washington established a health clinic that rendered free medical and dental services to students whose parents could not afford these services. The

204 REUTTER, supra note 72, at 140.
205 Nethercutt v. Pulaski County Special School Dist. 251 Ark. 836, 475 S.W.2d 517 (1972).
207 REUTTER, supra note 72, at 141.
Supreme Court of Washington ruled that the school board had no authority to establish such a clinic.\textsuperscript{208} The Supreme Court of Georgia decided one of the few cases dealing with whether or not a school lunch program could be supported with public funds. While sympathetic to the cause and admitting that the words "educational purposes" should be interpreted broadly, the court did not consider school lunch to be "an educational purpose" and ruled that tax money could not be used to pay for school lunch.\textsuperscript{209}

Nevertheless, as previously noted, the courts tend to interpret local school boards' implied powers in a broad fashion. Implied powers is a rule of expediency developed by the courts to allow them to legally sustain board actions that appear to be educationally sound. Implied powers also allow boards to experiment. Indeed, most innovative and successful programs are first developed on the local level before they are ever implemented on a state level. The courts generally presume that the boards have acted reasonably and place the burden of proof on those contesting the board's actions. Normally, as long as the board does not violate express statutes or act arbitrarily or unreasonably, the court will not substitute their own judgment for the judgment of local boards. "Legality and wisdom are not synonymous. The courts examine legality."\textsuperscript{210}

\textsuperscript{208} McGilvra v. Seattle School Dist. No. 1, 133 Wash. 619, 194 P. 817 (1921).

\textsuperscript{209} Wright v. Absalom, 224 Ga. 6, 159 S.E.2d 413 (1968).

\textsuperscript{210} REUTTER, supra note 72, at 144.
Another important legal doctrine pertinent to local school boards’ authority (and to the authority of state boards of education) is discretionary and ministerial authority. Courts of law normally distinguish local school boards’ functions and responsibilities as discretionary or ministerial. Discretionary functions require reasoned judgment from board officials. These functions require deliberation, debate, and discussion. Most of what a board does falls under this category. Boards of education cannot delegate functions of these types to committees, subordinates, or other agencies. Discretionary actions might include deciding where to build a new school, hiring employees, purchasing educational technology, approving courses of study, or allocating funds.\textsuperscript{211}

Ministerial acts are functions local boards are required to perform. These acts do not require judgment and may be delegated to subordinates, committees, or other agencies. Ministerial acts are normally routine and mechanical. These acts might include preparing an annual financial report or executing a contract.\textsuperscript{212}

According to Sperry, Daniel, Huefner, and Gee, it is important to determine whether or not functions are discretionary or ministerial for three important reasons. First, discretionary functions cannot be delegated to subordinates, committees, or other agencies. Discretionary functions are delegated to local boards by state legislatures, and it is a principal of common law that delegated functions cannot be further delegated to third parties. If a court finds that a board does not comply with

\textsuperscript{211}Sperry & Daniel, \textit{supra} note 183, at 289; See also Hudgins, \textit{supra} note 70, at 63.

\textsuperscript{212}Id.
this principal, its actions are ultra vires, or null and void. For example, the North Carolina Supreme Court ruled that a contract to sell school property was null and void because a local school board had appointed a property committee to sell the lands. The court states that the board “attempted to delegate a nondelegable power and responsibility, [which] means that they attempted to abdicate their solemn trust by a delegation of their authority.” It adds,

The principle is a plain one that the public powers or trusts devolved by law or charter upon the council or governing body, to be exercised by it when and in such manner as it shall deem best, cannot be delegated to others. This principle may not prevent the delegation of duties which are ministerial, but where the trust committed to the governing body involves the exercise of functions which partake of a judicial character, it may not be delegated.213

In other examples, a New Jersey court ruled that the local school board could not delegate power over courses of study to a teachers’ association,214 and the Iowa Supreme Court ruled that a local school board could not delegate its rule-making authority to a high school athletic association.215 This does not imply, however, that local boards cannot seek out advice, recommendations, information, input, and suggestions from committees, employees, consultants, students, parents, etc. But the board is required to make all final decisions.216


215 Bunder v. Iowa High School Athletic Ass’n, 197 N.W.2d 555 (Iowa 1972).

216 SPERRY & DANIEL, supra note 183, at 290. See also REUTTER, supra note 72, at 142.
Second, when a school board exercises reasonable judgment in performing discretionary functions, school boards generally qualify for immunity. That is, they are protected from tort actions and other suits resulting from discretionary actions. To qualify for immunity, boards must not act in a malicious, arbitrary, capricious, or fraudulent manner. Courts generally do not consider honest mistakes to be abuse of discretion.\footnote{Sperry & Daniel, supra note 183, at 290.}

Third, discretionary authority allows a collective board to decide when, how, and if to act. Such discretion does not accompany ministerial acts. When an act is ministerial, the board has no choice but to comply with directives. However, unlike discretionary authority, local boards may delegate ministerial duties to other bodies or persons. Boards can be held personally liable for failing to adequately perform ministerial duties if an injury or loss results from the negligence.\footnote{Id. at 291.}

**Federal Government**

As stated earlier, the U.S. Constitution is silent regarding education, thus giving the states plenary power over education through the Tenth Amendment. Although education is not specifically mentioned in the U.S. Constitution, it is not because its authors did not consider education to be important. Montesquieu, the great author who the founding fathers deeply respected, wrote, “It is in a republican form of government that the whole power of education is required.”\footnote{Charles de Montesquieu, The Spirit of Laws, Book IV, Sec. 5 (1752).} In the
Constitutional Convention of 1787, several delegates advanced the possibility of establishing federal control over public education and creating a national university. The majority of the delegates, however, voted that power over education should reside in the states. Nevertheless, the federal government has retained an active interest and has exerted considerable influence over education dating back to 1785.220

Even before the Continental Congress adopted the U.S. Constitution, it enacted the Land Ordinances of 1785 and 1787. These ordinances forced new states to take into consideration the issue of education. The Land Ordinance of 1785 required each state to divide up its townships into thirty-six sections. The sixteenth section was dedicated for maintaining a public school. The Northwest Ordinance of 1787 required prospective states, among other things, to establish provisions for a system of education before the federal government would admit them as a state in the Union.221

In 1802, when Ohio became a state, there was a question as to whether states could tax federal property within their boundaries. The federal and state governments reached a compromise. Federal lands would be exempt from state taxes if states received five percent of the revenue generated from selling public lands. This revenue was primarily used to establish and maintain public schools. In 1836, as a result of Andrew Jackson's decentralization efforts, the Surplus Revenue Deposit Act returned $28 million to the states. Much of this return was used for school purposes.

220 ALEXANDER, supra note 78, at 57-58.
221 Id. at 58.
These two sources of funding provided great impetus for states to assume responsibility for education. The above acts established a precedent for how the federal government would be involved in educational policy: the federal government would take an interest in establishing and maintaining a mass public education system, but would play an indirect role, providing stimuli and support.\textsuperscript{222}

In 1862 the federal government continued to influence the educational enterprise. U.S. Congress enacted the first Morrill Act, which provided each state with a block of land whose proceeds were to be used for establishing a least one institute of higher learning. These institutions, known as land grant colleges, were to focus on teaching and studying agriculture and mechanic arts. Subsequent legislation, including the second Morrill Act of 1890, the Hatch Act of 1887, the Adams Act of 1906, added additional funds for land grant institutions and introduced grants as a type of federal support for education.\textsuperscript{223}

In the twentieth century, the federal role in educational policy expanded significantly, but the federal government somewhat changed its focus. Instead of providing funds to public education generally, it targeted specific areas. These funds are called categorical funds. For example, the Smith-Lever Act of 1914 provided funds to county agents to train teachers in homemaking and agriculture; the Smith-Hughes Act of 1917 provided funds for K-12 vocational education; the National Defense Education Act of 1958 provided funds to establish science programs for

\textsuperscript{222} Id. at 58-59.

\textsuperscript{223} Id. at 60.
elementary, secondary, and higher education schools; the Higher Education Facilities Act of 1963 provided funding to construct higher education facilities; the Vocational Education Act of 1963 provided additional funding for vocational education; and the Elementary and Secondary Education Act of 1965, by far the most significant educational act passed by Congress, provided funding primarily for culturally disadvantaged children.224

In 1982, on the heels of A Nation at Risk, the federal government continued its involvement in public education. It passed the Education Consolidation and Improvement Act (ECIA), which replaced the Elementary and Secondary Education Act. ECIA provided funding to expand educational opportunities for disadvantaged children (children from low-income families, children who have special education needs, and children of migrant parents, Indian parents, or parents who are neglectful). ECIA also provided funding for children who were testing below grade-level. Its categorical programs included funding for educational partnerships, library and instructional support for math and science, presidential awards for excellence in teaching, gifted and talented programs, drug prevention, dropout reduction, bilingual education, and others. In 1990, the federal government passed the second most significant act in education: the Individuals with Disabilities Education Act (IDEA), a successor to the All Handicapped Children Act of 1975. This act provided funding and established procedures for identifying and instruction children with disabilities.225

224 Id.

225 Id. at 60-61.
These federal programs have provided millions of dollars for public education. In the 1970s, federal funds accounted for 9 percent of the total revenue allocated for public schools; in the 1980s, federal funds accounted for 6 percent; and in the 1990s, for seven percent. Although these percentages may constitute an overall small percentage of total money allocated, they are nevertheless significant for an entity that has no inherent legal obligation to provide for public education.

What gives the federal government the authority to become involved in the education enterprise? The federal government’s authority emanates from three sources: (1) the General Welfare Clause; (2) the Commerce Clause; and (3) courts of law that constrain agencies to abide federal constitutional provisions that protect individual rights and freedoms. Of particular concern for this manuscript is the General Welfare Clause, which states that “Congress shall the power to lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defense and general welfare of the United States.” The U.S. Supreme Court has interpreted this clause to be not static, but adaptable to meet the crises and necessities of the times. According to the Court, this clause allows Congress to spend money to promote the general welfare, including public education. The Court will not interfere with how the money is spent, unless Congress acts arbitrarily. Thus,

226 Id. at 61. See also MCCARTHY, supra note 69, at 17.

227 ALEXANDER, supra note 78, at 62. See also VAN GEEL, supra note 75, at 75; MCCARTHY, supra note 69, at 11-12.

228 U.S. CONST. art. I, § 8.

the General Welfare Clause allows the federal government to allocate funds to promote various educational programs. Not only has the federal government supported education through the already described acts, but it has also provided support for school lunch programs, national health and safety concerns (1980 Asbestos School Hazard Detection and Control Act and the 1988 Indoor Radon Abatement Act), and programs that seek to monitor what children view over the Internet (Communications Decency Act as part of the Telecommunications Act of 1996).230

The described legislation represents how the federal government goes about shaping and influencing educational policy indirectly. U.S. Congress will appropriate funds through categorical grants under the General Welfare Clause. The states have the option of accepting or rejecting the assistance. If the funds are accepted, the federal government has the right to prescribe guidelines through administrative regulations and to monitor state and local agencies. The federal government monitors agencies to ensure that programs are properly implemented and funds are used appropriately. Alexander and Alexander state,

[quote]
The federal government cannot…affirmatively and directly require that states alter educational policy; this would be an affront to state autonomy. Constitutionally, the issue is really one of inducement versus compulsion…In matters of education, then, the Congress can only effect change through persuasion or by giving the states an option that allows a state to act of its own volition.231
[quote]

230 McCARTHY, supra note 69, at 12.

231 ALEXANDER, supra note 78, at 63.
The courts look upon these categorical grants as a type of contract between state and federal governments. As a result, the courts have given great deference to the federal government when controversies over categorical funding have arisen, as long as states accept the terms voluntarily and are fully cognizant of the terms and conditions for accepting the funds. For example, the U.S. Supreme Court has ruled that if a state fails to follow the administrative regulations or uses the funds inappropriately, the federal government may legally require the state to return the funds. In fact, the Supreme Court has mandated that states return funds to the federal government even though they may have substantially complied with the requirements and have not used the funds in bad faith. The Supreme Court has also ruled that substantial changes in federal regulations do not absolve states from obligations or liabilities of misusing funds under previous federal regulations.

It should be noted that Congress has made it clear that they do not intend to use categorical funds to directly control the school curriculum, thus seeking to quell a sensitive issue. The law states,

No provision of any applicable program shall be construed to authorize any department, agency, officer, or employee of the United States to exercise any direction, supervision, or control over the curriculum, program of instruction, administration, or personnel of any educational institution, school, or school

232 VAN GEEL, supra note 75, at 74.

233 Bell v. New Jersey et al., 461 U.S. 773 (1983) (The Supreme Court ruled that requiring states to repay misused federal funds did not violate states’ sovereign rights).


system, or over the selection of library resources, textbooks, or other printed
or published instructional materials by any educational institution or school
system, or to require the assignment or transportation of students or teachers
in order to overcome racial imbalance.236

Although federal acts have affirmed the federal government’s intentions of not
explicitly proscribing public school curriculum, the most recent federal legislation,
entitled No Child Left Behind, indicates that the federal government is taking a more
assertive role in influencing education policy. No Child Left Behind, signed into law
on January 8, 2002, will require all states that receive federal funds to test students in
grades three through eight on their reading and math skills. These tests are based on
reading and math standards each state has established. If schools fail to make
improvements over a specified period, the federal government mandates that, among
other consequences, school districts give parents the option of transferring their
children to another school in the district. They also require the state to impose
corrective measures such as replacing staff members, dramatically altering the school
curriculum, or initiating a state takeover.237 Although too early to tell, No Child Left
Behind may mark the beginning of an unprecedented role the federal government
plans to take in educational policy: one in which it begins to dictate both the means
and ends of educating children. Technically, states can cut all ties to the federal
government’s influence by refusing federal funds. However, being crippled by lack
of resources for public schools, this may not be a viable option for most states.


The U.S. Department of Education is usually the federal administrative agency that coordinates federal involvement with education. First established as the Office of Education in 1867, it became part of the Department of Health, Education, and Welfare in 1953. U.S. Congress created the Department of Education in 1980, and its Secretary is appointed by the President with the approval of the Senate and serves as a member of the President’s cabinet.

The primary responsibilities of The Department of Education are "to coordinate federal involvement in education activities, to identify educational needs of national significance, to propose strategies to address these needs, and to provide technical and financial assistance to state and local education agencies." U.S. Congress relies on the Department of Education to administer and implement funding laws. The Department also solicits feedback on proposed regulations, and Congress reviews the feedback to verify that the programs are being administered according to legislative intent. As previously stated, states and school districts face the possibility of having their federal funds terminated if they do not comply with regulations administered by the Department of Education.

School Administrator

The school administrator’s role in educational policy is a limited one, but nonetheless substantial. School administrators’ primary responsibility is to carry out educational policy at the building level. And, as explained under the section

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238 MCCARTHY, supra note 69, at 18.

239 Id.
describing local school boards, principals are also authorized to carry out ministerial duties, which are delegable by law. Although their role may be somewhat limited in the overall policy-making process, school administrators play a vital role in policy creation for their buildings. They are authorized to create policy for their buildings as long as the policy is congruent to policy created by higher authorities. These policies “ensure the efficient operation of the school... under their supervision.” As the Supreme Court of Michigan states,

There is no necessity that all the rules, orders and regulations for the discipline, government and management of the schools shall be made a matter of record by the school board, or that every act, order or direction affecting the conduct of such schools shall be authorized or confirmed by a formal vote. It is recognized that no system of rules however carefully prepared can provide for every emergency, or meet every requirement. In consequence, much must necessarily be left to the individual members of the school boards, and to the superintendents[, school administrators], and the teachers in the several schools. It follows that any reasonable rule adopted by a superintendent, [school administrator], or a teacher merely, not inconsistent with some statute or some other rule prescribed by higher authority, is binding on the pupils.

An administrator has no implicit right or authority to be involved in areas of educational policy outside her/his building, including policy-making on a district, state, or national level, unless specifically prescribed by statutory provisions. Currently, some states do allow administrators to be involved in the policy-making process on a limited basis. Usually, this consists of being involved on some type of

240 McCARTHY, supra note 69, at 10.

advisory committee for the creation, implementation, or evaluation of policy. However, if not invited to participate in the policy-making process, there are other ways for school administrators to become involved.

Meza argues that school administrators must take a proactive approach to influencing policy on a state and local level. Before state laws are created, the state legislature establishes House and Senate Committees to discuss issues surrounding potential bills and policies. Special interest groups, including school boards, school administrators, and teachers can testify during committee hearings. State boards of education establish rules and regulations to implement state laws. These boards solicit advice and information from public groups, including school administrators, before establishing regulations. In fact, all policy adopted by the state board must be publicly advertised to give the opportunity for citizens to voice their opinions on the matter. School administrators can serve on advisory committees to give input to policy development in this state of the policy-making process.

Meza claims that the key for administrators to effectively participate in the policy-making process is good planning. Time is a scarce resource for administrators. Administrators must prioritize their events to make time to meet with state legislators and educational leaders, serve on state and regional level committees, participate in professional organizations such as school administrator associations, and monitoring policy development. While participating in associations, they may want to consider

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242 Meza, supra note 43, at 204.

243 Id. at 204-205.
elected a spokesperson to represent their interests if they do not have time
themselves to participate in the above activities. School administrators should also
look to build consensus with other schools, districts, professional education
associations, and other special interest groups if possible.244

The most immediate opportunity for administrators to become involved in the
policy making process (besides in their own buildings) is at the district level.

According to First,

Boards make policy to foster stability and continuity in the district, to provide
a crucial climate for better learning and life chances, and to build the
framework within which school administrators can lead good schools. It is a
crucial part of a school administrator's policy-related role to help the board
achieve this level of policy making and governmental leadership.245

Many local boards of education neglect their duty to create policy because of lack of
desire, knowledge, leadership, resources, or information. By doing so, they place the
district in legal jeopardy which could cost the school district large sums of time and
money. "Administrative leadership in the policy-development realm is needed to
overcome all of these obstacles to board policy making."246 Administrators can serve
on committees, help develop district policy, assist the board in establishing a policy-
development cycle, review policy on a regular basis, and follow policy development
on a state and national level.247

244 Id. at 205-206.
245 FIRST, supra note 64, at 225.
246 Id. at 227.
247 Id. at 228-231.
The Courts

Constitutional provisions, federal and state statutes, administrative rules and regulations, or district policies are not self-executing. They require or prohibit agencies and administrators to take or not to take action. If a body or person believes that a law or policy has not been properly implemented, affected individuals may ask the courts to intervene and settle the controversy. Courts will not act on their own initiative. They cannot decide hypothetical cases, and they will not hear a case unless the party who brings the suit has a real interest in the outcome and has been adversely affected by the implementation or nonimplementation of the law.248

Courts have the responsibility of interpreting enacted law within their respective jurisdictions. Often times a party will bring a case for which there is no applicable law. That is, there are no constitutional provisions, statutes, or administrative regulations to govern the dispute. To resolve the dispute, the courts apply or create common law. Judges may create common law by examining unwritten customs and values of the community. These values are often come out of old opinions and are cited frequently in modern opinions. Courts sometimes adjust common law to fit the changing times.249

Where there is enacted law, the courts have the responsibility of deciphering, as much as possible, the intent of the legislative body. This also means that the courts

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248 REUTTER, supra note 72, at 8. See also MCCARTHY, supra note 69, at 19.

249 WILLIAM P. STATSKEY, LEGAL RESEARCH AND WRITING 25-26 (5th ed. 1999). See also REUTTER, supra note 72, at 8.
must decide what the legislative body’s intentions might have been if faced with the dilemma at hand. Enacted law also often requires judicial clarification because it is written in broad policy statements rather than specific guidelines. Thus, courts play an important part in determining the legality of policies and practices. If courts misinterpret legislative bodies, legislatures always have the option of readdressing the issue and clarifying their intentions.

It should be noted that courts are hesitant to become involved in controversies surrounding the effectiveness of educational policies. Judges are not inclined to substitute their judgment for the judgment of informed policymakers. The Supreme Court has stated, “This case...involves the most persistent and difficult questions of educational policy...in which this Court's lack of specialized knowledge and experience counsels against premature interference with the informed judgments made at the state and local levels.”

Traditionally, before 1954, courts typically did not address educational concerns. Before 1954 federal courts addressed less than 300 cases involving education. However, after the landmark case Brown v. Board of Education of Topeka, courts began to play a significant role in educational policy. More cases dealing with educational issues were brought to the courts in the 1970s than in the previous seven decades combined. By the 1970s, the courts were viewed as a very

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250 Reutter, supra note 72, at 8.

251 McCarthy, supra note 69, at 19.

important tool to influence educational policies. Since the 1970s, however, federal cases pertaining to education have stabilized some, excluding cases dealing with special education and church/state issues.\footnote{254}

**National Education Technology Policies**

As noted previously, from 1995-2000, the federal government allocated over eight billion dollars for educational technology equipment and programs.\footnote{255} Most of this money has been given to state governments, school districts, and colleges and universities in the form of categorical grants designed to help schools purchase educational technology equipment and to fund training in the use of educational technology. Specifically, the federal government has sought to use the money to reach five national educational technology goals:

1) All students and teachers will have access to information technology in their classrooms, schools, communities and homes.

2) All teachers will use technology effectively to help students achieve high academic standards.

3) All students will have technology and information literacy skills.

\footnote{253} 347 U.S. 483 (1954).


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4) Research and evaluation will improve the next generation of technology applications for teaching and learning.

5) Digital content and networked applications will transform teaching and learning.\(^{256}\)

The U.S. Department of Education’s Office of Educational Technology has developed several programs designed to meet the above goals. Major initiatives include: Preparing Tomorrow’s Teachers to Use Technology (PT3), Technology Innovation Challenge Grants (TICG), the Technology Literacy Challenge Fund (TLCF), Community Technology Centers (CTC), the Star Schools Program (SSP), Migrant Educational Technology Grants (METG), Regional Technology in Education Consortia (RTEC), Assistive Technology State Grants (ATSG), and E-rate.

Preparing Tomorrow’s Teachers to Use Technology (PT3) is a program that seeks to train teachers to integrate educational technology into the curriculum and to use new teaching and learning styles enabled by technology. From 1999-2000, the government has allocated over 145 million dollars to this program. Technology Innovation Challenge Grants (TICG) promotes innovative uses of technology in education in mostly low-income areas. The federal government awards grants to

school districts, universities, businesses, libraries, and software designers. The government has allocated over 482 million dollars to this initiative.\textsuperscript{257}

The Technology Literacy Challenge Fund (TLCF) provides funding to states to help them implement the four national educational technology goals (prior to 1996, there were only four national educational technology goals), based on Elementary and Secondary Education Act Title I criteria. 1.46 billion tax dollars have been used to support this program. Community Technology Centers (CTC) seeks to narrow the gap between those who have access to technology and those who do not have access to technology by creating technology centers in low-income communities. From 1999-2000, the federal government has allocated over 19 million dollars to this program.\textsuperscript{258}

The Star Schools Program (SSP) supports programs that seek to use distance learning technology to provide instruction to students in the subjects of mathematics, science, and foreign languages and professional development to teachers in disadvantaged and underserved populations. It has received 120 million funding dollars. Migrant Education Technology Grants (METG) gives funding to explore how to use technology to combat problems that children of migrant workers face.


\textsuperscript{258} Id.
These problems include educational disruption, lack of resources, and language barriers. From 1997-2000, the federal government allocated over 14 million dollars to this program.259

Regional Technology in Education Consortia (RTEC) gave funding to establish ten resource centers. These centers provide states, school districts, adult literacy programs, and other educational institutions with professional development in education technology, technical assistance, and information to use technology to improve teaching and learning. Assistive Technology State Grants (ATSG) helps states provide disabled students with access to assistive technology devices and services. 215 million tax dollars have been used to support this program. E-rate seeks to provide affordable access to Internet services for all schools and libraries in the U.S. From 1998-2000, the federal government allocated over six billion dollars to this initiative.260

An important component of the No Child Left Behind Act of 2001 is Enhancing Education through Technology.261 This policy states that the federal government “believes schools should use technology as a tool to improve academic achievement.”262 It plans to streamline “duplicative

259 Id.

260 Id.


262 Id.
technology programs into a performance-based technology grant program that sends more money to schools.”

According to the Office of Educational Technology, this initiative will: (1) send more dollars to schools for technology; (2) reduce paperwork and increase flexibility; (3) allow funds to be used for Internet filters; (4) focus funds on proven means of enhancing education through advanced technology; (5) offer matching grants for community technology centers.  

The federal government has not deviated from its traditional role in educational policy when it has become involved in educational technology policy. That is, U.S. Congress has appropriated funds through categorical grants under the General Welfare Clause and has given the states the option of accepting or rejecting the assistance. If the funds are accepted, the federal government prescribes guidelines through administrative regulations and monitors state and local agencies to assure that programs are properly implemented and administered. The federal government cannot force states to implement its educational technology goals; it can only provide means and invite them to participate in their programs.

The federal government, through the Department of Education’s Office of Educational Technology, influences state educational technology policy in another way: it serves as a resource for individuals who seek to influence policy. The Office of Educational Technology provides substantial research and findings that provide

\(^{263}\) Id.  
\(^{264}\) Id.
direction as to how states and districts should form their education technology policies. Through various reports the Department of Education clearly states what direction it believes policymakers should go. Because of the substantial research involved in making these reports, it gives policymakers, special interest groups, or citizens a credible resource when seeking to create or modify educational technology policies.

State Educational Technology Policies

There is evidence that the federally sponsored educational technology programs have been absorbed by almost all state governments. According to Daniel and Nance, every U.S. state and the District of Columbia has enacted legislation dealing with technology and public K-12 education. They report that four general trends have emerged from the educational technology legislation. First, every state except Alaska has sought to equip schools and classrooms with computer technology. For example, the Alabama legislature aims to "establish standards and coordinate services and infrastructure...[to provide] the children of Alabama citizens access to technology in the public schools." The Delaware Legislature created an

265 Daniel & Nance, supra note 30.

266 According to Daniel and Nance, Alaska has only one statute dealing with education and technology. ALASKA STAT. § 14.20.680 (2000) reads, "A school district or regional educational attendance area shall train each teacher, administrator, counselor, and specialist on the needs of individual students who have alcohol or drug related disabilities. The training must utilize the best available educational technology and include an overview of medical and psychological characteristics associated with alcohol or drug related disabilities, family issues, and the specific educational needs of students with alcohol or drug related disabilities."

Educational Technology Account to “provide computer and telecommunications technology to Delaware’s classrooms.”\textsuperscript{268} The Arkansas Legislature commits “to use every means available to obtain and utilize to the fullest extent computer technology in the instructional process in the public schools of this state.”\textsuperscript{269} The District of Columbia established the 21\textsuperscript{st} Century Public School Information Technology Program to provide “grants to all teachers [to] purchase...personal computer equipment, programs, or updates.”\textsuperscript{270}

\textsuperscript{268} 29 Del. Code § 6102A (2000).

\textsuperscript{269} Ark. Code Ann. 6-16-401 (Michie 2000).

\textsuperscript{270} D.C. Code Ann. § 31-2521 (Matthew Bender & Co., Inc. 2000). Other examples are listed below. Haw. Rev. Stat. Ann. § 36-32 (Matthew Bender & Co., Inc. 2000) reveals that the Hawaii Legislature created an account that “shall be used solely to plan, design, acquire lands for and to construct public school facilities and to provide equipment and technology infrastructure to improve public schools.”

Idaho Code § 33-4806 (Matthew Bender & Co., Inc. 2000) “established the public school technology grant program, which shall make available grants for schools to provide Idaho classrooms...with the equipment and resources necessary to integrate information age technology with instruction.”

105 Ill. Comp. Stat. 5/2-3.117a (Matthew Bender & Co., Inc. 2000) established a School Technology Revolving Loan Program “for the purpose of making the financing of school technology hardware improvements affordable.” Also see 105 IllCS 5/2-3.117 (Matthew Bender & Co., Inc. 2000) which states “The State Board of Education is authorized to provide technology-based learning resources, including matching grants, to school districts to improve educational opportunities and student achievement throughout the State. School districts may use grants for technology-related investments, including computer hardware, software, optical media networks, and related wiring, to educate staff to use that equipment in a learning context, and for other items defined under rules adopted by the State Board of Education.”

Mo. Rev. Stat. § 170.254 (Matthew Bender & Co., Inc. 1999) states that “the state board of education shall make grants to school districts for the acquisition of computers, data transmission lines, networking hardware and software, science and mathematics laboratory equipment, and such other equipment to promote the use of computers and telecommunications technology.”

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Second, several states formed a commission, council, office, or department to
oversee funding programs and help local school districts integrate technology into the
curriculum.271 South Dakota created an Office of Educational Technology to
research, analyze, procure, and distribute “programs and methods using educational
technology in South Dakota K-12 schools and classrooms.”272 Delaware established
the Delaware Center for Educational Technology to “concentrate on the deployment
of technology at the school level in a way that will be of maximum effect in
improving teaching and learning in Delaware schools.”273 Nevada created a
commission to “establish a plan for the use of educational technology in the public
schools of this state.”274 North Carolina established a commission to “propose a State
school technology plan for improving student performance in the public schools
through the use of learning and instructional management technologies.”275

OHIO REV. CODE ANN. 3301.80 (Anderson 2000) created the Ohio SchoolNet
commission to “administer programs to provide financial and other assistance to
school districts and other educational institutions for the acquisition and utilization of
educational technology.”
OREGON REV. STAT. § 327.700 (1999) Oregon created state education lottery
bonds “for the purpose of financing state education projects.” State education
projects include projects for “instructional training and the acquisition [of] software
and related technology.”

271 Daniel & Nance, supra note 30.


275 N.C. GEN. STAT. § 115C-102.6 (2000). Other examples of state statutes are listed
below. 105 ILL. COMP. STAT. ANN. 5/2-3.62 (Matthew Bender & Co., Inc. 2000) “A
regional network of educational service centers shall be established by the State

Third, many state legislatures have developed systematic professional
development programs in educational technology for educators.\textsuperscript{276} Indiana and
California make grants available for schools to establish professional development
related to technology.\textsuperscript{277} Oklahoma hires personnel to "develop and offer

\textbf{Board of Education...Services to be made available by such centers shall include the}
planning, implementation and evaluation of...computer technology education
including the evaluation, use and application of state-of-the-art technology in
computer software.”

\textbf{OHIO REV. CODE ANN. 3301.80 (Anderson 2000)} created the Ohio SchoolNet
commission to “administer programs to provide financial and other assistance to
school districts and other educational institutions for the acquisition and utilization of
educational technology.”

\textbf{N.Y. EDUC. LAW § 316 (McKinney 2000)} “The commissioner shall...provide
funds to school districts and boards of cooperative educational services to plan,
establish and operate teacher resource and computer training centers.”

\textbf{CAL. ED. CODE § 51871.3 (Matthew Bender & Co., Inc. 2001)} “The
Commission on Technology in Learning is hereby established to make policy
recommendations to the State Board of Education in areas including, but not
necessarily limited to...statewide planning for technology, including a statewide
master plan for use of education technology in California’s elementary and secondary
instructional program.

\textbf{IDAHO CODE § 33-4805 (Matthew Bender & Co., Inc. 2000)} The Idaho
Educational Technology Council shall “develop and maintain a statewide education
technology plan to provide seamless education in Idaho...Make recommendations to
the state board of education on educational technology and telecommunications plans,
policies, programs, and activities for all educational segments.”

\textsuperscript{276} Daniel & Nance, \textit{supra} note 30.

\textsuperscript{277} IND. CODE ANN. § 20-10.1-25.3-10 (Burns 2000) “A school corporation must use a
grant received under this chapter to implement all or part of the school corporation’s
technology plan by funding uses that include...professional development related to
technology.”

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professional development [for] the use of technology in the classroom.”

Virginia requires each local school district to provide “a program of professional development in educational technology for all instructional personnel which is designed to facilitate integration of computer skills and related technology into the curricula.”

New York created teacher resource and computer training centers to “provide demonstration and training sites where teachers and trained, specifically in the use of computers as teaching aids; the criteria for school acquisition and use of computer equipment and software; and the evaluation of computer-related materials.” These centers also “retrain teachers and other educational personnel to become better qualified to teach in subject areas necessary to prepare students for the developing high technology era, in the disciplines of mathematics, science and computer technology.”

Alabama created a teacher education scholarship loan program to provide certified teachers with funds to receive education and training “in the use of integrating technology skills in the curriculum.”

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CAL. ED. CODE § 44731 (Matthew Bender & Co., Inc. 2001). Under the Education Technology Staff Development Program, “the funds received pursuant to this chapter shall be expended by the eligible schools for the purpose of providing inservice training to their school site administrators, appropriate instructional classified employees, and certificated employees who provide direct instructional services to pupils in grades 4 to 8, inclusive, in the use of education technology to support the daily instruction of pupils and the record keeping necessary to support that instruction.”

278 OKLA. STAT. tit. 70, § 6-200 (2000).


280 N.Y. EDUC. LAW § 316 (McKinney 2000).

281 Id.
Fourth, several states (California, Colorado, Connecticut, Georgia, Florida, Nebraska, Ohio, Virginia, and West Virginia) "require teachers to be trained in integrating technology with instruction to obtain certification or licensure."\textsuperscript{283} Colorado requires prospective teachers to demonstrate the ability to "integrate technology into instruction at the grade level of which the teacher expects to be endorsed" before receiving their teaching licenses.\textsuperscript{284} Connecticut mandates that prospective teachers complete "a computer and other information technology skills component...as applied to student learning and classroom instruction, communications, and data management."\textsuperscript{285} Virginia, after July 1, 2003, will require

\textsuperscript{282} \textsc{Code of Ala.} § 16-23-24 (2000). Other examples include \textsc{N.J. Stat.} § 18A:6-105 (Matthew Bender \& Co., Inc. 2000) "The Commissioner of Education shall develop and administer an Educational Technology Teacher Training Program. The purpose of the program shall be to provide grants to local school districts which have successfully integrated technology within their own educational programs to develop and offer educational technology training programs to the teachers and staff of other school districts and to the teachers and staff of non-public schools. The grants shall be allocated to school districts on a competitive basis and the commissioner may, if he deems appropriate, award grants to other appropriate applicants which he feels have the potential to develop and offer high quality educational technology training programs to school staff, including the staff of non-public schools."

\textsuperscript{283} \textsc{24 Penn. Stat.} § 15-1503-A (2000) "Grants shall be allocated to school districts... [to] provide for the training of teachers and staff in ways to effectively integrate the technology with the curriculum."

\textsuperscript{284} \textsc{Utah Code Ann.} § 53A-1a-402 (Mathew Bender \& Co., Inc. 2000) The Utah Legislature established the Schools for the 21st Century Program. As part of the program, schools that participate develop "a plan to effectively implement technology into the curriculum in such a way that students have the opportunity to learn using that technology."

\textsuperscript{285} \textsc{Daniel \& Nance, supra} note 30.


prospective teachers or teachers seeking licensure renewal to "demonstrate proficiency in the use of educational technology for instruction."\textsuperscript{286} California obligates prospective teachers to demonstrate "basic competency in the use of computers in the classroom... [by the] completion of a commission-approved program or course [or by the]...passage of an assessment that is developed, approved, and administered by the commission."\textsuperscript{287}

Georgia, Florida, Nebraska, and Ohio outline specific instructions to institutions that have teacher preparation programs. Georgia mandates institutions to "require students in [teacher preparation] programs to be proficient in computer and other instructional technology applications and skills including...integration [of technology] with teaching and curriculum."\textsuperscript{288} Georgia also requires students enrolled in teacher preparation programs to take a test designed to assess competency in technology and instruction.\textsuperscript{289} For Georgia teachers seeking to renew their teaching certificates, a statute requires applicants to demonstrate proficiency with educational technology by taking a competency test.\textsuperscript{290}

Florida mandates teacher preparation programs to adequately prepare elementary, middle, and high school teachers to "use technology at the appropriate


\textsuperscript{289} \textit{Id.}


Ohio requires institutions to "ensure that graduates of such course of study are skilled at integrating educational technology in the instruction of children." Graduates demonstrate proficiency by completing a course or by another manner "prescribed by the department of education."  

Florida and West Virginia require teachers to demonstrate their ability to integrate technology into the curriculum through formal teacher assessments. Florida proscribes that local district superintendents establish procedures for assessing how teachers and administrators use technology in the classrooms and schools. West Virginia has an alternative certification program for prospective teachers that requires prospective teachers to complete a full-time seminar/practicum of twenty to thirty days. The seminar/practicum provides "formal instruction in...the use of educational computers and other technology." After an alternative-program teacher begins


294 Id.


computers and other technology." After an alternative-program teacher begins teaching full-time, the teacher is periodically evaluated presumably on what the teacher learns in the seminar/practicum.

Nevada has a statute that suggests that teachers who seek certification in the near future will need to demonstrate proficiency in technology. Lawmakers have created a commission that is responsible for developing an educational technology plan for the entire state. As part of the plan, the commission will ascertain what type of teacher training is needed to sufficiently "enable the teachers to instruct pupils in the use of educational technology." Their analysis also reveals that an essential component is conspicuously missing from the state statutes: the school administrator.

Daniel and Nance state that lawmakers have, on the whole, failed to carve the role administrators should play in instructional technology. "In fact," they state, "only five states even mention the word ‘administrator’ in a statute addressing education and technology." In Florida, district superintendents are required to

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296 W. VA. CODE § 18A-3-1a (2000).

297 Id.

298 NEV. REV. STAT. § 388.795.

299 Daniel & Nance, supra note 30.

300 Id.
create formal assessment procedures to evaluate administrators and teachers at least once a year. As part of the assessment procedures, administrators are evaluated on how well teachers in their building "plan and deliver instruction, including the use of technology in the classroom." Nevada, California, Washington, and Idaho each have a statute that requires an administrator to take part in the educational technology commission, committee, or council.

301 FLA. STAT. CH. 231.29 (2000).

302 NEV. REV. STAT. ANN. § 388.790 (Mathew Bender Co., Inc. 2000) The commission on educational technology, consisting of 11 members is hereby created. The superintendent of public instruction and the director of the department of information technology shall serve ex officio as nonvoting members of the commission. The governor shall appoint the following voting members to the commission, at least two of whom must reside in a county whose population is less than 100,000...One administrator in a public school who possesses knowledge and experience in the general application of technology.

CAL. ED. CODE § 51871.4 (Matthew Bender & Co., Inc. 2001) “The Commission on Technology in Learning shall consist of 14 members who shall be appointed as followed...The Governor shall appoint one practicing public school administrator from an organization presenting California administrators.”

REV. CODE WASH. § 28A.650.015 (Matthew Bender & Co. Inc., 2001) “The superintendent of public instruction shall appoint an educational technology advisory committee to assist in the development and implementation of the technology plan in subsection (1) of this section. The committee shall include, but is not limited to, persons representing: The state board of education, the commission on student learning, the department of information services, educational service districts, school directors, school administrators, school principals, teachers, classified staff, higher education faculty, parents, students, business, labor, scientists and mathematicians, the higher education coordinating board, the work force training and education coordinating board, and the state library.”

IDAHO CODE § 33-4804 (Matthew Bender & Co., Inc. 2000) “There is hereby created and established the state council for technology in learning under the state board of education...The council shall consist of fourteen members who shall be appointed as follows: The superintendent of public instruction, or his designee. The superintendent of public instruction shall appoint one practicing public school administrator as a member.”
Educational Technology Policy in Ohio

The Ohio Constitution has given authority to the Ohio State Legislature to "secure a thorough and efficient system of common schools throughout the state."\(^\text{303}\) The Ohio State Legislature, therefore, has plenary power over public education, including educational technology in the public school system. Pursuant to this authority, the Ohio Legislature has enacted several statutes pertaining to educational technology. First, the Legislature has given the Ohio State Board of Education power to "develop and modify as necessary a state plan for technology to encourage and promote the use of technological advancements in educational settings."\(^\text{304}\) Second, the Legislature has established an Ohio SchoolNet commission to "administer programs to provide financial and other assistance to school districts and other educational institutions for the acquisition and utilization of educational technology."\(^\text{305}\) Third, the Legislature has established a schoolnet telecommunity education fund that "shall be used to finance technology grants to state-chartered elementary and secondary schools."\(^\text{306}\) Fourth, the Legislature has created a distance learning fund to "finance technology grants to eligible schools chartered by the state board of education to establish distance learning in those schools."\(^\text{307}\) Fifth, the Legislature has established an Ohio Educational Computer Network which provides

\(^{303}\) OH. CONST. art. VI, 2.

\(^{304}\) OHIO REV. CODE ANN. § 3301.07 (Anderson 2001).

\(^{305}\) OHIO REV. CODE ANN. § 3301.80 (Anderson 2001).

\(^{306}\) OHIO REV. CODE ANN. § 3317.50 (Anderson 2001).

\(^{307}\) OHIO REV. CODE ANN. § 3317.51 (Anderson 2001).
network services to client school districts. Sixth, the Ohio Legislature requires any Ohio institution that provides teacher training to “ensure that graduates...are skilled at integrating educational technology in the instruction of children.” In conjunction with this, the Legislature requires the Ohio SchoolNet commission to establish “model professional development programs to assist teachers who completed their teacher preparation prior to the effective date...to become skilled at integrating educational technology in the instruction of children.”

On March 3, 1999, Ohio Senator Robert R. Cupp headed a Schools Technology Implementation Task Force to develop a state educational technology plan. This plan was subsequently ratified by the Ohio State Board of Education. The task force developed five recommendations to the Ohio Legislature. First, to conduct an independent review of Ohio’s multiple education technology delivery agencies to ascertain how the quality, efficiency, and effectiveness of educational technology services they deliver to schools may be improved. Second, to establish a planning process that (a) develops principles, guidelines, models, standards, and policy issues for educational technology practices in Ohio schools; (b) identifies ways K-12 schools and institutions of higher learning can coordinate resources; (c)


311 Telephone Interview with Carla A. Southers, Technology Consultant, Ohio Department of Education (January 31, 2002).
develops educational technology best practices; and (d) creates a state technology framework that is regularly updated. Third, to consider funding a state educational network which would provide all schools with low-cost, high-performance network capacities. Fourth, to continue providing support for Ohio SchoolNet. Fifth, to convert Ohio’s educational television stations to digital broadcasting technology in exchange for the television stations’ agreement to dedicate a large proportion of their programs to educational content that may be used in Ohio schools.312 According to a telephone interview conducted by the author with Carla A. Southers, Technology Consultant, Ohio Department of Education, the Ohio Schools Technology Implementation Task Force is currently seeking to revise their educational technology plan, which again should be ratified by the Ohio State Board of Education.313

Pursuant to their authority, the Ohio State Board of Education is currently developing standards to identify what students, teachers, schools, and school districts should know and be able to do. Standards-based education seeks to align content, performance, and operating standards to ensure achievement of expectations.314 As part of this initiative, the Board is developing technology academic content standards. The technology standards “will address a broad range of technology experiences with application in computer literacy, information literacy and technological literacy in

312 Ohio Schools Technology Implementation Task Force, supra note 309, at 1.

313 Telephone Interview with Carla A. Southers, Technology Consultant, Ohio Department of Education (January 31, 2002).


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order to provide the best possible foundation for technology achievement. Computer literacy addresses the appropriate use of computer hardware and software, including technology tools for information access, sharing, and multimedia publishing. Information literacy focuses on Internet and other electronic media usage. It deals with appropriate acquisition, dissemination, and interpretation of information. Technological literacy addresses problem-solving using technology, particularly in the fields of mathematics and science. These standards will be developed in two phases. First, they will be developed separately with examples of how they might be achieved in each curricular subject. Second, they will be integrated into each curricular subject's standards to enhance learning in each area. Advisory and writing teams are currently working on these standards and are using standards developed by national and state agencies, organizations, universities, and schools as guides.

As previously indicated, the Ohio State Legislature has created an Ohio SchoolNet commission to oversee the educational technology programs in Ohio schools. This commission is charged with administering programs that provide funding and other assistance to help Ohio schools acquire and utilize educational technology. It is interesting that the Legislature elected to delegate this responsibility to an independent agency rather than to the State Board of Education. Perhaps the Legislature assumed that the State Board, with all of its many other responsibilities, 

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could not dedicate the necessary energy and time to execute such an important program in a satisfactory manner. Or, perhaps the Legislature believed that the program would function more efficiently on its own accord rather than being controlled by a large bureaucratic organization. At any rate, the Ohio SchoolNet commission is an independent state agency that has authority and responsibility to administer educational technology programs and funding for all Ohio public schools.

The Ohio SchoolNet commission has eleven members, seven of which have voting power. One member is appointed by the Ohio speaker of the house and another by the president of the senate. Other members include the state superintendent of public instruction, the director of budget and management, the director of administrator services, the chairperson of the public utilities commission, and the director of the Ohio educational telecommunications network commission or their designees. The nonvoting members include two members of the house of representatives (of different political parties) appointed by the speaker of the house and two members of the senate (of different political parties) appointed by the president of the senate.\textsuperscript{317}

Ohio SchoolNet administers the state’s investment of 600 million in educational technology. It also administers federal programs in educational technology such as the Technology Literacy Challenge Fund. It seeks to form partnerships with Ohio school districts in “providing information services and integrated technologies that will improve the learning performance and capacity of

\textsuperscript{316} \textit{Id.}

\textsuperscript{317} \textsc{Ohio Rev. Code Ann.} § 3301.80 (Anderson 2001).
Ohio's students consistent with state and local standards. Its primary objectives include providing schools with (1) classroom infrastructure such as multimedia computers, video, and networks to use technology; (2) professional development to help teachers use technology effectively; (3) digital learning resources to align curriculum and instruction. SchoolNet also conducts ongoing assessments to demonstrate that technology has a positive impact on student learning.

Recent Case Law Related to the Administrator and Educational Technology Policy

Educational technology policies, as with all other education policies, direct how public school administrators should oversee educational processes. Indeed, administrators are ultimately held responsible for the teaching and learning processes that occur in their schools. It seems plausible that administrators, by failing to properly implement educational technology objectives of the state legislature, state board of education, or local school board, could be held professionally responsible, be subject to professional sanctions, or be terminated. The "accountability" or "reconstitution" movements "permit school officials to terminate administrators who do not demonstrate student achievement or who do not meet the objectives of a

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319 Id.

320 Daniel & Nance, supra note 30.

321 See supra note 36.
particular reform movement (such as in instructional technology)." 322 Recent case
law has upheld the above statements, particularly in the Seventh Circuit Court of
Appeals.

boards to

promulgate rules establishing procedures governing the layoff or reduction in
force of employees and the recall of such employees, including, but not
limited to, criteria for such layoffs, reductions in force or recall rights of such
employees and the weight to be given to any particular criterion. Such criteria
shall take into account factors including, but not be limited to, qualifications,
certifications, experience, performance ratings or evaluations, and any other
factors relating to an employee's job performance. 323

The state of Illinois also permits local school boards to remove or replace a principal
and/or faculty members at a school under probation. 324 A school falls under
probation when "there is a failure to develop, implement, or comply with a school
improvement plan" or "there is a pervasive breakdown in the educational
program." 325 Failure to properly implement educational technology policy could
plausibly fall under either one of the above criteria.

The Seventh Circuit has consistently upheld these state laws. In Head v.
Chicago School Reform Bd. of Trustees 326 the Chicago School Board gave Head a

322 Daniel & Nance, supra note 30.


326 225 F.3d 794 (7th Cir. 2000).
four-year contract to serve as principal of Pope Elementary School. Pope Elementary School was identified as a poorly performing school and placed on probation. According to district policy, when the Board identifies a school as “poorly performing,” the principal must implement a Corrective Action Plan. A school may be classified as “poorly performing” when it has a deficient “quality instruction plan,” which could conceivably include having deficiencies in educational technology.

After failing to raise scores and make other improvements, the Board reassigned Head to other duties and, when his contract ran out, let him go. Head claimed the Board deprived him of a property and liberty interest, but the court concluded otherwise. “Simply labeling an employee as being incompetent or otherwise unable to meet an employer’s expectations does not infringe the employee’s liberty,” the Circuit Court states. It continues, “Only if the circumstances of an employee’s discharge so sully the employee’s reputation or character that the employee will essentially be blacklisted in his or her chosen profession will it be possible to pursue a due process liberty interest claim.” The court also concluded that Head had no property interest beyond the terms on his contract. In regard to his due process claim, the court stated that Head received written notice of the charges; an explanation of the employer’s evidence; and an opportunity to tell his side of the story in front of an impartial decision-maker. Due process was not violated.

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327 Id. at 801.
328 Id. at 802.
In *Ulichny v. Merton Community School District*, Ulichny was hired as a principal with a one-year contract. Wisconsin law requires principals’ contracts to be automatically renewed unless the district sends a non-renewal notice four months before the contract expires. Absent the non-renewal notice, the contract can only be terminated for just cause, provided that the principal be given proper notice and a hearing.

After her first year, an evaluation of Ulichny’s performance indicated that Ulichny experienced difficulties with interpersonal relationships with parents and staff and struggled with issues surrounding power and control. During her second year, Ulichny experienced problems with school climate, strained relationships, and poor communication with staff and teachers. Her contract was nevertheless renewed. During her third year, Ulichny mishandled a student-to-student harassment incident and was subsequently transferred to another school to perform other duties, some of which she classified as “menial.” Ulichny claimed that her due process rights were violated.

The Seventh Circuit concluded that Ulichny did not have a recognized property interest in performing particular duties as a principal. In addition, her liberty interest was not violated because the comments and complaints were not “so damaging to Ulichny’s reputation that she was prevented from obtaining employment in her chosen field.” Although this case does not deal specifically with educational

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329 249 F.3d 686 (7th Cir. 2001).

330 *Id. at 705.*
technology or instruction, it demonstrates that when a local board of education determines that school administrators must perform certain functions, implement specific policies, or carry out their work in a specific manner, i.e. maintain a school climate conducive to high student achievement, establish good working relationships with staff and parents, or implement an effective educational technology program, school administrators must comply or suffer professional consequences.

In a recent district court case, 331 the district court upheld an Illinois state law targeted for reforming the Chicago Public Schools. 332 This law allowed the Chicago Public School Board and its CEO to determine that a school is in “an educational crisis” and to “remove any officer” without placing the school under probation pursuit to 105 ILCS 5/34-85. 333 The plaintiff was a high school principal under contract. After an investigation by the district office, the superintendent placed the high school under “educational crisis” and reassigned the principal to other duties. Among other allegations, the school was placed under educational crisis because “the school improvement plan, which plaintiff as principal is responsible for developing and implementing, was never formally approved and implemented.” 334

Among other claims, the plaintiff set forth a claim for damage for protected property interests. The district court concluded that the plaintiff did have a legitimate

331 Nagle v. Chicago School Reform Board of Trustees, 2000 U.S. Dist. LEXIS 14075 (N.D. Ill.).


333 Id.

property interest and could only be removed for just cause. To comport with due process, the court stated that the plaintiff was entitled to oral or written notice of charges, an explanation of the evidence, and an opportunity to tell her side of the story. The court found that the Board gave adequate notice and an opportunity for the plaintiff to be heard and thus satisfied the requirements for procedural due process. Again, this case demonstrates that an administrator can suffer professional sanctions for failing to develop and implement a school improvement plan, which may include educational technology.

Recently, a local school council expressed concern over a principal’s creation and implementation of the school’s improvement plan. The council brought their concerns to the attention of the superintendent, who developed a corrective action plan. The superintendent eventually removed the principal from his position and reassigned him to work in the central office. The principal alleged that the superintendent deprived him of a property interest without due process. The principal admitted he was given notice and a hearing, but he claimed that the hearing was a sham and the hearing officer was not impartial. The court stated that he would need to overcome the presumption that the adjudicators were acting in good faith, honestly, and with integrity by presenting evidence of a pecuniary interest, personal animosity, or actual prejudice. The court ruled that the plaintiff did not present evidence to overcome this presumption and found that there was evidence that school authorities

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335 Newton v. Chicago School Reform Board of Trustees, 2000 U.S. Dist. LEXIS 13604 (N.D. Ill.).
had serious academic concerns about the high school. Thus, due process was not violated and the school district could legitimately remove him from office.

In Donato v. Planview-Old Bethpage Central School District, the United States Court of Appeals for the Second Circuit indicates that administrators may be terminated if their schools fail to meet their supervisors' expectations in curriculum and instruction. Linda Donato, a probationary assistant principal, was terminated for reasons including "failure to perform the master scheduling responsibilities" and "failure to provide adequate instructional supervision." Donato alleged that the school district "deprived her of property and liberty without due process of law." The Second Circuit held that she was not deprived of a property interest. It reasoned that Donato had no legitimate expectation for employment because she was a probationary administrator, and her termination was not motivated by unconstitutional reasons (i.e. racial animus or religious bigotry). The court did find, however, that the district deprived her of a liberty interest because the Board made "stigmatizing allegations in the course of dismissing an employee." However, the court indicates that had the Board simply "explain[ed] its reasons for termination...without damaging her professional reputation to such an extent as to

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336 96 F.3d 623 (2nd Cir. 1996).
337 Id. at 627.
338 Id. at 628.
339 Id. at 633.
severely impeded her ability to continue in the education field in a supervisory capacity," Donato could have legally terminated her for the above reasons.\textsuperscript{340}

\textit{Burk v. Unified School District}\textsuperscript{341} also indicates that an administrator may be legally terminated for not adequately developing a sound educational technology program in his/her school. In \textit{Burk}, the district adopted a formal evaluation policy for administrators. The evaluation listed "certain specific objectives and criteria for evaluation."\textsuperscript{342} When a supervisor evaluated the plaintiff, he was rated "outstanding" for each of the criteria except one. Under Objective IV, entitled "Public Relations," the supervisor rated the plaintiff "inadequate." Specifically, Objective IV reads, "Communicates effectively with faculty and establishes an effective working relationship with faculty."\textsuperscript{343} The Superintendent later wrote, "I'm sorry a person of such outstanding performance in all but one category can not be recommended for continued employment with the district. But, this one area is the most crucial to being a successful principal."\textsuperscript{344}

Burk claimed that the district deprived him of a property right and a liberty interest without due process, but the District Court held otherwise. Applied to instructional technology, if a district official creates an administrator evaluation form,

\begin{footnotesize}
\textsuperscript{340} Id. at 632,633.
\textsuperscript{341} 646 F. Supp. 1557 (Kan. 1986).
\textsuperscript{342} Id. at 3.
\textsuperscript{343} Id. at 4.
\textsuperscript{344} Id.
\end{footnotesize}
includes an objective that measures how effectively the administrator’s school integrates technology into the curriculum, terminates the administrator for failing to meet this objective, and grants the administrator all the due process he is legally entitled to, the district may legally terminate the administrator.

The Commonwealth of Massachusetts has enacted laws designed to stimulate educational reform and increase accountability.\textsuperscript{345} Under the Educational Reform Act of 1993, principals may not be represented in collective bargaining units, and Massachusetts superintendents may dismiss or demote a principal, provided that they give principals with written notice and an opportunity to review the dismissal with the superintendent.\textsuperscript{346}

In \textit{Marlborough School Committee v. Morley},\textsuperscript{347} a principal was terminated for failing to improve student achievement, including the basic subjects of mathematics, reading, citizenship, and technology.\textsuperscript{348} The administrator claimed that the terms “good cause” and “just cause” were used synonymously, thus “just cause” implied that an administrator could only be terminated for “substantial misconduct which adversely affects the public interest by impairing the efficiency of the public service.”\textsuperscript{349} Alternatively, school officials argued that “good cause” and “just cause”

\begin{thebibliography}{99}
\item \textsuperscript{345} Mass. Ann. Laws ch. 69, § 1 (Matthew Bender & Company, Inc., 2001).
\item \textsuperscript{347} 1996 Mass. Super. Lexis 304.
\item \textsuperscript{348} Daniel & Nance, \textit{supra} note 30.
\item \textsuperscript{349} Marlborough, 1996 Mass. Super. Lexis 304, at *18.
\end{thebibliography}
are distinguishable and "good cause" implies that the termination of school principals is "by no means limited to some form of inefficiency or of misconduct...[but also] includes any ground which is put forth... in good faith and which is not arbitrary, irrational, unreasonable, or irrelevant to the... task of building up and maintaining an efficient school system."\(^{350}\) The court overturned an arbitrator's finding that the two terms were parallel, stating that the Massachusetts Legislature intended, in part, to reform education by giving school officials broad power to retain or terminate school principals. This required school principals to be accountable for maintaining a high quality of public education in their schools, which includes student achievement in technology.

In *Warren v. Trotwood-Madison City Sch. Dist.*,\(^ {351}\) Warren, a principal under a series of one-year contracts, met with the superintendent to discuss various goals of improvements. These goals included among others: "to improve proficiency scores by providing staff development for teachers in test-wiseness, instructional strategies, and teaching the curriculum" and "to prepare a report to the superintendent on a curriculum focus that would meet the needs of students and parents."\(^ {352}\) The next year the superintendent did not recommend a contract renewal because of "Warren's failure to achieve the goals that had been established for the preceding school

\(^{350}\) *Id.* at *14.

\(^{351}\) 1999 Ohio App. LEXIS 1035.

\(^{352}\) *Id.* at *5.*
year."\textsuperscript{353} Timely notice was given as well as an opportunity to appear before the Board for an opportunity to be heard. Warren filed suit for wrongful discharge and due process violations. Relying on an Ohio Supreme Court case, the appeals court states that Boards are not required by statute to tell public school administrators "the reasons for his or her recommended nonrenewal, nor does it require that the board's decision to nonrenewal an administrative contract be based on the administrator's evaluation."\textsuperscript{354} Therefore, "administrators need not receive written notice of the reasons for nonrenewal, but must only allowed to meet with the board to discuss the renewal or nonrenewal of their contracts."\textsuperscript{355}

The above analysis of the case law should not be surprising. Indeed, "protections for the position of public school administrator have always been, at best, tenuous."\textsuperscript{356} Although the situation differs from state to state, school administrators are typically not granted tenure privileges by state legislatures and, unlike teachers, have minimal statutory and procedural due process protection when they are terminated or reclassified, or reassigned to other duties. Most states stipulate that school administrators have no property rights in their position and thus have minimal constitutional due process rights. In addition, courts will not normally intervene in

\textsuperscript{353} Id. at *7.

\textsuperscript{354} Id. at *13.

\textsuperscript{355} Id. at *14.

\textsuperscript{356} Daniel & Nance, supra note 30.
the daily conflicts that arise in the educational setting, including those conflicts involving the termination of school administrators, unless school officials act arbitrarily, capriciously, or abuse discretion.\textsuperscript{357}

Notwithstanding, national and state lawmakers have enacted legislation that suggests that educational technology is an important component to public education. Consequently, it is quite possible that school administrators across the nation feel pressure to develop sound educational technology programs in their school curriculums. The case law analysis suggests that administrators may be legally terminated for failing to uphold their supervisors' expectations in regards to curriculum and instruction, provided that administrators receive all the due process to which they are entitled. Therefore, if a school administrator does not develop a sound educational technology program in his/her school, the administrator may be legally subject to reassignment, suspension, or termination.\textsuperscript{358}

\textsuperscript{357} Id.

\textsuperscript{358} Id.
CHAPTER 3
METHODOLOGY

Legal Research Methodology

As Chapter One indicates, this study is primarily quantitative. However, extensive case law has been used to bolster the literature review and to describe the context of the problem. Thus, it may be helpful at this point to briefly discuss various principles of legal research methodology before discussing principles of quantitative methodology used in this study.

From the outset, it should be emphasized that when legal research is normally conducted, the researcher identifies a specific issue and a specific legal jurisdiction in which to explore the issue. For example, a legal researcher might wish to research how the First Amendment affects various school policies regarding what students may or may not publish on a school web site. He might examine this issue in one or more federal districts, circuits, or for the entire nation. It is much easier for a legal researcher to accurately analyze the state of the law when issues are narrow and jurisdictions are small. The broader the issues and the legal jurisdictions, the more complicated legal analysis becomes.

To establish the context of the problem and to describe the role players in educational technology, several issues across many legal jurisdictions have been
described, making it nearly impossible to give a complete and accurate portrayal of the state of the law for these issues. It may be most helpful at this point to describe some of the important principles of legal methodology that were used to generate these broad themes.

Identifying the sources of authority is paramount in legal research. Legal authority is "any published source of law setting forth legal rules, legal doctrine, or legal reasoning that can be used as a basis for legal decisions."\(^{359}\) In legal research the term "authority" can be used to describe types of legal information and the degree of their persuasiveness.\(^{360}\) There are two types of authority: primary and secondary. Primary authorities are "authorized statements of laws by government authorities" that courts can use to make decisions.\(^{361}\) These statements include case law, constitutions, statutes, administrative regulations, executive orders, charters, ordinances, and treaties.\(^{362}\) Secondary authorities are "statements about the law" that are used to "explain, interpret, develop, locate, or update primary authorities."\(^{363}\) Courts may also use these sources to reach decisions. These sources include legal and nonlegal treatises, articles in law reviews and other scholarly journals, American Law Reports, annotations, legal and nonlegal dictionaries, and legal and nonlegal

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\(^{360}\) Id.

\(^{361}\) Id. See also STATSKEY, supra note 249, at 80.

\(^{362}\) Id.

\(^{363}\) JACOBSTEIN, supra note 359, at 2.
encyclopedias. Most primary and secondary sources of authority can be found in printed form, on CD-ROM, or online through WESTLAW or LEXIS.

As indicated above, it is important to determine the degree of persuasiveness a source of authority has to influence legal decisions. Primary sources can be binding (mandatory) or persuasive. Secondary sources can never be binding, only persuasive. Binding authority “is whatever the court must rely on in reaching its decisions.” An enacted law, such as federal or state statute, constitutional provisions, ordinances, or administrative regulations is binding authority when (1) the enacted law is applied to the geographic area in which the authors have legal jurisdiction; (2) it was the authors’ intention to cover the facts before the court; and (3) the application of the law to these facts does not violate some superior authority. Court opinions are binding when (1) the key facts of the opinion are analogous to the situation at hand, and the rules of law applied to these facts are the same; and (2) the opinion was written by a higher court that is superior to the one considering the current issue.

Any authority that is not binding can be persuasive. Persuasive authority is “any law or nonlaw that a court decides to follow because of its persuasiveness rather

364 Id. See also STASKY, supra note 249, at 80.
365 STASKY, supra note 249, at 80.
366 JACOBSTEIN, supra note 359, at 2. See also STASKY, supra note 249, at 80.
367 STASKY, supra note 249, at 80.
368 Id. at 81.
369 Id. at 82.
than because of a mandate or duty to follow it."\textsuperscript{370} The most common types of persuasive authority are court opinions and secondary sources. A court considers a number of factors when determining the persuasiveness of nonbinding court opinions. Of course, the facts and rules of law must be analogous to the current situation, but judges are also interested in how many other legal jurisdictions have adopted the holding, if the opinion has been frequently cited by other courts, and if the opinion is reasonable. Judges also are persuaded by opinions that are congruent with their own legal and social philosophies, although this is not outright acknowledged.\textsuperscript{371}

\textbf{Research Design}

A research design refers to "a plan, blueprint, or guide for data collection and interpretation—sets of rules that enable the investigator to conceptualize and observe the problem under study."\textsuperscript{372} Kerlinger states that a research design has two basic purposes: (1) to provide answers to research questions and (2) to control for variation.\textsuperscript{373} Normally researchers are able to analyze and build upon past research studies. However, in the instant research project, no prior research has been conducted on the administrator's role in educational technology policy. And, as indicated in Chapter 1, there is very little research conducted on the administrator's role in any type of educational policy. There are no established research instruments

\textsuperscript{370} \textit{Id.} at 84.

\textsuperscript{371} \textit{Id.}

\textsuperscript{372} \textsc{Gerald R. Adams & Jay D. Schwaneveldt, Understanding Research Methods} 103 (2d ed. 1991).

\textsuperscript{373} \textsc{Fred Kerlinger, Foundations of Behavioral Research} 280 (3d ed. 1986).
after which to model, no results with which to compare findings, and very little
direction on which to base the study or formulate research questions. Therefore, an
exploratory design will be used.

The purpose of an exploratory study is to “seek out new insights” and “ask
questions.” Exploratory research serves three major purposes: (1) “to satisfy
curiosity;” (2) “to build methodology that might be used in later, more tightly
designed research;” and (3) “to make recommendations regarding the likelihood of
continuing with additional research on this topic.” Although there are many
disadvantages to conducting an exploratory study (e.g. not being able to build upon
other studies or not having other research results to compare), there are some
advantages. Conducting exploratory designs allows the researcher to have
considerable flexibility in answering and exploring questions. He must be open to
unanticipated or anomalous results. Adams and Schvaneveldt sum up the purpose
of exploratory research nicely. They state:

Exploratory designs are purposeful and flexible. The researcher must be
constantly adaptable, willing to change, and open to impact from the data.
The flexibility inherent in exploratory research does not mean absence of
direction to the inquiry; rather the flexibility means that the focus is initially
broad and becomes progressively smaller as the research goes on. The user of
the exploratory design would do well to ask all kinds of questions about the
phenomenon begin researched, even if some of them appear to be ridiculous.

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374 ADAMS & SCHVANEVELDT, supra note 372, at 104.

375 Id.

376 Id.
Being alert for observations that seem odd or interesting and events that make you question previously held beliefs should be a regular format for those who successfully engage in exploratory research.  

**Independent Variables**

The primary independent variables used for this study include grade level of the administrator’s school (Building Level), school district type (District Type), district poverty level (Poverty Level), tenure of principal (Principal Tenure), school district size (District Size), level of confidence in knowledge of the policy-making process (Knowledge of Process), and level of confidence using technology (Confidence Using Technology).

"Building Level" is determined from information given in the Ohio Educational Directory. The Ohio Educational Directory is provided by the Ohio State Department of Education and available online. Normally, Ohio schools fall into one of three categories: high school (grades 9-12), junior high school or middle school (grades 7-8 or grades 6-8), and elementary school (grades K-2, K-3, 3-5, 4-6, K-5, or K-6). However, variations of the above do exist. For instance, in some small school districts the student population is not large enough to create a middle or junior high school. High schools house grades 7-12 or elementary schools may house grades K-8. Because these instances are relatively few the classification provided by the Ohio Educational Directory has been followed. That is, schools that

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377 *Id.* at 106.


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accommodate grades 7-12 have been classified as high schools, and schools that house grades K-8 have been classified as elementary schools.

The independent variable “District Type” poses more of a challenge. The Ohio Department of Education classifies public school districts into six categories: city, local, exempted village, educational service center, cooperative education school districts, and joint vocational. This categorization is not necessarily based on size, population, or location of the district and could not be used to determine with accuracy whether a school district would be considered to be urban, suburban, or rural.

The National Center for Education Statistics (NCES) provides a more accurate categorization. NCES classifies each public school district “relative to one of the 355 Metropolitan Statistical Areas (MSA) determined by the Bureau of Census during the 1980 Decennial Census and updated as of 1990.” NCES categorizes the districts into one of three categories: “(1) The agency serves the central city of an MSA; (2) the agency serves an MSA but not primarily its central city; (3) the agency does not serve an MSA.” Because location of districts and size of the cities where districts reside determine their categorization, NCES provides a good classification system for “District Type.” Therefore, for the purposes of this study, a district that received a rating of “1” will be classified as “urban;” a district with a rating of “2” will be

379 NATIONAL CENTER FOR EDUCATION STATISTICS, supra note 185, at xiv.

380 Id.
classified as "suburban;" and a district with the rating of "3" will be classified as "rural." The principal’s district will be identifiable by a number written on each survey.

"Poverty Level" is categorical and comes from a database obtained from the Ohio Department of Education (ODE). ODE classifies Ohio school districts into one of five categories: very low poverty, low poverty, below average poverty, average poverty, and high poverty based on the percentage of students who receive welfare services. This information is not available online, but is available if one directly contacts the Ohio Department of Education.

The independent variable “Principal Tenure” is a continuous variable. The participants will be asked how long they have served as principal at their current school, in other schools, and as assistant principal (a part year is counted as one year). The summed scores’ relationship to the dependent variables will be examined.

The independent variable “District Size” is also continuous. NCES’s Directory of Public Elementary and Secondary Education Agencies 1998-1999 lists the total student membership for each district. The identification number written on each survey will assist in the location of the district in which each school resides.

It is hypothesized that “Knowledge of Process” will be a factor, and thus a continuous variable. The underlying concept this factor seeks to measure is the level of confidence Ohio principals have in their knowledge of how educational policies

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381 The term “tenure” is used in the generic sense referring to years in position and not a vested property right. For the most part, school administrators have no property rights in their positions. See P.T.K. Daniel, Legal Issues and the Discharging of Non-Teaching Support Employees, 67 SCHOOL BUSINESS AFFAIRS 8 (2001).
are made and what influences policy. Specifically, it seeks to measure the administrators' level of confidence in their knowledge of the role the U.S. Constitution, U.S. Congress, U.S. Department of Education, Ohio State Legislature, Ohio State Department of Education, local school boards, school principals, and federal and state courts play in educational policy. Although the results of the pilot study may prove differently, the factor most likely will consist of some or all items 36-43 in the survey instrument (see Appendix). Once the pilot study is complete and the factor is reliable and valid, a composite factor score for each administrator will be generated and its relationship with the dependent variables will be examined.

It is hypothesized that “Confidence Using Technology” will also be a factor and a continuous variable. Technology, for the purposes on this study, is defined as computer hardware, computer software, the Internet, and e-mail. The underlying concept this factor seeks to measure is the level of confidence Ohio principals have in using technology in their professional and personal life (Items 44-47). Its relationship with the dependent variables will also be examined.

The relationship other independent variables have with the dependent variables will also be scrutinized. These variables include teaching experience, experience as a curriculum supervisor, undergraduate major, highest degree earned, gender, and race.

**Dependent Variables**

As previously described, the study seeks to ascertain principals' actual level of involvement in the educational technology policy-making process (“Actual Level of Involvement”) and their desired level of involvement (“Desired Level of
Involvement") at the building, district, state, and national levels. Principals are asked to rate their level of participation and their desired level of participation in the development of technology plans; decisions to purchase or provide computer hardware, software, or technology training for employees; the creation of computer acceptable use policies; and the creation of other types of educational technology policies.

At the conclusion of the pilot study, the survey questions may be modified to create factors that are more reliable and valid. It is also possible that the factor analysis produces factors different from what is described above. For example, it is possible that factors may emerge based on the four policy-making levels (building, district, state, and national). Once reliable and valid factors are created, their relationship with the independent variables will be examined.

Population

The population for this study is Ohio public school administrators in K-12 settings. Specifically, administrators who serve as principal of a public elementary, middle or junior high, or high school in the state of Ohio. Administrators who serve in specialty schools will be excluded from the study.382 Although identifying and obtaining contact information for an entire population of study is normally rare, one

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382 Public specialty schools might include state juvenile detention centers, special needs schools, or charter schools.
may do so with reasonable precision for this particular population. This study’s population is found in the Ohio Educational Directory, provided by the Ohio State Department of Education and available online.\textsuperscript{383}

The online version of the Ohio Educational Directory is interactive. The general public may obtain contact information for a specific district or school or for specific types of districts and/or schools.\textsuperscript{384} One simply types in the IRN number of the district or school or selects the district type or school type. To obtain the population for this study, category “City, Exempted, and Local School Districts”\textsuperscript{385}


\textsuperscript{384} Specific types of districts and schools include educational service centers, joint vocational school districts, city school districts, exempted village school districts, local school districts, community schools, state institutions/hospitals, state supported schools, Catholic conference of Ohio, Cleveland Luther High School Association, Dayton Christian Schools Inc., Worthington Christian Schools, Jewish Education Center of Cleveland, Lutheran Schools of Ohio, Seventh-day Adventist, Independent Schools, and all nonpublic schools.

\textsuperscript{385} There are currently six types of public school districts in Ohio: city, exempted village, local, educational service center, cooperative education school districts, and joint vocational. According to the Ohio handbook for school board members, a city school district includes “the territory within the corporation limits of a city and such other territory as may be detached for school purposes. The municipal corporation and the city school district do not necessarily have the same boundaries.”

An exempted village district is a school district “which, having met certain statutory requirements, was declared by its board of education to be exempt from county supervision. The authority to create exempted village districts was repealed as of June 1, 1954, but that legislation did not abolish the exempted village districts then in existence.”

A local school district is any school district “other that a city, exempted village, county, joint high school or joint vocational school district...These are under educational service center supervision.”

The educational service center is “the territory within the limits of one or more contiguous counties exclusive of the territory embraced in any city or exempted...”
was selected under the “selection criteria” to obtain a total population of 3572 school administrators. The interactive Ohio Educational Directory provides the school name, district, county of location, address, fax number, phone number, grade levels taught, total student enrollment, administrator’s name, and the total number of teachers that work in the school.

Sample Selection

To select the sample for the pilot study, each administrator in the population was assigned an identification number. The total population (3572 principals) was then divided into nine groups: urban elementary (532 principals), suburban elementary (1168 principals), rural elementary (512 principals), urban middle (125 principals), suburban middle (378 principals), rural middle (151 principals), urban high (103 principals), suburban high (377 principals), and rural high (226 principals). Using SPSS 10.0 for Windows, a random sample of 24 participants for each group was generated for total pilot-study sample size of 216.

village school district or detached for school purposes.” Cooperative education school districts and joint vocational districts are combinations of city, exempted village, or local school districts.

Thus, by selecting the “City, Exempted, and Local School Districts” option under the “selection criteria,” one may obtain, virtually, the entire population of public schools in the state of Ohio. For more information, see RICHARD J. CASTER, ET AL., BOARDMANSHIP: A HANDBOOK FOR SCHOOL BOARD MEMBERS 23 (2000).

Some administrators in Ohio have responsibility for two or more schools. For example, a rural elementary school administrator may serve as principal of both the K-3 and 4-6 elementary schools. Because the population of this study is administrators and not schools, the author made sure that each administrator in the total population would have only one equal chance of being part of the selected sample.
After the pilot study is complete, the above process will be repeated for the actual study, except that pilot study participants will not be allowed an opportunity to be selected for the actual study. If the pilot study indicates that the survey needs only slight modifications, the pilot study and actual study populations will be combined to produce a larger $n$.

By dividing up the total population the nine groups described above, it will be easier to obtain reliable data to study the independent variables "Building Level" and "District Type." If a random sample of administrators were generated from the entire population, it is likely that there would be a high proportion of elementary school principals (which make up 62% of the total population) and suburban schools (which make up 54% of the population).

Conceivably, it could be argued that by drawing samples from a stratified population, a "true" random sample of the total population is not generated and, therefore, inferences about the total population cannot be drawn. However, it is important to stratify the total population and draw samples from each group to ascertain whether principals at different levels and districts have varying roles and opinions about the educational technology policy-making process. At the same time, reasonable inferences (albeit not theoretically perfect) can be made about the perceptions of the total population as a whole.

Stratifying the total population by district type and building level does not facilitate obtaining good samples for the other independent variables. Nevertheless, to avoid making the process overly complicated, a decision was made not to stratify
the total population in other ways. Moreover, some of these independent variables are continuous, making stratification unnecessary in some cases.

**Instrumentation**

Proper question formation is crucial for having a reliable and valid survey instrument and to have a high return rate. Although there are some shortcomings for doing so, a decision was made to use closed-ended questions because answers are easier to process, and closed-ended questions facilitate uniformity in responses.\(^{387}\) Babbie suggests that if researchers elect to use closed-ended questions, that (1) response categories should be exhaustive; and (2) answer categories should be mutually exclusive.\(^{388}\) Babbie provides other guidelines for creating questions that were taken into account such as making items clear, avoiding double-barreled questions, asking relevant questions, using short items, avoiding negative items, and avoiding biased items and terms.\(^{389}\)

The format of the questionnaire is also very important. A questionnaire is that poorly formatted will lead to confusion, missed questions, and is more likely to be thrown away. Although squeezing or abbreviating questions may save paper and reduce printing and mailing costs, Babbie advises against this approach. He suggests that designers maximize the white space and spread questionnaires out. Generally, he

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states, if respondents are able to move quickly thorough what initially appeared to be a long questionnaire, they are less demoralized than if they plod along slowly at what first appeared to be a short questionnaire. Additionally, when the questionnaire is spread out, respondents are less likely to commit errors.\textsuperscript{390}

Most of the questionnaire items have the same set of answer categories: a four-point Likert scale. Using a Likert scale is important because it allows researchers to obtain interval data, which facilitates quantitative analysis. Babbie recommends that when researchers use such a set of answer categories that they construct an items-and-answers matrix.\textsuperscript{391} A matrix format has two advantages: (1) participants are able to complete the questionnaire faster; and (2) matrix formats use space efficiently.\textsuperscript{392} He does warn, however, that matrix formats sometimes foster "response set" by participants. That is, participants may "develop a pattern of...agreeing with all the statements."\textsuperscript{393}

Alreck and Settle offer suggestions on how to create questionnaire sections.\textsuperscript{394} They suggest grouping items by topic or scaling technique. Grouping by topic is useful because it makes sense and is meaningful to participants. After the first

\begin{flushright}
\textsuperscript{390} BABBIE, SURVEY RESEARCH METHODS, at 135. \textit{See also} BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 245-246.

\textsuperscript{391} BABBIE, SURVEY RESEARCH METHODS, at 138. \textit{See also} BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 248.

\textsuperscript{392} Id.

\textsuperscript{393} BABBIE, SURVEY RESEARCH METHODS, at 140. \textit{See also} BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 248-49.

\end{flushright}
question, the participant can focus on a particular issue and easily respond to other items that correspond to that issue. This is easier mentally than continually skipping from one issue to another.\footnote{Id. at 153-54.}

The items have also been grouped by scaling techniques. Most items have a four-point Likert scale, but some sections ask the participants to rate their level of involvement on a particular issue and others ask participants to rate their level of agreement on a statement. Grouping by scaling techniques is practical and efficient. "It saves time and space and makes the response task easier. The respondents need only to read the instructions and get familiar with the scale one time."\footnote{Id. at 154.}

Questionnaire instructions are also an important part of the questionnaire. A self-administered questionnaire should contain instructions on how to complete it. It should explain what items to rate, the criterion or standard to use, the scale, and where and how to report the responses.\footnote{Id. at 161.} If a questionnaire has sections, each section should have a short set of instructions. This helps put participants in a proper frame of mind and make sense of the questionnaire. It also helps the questionnaire to seem less chaotic. If the rating scale changes in the survey, it is very important to indicate this in the section instructions.\footnote{BABBIE, SURVEY RESEARCH METHODS, at 142-143. See also BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 250.}

\footnotetext[395]{Id. at 153-54.}
\footnotetext[396]{Id. at 154.}
\footnotetext[397]{Id. at 161.}
\footnotetext[398]{BABBIE, SURVEY RESEARCH METHODS, at 142-143. See also BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 250.}
The survey instrument is divided up into seven sections. The first section seeks to find out what educational technology policies exist in the districts across the state of Ohio (Item 1). There is an extensive list composed from reviewing literature on educational technology policy and discussing possible educational technology issues with current and former educational administrators. The bulk of the list comes from a legal manuscript published by the National School Boards Association’s (NSBA) Council of School Attorneys. The manuscript is entitled: *Legal Issues & Education Technology: A School Leader’s Guide,* possibly the most extensive and thorough source available on the legal issues surrounding educational technology.

The survey asks the principal to check any item for which his/her school district has a policy.

The next section asks about the existence and enforcement of educational technology policies at the principal’s school (Items 2-7). The principal is asked to rate each item on a scale from one to four, according to how much he/she agrees with various statements: 1=strongly disagree; 2=disagree; 3=agree; and 4=strongly agree.

Section three measures the principal’s actual level of involvement in creating educational technology policy at the building, district, state, and national levels (Items 8-21). Participants are asked to rate their level of involvement in various areas on a scale of one to four by circling the appropriate number: 1=No Involvement; 2=Little Involvement; 3=Moderate Involvement; and 4=Substantial Involvement. The survey indicates that if the principal’s school or district has no such policy, that he/she circle “not applicable” (N/A).

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399 National School Boards Association, supra note 33.
Section four measures the principals’ desired level of involvement in the educational technology policy-making process at the building, district, state, and national levels (Items 22-35). Participants are asked to rate their desired level of involvement in various areas on a scale of one to four by circling the appropriate numbers: 1=No Involvement; 2=Little Involvement; 3=Moderate Involvement; and 4=Substantial Involvement.

Section five measures the principals’ level of confidence in their knowledge of how policies are made and what influences policies (Items 36-43). As in section two, the principal is asked to rate each item on a scale from one to four, according to how much he/she agrees with various statements: 1=strongly disagree; 2=disagree; 3=agree; and 4=strongly agree.

Section seven measures the principals’ level of confidence using technology in their professional and personal lives (Items 44-47). Technology, for the purposes of this study, is defined as computer hardware, software, the Internet, and e-mail. The participants are asked to rate each item on a scale of one to four, according to how much he/she agrees with various statements: 1=strongly disagree; 2=disagree; 3=agree; and 4=strongly agree.

Section seven asks the principals about work experience and other demographic information (Items 48-53). It asks participants to indicate how long they have served as principal at their current school, at other schools, as an assistant principal, and as a curriculum supervisor or department head. It also asks participants how many years of teaching experience they have, their undergraduate major, highest degree earned, gender, and race. This information will be used to construct various
independent variables as previously described. Because this study is primarily exploratory, it is necessary to ask information that may affect administrators' attitudes/role in the policy-making process. However, to avoid making the survey too long, only a limited amount of questions could be asked. A copy of the questionnaire appears in the Appendix.

**Reliability**

All measures should possess the properties of reliability and validity, irrespective of how researchers choose to go about measuring.\(^{400}\) If the instrumentation described above is not reliable and valid, it will not measure what it intends to measure and the results will be full of error.\(^{401}\)

The term "reliability" brings to mind the terms "dependability," "stability," "consistency," "predictability," and "accuracy." If an instrument is reliable, it will produce similar results if used to measure the same set of objects again and again. It will also measure the set of objects accurately. That is, we are more likely to obtain the objects' "true" measures.\(^{402}\) On a more theoretical level, an instrument is reliable "to the extent that errors of measurement are [not] present in the instrument."\(^{403}\) Said another way, reliability may be defined as "the relative absence of errors of


\(^{401}\) Id.


\(^{403}\) Id. at 405.
measurement in a measuring instrument. The more error that exists, the greater
the unreliability; the less error that exists, the greater the reliability.

There are several tests that researchers can use to measure the reliability of an
instrument. For this instrument, the internal consistency method will be used. This
is a very common reliability measure and generally employed when there is only one
form of measurement available. A questionnaire is "internally consistent to the
extent that there is a high degree of intercorrelation among items that comprise the
measure." A researcher should employ this test when he "wishes to assess the
degree to which the items in a measure are homogeneous (i.e., indices of a common
construct). There are several tests to measure the internal consistency of an
instrument, the most common being the internal consistency coefficient estimate
alpha (Cronbach's alpha). This test can be conducted easily and quickly using
SPSS 10.0 for Windows. The coefficient alpha for each of the factors will be reported
in Chapter Four.

404 Id. See also STONE, supra note 400, at 43; BABBIE, SURVEY RESEARCH METHODS,
at 132-133.

405 KERLINGER, supra note 373, at 408.

406 Some of these tests include test-retest method, parallel forms method, and internal
consistency methods. See STONE, supra note 400, at 46-51.

407 Id. at 48.

408 Id.

409 Id. at 49.

410 Id. at 48-51.
Validity

The question of the validity of the instrument is perhaps the most important question researchers can ask themselves. If the research instrument is not valid, the entire study will be undermined. Validity "reflects the degree to which a measure actually measures what it purports to."\textsuperscript{411}

In 1974 and again in 1999, a joint committee of the American Psychological Association, the American Education Research Association, and the National Council on Measurements Used in Education prepared a manuscript entitled: \textit{Standards for Educational and Psychological Tests}.	extsuperscript{412} The committee discussed three types of validity: content, criterion-related, and construct. Criterion-related validity "is characterized by prediction to an outside criterion and by checking a measuring instrument, either now or in the future, against some outcome or measure."\textsuperscript{413} Criterion-related validity is not a primary concern for extant instrument because of its exploratory nature. Content validity and, particularly, construct validity are more salient concerns.

An instrument is content valid to the extent that the "items making up the measure are a representative sample of the domain of items associated with the

\textsuperscript{411} \textsc{Stone}, \textit{supra} note 400, at 43. \textit{See also} \textsc{Babbie}, \textsc{Survey Research Methods}, at 133-134; \textsc{Babbie}, \textsc{The Practice of Social Research}, at 143-146; \textsc{Devellis}, \textit{supra} note 402, at 43-50; \textsc{Alreck \& Settle}, \textit{supra} note 394, at 58; \textsc{Adams \& Schvaneveldt}, \textit{supra} note 372, at 76-86.

\textsuperscript{412} \textsc{American Psychological Association}, \textsc{Standards for Educational and Psychological Tests} (1999).

\textsuperscript{413} \textsc{Kerlinger}, \textit{supra} note 373 at 419.
variable being measured." Content validation should be guided by the question: "Is the substance or content of this measure representative of the content or the universe of content of the property being measured?" Content validity suffers when a researcher asks questions not related to the variables he is measuring or underrepresents the relative domain.

Content validity is judgmental and subjective. Perhaps the best way to judge content validity is to compile a panel of experts to examine the instrument. Several competent individuals were asked to examine the research instrument to judge its content. Each one of these individuals has experience working with educational technology policy in some degree and has served as an educational administrator. These individuals include:

Dr. Philip T.K. Daniel, Professor of Education and Law, The Ohio State University.

Dr. Frank Walter, Director of the National Academy for Superintendents and former State Superintendent of Public Instruction for the Ohio Department of Education.

Dr. Dan Hoffman, Executive Director for Essential School Reform and former high school principal.

Thomas Dimit, Former Ohio principal and doctoral student at The Ohio State University.

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414 STONE, supra note 400, at 51.

415 KERLINGER, supra note 373, at 417.

416 STONE, supra note 400, at 51.

417 KERLINGER, supra note 373, at 418.

418 See KERLINGER, supra note 373, at 418. See also STONE, supra note 400, at 51.
Jay Powell, Assistant Principal of Upper Arlington High School and overseer of educational technology at UAHS.

Scott Smith, Former Director of Residence Life at Ohio Northern University and current doctoral candidate at The Ohio State University.

These individuals were asked to read the survey, comment on its appropriateness, offer suggestions as to how to better measure the variables, and comment on its readability and clarity. The panel provided valuable feedback, and the instrument was modified accordingly.

In addition, advice from Dr. Helen M. Marks, Associate Professor of Education, The Ohio State University; Dr. Wayne K. Hoy, Professor of Education and Novice G. Fawcett Chair, The Ohio State University; and Dr. Mary Ann Danowitz Sagaria, Interim Director of Educational Policy and Leadership, The Ohio State University was solicited. These three professors, widely known for their research expertise in educational administration, examined the format and content of the instrument and offered several excellent suggestions that were taken into account.

Lewis R. Homer, a research associate at the Ohio State University Center for Survey Research, was also consulted. Mr. Homer analyzed the survey and commented on question construction, format, scales of measurement, and how to increase the return rate. Although these four individuals focused more on format rather than content validity, they helped immensely with the overall validity of the instrument.

In a study of this nature, construct validity is extremely important. Some variables can be directly observed (e.g. the number of educational technology policies a district has in place). Other variables are abstract and cannot be observed directly.
(e.g. a principal's desire to be involved in the educational technology policy-making process). Abstract variables must be inferred by other observable means and are termed constructs. Construct validity of a measure is established by showing that the operational definition of the construct is appropriate for the construct it purports to measure.\footnote{\textit{Stone}, \textit{supra} note 400, at 52.}

An important question that needs to be addressed is how to determine whether or not items listed under the construct do indeed operationalize the construct. In other words, how do we determine construct validity? Although there are several methods available to determine this, construct validity for this study will be established by utilizing factor analysis. Kerlinger states,

\begin{quote}
Factor analysis is a powerful and indispensable method of construct validation...It is a method for reducing a large number of measures to a smaller number called factors by discovering which ones 'go together' (which measures measure the same thing) and the relations between clusters of measures that go together.\footnote{\textit{Kerlinger}, \textit{supra} note 373, at 427.}
\end{quote}

As indicated, it is possible that after completing the pilot study and conducting the factor analysis, survey items will need to be deleted or added to establish construct validity. It is also possible that the factor analysis will group the items in an unexpected manner.

\textsuperscript{419} \textit{Stone}, \textit{supra} note 400, at 52.

\textsuperscript{420} \textit{Kerlinger}, \textit{supra} note 373, at 427.
Factor Analysis

Factor analysis helps researchers "explore variable areas in order to identify the factors presumably underlying the variables." The term factor implies "a construct, a hypothetical entity, a latent variable that is assumed to underlie tests, scales, items, and indeed, measures of almost any kind." Factor analysis uses complex algebra to discover patterns among the variations in values of several variables. This is done essentially through the generation of artificial dimensions (factors) that correlate highly with several of the real variables and that are independent of one another. A computer must be used to perform this complex operation.

In other words, suppose an instrument lists several items that seek to measure the principals' current level of involvement in the educational technology policy-making process. Each item measures some aspect of their level of involvement, but none of the items standing alone gives a perfect indication. The factor analysis produces an artificial dimension that is highly correlated with each of the items measuring some aspect of their level of involvement in the educational technology policy-making process. Each item receives a value that indicates how highly it is correlated to the artificial dimension (termed a factor loading), and this value discloses how well it predicts the underlying variable.

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421 Id. at 590.

422 Id. at 569.

423 BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 449.

424 Id. See also KERLINGER, supra note 373, at 569-593; LEDYARD R. TUCKER & ROBERT C. MACCALLUM, EXPLORATORY FACTOR ANALYSIS 1-18. Available at <http://quantrm2.psy.ohio-state.edu/maccallum/book/CH1.PDF>.
It is hoped that the items under each section will be highly correlated with one another. That is, that they are viable eigenvectors. To be viable, factors should (1) "explain a relatively large portion of the variance found in the study variables;" and (2) "must be more or less independent of every other factor." As previously indicated, one of the purposes for conducting the pilot study is to have the opportunity to add or eliminate various items from the instrument. This will help strengthen the factors and corroborate the construct validity of the survey.

Data Analysis

First, a simple description of the data will be reported, including means, standard deviations, and confidence intervals for each of the dependent variables. Subsequently, a 3 x 3 two-way between subjects factorial analysis of variance (ANOVA) will be conducted to determine whether or not there are significant differences in the group means. In other words, ANOVA will be used to determine if the variance between groups "is due to the differences between groups of individuals" (termed between-group variance) or to "the fluctuation or varying of measures due to chance" (termed error or within-groups variance). Factor A (the term "factor" in ANOVA is different from the one described in factor analysis) will be independent variable "Building Level" (elementary, middle, high) and Factor B will be independent variable "District Type" (rural, suburban, urban). From the ANOVA, it will be determined if district type and building level have significant effects on each

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426 KERLINGER, supra note 373, at 72, 74.
of the dependent variables. It will also be determined if there are significant interactions between building level and district type that may qualify their main effects on the dependent variables.

After conducting the ANOVA, post-hoc tests will be conducted. The ANOVA will reveal whether or not there are statistically significant differences among group means, but not which means contribute to the differences. The post-hoc analyses will disclose which means are statistically different from one another. A two-tailed Tukey test will be employed, a commonly used post hoc test for simple comparisons.

Various correlational analyses will also be conducted. Correlational analysis is used to determine whether or not the variation in the dependent variable is related to the variation in the independent variable(s). After performing simple linear regression on the data, it can be determined which portion of the variation is attributable to the independent variable(s)' influence and which is attributable to error (unexplained variation). Correlational analysis will be used to analyze the independent, continuous variables “District Size,” “Principal Tenure,” “Teaching Experience,” “Department Head Experience,” “Confidence Using Technology,” and “Knowledge of Process.”

427 Id. at 218.
The effect other independent variables have on the dependent variables, such as gender, race, highest degree earned, and undergraduate major, will also be examined. Because these variables are categorical, analysis of variance will be used to study their effects.

In addition, multiple regression analysis will be employed to determine the relationship that the optimal linear combination of independent variables has with each of the dependent variables. Conducting multiple regression analysis also helps researchers to determine the specific nature of the relationship an independent variable has with a dependent variable. By controlling for other variables, the variance that an independent variable uniquely explains can be pinpointed (called the semi-partial coefficient).

Data Collection

As described under the section "Sample Size," two hundred and sixteen surveys will be distributed to randomly selected public school principals for the pilot study, and two hundred and sixteen to randomly selected principals for the actual study. To accompany the survey, a cover letter was also created to introduce the researchers, briefly describe the purpose of the study, assure confidentiality, and offer some incentives for promptly returning the survey. The survey will be printed back-to-back to reduce mailing and printing costs.

The response rate is very important. A high response rate is fundamental to reach statistically significant conclusions. It also reduces response bias in the data and reduces total research costs. According to Babbie, "a response rate of 50 percent is adequate for analysis and reporting. A response of 60 percent is good; a response
rate of 70 percent is very good."\textsuperscript{428} Several steps to increase the overall response rate for both the pilot and the actual study have been taken.

First, a self-addressed stamped envelope will be included with each survey to encourage the principals to participate. Babbie states that postal options are important to consider. Some feel that postage stamps communicate more "humanness" than business-reply permits and may increase the return rate. Moreover, for small surveys it is easier to purchase and apply postage stamps than to establish an account at the post office.\textsuperscript{429}

Babbie writes that follow-up letters are an effective method for increasing the return rate.\textsuperscript{430} The longer the selected participants wait to fill the survey out, the less likely they are to return them. Properly timed follow-up mailings often provide a stimulus for participants to return the questionnaires. One follow-up will be sent to each participant after the initial mailing.

Third, to increase the return rate, two "gimmicks" have been included. The first gimmick is a drawing for a $50 gift certificate to Outback Steakhouse. The second is to include a piece of candy in the envelope. The cover letter contains a statement that if participants begin the survey immediately, they should finish completing the survey before they finish eating the candy. Although it is clearly stated that the survey only takes ten minutes to complete, hopefully the statement about the candy will underscore the short time involved in completing the survey.

\textsuperscript{428} BABBIE, THE PRACTICE OF SOCIAL RESEARCH, at 256.

\textsuperscript{429} Id. at 254.
In addition, the cover letter commits the researchers to provide the results of the study to each individual who completes the survey. The cover letter emphasizes that the results will help the principals to know what educational technology policies other Ohio districts have in place, and how other Ohio administrators view their role in the educational technology policy-making process.

\(^{430}\) Id. at 255.
CHAPTER 4
RESULTS OF STUDY

Pilot Study

As described in the last chapter, surveys were sent to 216 public school principals throughout the state of Ohio for the pilot study. With one follow-up, 154 pilot study participants returned surveys (71.3%). All but one of these surveys were usable (99.3%). Principal responses from survey items 8 - 47 were submitted to a principal components factor analysis with a varimax rotation. Eight factors emerged from the items explaining 76.8% of the variance associated with the 40 items. Using Kaiser’s stopping rule, only factors that had eigenvalues of at least one were included. Table 4.1 provides the factor loadings for each of the 45 survey items.
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Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
Note: Values >.03 are rounded to 0
n=153

Table 4.1. Factor Loadings for Pilot Study
Although more factors emerged from the data than expected, the items grouped in a logical and explainable fashion. Factor One (eigenvalue of 11.0) explains the largest portion of the total variance (27.4%) and includes survey items 24, 25, 28, 29, 34, and 35. Each of these items deals with the administrator’s desired level of involvement in different aspects of the educational technology policy-making process at the state and national levels. Factor One will be named “Desired Level of Involvement at the State/National Level.”

Factor Two (eigenvalue of 5.7) explains 14.2% of the total variance and includes items 10, 11, 14, 15, 20, and 21. Each of these items touches upon the administrator’s actual level of involvement in the educational technology policy-making process at the state and national levels and will be named “Actual Level of Involvement at the State/National Level.”

Factor Three (eigenvalue of 3.9) explains 9.7% of the variance and includes items 8, 12, 18, 26, 30, and 32. These items deal with the administrator’s actual and desired level of involvement in the educational technology policy process at the building level. Unlike the other factors of this type, this factor included items that encompass both the actual and desired levels of involvement, instead of exclusively including only the actual or the desired level. This is consistent with what we have learned about the principal’s role in the policy-making process at the building level in Chapter Two. That is, principals are involved in the policy-making process at the building level to the extent that they desire to be. Their building policies must conform to policies made by higher authorities, but they are free to take part in the process to the extent they wish. Thus, the variance for responses dealing with actual
and desired roles are correlated (shared), producing a common factor. Factor Three will be called “Actual Level of Involvement at the Building Level.”

Factor Four (eigenvalue of 3.1) explains 7.7% of the total variance and encompasses items 36, 37, 38, 39, 40, and 43. These items ask about the principal’s level of confidence in his/her knowledge of the policy-making process at the state and national levels. It will be called “Knowledge of Policy-Making Process at the National/State Level.”

Factor Five (eigenvalue of 2.5) explains 6.2% of the variance and includes items 9, 13, 16, 17, and 19. These items, except item 16, seek to ascertain the principal’s actual level of involvement in the educational technology policy process at the district level. Item 16 touches upon the principal’s actual level of involvement in creating a computer acceptable use policy at the building level. The fact that this item’s variance correlates with the variance of the other four variables suggests that school computer acceptable use policies and district computer acceptable use policies are often one and the same. This factor will be named “Actual Level of Involvement at the District Level.”

Factor Six (eigenvalue of 2.1) explains 5.3% of the variance and includes items 44, 45, 46, and 47. Each of these items seeks to measure the principal’s level of confidence using technology. It will be named “Confidence Using Technology.” Factor Seven (eigenvalue of 1.3) explains 3.4% of the variance and encompasses items 23, 27, 31, and 33. These items measure the principal’s desired level of involvement in creating educational technology policies at the district level and will be called “ Desired Level of Involvement at the District Level.” Factor Eight
(eigenvalue of 1.2) explains 2.9% of the variance and includes items 41 and 42.

These items deal with the principal's level of confidence in his/her knowledge of the policy-making process at the local level. It will be named "Knowledge of the Policy-Making Process at the Local Level."

Although more factors emerged from the items than expected, the items produced factors that were logical, explainable, and worthy of study. Most importantly, the factor analysis produced factors that correspond to the original research questions. Therefore, a decision was made not to modify the survey for the actual study. This allows the combining of the pilot study with the actual study to augment the total number of participants, thereby increasing the utility of the study.

Table 4.2 summarizes the factor analysis and provides reliability measures.

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<th>Factor Number</th>
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<th>Eigenvalue</th>
<th>% of Variance Explained</th>
<th>Cumulative %</th>
<th>Reliability Measure (Cronbach alpha)</th>
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Table 4.2. Summary Table for Pilot Study Factor Analysis
Actual Study

As indicated in chapter three, 216 participants were selected to participate in the actual study. With one follow-up, 99 actual study participants returned their surveys (45.8%). All but one of these surveys were usable (99%). Unfortunately, the return rate for the actual study was substantially lower than the return rate for the pilot study (a 25.5% decrease). The lower return rate may be attributed to the timing of the actual study. The actual study was sent in March, which is when the state of Ohio administers the state proficiency tests. Moreover, previous experience suggests that principals are less likely to return surveys in the latter part of the school year. Because the pilot and the actual study combined to achieve an $n$ over 250, it was appropriate not to send any additional follow-ups.

As with the pilot study, principal responses from survey items 8 - 47 were submitted to a principal components factor analysis with a varimax rotation. Nine factors emerged from the items explaining 80.9% of the variance associated with the 40 items. Although the factor analysis for the actual study produced an extra factor, the results are very similar to the pilot study factor analysis. Six of the factors were identical. One factor tended to combine items associated with actual and desired level of involvement at both the building and district levels. The other two factors had only one item. These differences are likely attributable to the lower response rate. Nevertheless, the factor analysis produced results that were sufficiently similar to justify combining the pilot and actual studies.
Combined Study

Ohio school principals returned 253 of the total 432 surveys (58.9%). Ninety-nine percent of the returned surveys were usable producing a total $n$ of 251.

According to Bryant and Yarnold, the subjects-to-variables (STV) ratio should be at least 5 or greater. The STV ratio for this study is 251 to 40 or 6.3. As with both the pilot and actual studies, principal responses from survey items 8-47 were submitted to a principal components factor analysis with a varimax rotation. Eight factors emerged from the items explaining 75.8% of the variance associated with the 40 items. Once again, only factors that had eigenvalues of at least one were included.

The eight factors produced from the combined factor analysis were similar to the eight factors that emerged in the pilot study. Six of the combined study factors were identical. That is, six combined study factors contained items exactly corresponding to the items contained in the pilot study factors “Desired Level of Involvement at the State/National Level;” “Actual Level of Involvement at the State/National Level;” “Knowledge of Policy-Making Process at the National/State Level;” “Actual Level of Involvement at the District Level;” “Confidence Using Technology;” and Knowledge of the Policy-Making Process at the Local Level,” These factors will retain the same names.

The other two combined study factors, corresponding to the pilot study factors “Actual Level of Involvement at the Building Level” and “Desired Level of Involvement at the District Level,” were somewhat different. Three of the items that

431 Fred B. Bryant and Paul R. Yarnold, Principal-Components Analysis and Exploratory and Confirmatory Factor Analysis, in READING AND UNDERSTANDING MULTIVARIATE STATISTICS 100 (Laurence G. Grimm and Paul R. Yarnold eds., 1995). 155
loaded most heavily on pilot factor “Desired Level of Involvement at the District Level,” items 27, 31, and 33, now loaded heavily on both factors. This suggests that these two factors are highly correlated to one another. Items 27, 31, and 33 were kept in the “Desired Level of Involvement at the District Level” factor because it makes more sense conceptually. Each of these items seeks to measure the administrator’s role in policy at the district level. Item 12, which describes the administrator’s role in making decisions regarding the purchasing of hardware and software at the building level, loaded heavily on the pilot factor “Actual Level of Involvement at the Building Level.” In the combined study, item 12 still had a high loading on this factor (.42), but it loaded very heavily in a negative fashion on factor “Desired Level of Involvement at the District Level” (-.60). Again, it makes sense conceptually to retain this item in the factor “Actual Level of Involvement at the Building Level.” Thus, all of the combined study factors will be identical to the factors described in the pilot study analysis. Table 4.3 provides the combined study factor loadings, and Table 4.4 provides a description of the factors for the combined study as well as reliability measures.
### Table 4.3. Factor Loadings for Combined Study

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<td>.05</td>
<td>.14</td>
<td>0</td>
<td>0</td>
<td>.78</td>
<td>0</td>
<td>.21</td>
<td>.04</td>
</tr>
<tr>
<td>40</td>
<td>.04</td>
<td>.11</td>
<td>.06</td>
<td>.04</td>
<td>.72</td>
<td>.14</td>
<td>.36</td>
<td>.06</td>
</tr>
<tr>
<td>45</td>
<td>-.05</td>
<td>.10</td>
<td>0</td>
<td>0</td>
<td>.12</td>
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<td>10</td>
<td>.04</td>
</tr>
<tr>
<td>44</td>
<td>-.09</td>
<td>.15</td>
<td>0</td>
<td>0</td>
<td>.14</td>
<td>.90</td>
<td>11</td>
<td>.06</td>
</tr>
<tr>
<td>46</td>
<td>0</td>
<td>.11</td>
<td>-.20</td>
<td>0</td>
<td>.11</td>
<td>.83</td>
<td>.14</td>
<td>-.09</td>
</tr>
<tr>
<td>47</td>
<td>-.06</td>
<td>0</td>
<td>-.05</td>
<td>.17</td>
<td>.09</td>
<td>.83</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>41</td>
<td>0</td>
<td>.12</td>
<td>0</td>
<td>.12</td>
<td>.27</td>
<td>.18</td>
<td>.84</td>
<td>.05</td>
</tr>
<tr>
<td>42</td>
<td>-.07</td>
<td>.16</td>
<td>0</td>
<td>.16</td>
<td>.26</td>
<td>.20</td>
<td>.78</td>
<td>-.05</td>
</tr>
<tr>
<td>33</td>
<td>.36</td>
<td>.51</td>
<td>.03</td>
<td>.40</td>
<td>0</td>
<td>.11</td>
<td>.10</td>
<td>.51</td>
</tr>
<tr>
<td>23</td>
<td>.29</td>
<td>.54</td>
<td>0</td>
<td>.42</td>
<td>.06</td>
<td>0</td>
<td>.05</td>
<td>.50</td>
</tr>
<tr>
<td>31</td>
<td>.33</td>
<td>.48</td>
<td>0</td>
<td>.45</td>
<td>.14</td>
<td>.06</td>
<td>.04</td>
<td>.45</td>
</tr>
<tr>
<td>27</td>
<td>.43</td>
<td>.47</td>
<td>0</td>
<td>.32</td>
<td>.08</td>
<td>.09</td>
<td>.03</td>
<td>.36</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
Note: Values >.03 are rounded to 0
n=251

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th>Factor Number</th>
<th>Factor Name</th>
<th>Eigenvalue</th>
<th>% of Variance Explained</th>
<th>Cumulative %</th>
<th>Reliability Measure (Cronbach alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Desired Level of Involvement at the State/National Level</td>
<td>10.6</td>
<td>26.4</td>
<td>26.4</td>
<td>.94</td>
</tr>
<tr>
<td>2</td>
<td>Actual Level of Involvement at the Building Level</td>
<td>5.9</td>
<td>14.8</td>
<td>41.2</td>
<td>.86</td>
</tr>
<tr>
<td>3</td>
<td>Actual Level of Involvement at the State/National Level</td>
<td>3.7</td>
<td>9.2</td>
<td>50.4</td>
<td>.91</td>
</tr>
<tr>
<td>4</td>
<td>Actual Level of Involvement at the District Level</td>
<td>3.4</td>
<td>8.5</td>
<td>58.9</td>
<td>.89</td>
</tr>
<tr>
<td>5</td>
<td>Knowledge of Policy-Making Process at the National/State Level</td>
<td>2.4</td>
<td>6.1</td>
<td>65.0</td>
<td>.92</td>
</tr>
<tr>
<td>6</td>
<td>Confidence Using Technology</td>
<td>1.8</td>
<td>4.6</td>
<td>69.6</td>
<td>.90</td>
</tr>
<tr>
<td>7</td>
<td>Knowledge of Policy-Making Process at the Local Level</td>
<td>1.3</td>
<td>3.3</td>
<td>72.3</td>
<td>.85</td>
</tr>
<tr>
<td>8</td>
<td>Desired Level of Involvement at the District Level</td>
<td>1.2</td>
<td>3.0</td>
<td>75.8</td>
<td>.91</td>
</tr>
</tbody>
</table>

Table 4.4. Summary Table for Combined Study Factor Analysis

As noted in chapter three, the factor analysis helps to establish valid constructs worthy of quantitative analysis. The high reliabilities (Cronbach alphas) presented in Table 4.3 demonstrate that these constructs are also reliable.

Descriptive Overview

A general descriptive analysis will provide answers to research questions one and two. Namely it will show “to what extent are Ohio public school administrators involved in the educational technology policy-making process at the building, district, state, and national levels” and “to what extent do Ohio public school administrators desire to be involved in the educational technology policy-making process at the building, district, state, and national levels.” A descriptive analysis is provided below in Table 4.5.
Table 4.5. General Descriptive Analysis of Dependent Variables

Table 4.5 presents some interesting findings. Recall that the variables were measured on a scale of one to four (1=No Involvement; 2=Little Involvement; 3=Moderate Involvement; 4=Substantial Involvement). The data indicate that principals' actual level of involvement at the building level is very high (3.43). Principals desire to be and are moderately to substantially involved in the educational technology policy-making process in their buildings. As might be expected, their actual level of involvement decreases at the district level (2.59). Principals indicate that they are somewhat involved at the district level, but not as involved as they would like to be (2.92). Likewise, principals' actual level of involvement decreases (quite sharply) at the state and national level (1.16), indicating that principals have almost no involvement in the educational technology policy-making process at the state and national levels. The data also indicate that principals, for the most part, do not desire to have a role at these levels (1.53).
Table 4.6 summarizes the Pearson correlations among the five dependent variables of this study.

<table>
<thead>
<tr>
<th>Actual Level of Involvement at the Building Level (AB)</th>
<th>AB</th>
<th>AD</th>
<th>DD</th>
<th>AS/N</th>
<th>DS/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the District Level (AD)</td>
<td>.54*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level (DD)</td>
<td>.61*</td>
<td>.57*</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level (AS/N)</td>
<td>.12</td>
<td>.29*</td>
<td>.13</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level (DS/N)</td>
<td>.31*</td>
<td>.24*</td>
<td>.53*</td>
<td>.35*</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed).

Table 4.6. Intercorrelations of Dependent Variables

As might be expected, the variables are positively correlated, with most of the correlations being moderate to strong. Generally speaking, the more a principal is involved or desires to be involved on one level of educational technology policy-making, the more he/she is involved or desires to be involved at another level of the process. Most notably, principals that are highly involved in the policy-making process in their own buildings tend to be and desire to be involved in the process at the district level (r = .54; r = .61). Also notable is that principals that want to be involved in the process at the district level tend to be more involved (r = .57); those that desire to be involved at the district level also desire to be involved in the process...
at the state/national level \((r = .53)\); and those that desire to be involved at the state/national level are more involved at that level \((r = .35)\).

**Independent Variables “District Type” and “Building Level”**

Research questions three and four seek to ascertain the extent to which district size, district poverty level, principal tenure, district type, and building level affect the principals’ actual and desired levels of involvement in the educational technology policy-making process at the building, district, state, and national levels. Because “District Type” (rural, suburban, or urban), “Building Level” (elementary, middle, or high), and “Poverty Level” (very low, low, below average, average, and high) are categorical, their independent and interactive effects on the dependent variables are easily studied using analysis of variance (ANOVA). “Principal Tenure” and “District Size,” both continuous variables, will be analyzed using regression analysis.

To test whether “District Type” (Factor A) and “Building Level” (Factor B) have a significant effect on the means of the dependent variables, a 3 x 3 two-way between subjects factorial analysis of variance was performed on each of the described factors. The descriptive statistics for “Actual Level of Involvement at the Building Level” are shown in Table 4.7, and the summary of the ANOVA is found in Table 4.8.
### Table 4.7. Means and Standard Deviations by “District Type” and “Building Level” for “Actual Level of Involvement at the Building Level”

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Type (A)</td>
<td>2</td>
<td>.218</td>
<td>.109</td>
<td>.353</td>
</tr>
<tr>
<td>Building Level (B)</td>
<td>2</td>
<td>.999</td>
<td>.500</td>
<td>1.615</td>
</tr>
<tr>
<td>A x B</td>
<td>4</td>
<td>1.813</td>
<td>.453</td>
<td>1.465</td>
</tr>
<tr>
<td>Error</td>
<td>213</td>
<td>65.893</td>
<td>.309</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>221</td>
<td>68.530</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard deviations are shown in parentheses.

Table 4.8. ANOVA Summary Table for “Actual Level of Involvement at the Building Level”
As Table 4.8 specifies, neither “District Type,” “Building Level,” nor their interaction has a statistically significant effect on the factor “Actual Level of Involvement at the Building Level.” In other words, the data indicate that there are no statistically significant differences between the mean scores in “Actual Level of Involvement at the Building Level” across building levels, district types, and their interactive effect. It can be safely concluded from these data that Ohio principals at all district types and all building levels are moderately to substantially involved in the educational technology policy-making process at the building level.

The descriptive statistics for “Actual Level of Involvement at the District Level” are shown in Table 4.9, and the ANOVA summary is found in Table 4.10.
### Table 4.9. Means and Standard Deviations by “District Type” and “Building Level” for “Actual Level of Involvement at the District Level”

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Type</td>
<td>2</td>
<td>17.727</td>
<td>8.864</td>
<td>17.180**</td>
</tr>
<tr>
<td>(A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Level</td>
<td>2</td>
<td>6.241</td>
<td>3.121</td>
<td>6.049*</td>
</tr>
<tr>
<td>(B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A x B</td>
<td>4</td>
<td>3.945</td>
<td>.986</td>
<td>1.911</td>
</tr>
<tr>
<td>Error</td>
<td>214</td>
<td>110.407</td>
<td>.516</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>222</td>
<td>139.622</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .01; **p < .001

### Table 4.10. ANOVA Summary Table for “Actual Level of Involvement at the District Level”

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Tables 4.9 and 4.10 paint a much different scenario than the one described for the previous factor. The data reveal that “District Type” has a significant effect on “Principals’ Actual Level of Involvement at the District Level” at the p< .001 level. It is estimated that “District Type” can account for 14% of the variance associated with the principals’ level of involvement at the district level in the total Ohio principal population (η² = .14). According to guidelines set by Cohen,432 this is a moderate effect size (.06-.14), and very close to a large effect size (above .15).

“Building Level” also has a significant effect (p< .01) on principals’ involvement at the district level. Its effect size is smaller (η² = .05). The interaction between “District Type” and “Building Level” is not statistically significant at the p<.05 level.

Post hoc analyses were conducted using the Tukey test, a common test employed to evaluate significant differences between all possible pairs of means.433 The Tukey test is used quite often when a researcher is making simple comparisons.434 The results of the post hoc analyses are found in tables 4.11 and 4.12.

---


433 KEPPEL, supra note 433, at 174-175.

434 Id.
Table 4.11 indicates that there is a significant difference between urban principals’ level of involvement in the educational technology policy-making process at the district level and the suburban and rural principal’s level of involvement. Specifically, urban principals are significantly less involved in the process than their counterparts in suburban and rural districts. This can be clearly seen in Figure 4.1 below.
Figure 4.1

Principals' Actual Level of Involvement at the District Level by District Type and Building Level

The urban principals' lack of involvement may result from several reasons. First, urban school districts are typically larger than suburban and urban school districts. Perhaps because of the large size, district officials may formulate policies without their input out of expediency. This may be shown more clearly when independent variable “District Size” is analyzed. Additionally, it could be argued that urban
school principals may face problems that are more acute and require more time than
problems faced by principals in suburban and rural schools. These problems might
include a higher proportion of disciplinary responsibility, less emphasis on
academics, and higher teacher shortages, among others.

<table>
<thead>
<tr>
<th></th>
<th>High School</th>
<th>Middle School</th>
<th>Elementary School</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>--</td>
<td>-.14</td>
<td>.23</td>
</tr>
<tr>
<td>Middle School</td>
<td>.14</td>
<td>--</td>
<td>.37*</td>
</tr>
<tr>
<td>Elementary School</td>
<td>-.23</td>
<td>-.37*</td>
<td>--</td>
</tr>
</tbody>
</table>

* p<.01
Note: Table shows mean differences
Significance was evaluated using the Tukey test.

Table 4.12. Post Hoc Analysis of the Effect of “Building Level” on “Actual Level of Involvement at the District Level”

Table 4.12 reveals that there is a significant difference only between the elementary principals' involvement and middle school principals' involvement. Namely, elementary principals are significantly less involved in the process than middle school principals are. This is also clearly demonstrated in Figure 4.1. The data show that elementary principals are also less involved than high school principals, but not at a statistically significant level. District officials may be more inclined to involve middle and high school principals in the policy process because they might believe that older students are more apt to confront challenges relating to technology than are younger students. It is also possible that older students use technology more in their districts than younger students. In any case, it is clear that urban school principals, especially at the elementary school level, are less likely to have an opportunity to influence educational technology policies than their
counterparts in suburban and rural schools. High school suburban principals, the data indicate, are in the best position to influence district educational technology policies.

The descriptive statistics for “Desired Level of Involvement at the District Level” are shown in Table 4.13, and the ANOVA summary is found in Table 4.14.

**Factor A: District Type**

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Suburban</th>
<th>Rural</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>2.81 (0.84)</td>
<td>3.14 (0.69)</td>
<td>2.74 (0.81)</td>
<td>2.91 (0.79)</td>
</tr>
<tr>
<td>n=27</td>
<td>n=34</td>
<td>n=32</td>
<td>n=93</td>
<td></td>
</tr>
<tr>
<td><strong>Middle</strong></td>
<td>2.71 (0.93)</td>
<td>3.02 (0.55)</td>
<td>3.07 (0.62)</td>
<td>2.76 (0.62)</td>
</tr>
<tr>
<td>n=13</td>
<td>n=29</td>
<td>n=26</td>
<td>n=64</td>
<td></td>
</tr>
<tr>
<td><strong>Elementary</strong></td>
<td>2.20 (0.83)</td>
<td>2.99 (0.68)</td>
<td>3.03 (0.74)</td>
<td>2.87 (0.79)</td>
</tr>
<tr>
<td>n=14</td>
<td>n=35</td>
<td>n=30</td>
<td>n=79</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>2.63 (0.88)</td>
<td>3.05 (0.64)</td>
<td>2.94 (0.74)</td>
<td>2.92 (0.75)</td>
</tr>
<tr>
<td>n=54</td>
<td>n=98</td>
<td>n=88</td>
<td>n=223</td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard deviations are shown in parentheses.

Table 4.13. Means and Standard Deviations by “District Type” and “Building Level” for “Desired Level of Involvement at the District Level”
Table 4.14. ANOVA Summary Table for “Desired Level of Involvement at the District Level”

The data reveal that “District Type” has a significant effect on “Principals’ Desired Level of Involvement at the District Level” at the p<.001 level. “Building Level,” by itself, does not produce a significant effect. Post hoc analyses (found in Table 4.15) indicate that, overall, urban school principals have significantly less desire to be involved in the educational technology process at the district level than principals in suburban and rural schools.

Table 4.15. Post Hoc Analysis of the Effect of “District Type” on “Desired Level of Involvement at the District Level”

However, as Table 4.14 indicates, the effect of “District Type” effect is qualified by a significant higher order interaction between “District Type” and “Building Level” (p<.05). A graph of the means, found in Figure 4.2, clarifies the nature of this interaction.
As the above figure demonstrates, urban elementary and middle school principals have substantially less desire to be involved in the educational technology policy-making process at the district level than suburban and rural elementary and middle school principals. This is most clearly demonstrated at the elementary school level. Follow-up tests for simple main effects indicate that “District Type” has a significant
effect on the dependent variable at the elementary school level, \( F(2, 231) = 7.307 \) (\( p < .001 \)). The follow up tests reveal that "District Type" was not significant at the middle school and high school levels.

These findings parallel findings for "Actual level of Involvement at the District Level." Overall, the data expose that urban principals are less involved and have less desire to be involved in the educational technology policy-making process at the district level than principals in suburban and rural schools are. This is particularly acute for elementary school principals.

The descriptive statistics for "Actual Level of Involvement at the State/National Level" are shown in Table 4.16, and the ANOVA summary is found in Table 4.17.
Table 4.16. Means and Standard Deviations by “District Type” and “Building Level” for “Actual Level of Involvement at the State/National Level”

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Type (A)</td>
<td>2</td>
<td>.029</td>
<td>.1472</td>
<td>.115</td>
</tr>
<tr>
<td>Building Level (B)</td>
<td>2</td>
<td>.394</td>
<td>.197</td>
<td>1.539</td>
</tr>
<tr>
<td>A x B</td>
<td>4</td>
<td>1.328</td>
<td>.332</td>
<td>2.595*</td>
</tr>
<tr>
<td>Error</td>
<td>226</td>
<td>28.922</td>
<td>.128</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>234</td>
<td>30.565</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

Table 4.17. ANOVA Summary Table for “Actual Level of Involvement at the State/National Level”
As previously noted, the overall average for “Principals’ Actual Level of Involvement at the State/National Level” is extremely low (1.16). Ohio principals indicate that they have virtually no involvement in the educational technology policy-making process at state and national levels. Table 4.17 shows that principals’ involvement at the state/national level does not vary across district types or building levels. However, the table demonstrates that there is a significant interaction at the p<.05 level. A visual representation of the means reveals the nature of this interaction (Figure 4.3).
Figure 4.3 clearly shows that all principals report that they have little to no involvement in the process at the state and national levels. However, urban principals account for a large proportion of the variance. High school urban principals report the lowest level of involvement and middle school urban principals report the highest level of involvement. A follow-up test for simple effects substantiates this finding. It
reveals that the interaction is significant for urban principals $F(2, 226) = 4.28$ (p<.05). The interaction is not significant for other district types or building levels.

It is clear that urban middle school principals' involvement caused the interaction to be significant, and it is important to examine why urban middle school principals reported a higher level of involvement than principals in other districts and other building levels. A closer look at the data reveals the reason. Urban middle school principals were the smallest sample group of the nine groups (n = 14). As such, an outlier in the data can greatly influence the statistical results for the entire group. Of the fourteen urban middle school principals, thirteen reported little to no involvement, and one reported substantial involvement. Because of the small sample size, this outlier greatly skewed the data, causing the mean for this group to be significantly larger than the means for the other eight groups, which caused a significant interaction. It is likely that if the sample size for this group approached the quantity of the other groups, no significant interaction would have occurred.

The descriptive statistics for “Desired Level of Involvement at the State/National Level” are shown in Table 4.18, and the ANOVA summary is found in Table 4.19.
### Table 4.18. Means and Standard Deviations by “District Type” and “Building Level” for “Desired Level of Involvement at the State/National Level”

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Type</td>
<td>2</td>
<td>.131</td>
<td>.065</td>
<td>.158</td>
</tr>
<tr>
<td>(A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Level</td>
<td>2</td>
<td>.265</td>
<td>.133</td>
<td>.321</td>
</tr>
<tr>
<td>(B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A x B</td>
<td>4</td>
<td>1.099</td>
<td>.275</td>
<td>.666</td>
</tr>
<tr>
<td>Error</td>
<td>231</td>
<td>95.335</td>
<td>.413</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td>96.694</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Standard deviations are shown in parentheses.*

*Table 4.19. ANOVA Summary Table for “Desired Level of Involvement at the State/National Level”*
Table 4.19 shows that neither "District Type", "Building Level", nor their interaction has a statistically significant effect on the factor "Desired Level of Involvement at the State/National Level." We can safely conclude that Ohio principals at all district types and all building levels generally do not wish to play a role in the educational technology policy-making process at the state and national levels (overall mean of 1.53).

**Independent Variable “Poverty Level”**

Each district’s poverty level was obtained from information provided by the Ohio Department of Education. ODE classifies each Ohio school district into one of five categories: very low poverty, low poverty, below average poverty, average poverty, and high poverty—based on the percentage of students who receive some type of welfare services. Although socio-economic status (SES) is the variable normally used to measure the effect income level has on given dependent variables, the information obtained from ODE did not have the SES level from every district selected for the sample. Thus, poverty level was selected as the independent variable to maintain a higher total sample size. Because the variable is categorical, ANOVA was used to examine its effect on the dependent variables. The descriptive statistics for “Poverty Level” are shown in Table 4.20, and the ANOVA summary is found in Table 4.21.
<table>
<thead>
<tr>
<th>Poverty Level</th>
<th>Actual Level of Involvement at the Building Level</th>
<th>Actual Level of Involvement at the District Level</th>
<th>Desired Level of Involvement at the District Level</th>
<th>Actual Level of Involvement at the State/National Level</th>
<th>Desired Level of Involvement at the State/National Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Poverty</td>
<td>3.73 (.31) n=9</td>
<td>2.96 (.55) n=9</td>
<td>3.11 (.47) n=9</td>
<td>1.28 (.42) n=9</td>
<td>1.48 (.44) n=9</td>
</tr>
<tr>
<td>Low Poverty</td>
<td>3.31 (.56) n=35</td>
<td>2.71 (.81) n=38</td>
<td>2.98 (.78) n=39</td>
<td>1.10 (.24) n=40</td>
<td>1.52 (.65) n=39</td>
</tr>
<tr>
<td>Below Average Poverty</td>
<td>3.60 (.48) n=31</td>
<td>2.87 (.65) n=30</td>
<td>3.17 (.49) n=32</td>
<td>1.25 (.56) n=26</td>
<td>1.77 (.76) n=32</td>
</tr>
<tr>
<td>Average Poverty</td>
<td>3.47 (.57) n=52</td>
<td>2.82 (.62) n=51</td>
<td>3.03 (.67) n=56</td>
<td>1.15 (.27) n=55</td>
<td>1.41 (.47) n=56</td>
</tr>
<tr>
<td>High Poverty</td>
<td>3.35 (.58) n=90</td>
<td>2.26 (.83) n=90</td>
<td>2.72 (.84) n=99</td>
<td>1.14 (.33) n=100</td>
<td>1.48 (.64) n=99</td>
</tr>
<tr>
<td>Total</td>
<td>3.42 (.56) n=217</td>
<td>2.58 (.79) n=218</td>
<td>2.91 (.75) n=235</td>
<td>1.15 (.34) n=230</td>
<td>1.51 (.62) n=235</td>
</tr>
</tbody>
</table>

Note: Standard deviations are shown in parentheses.

Table 4.20: Means and Standard Deviations by “Poverty Level” for Dependent Variables
## Table 4.21. ANOVA Summary Table for the Effect of “Poverty Level” on Dependent Variables

Table 4.21 shows that “Poverty Level” has a significant effect on dependent variables “Actual Level of Involvement at the District Level” and “Desired Level of Involvement at the District Level” at the p <.01 level. Table 4.22 shows the results of the post hoc analysis for “Actual Level of Involvement at the District Level.”

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>Between Groups</td>
<td>2.802</td>
<td>4</td>
<td>.701</td>
<td>2.272</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>65.377</td>
<td>212</td>
<td>.308</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>68.179</td>
<td>216</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>16.815</td>
<td>4</td>
<td>4.204</td>
<td>7.528*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>118.951</td>
<td>213</td>
<td>.558</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>135.767</td>
<td>217</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>7.256</td>
<td>4</td>
<td>1.814</td>
<td>3.336*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>125.080</td>
<td>230</td>
<td>.544</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>132.337</td>
<td>234</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.564</td>
<td>4</td>
<td>.141</td>
<td>1.196</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>26.499</td>
<td>225</td>
<td>.118</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>27.062</td>
<td>229</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>2.691</td>
<td>4</td>
<td>.673</td>
<td>1.757</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>88.088</td>
<td>230</td>
<td>.383</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>90.779</td>
<td>234</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .01

### Table 4.22. Post Hoc Analysis of the Effect of “Poverty Level” on “Actual Level of Involvement at the District Level”

The post hoc analysis discloses that principals in high poverty districts have a significantly lower level of involvement in the educational technology policy-making.
process at the district level than principals in other districts. This can partly be explained by the fact that urban school districts typically cover high poverty areas, and it has already been demonstrated in this study that principals in urban school districts have lower levels of involvement than principals in suburban and rural school districts at the district level. In this analysis, however, there are several suburban and rural school districts that are also classified as high poverty, and not all urban school districts are classified as high poverty. Nevertheless, the same explanations that apply to why urban principals may not be involved most likely apply here as well. That is, principals who serve in high poverty school districts typically struggle with low standardized test scores, student behavior problems, teacher shortages, and other problems to a higher degree than principals who serve in districts with lower poverty levels, thereby inhibiting greater involvement in education technology activity.

Table 4.23 provides the results of the post hoc analysis for “Desired Level of Involvement at the District Level.”

<table>
<thead>
<tr>
<th></th>
<th>Very Low</th>
<th>Low</th>
<th>Below Average</th>
<th>Average</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>--</td>
<td>.13</td>
<td>-.06</td>
<td>.08</td>
<td>.39</td>
</tr>
<tr>
<td>Low</td>
<td>-.13</td>
<td>--</td>
<td>-.19</td>
<td>-.05</td>
<td>.26</td>
</tr>
<tr>
<td>Below Average</td>
<td>.06</td>
<td>.19</td>
<td>--</td>
<td>.14</td>
<td>.45*</td>
</tr>
<tr>
<td>Average</td>
<td>-.08</td>
<td>.05</td>
<td>-.14</td>
<td>--</td>
<td>.31</td>
</tr>
<tr>
<td>High</td>
<td>-.39</td>
<td>-.26</td>
<td>-.45*</td>
<td>.31</td>
<td>--</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01
Note: Table shows mean differences.
Significance was evaluated using the Tukey test.

Table 4.23. Post Hoc Analysis of the Effect of “Poverty Level” on “Desired Level of Involvement at the District Level”
Although the ANOVA reveals a significant difference in the means for "Desired Level of Involvement at the District Level," the post hoc analysis shows that the only statistically significant difference in the means is between principals who serve in below average poverty districts and principals who serve in high poverty districts. That is, principals who serve in below average poverty districts have a greater desire to take part in the educational technology policy-making process than principals who serve in high poverty districts. Follow-up study is needed to clarify as to why this difference exists only between these two groups.

**Independent Variable “District Size”**

"District Size" is defined as the number of students who attend school in the district. Because "District Size" is a continuous variable, correlational analysis will be used to study its relationship with the dependent variables. A summary of Pearson correlation coefficients is found below in Table 4.24.

<table>
<thead>
<tr>
<th>Actual Level of Involvement at the Building Level</th>
<th>District Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>-.31*</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.13</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>-.03</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>.01</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed).

**Table 4.24. Pearson Correlations Coefficients for “District Size” and Dependent Variables**
As Table 4.24 demonstrates, there are no statistically significant relationships between the independent variable “District Size” and the dependent variables except for the relationship with dependent variable “Actual Level of Involvement at the District Level.” “District Size” is moderately related in a negative fashion to “Actual Level of Involvement at the District Level” (r = -.31). Said another way, the data suggest that the larger the district size, the less involved administrators are in the educational technology policy-making process at the district level. These data triangulate with previous findings. It has already been discovered that urban principals are less involved in the educational technology policy-making process at the district level, and urban districts tend to be larger than suburban and rural districts.

A negative relationship can be discerned intuitively. School districts that serve larger numbers of students will have more principals. A larger number of principals suggests that a smaller percentage of them would have an opportunity to take part in committees that create educational technology policy for the district.

**Independent Variables “Principal Tenure,” “Department Head Experience,” and “Teaching Experience”**

“Principal Tenure” is measured by summing principals’ years of experience as an assistant principal, as principal at their current school, and as principal of other schools. See supra note 381. A summary of the Pearson correlations are found below in Table 4.25.
<table>
<thead>
<tr>
<th>Actual Level of Involvement at the Building Level</th>
<th>Principal Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>.06</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.05</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>.03</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>.07</td>
</tr>
</tbody>
</table>

Table 4.25. **Pearson Correlations Coefficients for “Principal Tenure” and Dependent Variables**

The data indicate that there are no statistically significant relationships between “Principal Tenure” and the dependent variables.

Likewise, Table 4.26 indicates that variables “Department Head Experience” and “Teaching Experience” have no statistically significant relationships with the dependent variables.
<table>
<thead>
<tr>
<th></th>
<th>Department Head Experience</th>
<th>Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>.06</td>
<td>-.13</td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>.11</td>
<td>-.01</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.07</td>
<td>-.11</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>-.04</td>
<td>.12</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>.12</td>
<td>.05</td>
</tr>
</tbody>
</table>

Table 4.26. Pearson Correlations Coefficients for “Department Head Experience” and “Teaching Experience” and Dependent Variables

The data do indicate, however, that the variables “Department Head Experience” and “Teaching Experience” have statistically significant relationships with some of the dependent variables when only the urban school principal population is examined.

The Pearson correlation coefficients summaries are found in Table 4.27.
<table>
<thead>
<tr>
<th>Actual Level of Involvement at the Building Level</th>
<th>Department Head Experience</th>
<th>Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td><strong>.33</strong>*</td>
<td>.17</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.20</td>
<td>-.16</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>-.12</td>
<td>.09</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>.10</td>
<td>-.12</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

**Table 4.27: Pearson Correlations Coefficients for “Department Head Experience” and “Teaching Experience” and Dependent Variables for Urban Principals**

There is a significant positive correlation between “Department Head Experience” and “Actual Level of Involvement at the District Level” (r = .33) for urban principals. “Department Head Experience” is defined as the number of years the principal served as a curriculum supervisor or department head before becoming a principal. The positive correlation might be explained by the fact that department heads in urban districts have a significant role in creating curriculum policy at the district level and might continue this involvement when they become principals. Moreover, if former department heads become principals in the same districts, they may become more acquainted with district officials than those principals who have
not served as department heads, which may create more opportunities for them to become more involved in the educational technology policy-making process at this level.

There is a significant negative correlation between “Teaching Experience” and actual level of involvement at the building level (r = -.35) for urban principals. That is, the more teaching experience an urban principal has before becoming a principal, the less involved the urban principal is in the educational technology policy-making process at the building level. This possibly occurs because principals who have more teaching experience may tend to trust classroom teachers more. These principals may believe that standardized building policies might not be necessary because teachers are professionals who should be responsible for creating individualized classroom policies. The above significant correlations, however, are not significant for suburban or rural principals.

Independent Variables “Knowledge of Policy-Making Process at the National/State Level” and “Knowledge of Policy-Making Process at the Local Level”

The factor analysis produced two factors that measure the principals' level of confidence in his/her knowledge of the policy-making process. One of these factors measures principals' knowledge of the process at the state/national level and the other at the local level. Because the factors are continuous variables, their relationships with the dependent variables are examined using correlational analysis. A summary of the Pearson correlations are found below in Table 4.28.
Table 4.28. Pearson Correlation Coefficients for “Knowledge of Policy-Making Process at the National/State Level” and “Knowledge of Policy-Making Process at the Local Level” and Dependent Variables

<table>
<thead>
<tr>
<th></th>
<th>Knowledge of Policy-Making Process at the National/State Level</th>
<th>Knowledge of Policy-Making Process at the Local Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>.22**</td>
<td>.34**</td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>.17*</td>
<td>.27**</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.17**</td>
<td>.22**</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>.14*</td>
<td>.00</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Most of the correlations are statistically significant, but weak. Most conspicuous is the fact that principals’ confidence in their knowledge of the policy-making process on the state/national level does not significantly affect their level of involvement or their desired level of involvement in the educational technology policy-making process at these levels. However, there is a moderate positive relationship between the principals’ confidence in their knowledge of the policy-making process at the local level and their involvement in the educational technology policy process in their own buildings ($r = .34, r^2 = .12$). Also, the principals’ confidence in their knowledge at the local level can account for a small amount of
variance associated with principals’ actual \( (r = .34, r^2 = .07) \) and desired \( (r = .22, r^2 = .05) \) levels of involvement at the district level.

**Independent Variable “Confidence Using Technology”**

“Confidence Using Technology” is a factor that emerged from the factor analysis. This factor seeks to measure the principals’ level of confidence using technology in their personal and professional lives. Table 4.29 summarizes the Pearson correlation coefficients.

<table>
<thead>
<tr>
<th>Confident Using Technology</th>
<th>Actual Level of Involvement at the Building Level</th>
<th>.21**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>.14*</td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.17**</td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>- .09</td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>- .09</td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 4.29. Pearson Correlations Coefficients for “Confidence Using Technology” and Dependent Variables

The data indicate that some of the relationships are statistically significant, but weak. The principals’ level of confidence using technology has a weak positive relationship with their building level involvement \( (r = .21) \), and weak positive relationships with their actual and desired levels of involvement at the district level \( (r = .14, r = .17) \).
Independent Variables “Gender” and “Race”

Because “Gender” and “Race” are both categorical variables, ANOVA was used to determine their effects on the dependent variables. The descriptive statistics for “Gender” are shown in Table 4.30, and the ANOVA summary is found in Table 4.31.

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>3.42 (.57)</td>
<td>3.43 (.55)</td>
</tr>
<tr>
<td></td>
<td>n=69</td>
<td>n=157</td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>2.47 (.79)</td>
<td>2.65 (.79)</td>
</tr>
<tr>
<td></td>
<td>n=67</td>
<td>n=159</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>2.90 (.74)</td>
<td>2.94 (.75)</td>
</tr>
<tr>
<td></td>
<td>n=76</td>
<td>n=159</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>1.18 (.38)</td>
<td>1.15 (.35)</td>
</tr>
<tr>
<td></td>
<td>n=74</td>
<td>n=136</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>1.54 (.58)</td>
<td>1.53 (.66)</td>
</tr>
<tr>
<td></td>
<td>n=76</td>
<td>n=166</td>
</tr>
</tbody>
</table>

Note: Standard deviations are shown in parentheses.

Table 4.30. Means and Standard Deviations by Gender for Dependent Variables
Table 4.31. ANOVA Summary Table for the Effect of Gender on Dependent Variables

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of</td>
<td>Between Groups</td>
<td>.017</td>
<td>1</td>
<td>.017</td>
<td>.056</td>
</tr>
<tr>
<td>Involvement at the</td>
<td>Within Groups</td>
<td>68.207</td>
<td>222</td>
<td>.307</td>
<td></td>
</tr>
<tr>
<td>Building Level</td>
<td>Total</td>
<td>68.224</td>
<td>223</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of</td>
<td>Between Groups</td>
<td>1.556</td>
<td>1</td>
<td>1.556</td>
<td>2.498</td>
</tr>
<tr>
<td>Involvement at the</td>
<td>Within Groups</td>
<td>139.482</td>
<td>224</td>
<td>.623</td>
<td></td>
</tr>
<tr>
<td>District Level</td>
<td>Total</td>
<td>141.037</td>
<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of</td>
<td>Between Groups</td>
<td>.096</td>
<td>1</td>
<td>.096</td>
<td>.172</td>
</tr>
<tr>
<td>Involvement at the</td>
<td>Within Groups</td>
<td>134.057</td>
<td>240</td>
<td>.559</td>
<td></td>
</tr>
<tr>
<td>District Level</td>
<td>Total</td>
<td>134.153</td>
<td>241</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of</td>
<td>Between Groups</td>
<td>.044</td>
<td>1</td>
<td>.044</td>
<td>.342</td>
</tr>
<tr>
<td>Involvement at the</td>
<td>Within Groups</td>
<td>30.577</td>
<td>235</td>
<td>.130</td>
<td></td>
</tr>
<tr>
<td>State/National Level</td>
<td>Total</td>
<td>30.621</td>
<td>236</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of</td>
<td>Between Groups</td>
<td>.002</td>
<td>1</td>
<td>.002</td>
<td>.005</td>
</tr>
<tr>
<td>Involvement at the</td>
<td>Within Groups</td>
<td>97.678</td>
<td>240</td>
<td>.407</td>
<td></td>
</tr>
<tr>
<td>State/National Level</td>
<td>Total</td>
<td>97.680</td>
<td>241</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although Table 4.30 suggests that there are slight differences across genders, Table 4.31 clearly demonstrates that gender does not have a significant effect on principals' actual or desired levels of involvement on any level of the educational technology policy-making process.

The effect of principals' race on the dependent variables is shown in Tables 4.32 and 4.33. “Race” is divided into two categories: African-American and White. Because only one American-Indian principal, four Asian/Pacific Islander principals, and no Hispanic principals returned their surveys, these groups out of statistical necessity are excluded for this part of the study.
### Table 4.32: Means and Standard Deviations by Race for Dependent Variables

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>Between Groups</td>
<td>.004</td>
<td>1</td>
<td>.004</td>
<td>.014</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>67.801</td>
<td>218</td>
<td>.311</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>67.805</td>
<td>219</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>1.253</td>
<td>1</td>
<td>1.253</td>
<td>1.999</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>137.346</td>
<td>219</td>
<td>.627</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>138.600</td>
<td>220</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>.782</td>
<td>1</td>
<td>.782</td>
<td>1.365</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>134.650</td>
<td>235</td>
<td>.573</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>135.432</td>
<td>236</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.505</td>
<td>1</td>
<td>.505</td>
<td>4.424*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>26.390</td>
<td>231</td>
<td>.114</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26.895</td>
<td>232</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.001</td>
<td>1</td>
<td>.001</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>95.144</td>
<td>235</td>
<td>.405</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>95.145</td>
<td>236</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Standard deviations are shown in parentheses.*

*Table 4.33: ANOVA Summary Table for the Effect of Race on Dependent Variables*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>Between Groups</td>
<td>.004</td>
<td>1</td>
<td>.004</td>
<td>.014</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>67.801</td>
<td>218</td>
<td>.311</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>67.805</td>
<td>219</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>1.253</td>
<td>1</td>
<td>1.253</td>
<td>1.999</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>137.346</td>
<td>219</td>
<td>.627</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>138.600</td>
<td>220</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>.782</td>
<td>1</td>
<td>.782</td>
<td>1.365</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>134.650</td>
<td>235</td>
<td>.573</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>135.432</td>
<td>236</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.505</td>
<td>1</td>
<td>.505</td>
<td>4.424*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>26.390</td>
<td>231</td>
<td>.114</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26.895</td>
<td>232</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.001</td>
<td>1</td>
<td>.001</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>95.144</td>
<td>235</td>
<td>.405</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>95.145</td>
<td>236</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05*
It must be made clear from the outset that the grossly unequal sample sizes limits the statistical power of the study, somewhat undermining the results in Table 4.33. However, the unequal sample sizes are due to the fact that the ethnicity distribution in the actual population is extremely lopsided as well.

Table 4.33 shows that "Race" does not have a significant effect on any of the dependent variables except "Actual level of Involvement at the State/National Level." As Table 4.32 demonstrates, African-American principals have a slightly higher level of involvement than white principals (1.31 to 1.13), although both groups indicate that they have almost no involvement. When the individual means for African-American principals were examined, it was found that 14 of 17 scored a 1.5 or below; two principals scored a 2.0; and one principal scored a 3.17 (on a one to four scale). In other words, one African-American principal was somewhat involved in some sort of state or national educational technology initiative, and two others had little involvement. Because of the very small sample size (n=17), these outliers caused the means to differ in a statistically significant manner. It is quite possible that if the African-American sample size were larger, there would be no significant differences in the means.
Independent Variable “Highest Degree Earned”

The descriptive statistics for “Highest Degree Earned” are shown in Table 4.34, and the ANOVA summary is found in Table 4.35.

<table>
<thead>
<tr>
<th></th>
<th>Master’s Degree</th>
<th>Doctorate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>3.39 (.58) n=182</td>
<td>3.60 (.42) n=42</td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>2.59 (.79) n=183</td>
<td>2.62 (.82) n=42</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>2.90 (.79) n=199</td>
<td>3.03 (.56) n=43</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>1.16 (.36) n=195</td>
<td>1.15 (.40) n=42</td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>1.52 (.64) n=199</td>
<td>1.57 (.63) n=43</td>
</tr>
</tbody>
</table>

Note: Standard deviations are shown in parentheses.

Table 4.34. Means and Standard Deviations by “Highest Degree Earned” for Dependent Variables
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>Between Groups</td>
<td>1.429</td>
<td>1</td>
<td>.028</td>
<td>.548</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>67.099</td>
<td>222</td>
<td>.302</td>
<td>.632</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>68.527</td>
<td>223</td>
<td>.028</td>
<td>.548</td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>0.28</td>
<td>1</td>
<td>.028</td>
<td>.548</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>140.967</td>
<td>223</td>
<td>.632</td>
<td>.569</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>140.996</td>
<td>224</td>
<td>.028</td>
<td>.548</td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>0.000</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>30.621</td>
<td>235</td>
<td>.130</td>
<td>.130</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30.621</td>
<td>236</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.061</td>
<td>1</td>
<td>.061</td>
<td>.973</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>97.863</td>
<td>240</td>
<td>.408</td>
<td>.408</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>97.924</td>
<td>241</td>
<td>.061</td>
<td>.973</td>
</tr>
</tbody>
</table>

*p < .05

Table 4.35. ANOVA Summary Table for the Effect of “Highest Degree Earned” on Dependent Variables

The above tables indicate that “Highest Degree Earned” has a significant effect on dependent variable “Actual Level of Involvement at the Building Level.” The data show that principals who have earned a Ph.D. tend to be slightly more involved in the educational technology policy-making process on the building level than principals who have earned an M.A.

Independent Variable “Undergraduate Major”

The last independent variable examined was “Undergraduate Major.” The principals in the study reported 30 different undergraduate majors. The top five were: Elementary Education (90), Social Studies (38), Health and Physical Education (25), Science (17), and Business (14). The majors were divided into two groups: social studies majors and related fields (pre-law, government studies, political science, history) and non-social studies majors. The descriptive statistics for “Undergraduate Major” are shown in Table 4.36, and the ANOVA summary is found in Table 4.37.
<table>
<thead>
<tr>
<th>Dependents Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>Between Groups</td>
<td>.827</td>
<td>1</td>
<td>.827</td>
<td>2.744</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>66.335</td>
<td>220</td>
<td>.302</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>67.162</td>
<td>221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>.091</td>
<td>1</td>
<td>.091</td>
<td>.143</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>140.580</td>
<td>221</td>
<td>.636</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>140.671</td>
<td>222</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>.201</td>
<td>1</td>
<td>.201</td>
<td>.352</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>136.022</td>
<td>238</td>
<td>.571</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>136.223</td>
<td>239</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.006</td>
<td>1</td>
<td>.006</td>
<td>.048</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>30.583</td>
<td>234</td>
<td>.131</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30.590</td>
<td>235</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.440</td>
<td>1</td>
<td>.440</td>
<td>1.082</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>96.745</td>
<td>238</td>
<td>.406</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>97.185</td>
<td>239</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

Table 4.36. Means and Standard Deviations by “Undergraduate Major” for Dependent Variables

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Type of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>Between Groups</td>
<td>.827</td>
<td>1</td>
<td>.827</td>
<td>2.744</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>66.335</td>
<td>220</td>
<td>.302</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>67.162</td>
<td>221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>.091</td>
<td>1</td>
<td>.091</td>
<td>.143</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>140.580</td>
<td>221</td>
<td>.636</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>140.671</td>
<td>222</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>Between Groups</td>
<td>.201</td>
<td>1</td>
<td>.201</td>
<td>.352</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>136.022</td>
<td>238</td>
<td>.571</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>136.223</td>
<td>239</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.006</td>
<td>1</td>
<td>.006</td>
<td>.048</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>30.583</td>
<td>234</td>
<td>.131</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30.590</td>
<td>235</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>Between Groups</td>
<td>.440</td>
<td>1</td>
<td>.440</td>
<td>1.082</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>96.745</td>
<td>238</td>
<td>.406</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>97.185</td>
<td>239</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

Table 4.37. ANOVA Summary Table for the Effect of “Undergraduate Major” on Dependent Variables
Although Table 4.36 shows that social studies majors are slightly more involved and have slightly more desire to be involved in the process at the various levels, Table 4.37 indicates that these differences are not statistically significant.

**Multiple Regression Analysis**

Having examined the effect that various independent variables have on the five dependent variables, it is useful to examine the effect that their optimal linear combination has on each of the dependent variables using multiple linear regression analysis. The forward selection method for stepwise regression was used to examine which independent variables accounted for the most variance associated with the dependent variables, and which independent variables, after controlling for other variables, accounted for additional significant variance in the dependent variables.

The results of the multiple regression analysis for dependent variable "Actual Level of Involvement at the Building Level" are found in Table 4.38.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t</th>
<th>R</th>
<th>R Squared (Cumulative)</th>
<th>R Squared Increment</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of the Policy Making Process at the Local Level</td>
<td>.360</td>
<td>5.621</td>
<td>.341</td>
<td>.116</td>
<td>.116</td>
<td>.000</td>
</tr>
<tr>
<td>Social Studies Major</td>
<td>.163</td>
<td>2.537</td>
<td>.379</td>
<td>.143</td>
<td>.027</td>
<td>.011</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>.154</td>
<td>2.436</td>
<td>.408</td>
<td>.166</td>
<td>.023</td>
<td>.018</td>
</tr>
<tr>
<td>Below Average Poverty Level</td>
<td>.122</td>
<td>1.923</td>
<td>.426</td>
<td>.181</td>
<td>.015</td>
<td>.056</td>
</tr>
</tbody>
</table>

Table 4.38. Regression Analysis Predicting “Actual Level of Involvement at the Building Level” (forward method)
Only the variables that produced a significant change in R Squared or a change that approached significance were included in the table. Independent variable “Knowledge of the Policy Making Process at the Local Level” entered the model first as a significant predictor of the factor “Actual Level of Involvement at the Building Level” (Beta = .360, p = .000), suggesting that the more principals feel confident in their knowledge of how policy functions at the local level, the more they wish to be involved in the educational technology policy-making process.

“Social Studies Major” was the next strongest predictor (Beta = .163, p = .011), suggesting that principals who take an interest in government, policy, laws, politics, and their effects on society also have a higher interest in taking an active role in policy in their buildings. Although the ANOVA indicated that “Undergraduate Major” did not have a significant effect on this dependent variable, the multiple regression analysis does indicate that it accounts for a significant amount of variance above and beyond the variance associated with the variable “Knowledge of the Policy-Making Process at the Local Level.”

Third in the regression model is “Ph.D.” (Beta = .154, p = .018), indicating that principals who have advanced degrees in education and research also have a higher interest in policy-making in their buildings. Finally, “Below Average Poverty Level” entered the model as a predictor that approached significance (Beta = .122, p = .056), suggesting that principals in below-average poverty schools have an increased desire to take an active role in the educational technology-making process.

This model explained 18% of the variance associated with “Actual Level of Involvement at the Building Level.” There are, most likely, other independent
variables that account for significant proportions of the variance that have not been examined including discretionary time, current responsibilities, and past student problems with educational technology.

The results of the multiple regression analysis for dependent variable “Actual Level of Involvement at the District Level” are found in Table 4.39.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t</th>
<th>R (Cumulative)</th>
<th>R Squared (Cumulative)</th>
<th>R Squared Increment</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.298</td>
<td>4.822</td>
<td>.573</td>
<td>.328</td>
<td>.328</td>
<td>.000</td>
</tr>
<tr>
<td>Urban District</td>
<td>-.168</td>
<td>-2.606</td>
<td>.635</td>
<td>.404</td>
<td>.076</td>
<td>.000</td>
</tr>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>.333</td>
<td>5.183</td>
<td>.686</td>
<td>.470</td>
<td>.066</td>
<td>.000</td>
</tr>
<tr>
<td>District Size</td>
<td>-.234</td>
<td>-3.626</td>
<td>.709</td>
<td>.502</td>
<td>.032</td>
<td>.000</td>
</tr>
<tr>
<td>Elementary School</td>
<td>-.158</td>
<td>-3.306</td>
<td>.726</td>
<td>.527</td>
<td>.025</td>
<td>.001</td>
</tr>
<tr>
<td>Knowledge of the Policy Process at the Local Level</td>
<td>.120</td>
<td>2.258</td>
<td>.730</td>
<td>.524</td>
<td>.007</td>
<td>.088</td>
</tr>
<tr>
<td>Teaching Experience</td>
<td>.110</td>
<td>2.184</td>
<td>.738</td>
<td>.544</td>
<td>.008</td>
<td>.030</td>
</tr>
</tbody>
</table>

Table 4.39. Regression Analysis Predicting “Actual Level of Involvement at the District Level” (forward method)

Once again, only variables that produced a significant change in R Squared or a change that approached significance were included in the model. Independent variable “Desired Level of Involvement at the District Level” entered the model first as a significant predictor of the factor “Actual Level of Involvement at the District Level” (Beta = .298, p = .000), suggesting that the more principals desire to serve in the policy process at the district level, the higher their level of involvement will be.
The second significant predictor is "Urban District" (Beta = -.168, p = .000), suggesting that principals who serve in urban districts are less likely to participate in the educational technology policy-making process at the district level.

Third in the regression model is "Actual Level of Involvement at the Building Level" (Beta = .333, p = .000). This indicates that principals who are more involved in the process in their buildings are more likely to be involved in the process at the district level. Fourth is "District Size" (Beta = -.234, p = .000), implying that principals in larger districts are less likely to be involved in policy-making at the district level. Fifth, "Elementary School" entered the model as a significant predictor (Beta = -1.58, p = .001), indicating that principals of elementary schools are less likely to take part in the process at the district level than principals of middle and high schools.

Sixth, "Knowledge of the Policy-Making Process at the Local Level" accounted for a portion of the variance that approached significance above and beyond the previous variables (Beta = .120, p = .088), suggesting that principals who perceive they have a strong understanding of the policy process at the local level are more inclined to be involved in the process. Finally, "Teaching Experience" entered the model as a statically significant predictor (Beta = .110, p = .030), implying that those principals who have more teaching experience are more likely to be involved in the policy-making process.

This model explains 54.4% of the total variance associated "Actual Level of Involvement at the District Level." As with the previous model, there are other
variables that may account for a significant proportion of the variance that were not measured such as principals' discretionary time or perceiving a need to change current district technology policies.

The results of the multiple regression analysis for dependent variable "Desired Level of Involvement at the District Level" are found in Table 4.40.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t</th>
<th>R (Cumulative)</th>
<th>R Squared (Cumulative)</th>
<th>R Squared Increment</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Level of Involvement at the Building Level</td>
<td>.590</td>
<td>10.983</td>
<td>.606</td>
<td>.368</td>
<td>.368</td>
<td>.000</td>
</tr>
<tr>
<td>High Poverty Level</td>
<td>-.150</td>
<td>-2.786</td>
<td>.624</td>
<td>.390</td>
<td>.022</td>
<td>.006</td>
</tr>
</tbody>
</table>

N=251

Table 4.40. Regression Analysis Predicting "Desired Level of Involvement at the District Level" (forward method)

Only two of the independent variables are significant predictors for "Desired Level of Involvement at the District Level." "Actual Level of Involvement at the Building Level" is the most significant predictor (Beta = .590, p = .000), suggesting that the more principals are involved in the educational technology policy-making process in their buildings, the more they desire to be involved in the process at the district level. "High Poverty" is the other predictor (Beta = -.150, p = .006), indicating that principals who serve in high poverty districts are less likely to have a desire to take part in the educational technology policy-making process at the district level. After controlling for these two variables, none of the other independent variables accounted for additional variance in the model.
The above model accounts for 39% of the total variance associated with "Desired Level of Involvement at the District Level." Because administrators' desired level of involvement is the greatest predictor of their actual level involvement at the district level, it is important that further research be conducted to identify other significant predictors. Once again, discretionary time could possibly account for significant variance, as well as having a perception that sound district educational technology policies is important. It is also possible that perceived ability to influence district policy may account for a large portion of the variance.

The results of the multiple regression analysis for dependent variable "Actual Level of Involvement at the State/National Level" are found in Table 4.41.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t</th>
<th>R (Cumulative)</th>
<th>R Squared (Cumulative)</th>
<th>R Squared Increment</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desired Level of Involvement at the State/National Level</td>
<td>.273</td>
<td>4.232</td>
<td>.333</td>
<td>.111</td>
<td>.111</td>
<td>.000</td>
</tr>
<tr>
<td>Actual Level of Involvement at the District Level</td>
<td>.246</td>
<td>3.790</td>
<td>.397</td>
<td>.158</td>
<td>.047</td>
<td>.001</td>
</tr>
<tr>
<td>African-American</td>
<td>.189</td>
<td>3.005</td>
<td>.440</td>
<td>.193</td>
<td>.035</td>
<td>.003</td>
</tr>
</tbody>
</table>

Table 4.41. Regression Analysis Predicting "Actual Level of Involvement at the State/National Level" (forward method)

Similar to the previous model, only three independent variables significantly affect the variance associated with this dependent variable. It must be recalled, however, that, overall, principals reported almost no involvement in the policy-making process at this level (mean = 1.16; standard deviation = .36), and the standard
deviation indicates very little variance in their responses. With that being said, the most significant predictor is the “Principals’ Desired Level of Involvement at the State/National Level” (Beta = .273, p = .000), indicating that the more principals desire to be involved in the process at this level, the more they are actually involved. The second predictor in the model is “Actual Level of Involvement at the District Level” (Beta = .312, p = .000), suggesting that the more principals are involved in the process at the district, the more likely they are involved at the state/national level. The last significant predictor is “African-American” (Beta = .199, p = .002), implying that African-American principals are more likely to be involved in the process at this level than other principals. As previously reported, three African-American principals indicated that they were involved in the process at the state/national level. Because the sample size for this group is small, their responses substantially raised the mean. While it is possible African-American public school administrators are more involved at the state/national level, it is also possible that if the sample size for this group were larger, this variable would not remain significant. Only additional research is this area would tell.

The above model explains 12.4 % of the total variance associated with the dependent variable. After controlling for these three variables, the other independent variables did not account for additional significant variance. Although this model accounts for only a small portion of the variance, it should be reemphasized that the standard deviation indicates that the total variance associated with the dependent variable is small (.36). Nevertheless, actual involvement at this level might be
explained by other variables such as association with professional organizations, involvement in these organizations, discretionary time, and personal acquaintances with policymakers.

The results of the multiple regression analysis for dependent variable “Desired Level of Involvement at the State/National Level” are found in Table 4.42.

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t</th>
<th>R   (Cumulative)</th>
<th>R Squared (Cumulative)</th>
<th>R Squared Increment</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desired Level of Involvement at the District Level</td>
<td>.571</td>
<td>10.258</td>
<td>.527</td>
<td>.277</td>
<td>.277</td>
<td>.000</td>
</tr>
<tr>
<td>Confidence Using Technology</td>
<td>-.196</td>
<td>-3.582</td>
<td>.555</td>
<td>.308</td>
<td>.031</td>
<td>.001</td>
</tr>
<tr>
<td>Department Head</td>
<td>.113</td>
<td>2.095</td>
<td>.566</td>
<td>.321</td>
<td>.013</td>
<td>.036</td>
</tr>
<tr>
<td>Urban District</td>
<td>.099</td>
<td>1.799</td>
<td>.575</td>
<td>.330</td>
<td>.009</td>
<td>.073</td>
</tr>
</tbody>
</table>

Table 4.42. Regression Analysis Predicting “Desired Level of Involvement at the State/National Level” (forward method)

The most significant variable in the regression model is “Principals’ Desired Level of Involvement at the District Level (Beta = .571, p = .000). This indicates that the more principals desire to be involved in the process at the district level, the more they desire to be involved in the process at the state/national level. The second predictor in the model is “Confidence Using Technology” (Beta = -.196, p = .001), suggesting that the less confident principals feel using technology, the more they desire to be involved in the process at this level. This relationship is somewhat difficult to explain. One possibility for the negative relationships is that principals who are less confident using technology comprehend more acutely that technological
illiteracy puts citizens at a disadvantage in today's society. They may want to assure that students and other educators are prepared to use technology effectively.

This predictor's significance may also be attributable to a statistical phenomenon known as "suppression." According to Cohen and Cohen, suppression "can be understood to indicate that the relationship between the independent or causal variables is hiding or suppressing their real relationships with Y, which would be larger or possibly of opposite sign were they not correlated." In other words, "Confidence Using Technology" may be highly correlated with the other independent variables in the model, suppressing its true relationship with the dependent variable. Suppression may be detected when a partialled coefficient is "larger in value than the zero-order coefficient," which is what has occurred in the instant case. Further research is needed to clarify its relationship with the dependent variable.

"Department Head" was the next strongest predictor in the model (Beta = .113, p = .036), implying that the more experience a principal has as department chair, the more he/she has a desire to play a role in technology policy at the state/national level. Finally, "Urban District" entered the model as a variable approaching significance (Beta = .099, p = .073), suggesting that principals in urban districts have more desire to play a part in the process at the state/national level than principals in other districts. Perhaps principals in urban districts see the technological

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437 Id. at 94.
inequalities that exist across student populations and would like a chance to remedy them, or perhaps they are more acutely aware of the potential problems technology brings to schools.

The above model explains 33% of the total variance associated with this "Desired Level of Involvement at the State/National Level." Other variables that might account for significant variance include discretionary time, perceived impact of involvement, association with professional organizations, involvement in professional organizations, and interest in current state and national technology policy.
CHAPTER 5
FINDINGS, DISCUSSION, AND CONCLUSION

Revisiting the Problem

In the conventional paradigm of the educational policy-making process, public school administrators have a limited role. Normally, state or federal legislators create policy, government agencies write guidelines and specifications, administrators implement policy, and researchers evaluate the effects of policy and report back to legislators. In this paradigm, according to Daniel and Nance, also holds true in the educational technology policy-making process.

In a recent trend, national consortiums, particularly the Interstate School Leaders Licensure Consortium (ISLLC), have begun to recognize the importance of having school administrators be involved in the policy-making process. ISLLC contends that administrators need to take a more assertive role in shaping policy in their districts, communities, states, and nation “to provide quality education for

438 Starratt, supra note 43, at 141. See also Daniel & Nance, supra note 30.

439 Daniel & Nance, supra note 30.
students." On the educational technology front, The Technology Standards for School Administrators (TSSA) collaborative maintains that educational leaders should “advocate on the state and national levels for policies, programs, and funding opportunities that support implementation of the district technology plan.”

One could look at the administrators’ role in policy as a professional obligation. Daniel and Nance suggest that by refusing to become part of the policy-making process, administrators have abdicated a crucial component of school leadership. Starratt holds that administrators have a professional obligation to be involved in the policy-making process for three reasons. First, as state actors, school administrators serve the state in two capacities. They help students, teachers, parents, and community members understand the viewpoint of state policymakers and the reasons for policy formation. They communicate policy in a meaningful way to the people it affects. Likewise, administrators work in the opposite direction. They serve as spokespersons for teachers, parents, students, and community members to state policymakers. They help policymakers establish effective policies that meet the needs of their constituents.

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441 Id.

442 Daniel & Nance, supra note 30.

443 Starratt, supra note 43, at 144-146.
Second, administrators' participation could offer a useful and much needed perspective to the policy-making process. They, not policymakers, deal with the day-to-day incidents that occur in schools. Administrators, themselves, were once teachers and have a viewpoint that lawmakers might not have. Administrators coordinate a host of educational programs and regularly interact with parents, students, teachers, and community members. They have developed a sense of what is educationally appropriate and feasible and may alert policymakers of unforeseen consequences. They might also be able to quickly identify problems, such as unavailable resources, which would otherwise take months to reach policymakers.\(^4\)

Third, inviting administrators to become part of the policy-making process would facilitate policy implementation. Policy, made from a distance from those who implement it and live with it, rarely meets policymakers' intended objectives. Administrators, and educators in general, are remarkably resourceful at blunting policy as it comes down the hierarchy. Administrators and teachers can simply shut the door when there are no visitors and educate in the manner they choose. Studies show that policies that meet their intended purposes often engage its participants in the policy-making process. That is, those who implement policy are involved in the discussions of why it is important, and how it could be successfully integrated into existing operations.\(^5\)

\(^4\) *Id.* at 142, 147.

\(^5\) *Id.* at 142. *See also* Daniel & Nance, *supra* note 30.
It is particularly disconcerting that administrators are not involved in the policy-making process because administrators are held responsible for the teaching and learning processes that occur in their schools. As indicated in previous case law analysis, it seems plausible that administrators, by failing to properly implement educational technology objectives of the state legislature, state board of education, or local school board, could be held professionally responsible, be subject to professional sanctions, or be terminated.\textsuperscript{446}

Although the administrators’ role in the policymaking process seems worthy of study and research, the literature is “oddly silent.”\textsuperscript{447} And in regard to the administrators’ role in the educational technology policy-making process, there is practically nothing. Consequently, an exploratory study has been conducted to ascertain (1) the principal’s actual level of involvement in creating educational technology policy; (2) the principal’s desired level of involvement in creating educational technology policy; and (3) the factors that influence the variance in their responses.

**Findings and Discussion**

The exploratory study has revealed several important findings, but perhaps the most salient are the overall means for the principals’ actual levels of involvement in the educational technology policy-making process. On a four-point scale (1= no

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\textsuperscript{446} Daniel & Nance, supra note 30.

\textsuperscript{447} Starratt, supra note 43, at 148.
involvement, 4=substantial involvement), 251 Ohio public school principals have indicated that on average they are moderately to substantially involved in the educational technology policy-making process at the building level (3.4); moderately involved at the district level (2.6); and have no involvement at the state or national level (1.2). This finding substantiates Daniel and Nance’s hypothesis: the primary role of administrators in policy is to comply with state and national objectives.  

As indicated in Chapter Two, state educational technology policies steer the public education system. The Ohio State legislature, Ohio Department of Education, and/or Ohio SchoolNet set technology curriculum standards for students; allocate funds for purchasing computer hardware and software; establish graduation requirements for students; administer the Ohio state proficiency tests; conduct professional development for teachers and administrators; and create licensure requirements for teachers and administrators. The data reveal that administrators have no involvement in these types of educational technology policies. Consequently, if Starrett’s hypotheses are correct, it is possible that these educational technology policies are shortsighted and will not be implemented to the satisfaction of policymakers. Moreover, if the data is indicative of the administrators’ role in other areas of educational policy, it could be reasoned that educational policy on the whole is less effective than it could be.

Another important finding is the principals’ desired levels of involvement at the district, state, and national levels. On the same four-point scale, 251 administrators on average claim they would like to be more involved in the

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Daniel & Nance, supra note 30.
educational technology policy-making process (2.92) than they currently are (2.59). Likewise, administrators would like to be more involved in the process at the state/national levels (1.53) than their current situation (1.16), but the low means indicate that they would like little to no involvement at these levels.

Administrators' lack of desire to be involved at the state and national levels may be attributable to what Meza terms the "top-down approach" in the educational policy-making process. Meza maintains that the "top-down approach to education policy making has caused local school administrators to become critical of most aspects of policy formation." Consequently, he states, "administrators feel powerless and uncertain about their role in influencing state-level policy." According to Meza, administrators feel disenfranchised from state and national levels of policy-making. They don't desire to take part in the process because they don't believe they can have a legitimate impact in policy formation. This is compounded by the fact that administrators have very little discretionary time. The advent of state accountability measures have put tremendous pressure on many administrators to help students meet state academic standards. Perhaps they feel their time is better spent on activities in which they have power to make an immediate impact.

Daniel and Nance suggest two methods for increasing administrative participation at the state level. First, state legislatures can facilitate their involvement

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450 Id.
by allowing school administrators to serve on state educational technology
committees. They state,

A handful of states already allow school administrators to participate in instructional
technology committees. This practice should be expanded. Though it is impractical
for large numbers of administrators to take part in state or national committees,
perhaps administrators should be encouraged to meet and discuss their views on
instructional technology and select a small group to represent them on a committee.
Administrators who deal with curricular and instruction issues on a daily basis may
be able to offer insight into how to best spend educational technology funds, suggest
practical ideas for professional development in technology, and give advice on how to
train prospective teachers to be adept in instructional technology.451

Said another way, they argue that the state legislatures need to create a formal,
systematic method for involving administrators in policy formation. This would
facilitate their involvement and possibly help all administrators understand that their
perspectives are important and will be acknowledged by state policymakers, which
would most likely increase their desire to be involved.

Second, Daniel and Nance suggest that there needs to be a change in the way
public school administrators are educated. They write,

Education in certain areas is important in the preparation of educators to pursue
policy-making roles. Such areas include recognizing a policy situation and discerning
policy from politics: matters of strategy, technique, or tactics. Policy, by design, is
intended to have long-term effects. Policies need to include recognition of the legal
context. All policy has its roots in legal structure. Often, for example, policy is
derived from some social concern, in this instance, the explosion of technology
innovation. This activity has resulted in proposed controls over the Internet and
computer use in the form of common law and legislation. This legislation is often
challenged in court and leads to more legislation, refined legislation in the form of
case law. School administrators must be exposed to the legislative process.452

451 Daniel and Nance, supra note 30.
452 Id.
Perhaps if administrators are exposed to legislative processes and understand the important role they can play in policy, their desire to influence state policy will increase. The multiple regression analysis shows that desire to be involved in the process at the state/national levels is a significant predictor of actual involvement.

Another significant finding is that urban principals are less likely to be involved in educational technology policy creation at the district level than their counterparts in suburban and rural schools. There is a good chance that this signifies that urban principals are less likely to be involved in all other areas of educational policy as well. Administrators, before taking a position in an urban school district, should be made aware that there is a higher probability that they will not only be required to comply with state policy without input, but also district policy and directives. Urban principals are more likely to become “policy custodians,” rather than “policy initiators” or “policy shapers” at all levels of policy-making and have less flexibility in shaping the education of students.

A fourth important finding is that urban principals, particularly those in high poverty school districts, on average have less desire to take part of the educational technology-making process at the district level than suburban and rural principals. As with their actual level of involvement, it is quite possible that they have less desire to shape other types of policies as well. This finding is indicative of the acute pressure urban principals face. Urban school districts in Ohio are under tremendous pressure to help students meet state academic standards. If students fail to meet state standards, the state imposes sanctions, including the possibility of a state-takeover. Principals who serve in failing schools face the consequence of being reassigned or
terminated if their schools do not improve. Urban administrators probably desire to spend their time helping students meet state standards rather than serving on district committees to shape district policy.

Another salient finding is that principals’ confidence in their knowledge of the policy-making process affects their involvement and their desired level of involvement in educational technology policy formation. This is particularly true at the building and district levels, but also true at the state and national levels. The significance of this finding is underscored because this may be one of the most feasible and practical ways to increase administrators’ involvement. Most state principal licensure programs require prospective principals to take courses in education law. These courses most likely expose prospective administrators to legal processes, but they tend to focus on the state of the law rather than on how to influence policy. Perhaps a course should be offered which exposes principals to the overall policy-making process and how they might become involved in the process at all levels. If offering a course is not feasible, than perhaps professors should make special note to include policy processes in their current courses.

Limitations and Future Research Opportunities

As alluded to in Chapter One, this study has three primary weaknesses. First, because almost no research has been conducted to examine the administrators’ role in educational technology policy or in other areas of educational policy, there is very little with which to compare the results of this study. Subsequent studies will be needed to corroborate the findings. Second, although the study sought to measure a variety of factors that may account for the variance in the dependent variables, there...
are most likely other factors that account for significant variance. In order to get a
good survey return rate, it was important to keep the questionnaire short. There are
other important items that could have been included, but there was simply not enough
space. Third, the sample is limited to Ohio public school principals. If adequate time
and resources had been provided, the study would have been conducted on a broader
scale. These research questions are pertinent to school administrators in every state,
not just Ohio.

This was an exploratory study, the purpose being to "seek out new insights"
and "ask questions." As previously mentioned, exploratory research serves three
major purposes: (1) "to satisfy curiosity;" (2) "to build methodology that might be
used in later, more tightly designed research;" and (3) "to make recommendations
regarding the likelihood of continuing with additional research on this topic." Certainly it is hoped that this study will be used to conduct future research in (1) the
area of educational technology policy; and (2) the public school administrators' role
in all areas of educational policy.

In particular, future research needs to be conducted to identify factors that
influence administrators' desire to be involved in the policy-making process at the
district, state, and national levels. The current regression model for administrators'
desired level of involvement at the district level predicts only 39% of the total
variance. Principals' discretionary time, perceived personal influence, and past
negative student incidents in schools are possible factors that might account for

453 ADAMS & SCHVANEVELDT, supra note 372, at 104.
additional significant variance. Likewise, the current regression model for administrators' desired level of involvement at the state/national level predicts only 33% of total variance. Discretionary time, perceived personal influence, knowledge of how to become involved, association with professional organizations, and interest in current state and national policy may account for additional significant variance. The importance of this future research is underscored because principals' desired level of involvement is the most significant predictor of actual level of involvement at the district, state, and national levels.

**Conclusion**

Technology has forever changed the way in which we work, communicate, learn, are entertained, and educate. With all of its positive aspects, the infusion of educational technology into the public school system brings to the table several important issues. Not only must policymakers at the federal, state, and local levels address issues surrounding acceptable use of technology by students and employees, but they must also address issues pertaining to the allocation of funds to purchase computer hardware and software; the training of current and future administrators and teachers in educational technology; the creation of student technology academic standards; and the effective use of technology in the classroom.

Administrators could potentially play an important role in helping to shape these policies at the national, state, district, and building levels, but this exploratory study indicates that administrators have no involvement at the state or national levels and, for the most part, do not desire to be involved at these levels. In addition,
although principals are more involved at the district level than at the state and national levels, the data indicate they would like to be more involved.

Excluding administrators from the policy-making process, particularly at the state and national levels, creates an educational policy system that is less effective and efficient than it could potentially become. Administrators could offer a useful and much needed perspective to the policy-making process and could facilitate its implementation. Because the data indicate that their desire to become involved in the policy-making process is the greatest predictor of their actual level of involvement, it is important to instill a greater desire in administrators to take part in the process. State legislatures could certainly facilitate this by creating a formal, systematic method of involvement such as the creation of a state administrators' educational technology committee. Principal licensure programs could also facilitate this by exposing administrators to the educational policy-making process and teach them how they can become involved. However, other factors need to be uncovered that influence their desire to become involved. These factors might include principals' discretionary time, their perceived personal influence, knowledge of how to become involved in the policy-making process, participation in professional organizations, and interest in policy issues.
APPENDIX
February 23, 2002

Dear Ohio Administrator:

Educational technology has altered the way Ohio educators teach children. In addition to providing an alternative way to instruct, communicate, and obtain information, educational technology also brings to the table several issues. These issues might include acceptable use of school computers, digital copyright infractions, professional development training for teachers, and when and how teachers and students should use computers in schools. The formation of educational technology policy at the national, state, and local level has provided administrators with guidance as to how to deal with many of these issues.

I am a doctoral candidate in the Ohio State University College of Education conducting research under Dr. Philip T.K. Daniel, Professor of Education and Law. This research examines the role of Ohio school administrators in educational technology policy. We seek to identify Ohio administrators’ current role and desired role in the educational technology policy-making process.

You are one of a small group of Ohio principals who have been randomly selected to participate in this study. We are surveying elementary, middle, junior high, and high school principals who work in rural, suburban, and urban school districts. A high response rate is critical, so your timely participation in the study is appreciated.

Confidentiality is assured. No individual administrator, school, or school district will be mentioned in the results. The identification number at the top of the survey helps us keep track of demographic information for the school district and who has/has not completed a survey. Your participation is voluntary and you may refuse to answer any question in the survey.

The survey only takes approximately 10 minutes to fill out, and you should not need to obtain information to complete the survey. When you are finished, simply enclose the survey in the stamped envelope provided. Upon receipt of your survey, we will enter your name into a drawing for a $50 gift certificate to Outback Steakhouse.

If you return the survey, we will also provide you with the results of the findings. This will help you to know what educational technology policies other Ohio schools and districts have in place and how other Ohio administrators view their role in the policy-making process.

Please enjoy this piece of candy as you fill out the survey. If you begin to fill out the survey immediately, you should be able to complete it before you finish eating the candy. If you have any questions, please do not hesitate to call me at 614-292-7700 (W) or 614-529-0502 (H) or e-mail me at nance.30@osu.edu. Thanks you for your time and participation.

Sincerely,

Jason P. Nance
Educational Policy and Leadership
The Ohio State University

Philip T.K. Daniel, J.D., Ed.D.
Professor of Education and Law
The Ohio State University
Educational Technology Policy Questionnaire for Public School Principals
2002

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***Upon receipt of your survey, we will enter your name into a drawing for a $50 gift certificate to Outback Steakhouse!***

INSTRUCTIONS

Thank you for your participation in this study. It is important that this questionnaire be completed by the school principal, not by anyone else. If you have any questions, please call Philip T.K. Daniel or Jason P. Nance at 614-292-7700

District Educational Technology Policies: Item 1

Policy, for the purposes of this study, should be viewed from a legal standpoint. It may be defined as the general principles that guide a government agency in its management of public affairs. This section asks about the existence of various educational technology policies at the district level.

1. Our district has or is in the process of developing a policy on:  
   (Please check all that apply) | Don't Know
   --- | ---
   ___ Acceptable use of school computers for students
   ___ Ways for students to express themselves online
   ___ Student-created web pages
   ___ Displaying photographs of students on a school web site.
   ___ Employee-created web pages
   ___ Server restrictions
   ___ Equitable access to technology
   ___ Acceptable use of school computers for employees
   ___ Internet pornography
   ___ E-mail for/from students
   ___ E-mail for/from employees
   ___ Making school web sites comply with the Am. with Disabilities Act
   ___ Securing technological equipment
   ___ Where computers are made available to students

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Don’t Know

___ When computers are made available to students
___ How teachers should use technology in the classroom
___ How students should use technology in the classroom
___ How often teachers should use technology in the classroom
___ How often students should use technology in the classroom
___ Educational technology professional development for teachers
___ Digital copyright issues, i.e. pirating music, programs, images
___ Educational technology professional development for administrators
___ Computer games
___ Other (please specify): ____________________________________

Utilization of School Educational Technology Policies: Items 2-7

This section asks about the existence and enforcement of educational technology policies at your school. Please rate the following, on a scale from 1 to 4, according to how much you agree with the following statements by circling the appropriate number.

1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree

As the school principal, I...

2. Provide responsible oversight for district educational technology policies in my school with my students.......................... 1 2 3 4

3. Provide responsible oversight for district educational technology policies in my school with my employees.................... 1 2 3 4

4. Modify district educational technology policies to meet the needs of my school................................................................. 1 2 3 4

5. Seek to learn about educational technology policy issues at the district level............................................................... 1 2 3 4

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6. Seek to learn about educational technology policy at the state level... 1 2 3 4

7. Seek to learn about educational technology policy at the national level........................................................ 1 2 3 4

The Principal’s Level of Involvement in Creating Educational Technology Policy: Items 8-21

This section asks about your actual level of involvement in the educational technology policy-making process. Please rate your level of involvement on a scale of 1 to 4 by circling the appropriate numbers. If your district or school has no such policy, please circle “not applicable” (N/A).

1=No Involvement; 2=Little Involvement; 3=Moderate Involvement; 4=Substantial Involvement; N/A=Not applicable

8. A school technology plan ............................................................... 1 2 3 4 N/A

9. A district technology plan ............................................................. 1 2 3 4 N/A

10. A state technology plan ............................................................... 1 2 3 4

11. A national technology plan ........................................................... 1 2 3 4

Decisions regarding the allocation of funds to purchase computer hardware, software, or faculty/staff technology training...

12. At the school level ............................................................... 1 2 3 4 N/A

13. At the district level ............................................................... 1 2 3 4 N/A

14. At the state level ............................................................... 1 2 3 4 N/A

15. At the national level ............................................................... 1 2 3 4 N/A

16. A school Computer Acceptable Use Policy .................................. 1 2 3 4 N/A

17. A district Computer Acceptable Use Policy .................................. 1 2 3 4 N/A
Creating/updating other types of educational technology policies...

18. At the building level......................................................... 1 2 3 4 N/A
19. At the district level......................................................... 1 2 3 4 N/A
20. At the state level.............................................................. 1 2 3 4
21. At a national level............................................................ 1 2 3 4

The Principal’s Desired Level of Involvement in Creating Educational Technology Policy: Items 22-35

This section asks about your desired level of involvement in the educational technology policy-making process. Please rate your desired level of involvement on a scale of 1 to 4 by circling the appropriate numbers.

1=No Involvement; 2=Little Involvement; 3=Moderate Involvement; 4=Substantial Involvement

22. A school technology plan................................................... 1 2 3 4
23. A district technology plan.................................................. 1 2 3 4
24. A state technology plan..................................................... 1 2 3 4
25. A national technology plan............................................... 1 2 3 4

Decisions regarding the allocation of funds to purchase computer hardware, software, or faculty/staff technology training...

26. At the school level............................................................ 1 2 3 4
27. At the district level........................................................... 1 2 3 4
28. At the state level.............................................................. 1 2 3 4
29. At the national level.......................................................... 1 2 3 4

30. A school Computer Acceptable Use Policy........................ 1 2 3 4
31. A district Computer Acceptable Use Policy....................... 1 2 3 4
Creating/updating other types of educational technology policies...

32. At the building level................................................................. 1 2 3 4
33. At the district level................................................................. 1 2 3 4
34. At the state level................................................................. 1 2 3 4
35. At a national level................................................................. 1 2 3 4

The Principal's Level of Confidence in Her/His Knowledge of the Policy-Making Process: Items 36-43

This section seeks to measure your level of confidence in your knowledge of how policies are made and what influences policies. Please rate the following, on a scale from 1 to 4, according to how much you agree with the following statements.

1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree

I am confident in my knowledge and understanding of the role...

36. The U.S. Constitution plays in educational policy......................... 1 2 3 4
37. The U.S. Congress plays in educational policy......................... 1 2 3 4
38. The U.S. Department of Education plays in educational policy..... 1 2 3 4
39. The Ohio State Legislature plays in educational policy............. 1 2 3 4
40. The Ohio State Department of Education plays in educational policy................................................................. 1 2 3 4
41. The local school boards play in educational policy............... 1 2 3 4
42. School principals play in educational policy............................ 1 2 3 4
43. Federal and state courts play in educational policy.............. 1 2 3 4
The Principal's Level of Confidence Using Technology: Items 44-47

This section asks about your level of confidence using technology in your professional and personal life. Technology, for the purposes of this study, is defined as computer hardware, computer software, the Internet, and e-mail. Please rate the following, on a scale from 1 to 4, according to how much you agree with the following statements.

1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree

44. I feel comfortable using technology in my professional life............. 1 2 3 4
45. I feel comfortable using technology in my personal life............... 1 2 3 4
46. I use technology on a daily basis in my professional life............. 1 2 3 4
47. I use technology on a daily basis in my personal life.................. 1 2 3 4

Demographic Information: Items 48-53

This section asks about your work experience and other demographic information.

48. PRIOR to this school year, how many years were you employed in each of the following positions? (Count part of a year as 1 year.)
   a. As the principal of THIS school
      ______ Year(s)
   b. As the principal of other schools
      ______ Year(s)
   c. As an assistant principal
      ______ Year(s)
   d. As a curriculum supervisor/department head
      ______ Year(s)

49. PRIOR to becoming a principal, how many years of elementary or secondary teaching experience did you have?
      ______ Year(s)
50. What was your undergraduate major?

______________________________

51. What is the highest degree you have earned or are currently pursuing?

___ Bachelor's degree
___ Master's degree
___ Doctorate or professional degree

52. Are you male or female?

___ Female
___ Male

53. What is your race or ethnicity? (Mark all that apply)

___ American Indian or Alaska Native
___ Asian or Pacific Islander (Japanese, Chinese, Filipino, Korean, Asian Indian, Vietnamese, Hawaiian, Guamanian, Samoan, other Asian)
___ Black
___ White
___ Hispanic Origin

Please write down approximately how much time it took you to fill out this survey:

__________________
Last week a questionnaire was sent to you seeking information about your actual and desired level of involvement in educational technology policy.

If you have already completed and returned the questionnaire, please accept our sincere thanks. If not, please send it today so that your responses can be included in this important research being conducted by The Ohio State University. **It is critical that all of those selected for this project participate in order to provide us with the most accurate information possible.**

If you did not receive a questionnaire, or if it was misplaced, please call us at 614-292-7700 and we will be happy to mail or fax another copy to you.

Once again, we give you our sincere thanks for helping us with this study.

Once again, we give you our sincere thanks for helping us with this study.
March 7, 2002

Dear Ohio Administrator,

Over two months ago Dr. Philip T.K. Daniel and I sent you a questionnaire. This questionnaire sought primarily to identify current educational technology policies that are in place in Ohio schools and to measure the Ohio administrators’ current and desired role in the educational technology policy-making process. So far many Ohio administrators have returned the questionnaire, but in order to get a better idea about what is actually occurring in Ohio schools, we ask that you please return a completed questionnaire as soon as possible. You were one of a small group of Ohio principals who were randomly selected to participate in this study, and a high response rate is critical.

Confidentiality is assured. No individual administrator, school, or school district will be mentioned in the results. The identification number on the back of the survey helps us keep track of demographic information for the school district and who has/has not completed a survey. Your participation is voluntary and you may refuse to answer any question in the survey.

The survey only takes approximately 10 minutes to fill out, and you should not need to obtain information to complete the survey. When you are finished, simply enclose the survey in the stamped envelope provided. Upon receipt of your survey, we will enter your name into a drawing for a $50 gift certificate to Outback Steakhouse.

If you return the survey, we will also provide you with the results of the findings. This will help you to know what educational technology policies other Ohio schools and districts have in place and how other Ohio administrators view their role in the policy-making process.

Please enjoy this piece of candy as you fill out the survey. If you begin to fill out the survey immediately, you should be able to complete it before you finish eating the candy. If you have any questions, please do not hesitate to call me at 614-292-7700 (W) or 614-529-0502 (H) or e-mail me at nance.30@osu.edu. Thanks you for your time and participation.

Sincerely,

Jason P. Nance
Educational Policy and Leadership
The Ohio State University

Philip T.K. Daniel, J.D., Ed.D.
Professor of Education and Law
The Ohio State University
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