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Perceptions of Two Educational Technology Standards;a Case Study of an Ohio Urban K-12 School District

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PERCEPTIONS OF TWO EDUCATIONAL TECHNOLOGY STANDARDS

A CASE STUDY OF AN OHIO URBAN K-12 SCHOOL DISTRICT

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DEDICATION

This dissertation is dedicated to my immediate family for instilling me with intrinsic motivation for lifelong learning and resilience. Secondly, I dedicate this dissertation to all of the friends, teachers and students who have helped me in innumerable ways both personally and professionally. Your kind words of encouragement, interest and support over the years has meant more to me that you'll ever know.

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PERCEPTIONS OF TWO EDUCATIONAL TECHNOLOGY STANDARDS: A CASE STUDY OF AN OHIO URBAN K-12 SCHOOL DISTRICT

CHRISTOPHER J. BRAAT

ABSTRACT

This study investigated relationships of 42 faculty and administrators' perceptions in the evaluation of educational technology in an Ohio K-12 urban school district using demographics and two national evaluation standards. The standards used were the National Center for Education Statistics (NCES) and Joint Committee Standards for Educational Evaluation (JCSEE). This study presented analysis of quantitative survey data to establish standards awareness and determine significant relationships between perceptions, demographic characteristics and standards in evaluating educational technology. The findings suggest higher levels of awareness and significant relationships for NCES standards over JCSEE standards. Statistically significant, relatively low relationships exist between perceptions of educational technology and demographics analyzed along NCES and JCSEE standards. Interesting statistically significant results were seen between individual responses on survey items for NCES and JCSEE standards towards implementation or evaluation of educational technology. Analysis of research questions are followed by links to existing research and implications for practice including use of more accurate definitions and better measurement of standards, and strengthening practitioners' perceptions of educational technology policy and evaluation using multiple demographics.

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CHAPTER I

INTRODUCTION

The Ohio Department of Education's 2006 report Creating a World Class Education System in Ohio clearly states "To ensure that teachers know how they are performing relative to those expectations, a rigorous evaluation process must also be developed, along with performance-based incentives that celebrate teachers' increasing accomplishments and ensuring fair but rigorous action where there is consistent underperformance" (p. 9). For teachers and administrators in K-12 school districts, this statement burdens them with assessing not only student performance, but to be accountable for their own professional performance. Most notably, the call for accountability comes from laws such as No Child Left Behind (NCLB) (http://www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=26164).

Specific standards, educational technology for instance, also exist at the national level. An awareness of standards and what they measure is critical for meaningful

evaluations. National and state academic content standards may focus on planning, outcomes or accountability, gauging levels of technology awareness outside the curriculum is not well defined.

Problem Statement

Districts continually look to improve integration and use of educational technologies by technology planning and implementation. One of the ways in which districts can gauge their current state, define their desired state, and plan a course of action to better use of educational technology is through standards-based evaluation which is usually established by national organizations. A problem with standards-based evaluations is these guidelines are external to the district and subject to interpretation. This study gathered data to explore perceptions and awareness of national standards for evaluation of educational technology inside one Ohio urban school district. The two evaluation standards being used in this study are from the National Center for Education Statistics and Joint Committee Standards on Educational Evaluation. Analysis was conducted to determine if significant relationships exist between perceptions and responses on the standards being used for evaluating educational technology within the district using two technology groups comprised of those who teach (faculty) and those who don't teach (administrators). Both are described later in this chapter.

Purpose and Significance

The purpose of this study was to investigate faculty and administrators' perceptions of the evaluation of educational technology in an urban district using demographic identifiers and two national standards. This study is significant for two reasons. First, urban districts are scrutinized and subjected to non-performance penalties,

most notably under No Child Left Behind Law, for not meeting educational standards, including technology. Better evaluation of educational technology may lead to better district funding, as well as improved teaching and learning. Secondly, there is lack of data on the evaluation of educational technology within urban districts compared to national standards. In recent research, there are few studies that addressed the evaluation of educational technology in urban K-12 districts. This study provides analysis and recommendations to improve the evaluation of educational technology within an urban district.

Research Questions

The following research questions were of primary interest and were be addressed in this study:

1. What are the district's faculty and administrators' perceptions towards national standards in the evaluation of educational technology ?
2. Is there a significant relationship between the district's faculty and administrators' perceptions of evaluation of educational technology to NCES Standards ?
3. Is there a significant relationship between the district's faculty and administrators' perceptions towards evaluation of educational technology to the JCSEE Standards ?
4. Is there a significant relationship between the district's faculty and administrators' demographics and the district's evaluation of educational technology using NCES Standards ?

5. Is there a significant relationship between the district's faculty and administrators' demographics and the district's evaluation of educational technology using JCSEE Standards ?

6. Is there a significant difference between the district's responses on NCES and JCSEE Standards towards implementation or evaluation of educational technology ?

Limitations

The limitations of this research study were:

1. Limited generalizability. This study was limited by a purposive sample of an Ohio urban school district studied during the 2007-2008 academic year. Generalizations from the study should be limited to this sample and not applied to other groups within the population.

2. Self-report questionnaires. Data gathered from self-report questionnaires is another limitation of this study. Unknown factors may have influenced responses on the questionnaires since they were not administered in a controlled environment. For instance, a respondent may have conducted ad hoc research on one of the standards with which they are not familiar or respondents might have discussed the survey before completing it. This limitation would be addressed if it were economically practical to administer the surveys to all participants at the same time.

Definition of Terms

Educational Technology: Educational technology includes hardware and software used in teaching and learning. Examples include personal computers, "office" software

applications and the Internet; “smart” devices such as electronic marker boards, digital devices and scientific instruments; and other devices (scanners, printers, projectors).

Evaluation of Educational Technology: The systematic investigation and measurement of the worth or merit of educational technology in the district. This term can be confused with assessment or accountability, but for the purposes of this study, it is distinctly different since it is a separate activity with supporting policies and procedures, independent of other efforts. Evaluation of educational technology can be linked to a school district’s Continuous Improvement Planning (CIP), but the district where the study was conducted manages all aspects of technology outside CIP.

Faculty: Faculty was defined as adults working within the school district at the time the data was collected who have direct interaction with students using technology in classrooms, libraries, learning centers and laboratories on a consistent basis throughout the academic year. This group includes teachers, teaching assistants, lab technicians, librarians and tutors. These personnel can either use educational technologies to teach or directly assist students with using educational technologies.

The Joint Committee Standards for Educational Evaluation (1975, 1994, 2007) *(JCSEE)*: An updated set of 30 jointly developed program review standards from the work begun by the American Educational Research Association, the American Psychological Association and the National Council on Measurement in Education. The standards are in four attribute groups: utility, feasibility, propriety and accuracy. These are not intended to be used for classroom assessment and will be used for evaluating educational technology in the K-12 school district where the research is taking place.

National Center for Education Statistics (NCES): The NCES is the primary entity of the United States Department of Education tasked with collecting and interpreting educational data. Several NCES publications have resulted from collecting and interpreting data including The Condition of Education, the Digest of Education Statistics and The Nation's Report Card.

NCES also offers suggestions, tools and guidelines for assessing technology in elementary and secondary education. According to NCES, one of four key questions and indicators on Technology Planning and Policies is to measure if an educational technology plan is being evaluated (http://nces.ed.gov/pubs2003/tech_schools/chapter1_2.asp#7).

Perceptions of Evaluation of Educational Technology: Variables which were presented and analyzed, extracted from respondents' survey data. For the purposes of this study, perceptions is best described as educational technology standards awareness and understanding of evaluation of educational technology as it relates to demographic information (age, years of experience, educational level, etc.).

Respondents: Faculty and school administrators who participated in the study by completing the survey. Data from these two sub-groups were presented and analyzed as individual variables and combined into one variable to more accurately represent the entire population of these two groups within the district. The respondent sample was estimated at N=43.

School Administration: School administration includes district level (board of directors, superintendents, information technology directors and assistants at the same

levels) and building level (principals, vice-principals) personnel who are currently employed in the district studied, at the time the study was conducted.

Stakeholders: Faculty and school administration who collectively participate in implementing, using and evaluating educational technology in the school district where the study was conducted.

Students: The collective group of students who are affected by the implementation, use and evaluation of educational technology in the district where the study was conducted.

Urban Schools: In this study, urban schools are described as those with lower performance indicators (achievement gap) due to socioeconomic indicators which can include equity and access (income and poverty levels), classes (power and race), family factors (parental involvement or single parents) or environment (conditions of cities or schools). There are currently 21 urban school districts in Ohio according to the Ohio Department of Education (http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEPrimary.aspx?Page=2&TopicRelationID=1545).

Assumptions

The following assumptions were made prior to beginning the research:

1. Individual ratings due to demographics, respondent type (administrator or faculty) and awareness of standards will influence responses on the self-reporting questionnaires.

2. Evaluation of educational technology began in 2006 and continued throughout the duration of the current study in the district where the data were collected.
3. Evaluation of educational programs is necessary to the successfulness of implemented educational technology. For example, evaluation is mentioned as part of No Child Left Behind, the National Center for Education Statistics and the International Standards for Technology in Education's National Educational Technology Standards teachers and administrators.
4. It is not generally accepted that educational technology alone improves students' educational outcomes or funding (Bartsch and Cobern, 2003; Oppenheimer, 2003; Cuban, 2001; Aviram, 2000; Chapman, 2000).

CHAPTER II

REVIEW OF LITERATURE

This chapter is divided into three sections. First there is an overview of various studies related to the efficacy of educational technology in K-12 classrooms. Effective educational technology is introduced as it relates to the demands of preparing students with technology.

A second section includes a review of educational technology funding, which is a driver of evaluating educational technology. Specifically, a review of national and state level educational technology policymaking through funding in No Child Left Behind and the State of Ohio's Department of Education budget.

Finally, the third section is devoted to reviewing national educational technology standards used in this study. Presented first are the standards from the National Center for Education Statistics followed by Joint Committee on Standards for Educational Evaluation. Other standards not used in this study are presented and discussed briefly.

Introduction

The United States Department of Education (USDOE) Office on Educational Technology (OET) states their goal is to maximize technology's contributions to improving education through developing national educational technology policy and implementing policy department-wide, to support the goals of No Child Left Behind (NCLB) (http://www.ed.gov/about/offices/list/os/technology/index.html). This is a primary driver for the discussion of evaluating educational technology as related to this study since NCLB is used to measure and determine funding in schools.

In 2005 OET produced the Department's 2004 National Education Technology Plan, which is based on input from thousands of students, educators, administrators, technology experts and education organizations. The plan cites the report was a response from Congress for an "update on the status of educational technology" and as field work progressed, it "became obvious that while the development of educational technology was thriving, its application in our schools often was not" (p. 10). The plan also describes how NCLB is "stimulating lively debate over how to, among other things "exploit new technologies and provide students with the technological and individual support they need" (p. 38).

Educational Technology

It is important to prepare students to participate in our technology-based, global society. Yet, to what degree is educational technology advancing student learning. There is need and importance of information technology for individual success in a global economy of the future, where working with information technologies (Selwyn and Brown, 2000). Thus, prompting investment in information technologies as a way of

delivering and extending education and training, whilst also building and developing nation-wide information structures is key (p. 661).

There is value of technology use in knowledge acquisition and education, emphasizing the inability of measuring interaction effects of technology in society and future economic ramifications (Aviram, 2000). Development and rapid spread of computers, fax machines, multimedia, mobile technologies, communications (cellular, satellite, fiber optics) and the Internet has had an impact on all levels of human life, including interpersonal communication, work, leisure activities, consumption, structures of organizations, the labor market, our understanding of knowledge and learning - and hence on our life styles and identities. It is also still too early to estimate and evaluate their combined effect, although it is evident that a dramatic and rapid technological revolution is taking place that has far reaching implications (p. 331-332).

Examples of estimating the effects of educational technology in the classroom has been explored by many researchers. Analysis of the impact of educational technology in 94 classrooms showed the impact of seven factors related to school technology (planning, leadership, curriculum alignment, professional development, technology use, teacher openness to change, and teacher non-school computer use) on five dependent measures in the areas of teacher skill (technology competency and technology integration), teacher morale, and perceived student learning (impact on student content acquisition and higher order thinking skills acquisition) (Baylor and Ritchie, 2002). The degree of teacher openness to change was a critical variable in that teachers who are open to change, whether this change is imposed by administrators or as a result of self-exploration, appear to easily adopt technologies to help students learn content and increase their higher-level

thinking skills and as these teachers incorporate these technologies, their own level of technical competence increases, as does their morale. Another influential variable they noted was the level of technology leadership and support for professional development. It appears administrators who promote the use of technology, not only in words but also in action, lend credence to a technology culture (p. 412).

A longitudinal study of the effectiveness of Microsoft PowerPoint over non-digital technologies in the classroom measured whether students liked and learned more from PowerPoint presentations than from overhead transparencies (Bartsch and Cobern, 2003). It was found that although students stated they preferred PowerPoint to basic transparencies, this finding was not replicated with ratings taken immediately after class and that just using text and PowerPoint presentations does not take more time than creating transparencies. In regards to the use of graphics in PowerPoint presentations used for instruction in the classroom, it was concluded that related graphics may be beneficial, but unrelated graphics are not helpful for enjoyment and graphics were not necessary for simple declarative information, but may help with more difficult, complex, or abstract concepts presented through lecture (p. 85).

Other authors have researched how schools have implemented educational technology in the classroom with mixed results. Over the last decade and a half, since the inception of the Internet, in spite of the great expense schools have incurred to upgrade systems that not long ago were state-of-the-art but are now going to be out of date or beginning to break down schools are no closer to academic dreams (Oppenheimer, 2003). Students are not demonstrating the academic achievement once hoped and the achievement gaps still exist between differing social groups (p. xiv-xv).

Some researchers have even offered policy frameworks to address equity issues with information technology. National Information Infrastructures policy addresses the issue of citizenship in an information age by returning to issues of opportunity especially for lower socio-economic groups or rural communities as there is wide-spread concern over the creation of a 'digital underclass' of 'information have-nots' (Selwyn and Brown, 2000, p. 675).

Expected and unexpected findings of studies on computers in K-12 classrooms preceding Oppenheimer (2003), show the historical lineage of research on educational technology in terms of access, use in schools, teaching and learning (Cuban, 2001). His research also found that in spite of both teachers and students using technology, they did so on the peripheral, and in the schools no clear and substantial evidence of students increasing their academic achievement as a result of using information technologies was found. Results revealed most teachers used technology for administrative tasks and teaching with more depth and breadth in creating student handouts and Internet searches, but less than 5 percent of teachers integrated computer technology into their regular curricular and instructional routines. Similarly, only five percent of the high schools students in this study had what the authors describe as intense tech-heavy experiences and most students typically used technology to gather information, play games and complete assignments. An unexpected outcome was that the overwhelming majority of teachers employed the technology to sustain existing patterns of teaching rather than for innovating (p. 133-134).

Cuban (2001) best addresses the usefulness and efficacy of computers by stating after twenty years of heavy promotion, serious investment of funds, and unswerving

support from a disparate coalition of parents, corporate executives, public officials, and educators, computers are ubiquitous in schools. He cites outcomes that suggest computers are merely part of normal classroom life making an analogy to computers in schools being as familiar an icon of schooling as homework and classroom clocks, and although teachers have been infrequent and limited users of the new technologies for classroom instruction, they have used the new technology basically to continue what they have always done (p. 176-179).

Educational technologies do not improve student outcomes or enhance learning or the teaching of social values (Aviram, 2000). According to Aviram, technology has not been integrated in educational systems and furthermore there is no clear evidence that it improves student outcomes, enhances desired modes of learning or teach desired social values. On these outcomes, Aviram characterizes the rapid and costly response of educational systems as "much ado about nothing" (p. 332).

Technology is also changing the economy, jobs, education, politics, and society (Drucker, 1994, p. 337-338). In research on federal support for K-12 technology in the classroom, a balanced perspective between the advocates and critics was achieved by considering federal government officials' lack of emphasis on moderation with educational technology (Chapman, 2000). Specifically, national policy makers' focus should be intended to address technology's use in multiple areas since computers in K-12 schools still have passionate advocates and equally passionate critics, but most educators and parents fall somewhere in between the two extremes. Chapman calls for an articulated middle ground by government officials since computers play an important role in modern education and all children should be exposed to this technology (p. 315).

Chapman (2000) further enumerates equity problems with technology in the classroom, often seen in urban schools. He notes that the computer 'haves' enjoy better student-to-computer ratios, better teacher training, higher software purchases and better technical support, stating most of these problems could be solved with more money, and that raises the biggest issue of all: equity. Chapman surmises that access to computers and the Internet in school is unfortunately correlated with socioeconomic status in the United States, and all the problems that are tied to lack of funds are worse in poor schools where student-to-computer ratios are higher, teacher training is rare, software purchases are fewer, and technical support is in short supply (p. 315).

Chapman (2000) discusses teaching kids how to use computers may be useful in preparing them for a job, but not in preparing them for being well-rounded citizens, the true goal of education (p. 336). He further criticizes technology, calling the evidence of technology to help young people learn in the classroom is equivocal, uncertain and methodologically flawed while it remains unknown if technology significantly improve learning (p. 330). This research which resounds with Oppenheimer (2003) and Cuban (2001).

The question remains whether using educational technology increases learning. Policy makers have authorized funds for school districts spend on technology without producing the expected results or increases in student performance. The next section further describes funding educational technology at federal and state levels and the importance for funding at risk students.

Funding Educational Technology and Urban Students

It is well known to educational researchers that both historical and current educational literature suggests there are inherent characteristics to urban K-12 schools resulting in lower minority student performance. Congress and the Executive Branch of the federal government have empowered U. S. and state departments of education to address these academic achievement problems through the legislative process and allocating funds for both education and technology. The No Child Left Behind (NCLB) Act of 2001 is an example of such national legislation.

The NCLB Act of 2001 was signed by President Bush on January 8, 2002 and subsequently passed into law by the 107th Congress (Public Law 107–110). Fusarelli (2004) stated the NCLB law passed with strong bipartisan support, and is a law which represents a significant shift in federal educational policy. The shift is from one of mere funding to being a major force in shaping the goals and outcomes of education as NCLB represents the most comprehensive federal intervention (some would say intrusion) into local education since the passage of the Elementary and Secondary Education Act. NCLB establishes a comprehensive framework of standards, testing, and accountability absent in previous federal legislation (p. 71-72).

In addition to NCLB, there are other federally mandated funds allocated for education and educational technology. On December 30, 2005, the President signed Public Law 109-149, providing fiscal year (FY) 2006 appropriations for the U.S. Department of Education. Of the $5,255,478,360 total appropriations under the Office of Elementary and Secondary Education, there were final appropriations of discretionary educational technology state grants totaling $272,250,000. Out of the $1,992,159,180

total appropriations for vocational and adult education, tech-prep education state grants had final discretionary appropriations of $104,753,880 (http://www.ed.gov/offices/OUS/Archives/archive.html).

Another example of additional funds used for technology fall under the reauthorizations of the Higher Education Act of 1965. These Title I funds supplement state and local funding for low achieving, impoverished children. The program finances the additional academic support and learning opportunities that are often required to help disadvantaged students progress along with their classmates. These funding streams have made their way down to the state and local levels. For FY 2006, the state of Ohio received Title I funding allocations of $410,460,543 (http://www.ed.gov/about/overview/budget/titlei/fy06/index.html#allocation).

Other state funds are earmarked for technology and at-risk students. The 2006 Fiscal Year Fourth Quarter Report from the Office of Budget and Planning, which is housed under the Ohio Department of Education's Chief of Staff illustrates these dollars spent in the areas of technology and at risk students. In the report, six sources of funds are listed (General Revenue Fund, Lottery Profits/Education, Federal Special Revenue, Revenue Distribution Fund, State Special Revenue, General Services Fund) totaling a FY 2006 budget of $10,123,247,546. While it would be unreasonably arduous to track all recipients receiving these dollars, it is more difficult to track total technology expenditures since many programs integrate technology and are not earmarked as technology programs with specific budgetary line items. Of the five largest program budgets for FY 2006 (Basic Aid Support, Special Education, Students-At-Risk, Pupil Transportation, School Food Services), certain expenditures stand out for technology, at-

risk students and educator training or preparation. For example, in FY 2006 the Ohio Educational Computer Network had expenditures of $31,047,362, targeted support for students at risk had expenditures of $717,273,981, and under teacher quality, educator training and preparation programs had expenditures of $143,139,932 and $6,401,614 respectively. These four areas account for $897,862,889, or 9.45% of the total FY 2006 budget (http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&TopicRelationID=1096&ContentID=14832&Content=14878).

Federal and state funding for technology and helping at risk students is evident. Tying funding streams to evaluation of educational technology however, has not been addressed specifically as part of the policy process. To address this void, evaluating educational technology using standards is presented in the next section.

Evaluating Educational Technology

Considering the vast number of dollars spent on educational technology, educational technology's effectiveness, funding educational technology for urban schools, and NCLB mandated accountability lead the debate on evaluation. There are many nationally recognized standards in addition to standards in the State of Ohio. The National Center for Education Statistics (NCES) and the Joint Committee on Standards for Educational Evaluation (JCSEE) are two sets of evaluation standards used in this study. Other standards were excluded since they are academic content standards or they do not offer adequate means to evaluate implementation of educational technology within a district outside of content standards.

National Center for Education Statistics (NCES)

The NCES is the primary entity of the US Department of Education tasked with collecting and interpreting educational data. Several NCES publications have resulted from collecting and interpreting data including The Nation's Report Card (http://nces.ed.gov/nationsreportcard/), The Condition of Education (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007064), and The Digest of Education Statistics (http://nces.ed.gov/programs/digest/2006menu_tables.asp).

In response to the importance of technology in educational and workplace settings, the National Assessment of Educational Progress (NAEP) initiated the Technology-Based Assessment (TBA) project in 1999 (http://nces.ed.gov/nationsreportcard/studies/tbaproject.asp). In the resulting publication, Problem Solving in Technology-Rich Environments (TRE) (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007466), several key questions related to assessment of technology skills were presented.

NCES also offers suggestions, tools and guidelines for assessing technology in elementary and secondary education. According to NCES, one of four key questions and indicators on Technology Planning and Policies is to measure if an educational technology plan is being evaluated (http://nces.ed.gov/pubs2003/tech_schools/chapter1_2.asp#7). NCES provides seven main indicators with additional factors for accountability. These indicators and additional accountability factors are listed in Appendix A.

The Joint Committee on Standards for Educational Evaluation (JCSEE)

The Joint Committee Standards for Educational Evaluation (1994) created revised program evaluation standards as a guide for "evaluating educational and training programs, projects, and materials in a variety of settings" (p. 1). In order to use the standards, the Joint Committee has identified and defined specialized terminology. These key terms include evaluation, program, project, materials, evaluation standard, evaluator, information, client and stakeholder. Figure 1 provides brief definitions of these terms. Appendix B lists recommendations and general steps for consideration when applying the standards and questions to help facilitate discussions when using JCSEE.

Figure 1

Standards Summary of The Joint Committee on Standards for Educational Evaluation

1.) Evaluation: The systematic investigation of the worth or merit of an object. For the purposes of conciseness, in this book the term program will be used generically to refer to the object of evaluation. Objects covered by these standards include educational and training programs, projects and materials.

2.) Program: Educational activities that are provided on a continuing basis.

3.) Project: Educational activities that are provided for a defined period of time. Projects that become institutionalized become programs.

4.) Materials: Content-related educational materials, including books, program guides, software, hardware, films, tapes, and other tangible instructional and training products.

5.) Evaluation Standard: A principle mutually agreed to by people engaged in the professional practice of evaluation, that, if met, will enhance the quality and fairness of an evaluation.

6.) Evaluator: Used broadly in this book to refer to anyone who conducts an evaluation.

7.) Information: Numerical and non-numerical presentations - including facts, narratives, graphs, pictures, maps, displays, statistics, and oral reports - that help illuminate issues, answer questions, and increase knowledge and understanding of a program or other object.

8.) Client: The individual, group, or organization that commissions the evaluator(s), that is, the evaluation contractor.

9.) Stakeholder: Individuals or groups that may be involved in or affected by a program evaluation.
(p. 3)

Other Technology Standards Used in Schools

There are many other technology standards used in K-12 school districts which were not used in this study. Two examples are The International Society for Technology in Education (ISTE) National Educational Technology Standards (NETS) for students, teachers and administrators, and the Ohio Department of Education's technology standards.

The NETS for students are frameworks and standards to guide in establishing enriched learning environments supported by technology (http://cnets.iste.org/students/index.html). These standards are divided into six broad categories which are to be introduced, reinforced and mastered by students with indicators (http://cnets.iste.org/students/s_stands.html).

The NETS for Teachers focus on preservice teacher education and define the fundamental concepts, knowledge, skills and attitudes for applying technology in educational settings (http://cnets.iste.org/teachers/t_stands.html). The NETS standards for administrators follow on the success of the NETS for students and teachers (http://cnets.iste.org/administrators/a_overview.html).

NETS provides a fundamentally academic content standards or curriculum-based framework and as such were not used in this research. There are different assessment and evaluation standards in NETS for teachers and administrators. Using NETS assessment and evaluation standards for evaluating the overall implementation of technology within this study would be appropriate only if tying the evaluation to NETS student standards.

The State of Ohio Department of Education also has a set of technology standards (http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?Page=3&Topic

RelationID=339&ContentID=1279&Content=41281). These standards are part of the comprehensive academic content standards and are out of the scope of this research study since they do not address implementation of technology.

The Ohio Technology Standards are correlated in against other national standards including AECT, the American Association of School Libraries (AASL), the International Technology Education Association (ITEA) and the Association for Educational Communications and Technology (AECT), which are designed for accreditation according to National Council for Accreditation of Teacher Education (NCATE) standards (http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?). Since the Ohio Technology Standards are academic content standards, these other standards correlated with them were also ruled outside the scope of this research.

While these standards are used and widely accepted, they were not used in this study for two primary reasons. First, JCSEE provide a more robust framework which are specifically designed to evaluate educational programs. Secondly, other standards mentioned are designed for preservice, accreditation or to student performance use. While these standards may be valid and valuable, they did not fit with the design and intent of this study.

JCSEE standards are organized into four groups of seven utility, three feasibility, eight propriety and twelve accuracy standards, which are listed in Table 1. These standards were used as a secondary set of data points to gain better understanding of the relationship between perceptions and educational technology evaluation and are summarized in Table 1.

Utility standards guide evaluations so they will be “informative, timely and influential … Overall, the utility standards define whether an evaluation serves the practical information needs of a given audience.” Feasibility standards recognize if evaluations are conducted in a “natural, as opposed to a laboratory, setting and consume valuable resources… call for evaluations to be realistic, prudent, diplomatic, and economical.” Propriety standards, reflects how evaluations “affect many people in a variety of ways… require that individuals conducting evaluations learn about and obey laws concerning such matters as privacy, freedom of information, and the protection of human subjects.” Accuracy standards determine whether an evaluation has “produced sound information… These standards are intended to ensure that an evaluation will reveal and convey accurate information about the program's merit and/or worth” (p. 5-6).

Table 1

Joint Committee Evaluation Standards Attribute Groups

UTILITY STANDARDS	FEASIBILITY STANDARDS	PROPRIETY STANDARDS	ACCURACY STANDARDS
U1 Stakeholder Identification	F1 Practical Procedures	P1 Service Orientation	A1 Program Documentation
U2 Evaluator Credibility	F2 Political Viability	P2 Formal Agreements	A2 Context Analysis
U3 Information Scope and Selection	F3 Cost Effectiveness	P3 Rights of Human Subjects	A3 Described Purposes and Procedures
U4 Values Identification		P4 Human Interaction	A4 Defensible Information Sources
U5 Report Clarity		P5 Complete and Fair Assessment	A5 Valid Information
U6 Report Timeliness and Dissemination		P6 Disclosure of Findings	A6 Reliable Information
U7 Evaluation Impact		P7 Conflict of Interest	A7 Systematic Information
		P8 Fiscal Responsibility	A8 Analysis of Quantitative Information
			A9 Analysis of Qualitative Information
			A10 Justified Conclusions
			A11 Impartial Reporting
			A12 Metaevaluation

Summary

This chapter reviewed relevant literature on competing views of the effectiveness of educational technology in K-12 classrooms, educational technology funding in urban schools and national standards for the evaluation of educational technology. This discussion of literature brings credibility to the purpose of this study in investigating the relationships of faculty and administrators' perceptions in the evaluation of educational technology in an urban district using demographics to two sets of national evaluation standards.

CHAPTER III

RESEARCH METHODOLOGY

The purpose of this study was to investigate the evaluation of educational technology in an urban K-12 school district. Ratings of faculty and administrators' perceptions in the evaluation of educational technology were gathered using data from self-reported surveys. These data included demographics and two sets of national evaluation standards. This study used these data to determine if significant relationships existed between the perceptions and ratings on the standards being used in evaluating educational technology within the same district.

Sample

The participants in this research study were a combined total of 43 administrators and faculty in an urban school district located within a major metropolitan area of Ohio. According to the State of Ohio Department of Education (ODE), the school district's designation is Continuous Improvement, but not showing Adequate Yearly Progress (AYP). The ODE Guide for Ohio's Report Card System details five report card designations (Excellent, Effective, Continuous Improvement, Academic Watch and Academic Emergency) which are used to "show the progress of districts and schools

using four measures of performance" (p. 4). The four measures are State Indicators, Performance Index, Growth Calculation and AYP. Schools and districts meeting higher percentages of indicators receive higher designations. AYP "rewards the achievement of all student groups in a school or district … detailing the percentage of students who must score proficient or above in reading and mathematics" (p. 5). AYP goals increase over time based on a formula in federal law, with schools and districts meeting AYP by meeting or exceeding targets within specified timeframes or through safe harbor provision (p. 6).

The district does not meet achievement levels of 75% for reading, writing and mathematics in 3rd through 8th grade. On the 10th and 11th grade Ohio Graduation Test, the district met or exceeded in 40% of the indicators total. The district's attendance rate exceeded the state's minimum threshold but it did not meet the state's graduation rate. Socioeconomic indicators of the students in the district include more than 70% African American, less than 25% White, more than 50% economically disadvantaged and more than 15% of students with disabilities.

Research participant selection was limited to administrators or faculty currently employed in the district and members of the board of education, superintendents, information technology directors and assistants, principals, vice-principals, teachers, teaching assistants, laboratory technicians, librarians and tutors.

Validity and Reliability

A self-developed survey (see Appendix C) was used since the researcher was unable to find a similar study which had an instrument to evaluate educational technology policy.

A small pilot study (N=6) was conducted in October 2007 to elicit feedback on the survey in another Ohio urban K-12 school district to verify, in general, the instrument's construct validity. Both genders and roles of faculty and administrators were represented in the data from randomly chosen respondents who participated in the pilot study. Half the age and educational range, a third of the years of experience and both responses for awareness of standards were also represented in the pilot study data. Additionally, five questions were presented for qualitative, open-ended feedback, listed in Figure 2.

Figure 2

Pilot Study Feedback Questions

1. What could be improved with the format of this survey?
2. What could be improved with the wording of the directions in this survey?
3. What could be improved with the wording of the statements (content) of this survey?
4. What are your thoughts on the scale used (SD to SA) in the survey?
5. What else would you like to tell me about this survey?

The pilot study elicited several results. The respondents valued the "use of substituting terms" (Part II, Section B) and the "odd number of responses" in the Likert scale. Respondents also commented the survey was "easy to follow", "easy to answer",

and “easy to understand” despite “evaluating certain criteria” which caused one respondent to “really take some time to determine how strongly I felt”. The sample size was small (N=6), but did provide enough data to run preliminary statistics.

Part I of the survey asked participants for demographic characteristics and awareness of two sets of standards in two subsections. Respondents’ demographic information including age, gender, education, years of experience and primary role within the district comprise Subsection A of Part I. Awareness of National Center for Educational Statistics and Joint Committee on Standards for Educational Evaluation’s program evaluation standards comprise Subsection B of Part I.

Part II of the survey instrument had three subsections, with a total of 47 quantitative questions and one qualitative question. Subsections A and B of Part II were designed to gather data according to evaluation standards from the National Center for Education Statistics (NCES) and Joint Committee Standards on Educational Evaluation (JCSEE). All statements were presented neutrally, and the JCSEE standards had tenses changed to pluralize each statement where appropriate. Subsection C included an open-ended qualitative question for feedback or opinions not captured in the close ended questions.

Subsection A in Part II of the instrument consists of 17 statements from each of the NCES standards answering a key question: Is the plan being evaluated ? It instructs respondents to rate their perceptions on a five-point Likert scale ranging from (1) Strongly Disagree, (2) Disagree, (3) Uncertain, (4) Agree to (5) Strongly Agree.

Subsection B in Part II of the survey measures 30 JCSEE standards using a five point Likert scale with the range being 30 to 150 for responses of (1) Strongly Disagree,

(2) Disagree, (3) Uncertain, (4) Agree and (5) Strongly Agree. The JCSEE recommended a response scale of "Was Addressed", "Partially Addressed", "Not Addressed" and "Not Applicable". These were changed to a five point Likert scale to have consistency in the responses between both subsections in Part II of the survey.

In subsection C of Part II, a qualitative question was used to provide feedback on the self-developed instrument.

Data Collection Procedures

Permission to conduct the research in the district was obtained in October 2007. Accompanied by a letter describing the study (Appendix D), a research application and copies of the survey instrument and consent form were be submitted to Cleveland State University's Institutional Review Board (IRB) for approval during the Spring, 2008 academic semester.

At the time of data collection, survey packets were presented to the district's Director of Information Technology. Each survey was accompanied by the consent letter which explained the study, political risks and assurances of confidentiality and anonymity. Specific instructions were given to not write respondents' names, ID number or any other identifier on either of the envelopes. Confidentiality was guaranteed by the respondents not putting their name on the surveys. Anonymity was assured by giving respondents instructions to seal the survey and consent form in separate envelopes, both of which were provided. Completed surveys were returned to the district's central office and picked up at weekly intervals until all surveys had been returned.

Correlational Research Design

Demographic information (age, gender, highest level of education, years of experience and current role) from Part I of the survey instrument were independent variables. Age and years of experience are interval level data, highest level of education are ordinal level data, and gender and current role are nominal level data. Awareness of NCES and JCSEE evaluation standards are nominal dependent variables.

NCES and JCSEE standards data from Part II of they survey instrument are dependent, interval level data. These data were treated as interval since the questions were combined for analysis. Since the NCES are nationally adopted and the JCSEE are international peer-reviewed standards, concerns of reliability, content validity, construct validity and concurrent criterion-related validity were addressed by using these standards in the survey.

The demographics were selected to assess correlations between awareness of the standards by each variable. For instance, it was of interest to determine if there was a correlation between the level of education and awareness of NCES standards. Another example would be testing for a correlation between the highest level of education and awareness of JCSEE standards. Age and gender demographics were only used as descriptive statistics to describe the sample of respondents who participated in the study.

Analysis of the demographics also provided details of awareness of standards by groups of respondents. For instance, by analyzing faculty and administrators separately, the results of greater or lesser levels of awareness could be determined. If these values failed to be significant by group, the data from faculty and administrators could be combined to have a larger sample size to perform additional analysis.

The analysis of data from the NCES and JCSEE were expected to yield different results. For instance, it was logical to deduce that data from NCES standards would be significant for those in the district since they come from the US Department of Education and are fundamentally correlated with the Ohio Technology Standards. It was unknown how awareness and significance of the JCSEE standards would compare to the NCES standards. It was also unknown if there would be significant differences in either set of standards by grouping of faculty or administrators.

Data Analysis

Table 2 presents a statistical summary of treatment of the data for this study. Variables and their associated data type and procedures were categorized by the research questions.

Data in this study was analyzed using SPSS (version 14.0). Descriptive statistical analysis included frequencies, percentage of distributions of scores, means and standard deviations. For correlation analysis, point-biserial was used for nominal variables, Spearman *r* was used for ordinal data and Pearson *r* was used for interval level data. Paired sample t tests were used to compare NCES and JCSEE data on specific questions related to implementation and evaluation.

Table 2

Statistical Summary of Treatment of Data

Research Question	Variables	Type	Procedure
1	NCES Standards Awareness	Nominal	Descriptive
	JCSEE Standards Awareness	Nominal	Descriptive
2	NCES Standards Awareness	Nominal	
	NCES Standards Data	Interval	Spearman r / r^2
3	JCSEE Standards Awareness	Nominal	
	JCSEE Standards Data	Interval	Spearman r / r^2
4	NCES Standards Data	Interval	
	Age	Interval	Pearson r
	Gender	Nominal	Point-biserial
	Highest Level of Education	Ordinal	Spearman r
	Years of Experience	Interval	Pearson r
	Primary Role	Nominal	Point-biserial
5	JCSEE Standards Data	Interval	
	Age	Interval	Pearson r
	Gender	Nominal	Point-biserial
	Highest Level of Education	Ordinal	Spearman r
	Years of Experience	Interval	Pearson r
	Primary Role	Nominal	Point-biserial
6	NCES Standards	Interval	
	JCSEE Standards	Interval	Paired Samples t test

Summary

Chapter III described the data and procedures used in this study to test the hypotheses that there would be statistically significant relationships between the identified variables. Design and use of the self-developed survey instrument were also provided in this chapter.

CHAPTER IV

RESULTS AND FINDINGS

Demographic Data

Role, gender, age, education and years of experience demographic data for respondents are presented in this section. There were two groups surveyed in this study: administrators and faculty or staff. Of the 75 surveys distributed, 43 were returned for an overall response rate of 57%. Demographic data were collected in Part I, Section A of the survey, and Tables in this section show summaries of these demographic data.

Role and Gender

Table 3 shows frequencies and percentages of respondents by gender and role. Of the total sample who responded to the gender and role questions (N=42) approximately two thirds were faculty and staff (N=28), while one third were administrators (N=14). A majority of the respondents were female (N=30) and a minority were male (N=12). With respect to gender equity issues, it is unknown if this gender distribution is characteristic within K-12 education or urban districts.

Table 3

Frequency and Percentage of Respondents by Role and Gender

Role	Frequency	Percentage
Faculty & Staff	28	66.7
Female	24	85.7
Male	4	14.3
Administrators	14	33.3
Female	6	42.9
Male	8	57.1

Age

Table 4 shows frequencies, percentages and standard deviations of respondents by age and role. For those who reported their age (N=40) the total distribution shows a mean age of 42 years and the majority (N=15) were between the ages of 30 and 39 years, regardless of role. The mean age for faculty and staff (N=26) was 39.7 years while the mean age of administrators (N=14) was 46.4 years.

Table 4

Frequency, Percentage, Mean and Standard Deviation of Respondents (N=40) by Age and Role

Age Range (Years)		Frequency	Respective Percentages	Mean	Standard Deviation	Minimum/ Maximum
Less than 30		5	12.5	26.8	2.0	25-29
	Faculty & Staff	5	100.0	27.0	2.0	25-29
	Administrators	0	0.0	0.0	0.0	0
30 - 39		15	37.5	34.3	2.7	30-39
	Faculty & Staff	9	60.0	34.0	3.0	30-39
	Administrators	6	40.0	34.0	3.0	31-37
40 - 49		9	22.5	45.0	2.4	40-48
	Faculty & Staff	7	26.7	45.0	3.0	40-48
	Administrators	2	14.2	44.0	1.0	44-45
50 - 59		9	22.5	55.7	2.1	53-59
	Faculty & Staff	5	55.5	55.0	2.0	53-57
	Administrators	4	44.4	57.0	2.0	55-59
Over 60		2	5.0	62.5	0.7	62-63
	Faculty & Staff	0	0.0	0.0	0.0	0
	Administrators	2	100.0	62.5	1.0	62-63
Totals		40	100.0	42.0	11.1	25-63
	Faculty & Staff	26	65.0	39.7	10.1	25-57
	Administrators	14	35.0	46.4	12.0	31-63

Education

Table 5 shows frequencies and percentages of respondents' education level. For the total sample (N=43) a majority (48.8%) had earned a master's degree plus 30 or more credit hours. None of the respondents reported completing a doctorate, and all administrators had completed a master's degree.

Table 5

Frequency and Percentage of Respondents' Education Level (N=43)

Education	Frequency	Relative Percentages
Bachelor's	8	18.6
Faculty & Staff	8	27.6
Administrators	0	0.0
Master's	5	11.6
Faculty & Staff	4	13.8
Administrators	1	7.1
Master's + 10	5	11.6
Faculty & Staff	4	13.8
Administrators	1	7.1
Master's + 20	4	9.3
Faculty & Staff	3	10.3
Administrators	1	7.1
Master's + 30	21	48.8
Faculty & Staff	10	34.5
Administrators	11	78.6

Years of Experience

Table 6 shows frequencies, percentages, means and standard deviation of respondents' by years of experience. For the total sample (N=43), a majority (N=16) had less than 10 years of experience ($\overline{X} \pm SD = 6.2 \pm 2.9$); for faculty and staff (N=29) a majority (N=16) had 10-19 years of experience ($\overline{X} \pm SD = 13.0 \pm 3.0$); while for administrators (N=14), a majority (N=7) had less than 10 years of experience ($\overline{X} \pm SD = 6 \pm 3.0$).

Table 6

Frequency, Percentage, Mean and Standard Deviation of Respondents' Years of Experience (N=43)

Years Experience	Frequency	Relative Percentages	Mean	Standard Deviation	Minimum/ Maximum
Less than 10	16	37.2	6.2	2.9	2-9
Faculty & Staff	9	56.2	7.0	3.0	2-9
Administrators	7	43.8	6.0	3.0	2-9
10 - 19	13	30.3	12.5	2.7	10-18
Faculty & Staff	11	84.6	13.0	3.0	10-18
Administrators	2	18.2	11.0	1.0	10-12
20 - 29	8	18.7	24.4	2.1	22-28
Faculty & Staff	7	87.5	25.0	2.0	22-28
Administrators	1	12.5	22.0	0.0	22-22
More than 30	6	13.9	33.7	3.5	30-40
Faculty & Staff	2	33.3	32.0	0.0	32-32
Administrators	4	66.7	36.0	4.0	33-40

Analysis of Research Questions

This section provides summary of the data by research question. Appendix E shows summaries of the means, standard deviations and frequencies of survey responses for NCES and JCSEE items overall and by role. The Likert scale for these responses was coded as Strongly Disagree=1, Disagree=2, Undecided=3, Agree=4 and Strongly Agree=5.

Research questions two through six addressed the relationships between multiple variables. Due to the nature of the number of variables analyzed in each of these research questions, only the significant findings are shown in the tables for each question.

Research Question 1

What are the district's perceptions towards national standards in the evaluation of educational technology ?

Table 7 shows the frequencies and percentages of all respondents' NCES and JCSEE standards awareness overall, and by gender and role. These data were from Part I, Section B of the survey, with Yes=Aware and No=Not Aware. Regardless of role or gender, a majority of administrators (61.5%) compared to faculty and staff (34.5%) reported being aware of NCES standards. For JCSEE standards, a majority of administrators (93.1%) and faculty and staff (84.6%) were not aware of JCSEE standards regardless of role or gender.

Table 7

Frequency and Percentage of All Respondents' NCES and JCSEE Awareness (N=42)

NCES Standards	Aware		Not Aware	
	Frequency	Percentage	Frequency	Percentage
All	18	42.9	24	57.1
Female	12	41.4	17	58.6
Male	6	50.0	6	50.0
Faculty & Staff	10	34.5	19	65.5
Administrators	8	61.5	5	38.5

JCSEE Standards	Aware		Not Aware	
	Frequency	Percentage	Frequency	Percentage
All	4	9.5	38	90.5
Female	2	6.9	27	93.1
Male	2	16.7	10	83.3
Faculty & Staff	2	6.9	27	93.1
Administrators	2	15.4	11	84.6

Research Question 2

Is there a significant relationship between the district's perceptions of evaluation of educational technology to NCES Standards ?

The relationship between the district's perceptions of evaluation of educational technology to NCES standards was calculated using the Spearman *r* statistic. The result was derived by running correlations between the NCES standards awareness variable and the NCES survey response data for all respondents. Four significant negative correlations were found as shown in Table 8. Although significant, these results only showed a low relationship as illustrated by the r^2 which only explain 7.6% to 12.5% of the variability.

Table 8

NCES Standards Awareness and NCES Survey Responses Spearman Correlations

Number	Question	Spearman *r*	r^2
NCES_02	There is a technology plan review cycle (including timelines and reporting) and it is implemented	-.275*	0.076
NCES_04	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress	-.312*	0.097
NCES_11	Evaluation components are evaluated as part of a review cycle	-.353*	0.125
NCES_13	There is a provision for revising the technology plan	-.275*	0.076

* Significant ($p<.05$)

Research Question 3

Is there a significant relationship between the district's perceptions towards evaluation of educational technology to JCSEE Standards ?

The relationship between the district's perceptions of evaluation of educational technology to JCSEE standards was calculated using the Spearman *r* statistic. The result was derived by running correlations between the nominal JCSEE standards awareness variable and the interval JCSEE survey response data for all respondents. No significant correlations were observed.

Research Question 4

Is there a significant relationship between the district's faculty and administrators' demographic characteristics and the district's perceptions towards evaluation of educational technology using NCES Standards ?

The relationship between the district's demographic characteristics and perceptions of educational technology evaluation using NCES standards for faculty, staff and administrators was calculated using multiple statistics. The Pearson *r* statistic was calculated to show the correlation between the interval variable of NCES standards data and the interval variables of age (Table 9) and years of experience (Table 10). The Spearman *r* statistic was calculated to show the correlation between the interval variable of NCES standards data and the ordinal variable of education level (Table 11). A point biserial statistic was calculated to show the correlation between the interval variable of NCES standards data and the nominal variables of gender and role with no significant results found.

Table 9

NCES Survey Response Pearson Correlations by Respondents' Age

Number	Question	Pearson *r*	r^2
NCES_01	There is evidence of evaluation in our technology plan	.291*	0.085
NCES_02	There is a technology plan review cycle (including timelines and reporting) and it is implemented	.408*	0.166
NCES_10	Records of how technology is being utilized are evaluated as part of the technology plan review cycle	.273*	0.075
NCES_13	There is a provision for revising the technology plan	.329*	0.108

* Significant ($p<.05$)

Although significant, these results only showed a moderate relationship as illustrated by the r^2 values which only explain 7.5% to 16.6% of the variance.

Table 10

NCES Survey Response Pearson Correlations by Respondents' Experience

Number	Question	Pearson *r*	r^2
NCES_01	There is evidence of evaluation in our technology plan	.257*	0.066
NCES_02	There is a technology plan review cycle (including timelines and reporting) and it is implemented	.257*	0.066
NCES_12	Measures of progress are evaluated as part of the technology plan review cycle	.280*	0.078

* Significant ($p<.05$)

Although significant, these results only showed a low relationship as illustrated by the r^2 values which only explain 6.6% to 7.8% of the variance.

Table 11

NCES Survey Response Spearman Correlations by Respondents' Education Level

Number	Question	Spearman *r*	r^2
NCES_01	There is evidence of evaluation in our technology plan	.294*	0.086
NCES_02	There is a technology plan review cycle (including timelines and reporting) and it is implemented	.369**	0.136
NCES_04	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress	.354**	0.125
NCES_07	Community support is measured as part of the technology plan review cycle	.323*	0.104
NCES_08	Implementation benchmarks are measured as part of the technology plan review cycle	.425**	0.181
NCES_14	The results of reviewing of the technology plan is detailed in a report	.326*	0.106
NCES_17	The district is achieving its planned technology goals	.267*	0.071

* Significant ($p<.05$)
* Significant ($p<.01$)

Although significant, these results only showed a moderate relationship as illustrated by the r^2 values which only explain 7.1% to 18.1% of the variance.

Research Question 5

Is there a significant relationship between the district's faculty and administrators' demographic characteristics and the district's perceptions towards evaluation of educational technology using JCSEE Standards ?

The relationship between the district's demographic characteristics and perceptions of educational technology evaluation using JCSEE standards for faculty, staff and administrators was calculated using multiple statistics. The Pearson *r* statistic was calculated to show the correlation between the interval variable of JCSEE standards data

and the interval variables of age (Table 12) and years of experience (Table 13). The Spearman *r* statistic was calculated to show the correlation between the interval variable of JCSEE standards data and the ordinal variable of education level (Table 14). A point biserial statistic was calculated to show the correlation between the interval variable of JCSEE standards data and the nominal variables of gender and role, with no significant results found.

Table 12

JCSEE Survey Response Pearson Correlations by Respondents' Age

Number	Question	Pearson *r*	r^2
JCSEE_20	The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.	-.295*	0.087

* Significant ($p<.05$)

Although significant, these results for this research question only showed a moderate relationship as illustrated by the r^2 value which only explain 8.7% of the variance.

Table 13

JCSEE Survey Response Pearson Correlations by Respondents' Experience

Number	Question	Pearson *r*	r^2
JCSEE_20	The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.	-.280*	0.078

* Significant ($p<.05$)

Although significant, these results for this research question only showed a moderate relationship as illustrated by the r^2 value which only explain 7.8% of the variance.

Table 14

JCSEE Survey Response Spearman Correlations by Respondents' Education Level

Number	Question	Spearman *r*	r^2
JCSEE_02	The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.	.265*	0.070
JCSEE_03	Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of students and other specified stakeholders.	.319*	0.102
JCSEE_11	Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.	.279*	0.078
JCSEE_17	Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.	-.258*	0.067
JCSEE_30	The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.	.282*	0.080

* Significant ($p<.05$)

Although significant, these results for this research question only showed a moderate relationship as illustrated by the r^2 values which only explain 6.7% to 10.2% of the variance.

Research Question 6

Is there a significant difference between the district's responses on NCES and JCSEE Standards towards implementation or evaluation of educational technology ?

Paired samples t test statistics were calculated for groups of NCES and JCSEE implementation and evaluation variables. The samples are related in that they are selected from the same population. Table 15 shows a summary of the NCES and JCSEE survey questions compared on implementation and evaluation. These survey items were categorized by these groups based on the nature of what these items were intended to measure. Some of these survey items directly referenced either implementation or evaluation. Other survey items were classified as implementation or evaluation based on the nature of what they were measuring, despite the language in the specific question. For instance, the researcher classified JCSEE_4 and JCSEE_23 as evaluation measures due to the reference of 'value', but these survey items could be classified differently depending on interpretation. Therefore, there are not equal numbers of items being compared between implementation and evaluation groups, or between NCES and JCSEE standards within each group.

Table 15

Survey Questions Used by Group for t Test Statistics

Group	Standard	Survey Questions
Implementation	NCES	5, 8, 10, 12, 17
	JCSEE	11, 15, 20, 28, 30
Evaluation	NCES	1, 4, 6, 7, 11
	JCSEE	1, 3, 4, 5, 7, 23, 25, 26, 27

The analysis done for this research question on NCES and JCSEE implementation variables resulted in 22 significant *t* scores out of 25 pairs of variables. This means 88%

of the implementation variable pairs resulted in significant differences. The analysis on NCES and JCSEE evaluation variables resulted in 38 significant *t* scores out of 45 pairs. This means 84.4% of the evaluation variables resulted in significant differences.

Using the difference in the mean scores for evaluation pair NCES_07 and JCSEE_25 helps explain the meaning of these results. The mean score for survey question JCSEE_25 was 4.60 (N=42). The mean score for NCES_07 was 3.07 (N=42), representing a decrease in the mean of -1.524 between these pairs. The mean score for JCSEE_25 was closer to the 'Strongly Agree' level of response for this question, while the mean for NCES_07 was closer in proximity to the 'Undecided' level of response for this question. Appendix F shows the mean differences and standard deviations for each significant paired samples t test statistics from the NCES and JCSEE implementation and evaluation variables.

CHAPTER V

DISCUSSION

The results from the data analysis provided results for addressing the research questions in this study. A summary of findings is provided before each research question is addressed, followed by discussion of the implications for practice and recommendations for further research. Items referred to by NCES variable names correlate to their survey questions in Part II, Section A, while those items referred to by JCSEE variable names correlate to their survey questions in Part II, Section B.

Summary of Findings

Higher levels of awareness and statistically significant relationships existed for NCES standards as compared to JCSEE standards. Between these two sets of standards, although respondents' level of awareness for NCES was low (42.9%), the majority of all respondents (90.5%) were not aware of JCSEE standards. Statistically significant relationships existed between the district's perception of educational technology to NCES and JCSEE standards.

Overall, lower levels of awareness for perceptions toward evaluation of educational technology are seen in the data analysis and results of JCSEE standards.

Age, experience and education demographic characteristics were significant between perceptions towards evaluation of educational technology using NCES standards. Experience and education demographic characteristics were significant between perceptions towards evaluation of educational technology using JCSEE standards.

Of greater interest are the statistically significant results seen between responses on survey items for NCES and JCSEE standards towards implementation or evaluation of educational technology. This is important since the significant results exist regardless of the type of standards (NCES, JCSEE) or the district's awareness of the standards.

Research Question 1

What are the district's perceptions towards national standards in the evaluation of educational technology ?

Respondents were asked if they were aware or not aware of NCES and JCSEE standards. The analysis of these data show there is a greater awareness of NCES standards as compared to JCSEE standards, regardless of role or gender. Administrators were the only category of respondents surveyed who reported greater awareness of NCES standards awareness, and male administrators' NCES awareness was equally divided (50%). A large majority of all respondents (90%) reported being not aware of JCSEE standards, with the demographic category of male respondents reporting the highest percentage (16.7%) of being aware.

The findings of respondents being largely not aware of JCSEE standards was expected. This was expected since NCES are national standards, as opposed to JCSEE standards, which are international. This relationship is important to this study since it will be reflected in the analysis of data in addressing other research questions.

Research Question 2

Is there a significant relationship between the district's perceptions of evaluation of educational technology to NCES Standards ?

Significant relationships between the district's perceptions of evaluation of educational technology to NCES standards in the district were evident in four areas. These results were related to questions of a technology plan review cycle, identification of evaluation indicators, components of evaluation being part of a review cycle and a provision for reviewing the plan. While significant *r* values ranged from -.275 to -.353, these only explained 7.6% to 12.5% of the variance for survey items NCES_02, NCES_04, NCES_11 and NCES_13.

According to survey responses, the lack of relationships between the district's perceptions of evaluation of educational technology to the other 13 NCES standards indicates either missing evaluation components or inaccurate perceptions within the district. Inconsistencies in respondents' responses exist in the areas of accountability, technical or student performance, community support, implementation benchmarks, budget, record keeping, progress measures, reporting, availability of results, updating the plan and overall achievement of planned technology goals. Aside from the unexplained variances in these areas of the study, survey items which overlap but are not significant are also unexplained. For instance, NCES_01, "There is evidence of evaluation in our technology plan" was not significant, despite the fact that NCES_11, "Evaluation components are evaluated as part of a review cycle" which is a similar question, but had a statistically significant *r* value of -.353. This presents an opportunity for further research into perception of evaluation or missed evaluation components within the district.

Research Question 3

Is there a significant relationship between the district's perceptions towards evaluation of educational technology to the JCSEE Standards ?

No significant relationships between the district's perceptions towards evaluation of educational technology to the JCSEE standards. These findings are not surprising given the lack of awareness of the JCSEE standards within the district. Further research into JCSEE standards can provide insight into the complete absence of these components and possibly help explain the lack of awareness of these standards in the district. The JCSEE standards provide not only a larger framework, but greater overall depth in evaluation efforts and increased measures for evaluation components which are not represented in NCES.

Research Question 4

Is there a significant relationship between the district's faculty and administrators' demographic characteristics and the district's perceptions towards evaluation of educational technology using NCES Standards ?

In analyzing the data for relationships between the district's faculty and administrators' demographic characteristics and the district's perceptions towards evaluation of educational technology using NCES standards, significant results were found in the categories of age, experience and education.

From the data analysis for this research question, three of the survey items with significant results, NCES_02, NCES_04 and NCES_13, were also significant for research question two. This can be interpreted as these survey items carry greater meaning or there was greater consistency in responses to these questions. Survey items NCES_01

"There is evidence of evaluation in our technology plan" and NCES_02 "There is a technology plan review cycle (including timelines and reporting) and it is implemented" were evident in all three categories of the significant results for age, experience and education.

In the overall data set, analysis by age for this research question resulted in four significant Pearson *r* values from .273 to .408, but explained only 7.5% to 16.6% of the variance of survey items NCES_01, NCES_02, NCES_10 and NCES_13. Analysis by experience for this research question resulted in three significant Pearson *r* values from .257 to .280, but explained only 6.6% to 7.8% of the variance for survey items NCES_01, NCES_02 and NCES_12. Analysis by education level for this research question resulted in seven significant Spearman *r* values from .267 to .425, but explained only 7.1% to 18.1% of the variance for survey items NCES_01, NCES_02, NCES_04, NCES_07, NCES_08, NCES_14 and NCES_17.

Three of the survey items in this data set resulted in highly significant ($p < .01$) results. These items' Spearman *r* values from .354 to .425, but explained only 12.5% to 18.1% of the variance for these survey items. These results indicate education level presented the strongest correlations in the overall study. Table 16 presents the detail of these questions for discussion.

Table 16

Strongest NCES Correlations by Respondents' Education Level

Number	Question
NCES_02	There is a technology plan review cycle (including timelines and reporting) and it is implemented
NCES_04	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress
NCES_08	Implementation benchmarks are measured as part of the technology plan review cycle

From these results in this study, educational level can play an important role in evaluation of educational technology. While not directly addressed in this study, it is reasonable to also assume formal professional development may also play a role in evaluation of educational technology as indicated by the classification of respondents who have attained additional hours beyond their highest degree (ie – Master's +30).

Research Question 5

Is there a significant relationship between the district's faculty and administrators' demographic characteristics and the district's perceptions towards evaluation of educational technology using JCSEE Standards ?

In analyzing the data for relationships between the district's faculty and administrators' demographic characteristics and the district's perceptions towards evaluation of educational technology using JCSEE standards, significant results were found in the categories of experience and education. In the overall data set, analysis by experience for this research question resulted in a significant *r* value of -.280 for survey item JCSEE_20 "The context in which the program exists should be examined in enough

detail, so that its likely influences on the program can be identified" but only explained 7.8% of the variance for this survey item.

Analysis by years of experience for this research question resulted in five significant Spearman *r* values from -.258 to .319, but explained 6.7% to 10.2% of the variance of survey items JCSEE_02, JCSEE_03, JCSEE_11, JCSEE_17 and JCSEE_30. Table 17 presents the detail of these questions for discussion. The results of these survey items present opportunity for more in depth analysis as do the findings in research question four.

As seen in research question four, unexpected results were found within JCSEE data. This can be interpreted that demographics such as education level and years of experience influence the outcome of the standards awareness. Since over 90% of the district was not aware of these standards, the significant results on these survey items is important to recognize, since it can be interpreted that these standards and the data from the survey indicate the possible need for greater understanding of the evaluation of technology in the district.

Table 17

Strongest JCSEE Correlations by Respondents' Years of Experience

Number	Question
JCSEE_02	The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.
JCSEE_03	Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of students and other specified stakeholders.
JCSEE_11	Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.
JCSEE_17	Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.
JCSEE_30	The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.

Research Question 6

Is there a significant difference between the district's responses on NCES and JCSEE Standards towards implementation or evaluation of educational technology ?

To further interpret the data, differences between NCES and JCSEE data in the categories of implementation and evaluation were compared using paired sample *t* tests. Analysis of survey questions in groups of implementation and evaluation bridged the gap between the two sets of standards.

The t test was used for comparing differences between means of the samples of grouping NCES implementation variables to JCSEE implementation variables, and NCSE evaluation variables to JCSEE evaluation variables. Since these variable groups are not directly related to each other, it is not possible to determine the meaning of the statistical significance, but this does present an opportunity for dependent groups for implementation and evaluation variables using both sets of standards. For instance, independent *t* tests for using the same variables may be a better test using a larger sample size.

Qualitative Survey Responses

Responses (N=7) to the open ended qualitative question provided a varied ranges of responses based on respondents' perspectives. These results cannot be analyzed or summarized, but did allow respondents' an opportunity to offer additional thoughts related to their perceptions on the implementation, use and evaluation of educational technology in the district. Verbatim response data are provided in their entirety in Appendix G. Several responses reflect attitudes on how leadership and district promote the use of educational technology and staff development. Others responses reflect

specific views on specific technologies, the importance of technology, accountabilities and asking for age as part of the survey.

Linking Results to Previous Research

This section links the results of this study with that of the few authors who have performed previous research on technology implementation and evaluation. Policy implications from the analysis of the research questions in this study support multiple authors' perspectives. Many offered research on the effects of implementing technology with mixed results while other research focused on issues of equity and technology.

Oppenheimer (2003) discussed mixed results of implementing technology in the classroom, as did Baylor and Ritchie (2002) and Bartsch and Coburn (2003). Lack of standards awareness, missing demographics and the small correlations between standards may support these researchers' positions. However, the district where this study took place is known for its successes in propagating technology to faculty, staff and students, which may suggest the results in this study are due to lack of awareness and the use of existing evaluation standards.

Cuban's (2001) research reports computers were ubiquitous in schools while Aviram (2000) indicated technology has not been integrated in educational systems and further characterized technology as "much ado about nothing". These views may be supported by the results of this study since the results indicate there is still room for improvement related to awareness and strengthening the relationships between the standards and practice.

Specific to urban schools, Chapman's (2000) criticisms of the evidence of technology being equivocal, uncertain and methodologically flawed is supported by the

lack of awareness of standards seen in this study. The results of this study also support Selwyn and Brown's (2000) discussion of National Information Networks support as ineffective policy frameworks to address equity issues, similar to those seen in urban school districts as at the time this study was conducted, laws like NCLB and budgets earmarked for "at risk" students did not produce strong evaluation results in this study.

Implications for Practice

Implications for practice resulting from this study include focusing on the use of NCES and JCSEE standards for evaluating educational technology within districts. The use of a more comprehensive set of standards may provide greater awareness of the evaluation of educational technology taking place within the district, and may result in better evaluations. The use of the JCSEE standards framework is recommended since it is based on greater levels of detail and will be better suited for understanding more about awareness in conjunction with the demographic characteristics of administrators, faculty and staff who implement and evaluate educational technology.

Specifically, this can be done by increasing standards awareness, evaluating standards and focusing on demographic differences within the district while doing so. It was seen that education level closed the awareness gap between NCES and JCSEE standards within the district. It is logical to then assume that additional formal education will increase awareness, but improving awareness can also take place from within districts, even where formal education may fall short. While not addressed in this study, professional development may be considered an example of a means to improve awareness within a district.

A further implication for practice involves the evaluation standards themselves. For instance, the results of data for NCES standards is stronger, but there are still opportunities to include missing evaluation factors from the NCES set of standards, in addition to those from JCSEE. While neither the NCES nor the JCSEE standards are used directly within the district studied, a similar evaluation of the standards currently being used in the district may lead to overall better evaluations of educational technology, not to mention increased awareness within the district.

It is clear that demographic characteristics of faculty or staff and administrators present possible ways to focus on not only improving awareness, but also increasing the effectiveness of evaluations in the district. This is true since only some of the demographic characteristics which were evaluated in this study were represented in the results. In fact, demographic characteristic were nonexistent in some analyses, as in addressing research question three.

Recommendations for Future Research

Further research is recommended in many areas. Based on this study, research is needed which will define and measure awareness, address missed evaluation factors, provide further insight into JCSEE standards or assess the relationships among and between standards.

A more accurate definition and better measurement of awareness of standards is one recommended area for further research. The results in this study including the different levels of awareness, missing demographics and lack of awareness of JCSEE standards overall suggest using a more refined approach to defining and measuring

awareness beyond the descriptive treatment of the nominal awareness variables in this study.

As seen in research question two, perception of evaluation or missed evaluation components within the district present another recommended area for future research. While this study used two sets of standards, and the results of the data analysis showed the perception of evaluation or missed components existed, an additional study may find similarities in perceptions or missed components that are actually in use.

In research question three, there were no significant relationships between the district's perceptions towards evaluation of educational technology to the JCSEE standards. This presents an area for further research since JCSEE are international standards which will provide a more comprehensive framework for evaluating educational technology. For instance, the JCSEE standards' four attribute groups (utility, feasibility, propriety, accuracy) in addition to the combinations of attribute groups to measure specific program areas outside of implementation and evaluation may lead to greater context and understanding of evaluation of educational technology.

The analysis in research question four brought forth three NCES survey items which had consistently significant results in research question two. Additional research is recommended into the nature of what these survey items measured, the consistencies in the results they produced and other survey items which may have had particularly low results. Additional research in this area may help to explore the nature of validity and reliability of the instrument used in this study since the survey used in this study was self-developed, even though it was piloted prior to being administered for this study.

Research question five revealed unexpected results with respect to JCSEE standards. It is possible these results are unique due to the strength of the JCSEE standards. An area for additional research includes looking at JCSEE standards which may provide additional insight into areas unexplained by NCES, in practice or other standards being used.

Results of the data analysis in research question six infer the need for additional research. Specifically, the use of variable groups to compare implementation and evaluation variables using multiple sets of standards is recommended.

Conclusion

As K-12 school districts continually look to improve integration and use of educational technologies by technology planning and implementation, one of the ways in which districts can gauge their current state, define their desired state, and plan a course of action to better use of educational technology is through standards-based evaluation. These standards are usually established by national organizations.

A problem with standards-based evaluations is these guidelines are external to the district and subject to interpretation. To investigate this problem, this study explored perceptions regarding awareness of standards for evaluation of educational technology inside one Ohio urban school district, specifically faculty or staff and administrators perceptions of the evaluation of educational technology using demographic identifiers and two sets of national standards. This study was conducted since there was a lack of data on the evaluation of educational technology within urban districts compared to national standards, and fewer studies that addressed the evaluation of educational technology in urban K-12 districts.

To help isolate and eliminate the problems with using national standards, there are several recommendations. First, the use of a more comprehensive evaluative framework, JCSEE standards for example, is recommended. The levels of what is measured by better standards is only one part of this recommendation. The other rests on the value of the data and what can be done with the data to better understand the efforts of implementing and evaluating technology.

Secondly, understanding the importance of evaluating the implementation of educational technology through primary indicators like awareness, and providing greater insight into the evaluations while increasing the levels of awareness are also recommended. Researchers and educators alike may assume if there is a lack of awareness at the organizational levels of administrators or faculty and staff, the lack of awareness may permeate to the student levels where the awareness of implementing educational technology truly lies, let alone being the primary reason for evaluating effectiveness of implementing technology.

Finally, related to increased awareness, it is recommended that districts explore those beyond the role of administrator or faculty and staff as those who are involved in the evaluation and implementation. This study indicated education level, gender and role were demographic characteristics which yielded different results on the awareness of standards, and inevitably the implementation and evaluation of educational technology. Investigating awareness by looking at demographic characteristics will strengthen the implementation and evaluation of educational technology beyond what any set of standards will accommodate when specific demographic characteristics are not part of the standards.

These recommendations will result in better implementation and evaluation of educational technology in K-12 districts. It may also lead to greater adoption of educational technology by students, improved student outcomes, the potential of increased funding for programs related to technology, learning in urban districts and possibly change perceptions to support researchers who have researched and purport the effectiveness of educational technology.

REFERENCES

Achieve, Inc. (2006) Creating a World-Class Education System in Ohio. Retrieved August, 2007, from the Ohio Department of Education's Web Site: http://www.ode.state.oh.us/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=26164.

Anyon, J. (1980). Social class and the hidden curriculum of work. *Journal of Education, 162(1)*, 257-278.

Apple, Michael W. (2007). Ideological success, educational failure? On the politics of no child left behind. *Journal of Teacher Education, 58(2)*, 108-116.

Aviram, A. (2000). From "computers in the classroom" to mindful racial adaptation by education systems to the emerging cyberculture. *Journal of Educational Change, 1,* 331-352.

Barth, R.S. (1990). *Improving schools from within: Teachers, parents and principals can make the difference*. San Francisco, CA: Jossey-Bass.

Barth, R.S. (2001). *Learning by heart*. San Francisco, CA: Jossey-Bass.

Bartsch, R.A. & Cobern, K.M. (2003). Effectiveness of PowerPoint presentations in lectures. *Computers and Education, 41,* 77-86.

Baylor, A.L. & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? *Computers and Education, 39,* 395-414.

21st Century Workforce Commission, National Alliance of Business (2000). *A Nation of opportunity: Building America's 21st century workforce*. Washington, D.C.

Benderson, A. (1983). *Focus 11: Computer literacy*. Princeton, NJ: Educational Testing Service.

Berg, B.L. (2001). *Qualitative research methods for the social sciences.* Needham Heights, MA: Allyn and Bacon.

Bogdan, R.C. & Biklen, S.K. (1998). *Qualitative research for education: An introduction to theory and methods*. (3rd ed.). Boston, MA: Allyn & Bacon.

Bullough, R.V., Jr. (2001). Pedagogical content knowledge circa 1907 and 1987: A study in the history of an idea. *Teaching and Teacher Education, 17,* 655-666. ?(Jr)?

Button, K., Cox, R., Stough, R. & Taylor, S. (2002). The long term educational needs of a high-technology society. *Journal of Education Policy. 17(1),* 87-107.

The Children's Partnership. (1994, September). *Children and the information superhighway.* Santa Monica, CA.

Chapman, G. (2000). Federal support for K-12 technology in education. In D. Ravitch (Ed.), *Brookings papers on educational policy*. (pp. 307-357). Washington DC: Brookings Institution Press, Inc.

Cochran-Smith, M. (2003). Assessing assessment in education. *Journal of Teacher Education, 54(3),* 187-191.

Cochran-Smith, M. (2002). Reporting on teacher quality: The politics of politics (editorial). *Journal of Teacher Education, 53(5),* 379-382.

Chubb, J.E. & Moe, T.M. (1990). *Politics, markets and America's schools*. Washington, DC: Brookings Institution Press, Inc.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, CA: Sage Publications.

Cuban, L. (2001). *Oversold and underused: Computers in the classroom.* Cambridge, MA: Harvard University Press.

Deal, T.E. & Peterson, K.D. (1999). *Shaping school culture: The heart of leadership.* San Francisco, CA: Jossey-Bass.

Darling-Hammond, L. (2000). Futures of teaching in American education. *Journal of Educational Change, 1,* 353-373.

Delandshere, G & Arens, S.A. (2001). Representations of teaching and standards-based reform: Are we closing the debate about teacher education? *Teaching and Teacher Education,* 17, 547-566.

Denzin, N.K. & Lincoln, Y.S. (2003). The discipline and practice of qualitative research. In Denzin, N.K. & Lincoln, Y.S. (Eds.), *Collecting and interpreting qualitative materials*. (2nd ed.). (pp. 1-45). Thousand Oaks, CA: Sage Publications.

Denzin, N.K. & Lincoln, Y.S. (Eds.). (2003). *Collecting and interpreting qualitative materials*. (2nd ed.). Thousand Oaks, CA: Sage Publications.

Drucker, P.F. (1994, November). The age of social transformation. *The Atlantic Monthly,* 53-80.

Forcier, R.C. & Descy, D.E. (2002). *The computer as an educational tool.* (3rd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Fowler, F.C. (2000). *Policy studies for educational leaders: An introduction.* Upper Saddle River, NJ: Merrill Prentice Hall.

Fullan, M. (1999). *Change forces: The sequel*. Philadelphia, PA: Falmer Press/Taylor and Francis, Inc.

Fullan, M. (2001). *Leading in a culture of change*. San Francisco, CA: Jossey-Bass.

Fullan, M. (2002). *The new meaning of educational change.* (3rd ed.). New York: Teachers College Press.

Fusarelli, L.D. (2004). The potential of no child left behind on equity and diversity in American education, *Educational Policy, 18(1),* 71-94.

Gardner, J.W. (2000). The nature of leadership. In *The Jossey-Bass reader on educational leadership*. (pp. 3-12). San Francisco, CA: Jossey-Bass.

Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of Teacher Education, 53 (2),* 106-116.

Gay, L.R. & Airasian, P. (2003). *Educational research: Competencies for analysis and application.* Upper Saddle River, NJ: Pearson Education.

Greene, J.C. (2003). Understanding social programs through evaluation. In Denzin, N.K. & Lincoln, Y.S. (Eds.), *Collecting and interpreting qualitative materials*. (2nd ed.). (pp. 590-618). Thousand Oaks, CA: Sage Publications.

Griffiths, M. (2000). Collaboration and partnership in question: Knowledge, politics and practice. *Journal of Education Policy, 15(4),* 383-395.

Hess, F.M. (1999). *Spinning wheels*. Washington, DC: Brookings Institution Press.

Hill, P.T., Campbell, C., & Harvey, J. (2000). *It takes a city: Getting serious about urban school reform*. Washington, DC: Brookings Institution Press.

Hill, P.T. & Celio, M.B. (1998). *Fixing urban schools*. Washington, DC: Brookings Institution Press.

Hill, P.T., Pierce, L.C. & Guthrie, J.W. (1997). *Reinventing public education: How contracting can transform America's schools*. Chicago, IL: The University of Chicago Press.

Holliday, A. (2007). *Doing and writing qualitative research.* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Hopkins, D. (2000). Powerful learning, powerful teaching and powerful schools. *Journal of Educational Change, 1*, 135-154.

The Joint Committee on Standards for Educational Evaluation. (1994). *The program evaluation standards: How to assess evaluations of educational programs*. (2nd ed.). Thousand Oaks, CA: Sage Publications.

Kingdon, J.W. (2002). *Agendas, alternatives and public policies*. (3rd ed.). NY: Longman.

Knight, P. (2002). A systemic approach to professional development: Learning as practice. *Teaching and Teacher Education, 18*, 229-241.

Lareau, A. (1987). Social class differences in family school relationships: The importance of cultural capital. *Sociology of Education, 60*, 73-85.

Lasky, S. (2000). The cultural and emotional politics of teacher-parent interactions. *Teaching and Teacher Education, 16*, 843-860.

LeLoup, L.T. & Shull, S.A. (2003). *The president and congress: Collaboration and combat in national policymaking.* (2nd ed.). NY: Longman Publishers.

Levin, B. (2000). Putting students at the centre in education reform. *Journal of Educational Change, 1,* 155-172.

Liberman, A. & Wood, D.R. (2002). From networking learning to classroom teaching. *Journal of Educational Change, 3,* 315-337.

Linn, R.L. (2003). Accountability: Responsibility and reasonable expectations. *Educational Researcher, 32(7),* 3-13.

Lockard, J. & Abrams, P.D. (2001). *Computers for twenty-first century educators* (5th ed.). New York, NY: Addison, Wesley and Longman.

Mahoney, J.L. & Zigler, E.F. (2006). Translating science to policy under the no child left behind act of 2001: Lessons learned from the national evaluation of the 21st-century learning centers. *Journal of Applied Developmental Psychology, 27,* 282-294.

Manna, P. (2006). Control, persuasion and educational accountability. Implementing the no child left behind act. *Educational Policy, 20(3),* 471-494.

Marcovitz, D.M. (2000). The roles of computer coordinators in supporting technology in schools. *Journal of Technology and Teacher Education, 8(3),* 259-273.

Marsh, D.D. (2000). The unheroic side of leadership: Notes from the swamp. In *The Jossey-Bass reader on educational leadership*. San Francisco, CA: Jossey-Bass.

Masat, F.E. (1981). *Computer literacy in higher education* (Report No. 6). Washington, DC: American Association for Higher Education (ERIC Document Reproduction Service).

McAdams, D.R. (2000). *Fighting to save our urban schools … and winning ! Lessons from Houston*. New York, NY: Teachers College Press.

Merrill, P.F., Hammons, K., Vincent, B.R., Reynolds, P.L., Christensen, L. & Tolman, M.N. (1996). *Computers in education* (3rd ed.). Boston, MA: Allyn & Bacon.

Moursund, D. (1982). Teacher's guide to computers in the classroom. Eugene, OR: International Council for Computers in Education.

Nagel, S.S. (1999). Policy issues between urban schools and their community. In S.S. Nagel (Ed.), *The substance of public policy*. (pp. 155-190). Cormack, NY: Nova Science Publishers, Inc.

Northouse, P.G. (2001). *Leadership: Theory and practice*. (2nd ed.). Thousand Oaks, CA: Sage Publications.

Oakes, J., Loef Frank, M., Hunter Quartz, K. & Rogers, J. (2003). Research for high-quality urban teaching: Defining it, developing it, assessing it. *Journal of Teacher Education, 53(3),* 228-234.

Oakes, J. (1985). *Keeping track: How schools structure inequity*. New Haven, CT: Yale University Press.

Oborne, D.J. (1985). *Computers at work: A behavioral approach*. New York, NY: John Wiley & Sons, Ltd.

Ogbu, J. E. (1987). Variability in minority school performance: A problem in search of an explanation. *Anthropology of Education*, 18, 312-334.

Oppenheimer, T. (2003). *The flickering mind: The false promise of technology in the classroom and how learning can be saved*. New York, NY: Random House.

Portz, J., Stein, L., & Jones, R.R. (1999). *City schools & city politics*. Lawrence, KS: University of Kansas Press.

Ravitch, D. (1997). Somebody's children: Educational opportunity for all American children. In D. Ravitch & J.P. Viteritti (Eds.), *New schools for a new century: The redesign of urban education*. (pp. 251-273). New Haven, CT: Yale University Press.

Roessler, M.J. (1987). Fourth graders and computers [abstract]. (Doctoral dissertation, Michigan State University, 1987). *Dissertation Abstracts International* (UMI No. 8722875)

Rogers, J.B. (1982). *Introduction to computing: Content for a high school course*. Eugene, OR: International Council for Computers in Education.

Rowan, B. (2002). The ecology of school improvement: Notes on the school improvement industry in the United States. *Journal of Educational Change, 3,* 283-314.

Russell, M., Bebell, D., O'Dwyer, L. & O'Connor, K. (2003). Examining technology use: Implications for preservice and inservice teacher preparation. *Journal of Teacher Education, 54(4),* 297-310.

Savenye, W.C. & Robinson, R.S. (1996). Qualitative research issues and methods: An introduction for educational technologists. In Jonassen (Ed.), *Handbook of research for educational communications and technology*. (pp. 1171-1195). The Association for Educational Communications and Technology (AECT). ?Electronic Source on CD ROM?

Schoorman, D. (2002). Increasing critical multicultural understanding via technology: "Teachable moments" in a university-school partnership project. *Journal of Teacher Education, 53(4),* 356-369.

Schwandt, T.A. (2001). *Dictionary of qualitative inquiry*. (2nd ed.). Thousand Oak, CA: Sage Publications.

Selwyn, N. & Brown, P. (2000). Education, nation states and the globalization of information networks. *Journal of Education Policy, 15(6),* 661-682.

Simonson, M.R. & Thompson, A. (1997). *Educational computing foundations* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall.

Simons, G. (1985). *Silicon shock: The menace of the computer invasion.* Oxford, England: Basil Blackwell.

Stevens, E., Jr., Wood, G.H. & Sheehan, J.J. (2002). *Justice, Ideology, and Education: An introduction to the social foundations of education*. (4th ed.). New York: Mc Graw-Hill.

Stonebarger, B (1990). *The computer*. Madison, WI: Hawkhill Associates.

Senge, P., Cambron-McCabe, N., Lucas, T., Smith, B., Dutton, J. & Kleiner, A. (2000). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education.* New York: Currency Doubleday.

Silverman, D. (2006). *Interpreting qualitative data. Methods for analyzing talk, text and interaction*. (3rd ed.). Thousand Oaks, CA: Sage Publications.

Sudo, P.T. (1999). *Zen computer*. New York, NY: Simon & Schuster.

Topping, K.J. & Sanders, W.L. (2000). Teacher effectiveness and computer assessment of reading: Relating value added and learning information system data. *School Effectiveness and School Improvement, 11(3),* 305-337.

Whipp, J.L. (2003). Scaffolding critical reflection in online discussions: Helping prospective teachers think deeply about field experiences in urban schools. *Journal of Teacher Education, 54(4),* 321-333.

Wheatley, K.F. (2002). The potential beliefs of teacher efficacy doubts for educational reform. *Teaching and Teacher Education, 18,* 5-22.

Willis, J.W. (2007). *Foundations of qualitative research. Interpretive and critical approaches*. Thousand Oaks, CA: Sage Publications.

Wong, K. K., Dreeben, R., Lynn, L.E., Jr. & Sunderman G. L. (1999). Integrated governance as a reform strategy in the Chicago public schools: A report on system-wide school governance reform. In S. S. Nagel (Ed.), *The substance of public policy*. (pp. 155-190). Cormack, NY: Nova Science Publishers, Inc.

Yeh, S.S. (2006). Reforming federal testing policy to support teaching and learning. *Educational Researcher, 20(3)*, 495-524.

APPENDIX

APPENDIX A

National Center for Education Statistics Suggestions, Tools and Guidelines for Assessing Technology in Elementary and Secondary Education

(Taken from http://nces.ed.gov/pubs2003/tech_schools/chapter1_2.asp#7)

Key Questions and Indicators

The initial key question refers to the environment that allows for a technology plan to be developed in the first place. It points to the broad policy-making efforts of a school or district, which will ultimately affect a technology plan's implementation. The remaining three questions refer to the plan itself and are very straightforward: is there a plan, what does it consist of, and how well is it being followed?

Perhaps the most critical component of planning is evaluation of the plan, addressed in Key Question 4; only through assessment is it possible to ascertain whether or not the plan is accomplishing the job its originators set out to do. Assessments may also be helpful in giving insight into what is most important in a technology plan, and it may therefore be useful to refer to this key question in composing a plan in the first place. Ultimately, evaluation will point to plan revisions and reveal the need for adaptability through periodic review cycles.

Key Question 4. Is the plan being evaluated?

Perhaps the most important aspect of the technology plan process is evaluating its results and impact. Provisions for revising the plan should be a part of its creation, in the form of a review cycle that includes timelines and reporting. Possible components of the review cycle are listed below. If records from the pre-planning phase have been kept, the evaluation phase will be able to provide greater insight into the plan's progress and impacts. Possible means to obtain measures used to determine progress include customer feedback, plan audits, focus groups, and surveys.

It is important to remember that technology or parts of the plan that are not implemented should not be considered failures. Implementing new technology can be a daunting undertaking and flexibility is needed for any change process. For this reason, evaluation in a variety of formats is critical in objectively determining what is working and what needs more attention.

INDICATORS

Evidence of evaluation	A review cycle (including timelines and reporting) is implemented.
	There is a provision for revision of the plan.
	The review is detailed in a report.
	The report is readily available to the school and community.
	The technology plan has been changed on the basis of the most recent evaluation review.
	Components of the review cycle.
	The plan is achieving its goals.

Review cycle components include accountability measures, such as identification of indicators during pre-planning to maintain records of progress; technical performance; student performance; community support; implementation benchmarks; budget analyses; utilization records; evaluation components; and progress measures.

APPENDIX B

A set of general steps may be followed in applying JCSEE Standards.

These steps are as follows:

1.) Become acquainted with The Program Evaluation Standards
2.) Clarify the purposes of the program evaluation
3.) Clarify the context of the program evaluation
4.) Apply each standard in light of the purposes and context (e.g., What should be done ? What was done ? Where are the strengths and weaknesses of the program evaluations ?)
5.) Decide what to do with the results (p. 10)

The Joint Committee advises caution on applying the standards, and offers the following list of eleven steps to consider. Regardless of the nature of the evaluation being conducted, those concerned with evaluation should reflect carefully on the Standards and how they apply to specific situations, especially the following key tasks in evaluation work:

1.) Deciding whether to evaluate
2.) Defining the evaluation problem
3.) Designing the evaluation
4.) Collecting information
5.) Analyzing information
6.) Reporting the evaluation
7.) Budgeting the evaluation
8.) Contracting for the evaluation
9.) Managing the evaluation
10.) Staffing the evaluation
11.) Developing evaluation policies (p. 8)

APPENDIX C

Survey Instrument

Part I

Directions: Please fill in the blanks and check ☑ those categories which apply to you.

Section A: Demographic Information

Age _____

Gender ❑ Female ❑ Male

Highest Level of Education ❑ Bachelor's ❑ Master's ❑ Master's +10 ❑ Master's +20 ❑ Master's +30 ❑ Ph.D.

Years of Experience in Education (current role) _____

Currently, my primary role in the school district is as:

Faculty/Staff ❑ Administrator ❑

Section B: Standards Awareness

Are you aware of the National Center for Educational Statistics (NCES) Technology Planning and Policies ?

Yes ❑ No ❑

Are you aware of the Joint Committee on Standards for Educational Evaluation's Program Evaluation Standards ?

Yes ❑ No ❑

Part II

For each section, please rate your perceptions of how educational technology has been implemented and evaluated in your district. In your responses, think of your involvement within the district planning, implementing, using or evaluating technology in your current role.

Some of the terms in this survey are related to specific standards, so the statements have been edited to generalize confusing terms as much as possible, but they still may not match terms used within your district. There is no particular order, correct or incorrect response to any statement. Please respond honestly as your responses will be kept confidential.

Section A For each statement, please use the following descriptions to rate your district's Technology Planning and Policies.

Please use the following scale when responding to each statement:

SD Strongly Disagree
D Disagree
U Uncertain
A Agree
SA Strongly Agree

No.	Statement	SD	D	U	A	SA
1.)	There is evidence of evaluation in our technology plan	❑	❑	❑	❑	❑
2.)	There is a technology plan review cycle (including timelines and reporting) and it is implemented	❑	❑	❑	❑	❑
3.)	The technology plan review cycle includes accountability components	❑	❑	❑	❑	❑
4.)	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress	❑	❑	❑	❑	❑
5.)	Technical performance is measured as part of the technology plan review cycle	❑	❑	❑	❑	❑
6.)	Student performance is measured as part of the technology plan review cycle	❑	❑	❑	❑	❑
7.)	Community support is measured as part of the technology plan review cycle	❑	❑	❑	❑	❑
8.)	Implementation benchmarks are measured as part of the technology plan review cycle	❑	❑	❑	❑	❑
9.)	Budget analysis is evaluated as part of the technology plan review cycle	❑	❑	❑	❑	❑
10.)	Records of how technology is being utilized are evaluated as part of the technology plan review cycle	❑	❑	❑	❑	❑
11.)	Evaluation components are evaluated as part of a review cycle	❑	❑	❑	❑	❑
12.)	Measures of progress are evaluated as part of the technology plan review cycle	❑	❑	❑	❑	❑
13.)	There is a provision for revising the technology plan	❑	❑	❑	❑	❑
14.)	The results of reviewing of the technology plan is detailed in a report	❑	❑	❑	❑	❑
15.)	The results of reviewing the technology plan in report form is readily available to the school and community	❑	❑	❑	❑	❑
16.)	The technology plan has been changed on the basis of the most recent evaluation review	❑	❑	❑	❑	❑
17.)	The district is achieving its planned technology goals	❑	❑	❑	❑	❑

Section B: For each statement, please use the following descriptions to rate your district's evaluation of educational technology programs. Your responses should reflect your perceptions of what was or was not done in your district for implementing and evaluating educational technology, but they should also reflect your beliefs about each statement based on your experiences. This survey is not intended to reflect assessments in classroom settings, or students' performance.

Please use the following scale when responding to each statement:

SD Strongly Disagree
D Disagree
U Uncertain
A Agree
SA Strongly Agree

No.	**Statement** *Programs = Educational Technology Programs* *Targeted Participants = Students* *Evaluations = Technology Planning*	SD	D	U	A	SA
1.)	Persons involved in or affected by the evaluation should be identified, so their needs can be addressed.	❑	❑	❑	❑	❑
2.)	The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.	❑	❑	❑	❑	❑
3.)	Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of students and other specified stakeholders.	❑	❑	❑	❑	❑
4.)	The perspectives, procedures, and rationale used to interpret the findings should be carefully described, so that the bases for value judgments are clear.	❑	❑	❑	❑	❑
5.)	Evaluation reports should clearly describe the program being evaluated, including its context, and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.	❑	❑	❑	❑	❑
6.)	Significant interim findings and evaluation reports should be disseminated to intended users, so that they can be used in a timely fashion.	❑	❑	❑	❑	❑
7.)	Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.	❑	❑	❑	❑	❑
8.)	The evaluation procedures should be practical, to keep disruption to a minimum while needed information is obtained.	❑	❑	❑	❑	❑
9.)	The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained, and so that possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted or counteracted.	❑	❑	❑	❑	❑
10.)	The evaluation should be efficient and produce information of sufficient value, so that the resources expended can be justified.	❑	❑	❑	❑	❑
11.)	Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.	❑	❑	❑	❑	❑
12.)	Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it.	❑	❑	❑	❑	❑
13.)	Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects.	❑	❑	❑	❑	❑
14.)	Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed.	❑	❑	❑	❑	❑

No.	Statement *Programs = Educational Technology Programs* *Targeted Participants = Students* *Evaluations = Technology Planning*	SD	D	U	A	SA
15.)	The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas identified.	❑	❑	❑	❑	❑
16.)	The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation, and any others with expressed legal rights to receive the results.	❑	❑	❑	❑	❑
17.)	Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.	❑	❑	❑	❑	❑
18.)	The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditures are accounted for and appropriate.	❑	❑	❑	❑	❑
19.)	The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified.	❑	❑	❑	❑	❑
20.)	The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.	❑	❑	❑	❑	❑
21.)	The purposes and procedures of the evaluation should be monitored and described in enough detail, so that they can be identified and assessed.	❑	❑	❑	❑	❑
22.)	The sources of information used in a program evaluation should be described in enough detail, so that the adequacy of the information can be assessed.	❑	❑	❑	❑	❑
23.)	The information gathering procedures should be chosen or developed and then implemented so that they will assure the interpretation arrived at is valued for the intended use.	❑	❑	❑	❑	❑
24.)	The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use.	❑	❑	❑	❑	❑
25.)	The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected.	❑	❑	❑	❑	❑
26.)	Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	❑	❑	❑	❑	❑
27.)	Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	❑	❑	❑	❑	❑
28.)	The conclusions reached in an evaluation should be explicitly justified, so that the stakeholders can assess them.	❑	❑	❑	❑	❑
29.)	Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that evaluation reports fairly reflect the evaluation findings.	❑	❑	❑	❑	❑
30.)	The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.	❑	❑	❑	❑	❑

Section C Qualitative feedback

What information or opinion would you like to provide that was not included in the survey ?

This concludes the survey. Thank you for your time and participation.

APPENDIX D

Institutional Review Board Approval

From: John J Jeziorowski [mailto:j.jeziorowski@csuohio.edu]
Sent: Wednesday, February 27, 2008 3:37 PM
To: cbraat
Cc: 'John J Jeziorowski'; k.d.little; r.mawdsley
Subject: RE: IRB Submission #28172-LIT-HS

Dear Student Braat:
I am in receipt of your revised Informed Consent and have provided the necessary signature of approval and forwarded it to the CSU IRB office permitting you to proceed with your research! You will receive a letter from the CSU IRB office confirming this approval. Both myself and the secondary reviewers wish to extend to you the very best of luck in your investigative endeavors.

Respectfully expressed,

John J. Jeziorowski
IRB Primary Reviewer
#28172-LIT-HS

Informed Consent Statement

My name is Christopher Braat and I am a doctoral candidate at Cleveland State University. I am currently conducting a study entitled *"Perceptions of Two Educational Technology Standards: A Case Study of an Ohio Urban K-12 School District."* The purpose of this study is to gain better understanding on perceptions of using standards in evaluating educational technology in urban K-12 schools. As a result, I am requesting your participation in this study, which involves only completing the enclosed survey. No preparation is required and filling out the survey should not take more than 15 to 20 minutes. The benefit of your participation includes improving the standards for implementation and evaluation of educational technologies in urban K-12 schools.

There are no known risks in completing this survey to assist in my research. Your responses will remain completely confidential which will be guaranteed by sealing your surveys and this consent form in their respective provided envelopes. Please do not write your name, ID number or any other identifier on either of the envelopes.

Be advised, your participation is voluntary and you may withdraw at any time without any consequences whatsoever.

If you have any questions regarding your rights as a research subject, you may contact Cleveland State University's Institutional Review Board (IRB) at (216) 687-3630.

You may also contact my faculty advisor, Dr. Ralph Mawdsley at (216) 523-7148 or me, Christopher Braat, at (440) 360-0898 if you have any questions.

Please check one, sign and date below. Thank you for your professionalism, interest and willingness to participate in this research study. I look forward to your honest and open response.

❑ I **do** wish to participate in this research project

❑ I **do not** wish to participate in this research project

Participant's Signature: _____

Date: _____

Print Name: _____

APPENDIX E

Means, Standard Deviations and Frequencies of NCES and JCSEE Survey Items for Respondents

Means, Standard Deviations and Frequencies of Responses of NCES Survey Items for All Respondents

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
1	There is evidence of evaluation in our technology plan	4.2	0.7		1	5	21	16
2	There is a technology plan review cycle (including timelines and reporting) and it is implemented	4.1	0.7			8	23	12
3	The technology plan review cycle includes accountability components	3.9	0.7			14	20	9
4	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress	3.7	0.7		1	17	19	6
5	Technical performance is measured as part of the technology plan review cycle	3.7	0.8		2	17	18	6
6	Student performance is measured as part of the technology plan review cycle	3.5	0.9		6	14	17	5
7	Community support is measured as part of the technology plan review cycle	3.1	0.8	2	3	29	7	2
8	Implementation benchmarks are measured as part of the technology plan review cycle	3.7	0.7		1	15	21	5
9	Budget analysis is evaluated as part of the technology plan review cycle	3.8	0.8			17	16	10
10	Records of how technology is being utilized are evaluated as part of the technology plan review cycle	4.0	0.7			10	22	11
11	Evaluation components are evaluated as part of a review cycle	3.7	0.7		1	16	21	5
12	Measures of progress are evaluated as part of the technology plan review cycle	3.9	0.8		1	12	20	10
13	There is a provision for revising the technology plan	3.8	0.8			17	16	10
14	The results of reviewing of the technology plan is detailed in a report	3.5	0.9		3	21	12	7
15	The results of reviewing the technology plan in report form is readily available to the school and community	3.6	0.8		3	19	15	6
16	The technology plan has been changed on the basis of the most recent evaluation review	3.7	0.8		1	20	15	7
17	The district is achieving its planned technology goals	4.1	0.6			7	26	10

Means, Standard Deviations and Frequencies of Responses of NCES Survey Items for Faculty and Staff

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
1	There is evidence of evaluation in our technology plan	4.7	0.8		1	3	15	10
2	There is a technology plan review cycle (including timelines and reporting) and it is implemented	4.0	0.7			7	15	7
3	The technology plan review cycle includes accountability components	3.9	0.8			10	12	7
4	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress	3.7	0.8		1	12	11	5
5	Technical performance is measured as part of the technology plan review cycle	3.6	0.8		1	13	11	4
6	Student performance is measured as part of the technology plan review cycle	3.4	1.0		6	8	10	4
7	Community support is measured as part of the technology plan review cycle	3.0	0.9	2	3	19	3	2
8	Implementation benchmarks are measured as part of the technology plan review cycle	3.7	0.8		1	10	13	4
9	Budget analysis is evaluated as part of the technology plan review cycle	3.9	0.8			9	13	7
10	Records of how technology is being utilized are evaluated as part of the technology plan review cycle	4.0	0.7			6	17	6
11	Evaluation components are evaluated as part of a review cycle	3.7	0.7		1	9	17	2
12	Measures of progress are evaluated as part of the technology plan review cycle	3.8	0.7			8	14	7
13	There is a provision for revising the technology plan	3.9	0.8			11	11	7
14	The results of reviewing of the technology plan is detailed in a report	3.6	0.9		2	14	8	5
15	The results of reviewing the technology plan in report form is readily available to the school and community	3.6	0.9		2	13	9	5
16	The technology plan has been changed on the basis of the most recent evaluation review	3.8	0.8			13	10	6
17	The district is achieving its planned technology goals	4.1	0.6			3	20	6

Means, Standard Deviations and Frequencies of Responses of NCES Survey Items for Administrators

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
1	There is evidence of evaluation in our technology plan	4.3	0.7			2	6	6
2	There is a technology plan review cycle (including timelines and reporting) and it is implemented	4.3	0.6			1	8	5
3	The technology plan review cycle includes accountability components	3.9	0.7			4	8	2
4	The technology plan identifies evaluation indicators during pre-planning to maintain records of progress	3.7	0.6			5	8	1
5	Technical performance is measured as part of the technology plan review cycle	3.7	0.8		1	4	7	2
6	Student performance is measured as part of the technology plan review cycle	3.6	0.6			6	7	1
7	Community support is measured as part of the technology plan review cycle	3.3	0.5			10	4	
8	Implementation benchmarks are measured as part of the technology plan review cycle	3.7	0.6			5	8	1
9	Budget analysis is evaluated as part of the technology plan review cycle	3.6	0.8			8	3	3
10	Records of how technology is being utilized are evaluated as part of the technology plan review cycle	4.1	0.8			4	5	5
11	Evaluation components are evaluated as part of a review cycle	3.7	0.8			7	4	3
12	Measures of progress are evaluated as part of the technology plan review cycle	3.8	0.9		1	4	6	3
13	There is a provision for revising the technology plan	3.8	0.8			6	5	3
14	The results of reviewing of the technology plan is detailed in a report	3.5	0.9		1	7	4	2
15	The results of reviewing the technology plan in report form is readily available to the school and community	3.5	0.8		1	6	6	1
16	The technology plan has been changed on the basis of the most recent evaluation review	3.4	0.8		1	7	5	1
17	The district is achieving its planned technology goals	4.0	0.8			4	6	2

Means, Standard Deviations and Frequencies of Responses of JCSEE Survey Items for All Respondents

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
1	Persons involved in or affected by the evaluation should be identified, so their needs can be addressed.	4.3	0.7		1	3	20	19
2	The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.	4.7	0.5				15	28
3	Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of students and other specified stakeholders.	4.5	0.6			1	21	21
4	The perspectives, procedures, and rationale used to interpret the findings should be carefully described, so that the bases for value judgments are clear.	4.4	0.7			4	19	20
5	Evaluation reports should clearly describe the program being evaluated, including its context, and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.	4.5	0.5				21	22
6	Significant interim findings and evaluation reports should be disseminated to intended users, so that they can be used in a timely fashion.	4.3	0.6			3	24	16
7	Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.	4.4	0.6			2	22	19
8	The evaluation procedures should be practical, to keep disruption to a minimum while needed information is obtained.	4.6	0.5				16	27
9	The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained, and so that possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted or counteracted.	4.3	0.8		1	5	17	20
10	The evaluation should be efficient and produce information of sufficient value, so that the resources expended can be justified.	4.6	0.5			1	14	28
11	Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.	4.4	0.7		1	2	17	23
12	Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it.	4.1	0.8		2	7	20	14
13	Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects.	4.6	0.5			1	15	27
14	Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed.	4.6	0.5			1	14	28
15	The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas identified.	4.6	0.5				19	23

Means, Standard Deviations and Frequencies of Responses of JCSEE Survey Items for All Respondents (Continued)

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
16	The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation, and any others with expressed legal rights to receive the results.	4.4	0.6			3	19	20
17	Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.	4.5	0.6			2	17	23
18	The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditures are accounted for and appropriate.	4.5	0.6			1	19	22
19	The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified.	4.6	0.5				16	26
20	The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.	4.4	0.6			3	20	19
21	The purposes and procedures of the evaluation should be monitored and described in enough detail, so that they can be identified and assessed.	4.4	0.5			1	23	18
22	The sources of information used in a program evaluation should be described in enough detail, so that the adequacy of the information can be assessed.	4.4	0.6			3	21	18
23	The information gathering procedures should be chosen or developed and then implemented so that they will assure the interpretation arrived at is valued for the intended use.	4.4	0.5			1	22	19
24	The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use.	4.5	0.6			1	21	20
25	The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected.	4.6	0.5				17	25
26	Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	4.5	0.6			2	19	21
27	Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	4.4	0.6			3	19	20
28	The conclusions reached in an evaluation should be explicitly justified, so that the stakeholders can assess them.	4.3	0.6			4	22	16
29	Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that evaluation reports fairly reflect the evaluation findings.	4.6	0.5			1	15	26
30	The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.	4.6	0.5				18	24

Means, Standard Deviations and Frequencies of JCSEE Survey Items for Faculty and Staff

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
1	Persons involved in or affected by the evaluation should be identified, so their needs can be addressed.	4.2	0.7		1	2	15	11
2	The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.	4.6	0.5				12	17
3	Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of students and other specified stakeholders.	4.5	0.5				15	14
4	The perspectives, procedures, and rationale used to interpret the findings should be carefully described, so that the bases for value judgments are clear.	4.4	0.7			3	12	14
5	Evaluation reports should clearly describe the program being evaluated, including its context, and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.	4.5	0.5				16	13
6	Significant interim findings and evaluation reports should be disseminated to intended users, so that they can be used in a timely fashion.	4.2	0.6			2	18	9
7	Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.	4.2	0.6			2	18	9
8	The evaluation procedures should be practical, to keep disruption to a minimum while needed information is obtained.	4.3	0.5				11	18
9	The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained, and so that possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted or counteracted.	4.2	0.7			4	14	11
10	The evaluation should be efficient and produce information of sufficient value, so that the resources expended can be justified.	4.5	0.6			1	12	16
11	Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.	4.4	0.6			2	13	14
12	Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it.	4.2	0.6			3	16	10
13	Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects.	4.6	0.6			1	11	17
14	Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed.	4.6	0.6			1	11	17
15	The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas identified.	4.6	0.5				13	16

Means, Standard Deviations and Frequencies of JCSEE Survey Items for Faculty and Staff (Continued)

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
16	The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation, and any others with expressed legal rights to receive the results.	4.3	0.7			3	13	13
17	Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.	4.5	0.6			2	12	15
18	The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditures are accounted for and appropriate.	4.5	0.6			1	14	14
19	The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified.	4.6	0.5				11	18
20	The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.	4.3	0.6			2	15	12
21	The purposes and procedures of the evaluation should be monitored and described in enough detail, so that they can be identified and assessed.	4.4	0.5				17	12
22	The sources of information used in a program evaluation should be described in enough detail, so that the adequacy of the information can be assessed.	4.3	0.6			1	16	11
23	The information gathering procedures should be chosen or developed and then implemented so that they will assure the interpretation arrived at is valued for the intended use.	4.4	0.5				17	12
24	The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use.	4.4	0.6			1	16	12
25	The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected.	4.6	0.5				12	17
26	Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	4.4	0.6			2	14	13
27	Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	4.4	0.6			2	14	13
28	The conclusions reached in an evaluation should be explicitly justified, so that the stakeholders can assess them.	4.3	0.6			2	16	11
29	Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that evaluation reports fairly reflect the evaluation findings.	4.7	0.5				10	19
30	The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.	4.5	0.5				14	15

Means, Standard Deviations and Frequencies of JCSEE Survey Items for Administrators

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
1	Persons involved in or affected by the evaluation should be identified, so their needs can be addressed.	4.5	0.7			1	5	8
2	The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.	4.8	0.4				3	11
3	Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of students and other specified stakeholders.	4.4	0.6			1	6	7
4	The perspectives, procedures, and rationale used to interpret the findings should be carefully described, so that the bases for value judgments are clear.	4.4	0.6			1	7	6
5	Evaluation reports should clearly describe the program being evaluated, including its context, and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.	4.6	0.5				5	9
6	Significant interim findings and evaluation reports should be disseminated to intended users, so that they can be used in a timely fashion.	4.4	0.6			1	6	7
7	Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.	4.7	0.5				4	10
8	The evaluation procedures should be practical, to keep disruption to a minimum while needed information is obtained.	4.6	0.5				5	9
9	The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained, and so that possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted or counteracted.	4.4	0.9		1	1	3	9
10	The evaluation should be efficient and produce information of sufficient value, so that the resources expended can be justified.	4.9	0.4				2	12
11	Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants.	4.5	0.9		1		4	9
12	Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it.	3.7	1.1		2	4	4	4
13	Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects.	4.7	0.5				4	10
14	Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed.	4.8	0.4				3	11
15	The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas identified.	4.5	0.5				6	7

Means, Standard Deviations and Frequencies of JCSEE Survey Items for Administrators (Continued)

	Evaluation Factor	Mean	Std Dev.	Frequency				
				SD	D	U	A	SA
16	The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation, and any others with expressed legal rights to receive the results.	4.5	0.5				6	7
17	Conflict of interest should be dealt with openly and honestly, so that it does not compromise the evaluation processes and results.	4.6	0.5				5	8
18	The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditures are accounted for and appropriate.	4.6	0.5				5	8
19	The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified.	4.6	0.5				5	8
20	The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified.	4.5	0.7			1	5	7
21	The purposes and procedures of the evaluation should be monitored and described in enough detail, so that they can be identified and assessed.	4.4	0.7			1	6	6
22	The sources of information used in a program evaluation should be described in enough detail, so that the adequacy of the information can be assessed.	4.5	0.7			1	5	7
23	The information gathering procedures should be chosen or developed and then implemented so that they will assure the interpretation arrived at is valued for the intended use.	4.5	0.7			1	5	7
24	The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use.	4.6	0.5				5	8
25	The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected.	4.6	0.5				5	8
26	Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	4.6	0.5				5	8
27	Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered.	4.5	0.7			1	5	7
28	The conclusions reached in an evaluation should be explicitly justified, so that the stakeholders can assess them.	4.2	0.7			2	6	5
29	Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that evaluation reports fairly reflect the evaluation findings.	4.5	0.7			1	5	7
30	The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses.	4.7	0.5				4	9

APPENDIX F

Mean Differences and Standard Deviations of Significant Paired Samples *t* test Statistics on NCES and JCSEE Implementation and Evaluation Variables

Implementation Significant Pairs	Mean Difference	Standard Deviation	Evaluation Significant Pairs	Mean Difference	Standard Deviation
NCES_05 - JCSEE_11	-0.791	0.989	NCES_01 - JCSEE_05	-0.302	0.773
NCES_05 - JCSEE_15	-0.905	0.878	NCES_01 - JCSEE_25	-0.381	0.825
NCES_05 - JCSEE_20	-0.738	0.885	NCES_04 - JCSEE_01	-0.628	1.070
NCES_05 - JCSEE_28	-0.643	0.932	NCES_04 - JCSEE_03	-0.767	0.868
NCES_05 - JCSEE_30	-0.929	0.867	NCES_04 - JCSEE_04	-0.674	0.919
NCES_08 - JCSEE_11	-0.738	0.828	NCES_04 - JCSEE_05	-0.814	0.880
NCES_08 - JCSEE_15	-0.854	0.792	NCES_04 - JCSEE_07	-0.698	0.964
NCES_08 - JCSEE_20	-0.683	0.820	NCES_04 - JCSEE_23	-0.738	0.885
NCES_08 - JCSEE_28	-0.585	0.894	NCES_04 - JCSEE_25	-0.905	0.821
NCES_08 - JCSEE_30	-0.878	0.812	NCES_04 - JCSEE_26	-0.762	0.958
NCES_10 - JCSEE_11	-0.419	0.906	NCES_04 - JCSEE_27	-0.714	0.918
NCES_10 - JCSEE_15	-0.524	0.773	NCES_06 - JCSEE_01	-0.833	1.188
NCES_10 - JCSEE_20	-0.357	0.791	NCES_06 - JCSEE_03	-0.976	1.024
NCES_10 - JCSEE_30	-0.548	0.772	NCES_06 - JCSEE_04	-0.857	1.049
NCES_12 - JCSEE_11	-0.535	1.008	NCES_06 - JCSEE_05	-1.000	0.988
NCES_12 - JCSEE_15	-0.643	0.791	NCES_06 - JCSEE_07	-0.905	1.100
NCES_12 - JCSEE_20	-0.476	0.862	NCES_06 - JCSEE_23	-0.951	1.094
NCES_12 - JCSEE_30	-0.667	0.816	NCES_06 - JCSEE_25	-1.098	0.970
NCES_17 - JCSEE_11	-0.372	0.846	NCES_06 - JCSEE_26	-0.976	1.037
NCES_17 - JCSEE_15	-0.476	0.740	NCES_06 - JCSEE_27	-0.927	1.058
NCES_17 - JCSEE_20	-0.310	0.715	NCES_07 - JCSEE_01	-1.233	0.996
NCES_17 - JCSEE_30	-0.500	0.672	NCES_07 - JCSEE_03	-1.372	0.900
			NCES_07 - JCSEE_04	-1.279	0.959
			NCES_07 - JCSEE_05	-1.419	0.906
			NCES_07 - JCSEE_07	-1.302	0.914
			NCES_07 - JCSEE_23	-1.357	0.932
			NCES_07 - JCSEE_25	-1.524	0.943
			NCES_07 - JCSEE_26	-1.381	0.962
			NCES_07 - JCSEE_27	-1.333	0.928
			NCES_11 - JCSEE_01	-0.628	1.024
			NCES_11 - JCSEE_03	-0.767	0.868
			NCES_11 - JCSEE_04	-0.674	0.944
			NCES_11 - JCSEE_05	-0.814	0.794
			NCES_11 - JCSEE_07	-0.698	0.887
			NCES_11 - JCSEE_23	-0.714	0.774
			NCES_11 - JCSEE_25	-0.881	0.803
			NCES_11 - JCSEE_26	-0.738	0.939
			NCES_11 - JCSEE_27	-0.690	0.924

APPENDIX G

Qualitative Survey Responses

1.) *33 Year Old, Female, Master's +20, 10 Years Experience (but currently teaching grade 3 for the 2nd year), Faculty/Staff, Not Aware of NCES, Not Aware of JCSEE*

"Overall, I believe the district does an excellent job of making us aware and offering training in many aspects of technology. Our [*Technology Assistant – acronym omitted*] does a wonderful job of helping classroom teachers implement All Standards in technology and cross-curriculum. I do believe more promethean boards need to be installed and utilized to their full potential."

2.) *53 Year Old, Female, Master's +30, 13 Years Experience, Faculty/Staff, Not Aware of NCES, Not Aware of JCSEE*

"Not sure. Technology is a necessity and all parties need to be competent when they use or teach."

3.) *56 Year Old, Female, Master's +30, 35 Years Experience, Administrator, Aware of NCES, Not Aware of JCSEE*

"Our district has a tech steering committee that meets monthly allowing for input and discussion in all tech decisions !"

4.) *53 Year Old, Female, Master's +30, 32 Years Experience, Faculty/Staff, Not Aware of NCES, Not Aware of JCSEE*

"Elementary Level – There is no accountability for teachers to use and teach technology standards. Some students can go several years with very little technology skills depending on the teachers. There is not a student performance measurement in the elementary level."

5.) *36 Year Old, Female, Master's +30, 13 Years Experience, Faculty/Staff, Aware of NCES, Not Aware of JCSEE*

"Many classroom teachers are not aware of the tech. standards and plan. They should be required to learn about them."

6.) *57 Year Old, Female, Master's +10, 28 Years Experience, Faculty/Staff, Aware of NCES, Not Aware of JCSEE*

"[District omitted] is constantly striving to help teaches integrate technology into everyday curriculum. Our professional development is the best in the area. I am proud to be part of this system that recognizes and rewards teachers who resist

change and seek out help when trying to use technology to help student achievement."

7.) *55 Year Old, No Gender, 2 Master's, 32 Years Experience, Faculty/Staff, Not Aware of NCES, Not Aware of JCSEE*

"Why do you need the exact age ? Is this protecting my dignity when asked this way ?"

"What about teacher feelings about use of technology in the classroom ? Student feelings ? Professional Development ? What about setting up a systematic system to provide personal training during work time or the usage of technology ?"

"I still feel like you are ignoring my personal dignity by asking my age. I understand that you might need the years in the classroom but feel insulted that you want my age."