

Fundamental Skills of the Elementary Principal as a Technology Leader

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Introduction

Pfundstein (2003) suggested technology has led society in a rapid transition from the Industrial Age to the Information Age.

This change is expressed symbolically by the change from analog to digital media, which has had a profound impact upon both the adult world and children as well (Prensky, 2001; Pfundstein, 2003).

“...as the global economy is more dependent on technology, students and their parents will continue to expect a public education to promote the integration of computers and the Internet, within the curriculum” (Slowinski ,2003,p.1).

Due to the large presence of instructional technology hardware and software in public schools, “school districts throughout the country increasingly demand that effective leadership in the area of instructional technology come from insightful and forward thinking school leaders” (Slowinski, 2000, p.1).

Updated National Technology Standards for Administrators- NETS-A

The National Educational Technology Standards (NETS) for developed by the International Society for Technology in Education (ISTE) as collaboration to elaborate the qualifications and skills that students, teachers and school administrators should have regarding technology in schools.

The updated NETS-A for are broken down into the following five principal standards and its subcomponents: Visionary Leadership, Digital Age Learning Culture, Excellence in Professional Practice, Systemic Improvement and Digital Citizenship (ISTE, 2009).

Purpose of the Study

The purpose of this study was to determine which skills aligned from the National Educational Technology Standards for Administrators (NETS-A) do principals possess as campus technology leaders.

“The principal's disposition influences the implementation of an innovation and the magnitude of fidelity with which it is implemented; therefore, principals, too, are at the center of achieving the promise of technology by facilitating its integration to transform teaching and learning” (Brockmeir, Sermon, & Hope, 2005, p.47)

Statement of the Problem

Due to the large presence of instructional technology hardware and software in public schools, “school districts throughout the country increasingly demand that effective leadership in the area of instructional technology come from insightful and forward thinking school leaders” (Slowinski, 2000, p.1).

If principals do not have the competencies stated in these national or state technology standards for administrators, they lack an adequate foundation in technology skills and dispositions and run the risk of making uninformed judgments. Principals, as campus leaders, must be able to guide teachers in preparing students for using technology as a part of their academic development.

Research Question

What some of the fundamental technology skills, as aligned to the updated National Educational Technology Standards (NETS-A) for public school administrators, do elementary principals report they possess?

Methodology

Data for this qualitative study was gathered from the following primary sources: an online questionnaire and audio-taped interviews.

Principal's Technology Leadership Assessment Questionnaire

The Principal's Technology Leadership Assessment (PTLA) included 35 items requesting responses on a 5-point Likert Scale. The questionnaire assessed principals' technology leadership inclinations along with obtaining their levels of expertise in facilitating the integration of computer technology into the teaching and learning process.

This instrument based on the National Educational Technology Standards for Administrators (NETS-A) was developed and psychometrically validated by the American Institutes for Research (2003) as part of a grant received from the United States Department of Education Fund for the Improvement of Postsecondary Education.

Site Selection

Subjects were recruited from elementary schools in the following four South Texas school districts. These school districts and research subjects were chosen due to their proximity to a South Texas University, the number of elementary campuses in each school district and their superintendent's willingness to participate in the study.

Subject Selection

Approximately sixty-seven individuals, currently serving as elementary principals were invited to participate in an online questionnaire aligned to the NETS-A, *The Principal's Technology Leadership Assessment (PTLA)*.

Once the questionnaire was completed, compiled and analyzed, pools of the twenty highest ranking principals, as per the Likert scale used in the PTLA, were identified as being potential interview subjects. This pool of twenty subjects' unique identifiers was then inputted using a random sample selection online application.

Subject Selection

The first five subjects, who agreed to engage in a face-to-face audio-taped interview. A mutually agreed upon interview time and location were arranged.

On the date of the face-to-face audio-taped interview, the selected principals were asked to complete an audio release form. The audio-taped interview was guided by 17 open-ended questions and lasted for approximately one hour.

Subject demographics

All five interview participants were females who had eight or less years of experience as an elementary principal. One principal had earned a Master of Education degree in 1988 while the rest had earned their degrees between the years 1995 and 1999.

Four out of the five principals reported that they typically used a computer at school on a daily basis on an average of three hours; while at home they used a computer an average of 1 hour. Two of the five principals had an Exemplary Texas Education Agency Campus rating, while the remaining three principal's campuses ratings were Recognized.

Data Collection and Analysis Procedures

After the interviews were conducted, the data was transcribed and imported into the software program, *The Ethnograph v5.0 ©*.

The Ethnograph v5.0 © allowed the researcher to import data from transcripts and store it in text format, which can be subsequently numbered. Such numbering facilitated the coding of the data. Afterwards, lines of text were examined and coded as individual words, phrases or blocks of text. These codes serve as markers for the researcher to generate patterns or themes.

The Fundamental Skills

The interview data analysis revealed the following four themes related with technology skills that are aligned with the updated NETS-A :

1. Familiarity of software and hardware
2. Using information and data retrieval
3. Communicating with stake holders
4. Planning and management of resources.

Skill 1:

Familiarity with using software/hardware

Four out of the five principals in this study felt that having both software and hardware for their students and teachers was an important aspect for today's modern schools.

Norma (pseudonym) for example stated that, "As we move across the years, it's just a matter of getting to know the software, and I think that teachers are starting to become good at it. I have several teachers that were reluctant, but they are no more (Norma, 2009)."

Principals model, coach and support teachers while they are learning to use technology in the classroom. Principals felt that a key component for teachers to embrace technology was the daily use of technology. In other words the more they used it the more comfortable and proficient were the teachers.

Digital Age Learning Culture-A: Ensure instructional innovation focused on continuous improvement of digital-age learning

“The instructional technology that we have plays in integral part of our success and that the only problem was acquiring the necessary funds to purchase the tools needed by the teachers and students” (Sandy, 2009).

Sandy stated that, “I tried to encourage it a lot with the teachers to implement in the classroom because in this day and age we have so many things such as Gameboys, Play Stations), where the kids are waiting for information at a touch of a button or a click of a mouse. They want that. I want our teachers to integrate it into everyday learning (Sandy, 2009).”

Digital Age Learning Culture-B:

Model and promote the frequent and effective use of technology for learning

All principals expressed the need to be technology literate or tech savvy themselves. Betty stated that “So I am computer literate and I feel that it is important to be able to model what we are asking the teachers to do” (Betty, 2009).

“I know I like to do different things. I experiment with different software and on the web. In order for teachers to want to follow you I think first of all you need to be a role model and you need to be able to in order to expect it you better make sure you know how to do it. Otherwise I don't know if it would be possible otherwise. I'm seeing from my colleagues, people that who are not tech savvy more than likely will not implement it and will not hold teachers accountable” (Nancy, 2009).

Digital Age Learning Culture-C:

Provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners

All five principals expressed that they had made efforts to budget and secure necessary hardware and software for teachers and students.

Four of five principals promoted and allocated essential hardware for classrooms such as data video projectors, document cameras and Personal Data Assistants (PDAs). Erica indicated that teachers had plenty of resources for technology integration on hand, and that she continued to support its growth on campus, by setting aside funds.

Digital Age Learning Culture-C: Provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners (continued)

Dalinda also stated that they purchased software for specific needs of students, whether in the area of mathematics, science, or other content areas. Such purchases were based on teacher assessments done in the classroom and the instructional team's recommendations from the School Based Decision Making Committee (SBDM).

Excellence in Professional Practice-D:

Stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning

Norma felt that it was very important to be informed on current technologies, since many students from campus are already using them outside the classrooms. Susana, however, felt that if schools did not provide opportunities to use new technologies, less advantaged students may not otherwise utilize them.

Susana added that funding was available and the majority of their efforts went toward purchasing additional Document Cameras (Elmos) for each classroom and trying to get students additional laptops or computers on wheels (COWS).

Systemic Improvement-A:

Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources

Principals stated that other web- based applications that were in use by their district also made educational management more efficient. For example, principals were able to look via the web at their teachers' grade books and generate different reports such as lists of failures or all "A" honor roll reports.

Technology via web- based applications such as the online Professional Development Appraisal System Software (PDAS), for conducting teacher appraisals, was also mentioned as being a critical management tool.

Skill 2:

Knowledge of Information and Data Retrieval

All the principals explained that they use technology to analyze student achievement data. Principals accomplished this by locating and disaggregating student achievement data from the Texas Education Agency and Region Education One Service Center websites.

Software tools such as electronic spreadsheets allowed principals to create charts and graphs for analysis, which were useful in improving instruction. Principals also utilize online web applications to evaluate teacher performance.

Susana stated, “I feel that as a principal, if I weren’t technology literate, I would be lost” (Susana, 2009).

Skill 2:

Knowledge of Information and Data Retrieval

In addition, a number of web-based applications allowed both teachers and principals to address special populations, such as Bilingual/ESL students, with assessments like TPRI, and TEJAS LEE.

Dalinda stated, “A lot of these programs are very specific in letting us know what the students’ weakness and strengths [are]” (Dalinda, 2009). Dalinda reported that it was an important management tool for disaggregating data

Systemic Improvement-B:

Collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning

Dalinda explained that using technology was a powerful management tool. She wondered how other principals survived, without the use of technology. Norma stated that utilizing technology for data analysis was easier and quicker than doing hand calculations. As a whole, these principals depend upon data desegregation and data analysis to examine their different student populations.

Erica stated that data reports assisted in allowing them to group their students effectively. Belinda examined data in the form of charts and graphs. Belinda also examined Texas Education Agency (TEA) data.

Skill 3:

Communicating with Stake Holders

Communicating with all stakeholders was also another theme in which the majority of the five principals agreed upon.

According to the International Society for Technology in Education (ISTE), essential conditions important for all principals to maintain are: community support, partnerships and communications with parents and businesses that support technology use within the district (ISTE, 2001).

Systemic Improvement-D

Establish and leverage strategic partnerships to support systemic improvement

Principals and teachers meet and collaborate together to formulate their campus improvement plans, which include technology components. Susana stated that they planned ahead and set aside monies to try to have as many software and hardware resources as possible.

Visionary Leadership-A:

Inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders

“...the key to having a successful technology program is in developing a school or district technology plan based upon input from the stakeholder” (Brooks-Young (2002p. 13).

Both Norma and Erica, for example, stated how they felt that communication among administrators and teachers was an essential component for buy-in to occur. Norma, specifically stated, that communication was “...very important for all the stakeholders within a school and I think that technology has eased communication a lot” (Norma, 2009).

Excellence in Professional Practice -C:

Promote and model effective communication and collaboration among stakeholders using digital age tools

All principals felt that e-mail was an essential tool for communication with central office, staff and parents. Principals felt that communication is very important with the school's stakeholders and that technology has made this communication much easier and quicker.

“By doing tasks electronically,” as Erica stated, “it makes everything much quicker.” You still have to write, but by doing it electronically you get the information out quicker” (Erica, 2009).

Skill 4:

Planning and management of resources

The NETS-A gives importance to adequate planning and the management of resources. Principals are expected to keep up with what is inside their buildings (Brooks-Young, 2002).

When they fail to do so, “...they find that the equipment no longer supports new applications and instructional time is wasted as teachers try to make outdated equipment or software function” (Brooks-Young, 2002).

Visionary Leadership-B:

Engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision

A shared vision is an important element in the proper planning of campus improvement. Principals budgeted for as many resources as they could. They collaborated with their faculty in assessing the needs of the students and campus.

Sandy stated that, “We are doing the best that we can to get many resources. We plan ahead and set aside monies and budget to try to have as many resources to have available through software or hardware. That is one of our goals at our campus. Our teachers are excited about it. They want to be able to use it in the classroom. It’s just a part of budgeting and making those resources available. If someone brings something to me that I see and look it into it, and its researched based and we can use it in the classroom” (Sandy, 2009).

Excellence in Professional Practice-A: Allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration

Principals sent teachers to staff development appropriate to their level. They promote technology on the campuses and support teachers by allowing them opportunities for professional growth. Belinda stated that, she trained and coached, modeled and provided teachers with a lot of support and equipment, such as document cameras and data video projectors.

Belinda also informed teachers of upcoming staff development and assured that they were trained in all areas, so that no one is left behind. Norma expressed the fact that once teachers become comfortable, they can heighten students' interests by using technology.

Excellence in Professional Practice –B:

Facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty, and staff in the study and use of technology

Norma and the other principals supported and encouraged teachers' professional growth by sending them to regional, state, and national technology conferences.

Erica kept the teachers involved by informing them of upcoming staff development and communicating closely with the campus technology contact. By doing this, Erica confirmed that everyone is keeping abreast of newer technologies and ideas. According to her, people who are tech savvy are willing to take risks. These teachers, she reflected, are willing to share and to make things happen on campus.

Systemic Improvement-D: Establish and leverage strategic partnerships to support systemic improvement

Principals and teachers meet and collaborate together to formulate their campus improvement plans, which include technology components. Susana stated that they planned ahead and set aside monies to try to have as many software and hardware resources as possible. She added that the teachers are excited about being able to use technology in the classrooms.

Susana felt that good fiscal planning was an important skill to have as a principal, in order to make technology resources available for both staff and students. Susana concluded that she kept an open mind to new technologies and she welcomed innovations, and that if someone demonstrated a new researched-based technology, she would look into its feasibility for the classroom.

Systemic Improvement-A:

Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources

Principals felt that being skilled in and involved with technology made a difference in their leadership. Erica stated that she performed a number of administrative tasks such as monitoring student grades, immunization records, and managed budgets online.

Susana stated that she was anxious to acquire new hardware for her students. For example, she said that she was “...itching to get smart boards on her campus” (Susana, 2009). Among the list of equipment to acquire were document cameras for each classroom and additional mobile laptops or computers on wheels (COWS).

Furthermore, she expressed that she loves to hear about new innovations and hopes that the campus would continue to move forward in the right direction so that students would keep up to speed with newer technologies.

Conclusion 1: Familiarity with Hardware and Software

Principals as technology leaders are actively involved in the selection of hardware and software on their campus. All the principals expressed opinions about acquiring the necessary technology tools, such as hardware and software, being a priority for each classroom.

Although the majority of the five principals in this study reflected that funding for equipment was scarce, they still planned and utilized state allotted technology funds for the purchasing of hardware such as document cameras, data video projectors, and computers on wheels (COWS).

Conclusion 1: Familiarity with Hardware and Software

Principals, as technology leaders, should be able to evaluate both hardware and software for appropriateness to benefit staff and students.

They can do so by having the knowledge and skills that will allow them to choose both hardware and software based upon capability, compatibility, modularity, ergonomics, availability, ease of use, and sustainability of the product (Picciano, 2005).

Conclusion 2:

Knowledge of information and data retrieval

Principals as technology leaders use technology as a managerial tool to analyze data for campus improvement. The NETS-A require principals, as leaders, to become familiar with the acquisition and use of data in a variety of formats.

All of the principals in this study encouraged the use of technology to monitor and assess student academic performance, whether in benchmark tests, bilingual assessments or reading assessments.

Dalinda felt that the use of data served as a crucial management tool, and she could not imagine how other principals functioned without the use and analysis of data to manage campuses.

Conclusion 2:

Knowledge of information and data retrieval

According to Tucker and Coddling (2002) the principal's role should be that of a driver of data and principals should be able to collect and analyze data, in order to keep a vigilant eye upon the progress of the campus and allocate the proper resources in order to properly manage a campus.

As Bottoms and O'Neill (2001) stated, in the era of accountability, principals as leaders should be able to collect, interpret and use data in a number of ways

Conclusion 3: Communication with Stake Holders

Principals, as technology leaders, utilized technology to effectively communicate with stakeholders. As instructional leaders, principals are called upon to become effective communicators.

The NETS-A require principals to “employ technology for communication and collaboration among colleagues, staff, parents, students, and the larger community” (ISTE, 2001).

Conclusion 3:

Communication with Stakeholders

All five principals made it well known during the face-to-face interviews that they used e-mail extensively to communicate with staff and district personnel and the communication with others was vital as well. They found that e-mail was both a useful and an indispensable tool, which allowed them quick and easy access to all stakeholders.

Hampton (2003) concluded that potentially weak social ties could be improved by the use of communication technologies such as e-mail messaging to stakeholders. Hampton's (2003) study added weight to the fact that e-mail could best serve in building and maintaining a collaborative network among stakeholders, which functioned in moving the school's mission forward.

Conclusion 4: Planning and Management of Resources

Principals as technology leaders are actively involved in technology planning for campuses. The principal serves as both a manager and leader of a campus and within the obligations of being a leader, a principal is expected to be involved with the planning and management of campus resources.

Conclusion 4: Planning and Management of Resources

Administrative leadership is the key to successful implementation of any innovation (Hess, & Kelly, 2005; Brooks-Young, 2004).

“Buying hardware and software without having a clear idea of how it can be used effectively, or without planning for appropriate professional development, is a waste of time and precious resources” (Brooks-Young, 2004, p. 13).

References

Bottoms, G. K. O'Neill, B. Fry, D. Hill (2003). *Good Principals Are the Key to Successful Schools: Six Strategies to Prepare More Good Principals*. Atlanta: Southern Regional Education Board.

Brooks-Young, S. (2002). *Making technology standards work for you: A guide for school administrators*. Eugene, OR: International Society for Technology in Education.

Hampton, K. N. (2003). Grieving for a lost network: Collective action in a wired suburb. *Information Society*, 19(5), 417-429.

Hess, F.M & Kelly, A.P. (2005). The Accidental Principal: What doesn't get taught at schools. *Education Next*. 5(3). 35-40

References

International Society of Technology Education (ISTE) (2009) *NETS-A*

Pfundstien, T.E..(2003).The Use of Technology That Affects How Teachers Teach and Students Learn. In A.D. Sheekey (Eds.), *How to Ensure Ed/Tech is not Oversold and Underused* (pp. 73-94). Lanham: Maryland: Scarecrow, Press, Inc.

Picciano, A. 2005. *Educational leadership and planning for technology*. Prentice-Hall Inc., USA.

Prensky, M. (2001) *Digital Natives, Digital Immigrants* Retrieved on September 11, 2006 from <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf>

Slowinski,J. (2003). Becoming a technologically savvy administrator. *Teacher Librarian*, 30(5), 25-29. Retrieved on September 11, 2006 from <http://eric.uoregon.edu/pdf/digests/digest135.pdf>