The Vision of Technology in PK-12 Schools through the Lens of the School Administrator

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Abstract: This study explores the vision of administrators in educational technology within urban PK-12 settings as measured by the Principal Technology Leadership Assessment (PTLA) that was developed and validated by The American Institutes of Research and aligned to the National Education Technology Standards for Administrators (NETS-A). District and campus alignment of educational technology vision will aid in building and sustaining partnerships of learning and development with university principal preparation programs, district and campus stakeholders. School district administrators (n=205) were surveyed to determine their views in five areas related to leadership and vision, learning and teaching, productivity and professional practice, support, management and operations, and social, legal, and ethical issues. Results of this study will provide the framework for establishing a campus administrators' comprehensive vision of educational technology.

Introduction

Schools across the nation are increasing the level of technology on their campuses. Federal, state, and local funding opportunities are inclusive of both technology initiatives and the supporting professional development necessary for implementation (Christensen & Knezek, 2007; Forte, 2010). According to recent studies 94 % of school districts across the United States meet the Federal High-Speed Internet access targets (Superhighway, 2015). Despite this increased access to computer technology, there remains a significant gap between district and campus level initiatives, implementation, and measurable student outcomes. While some of this is due to a lack of comfort with using technology for teaching and learning among classroom teachers, there are indications that the vision for innovations held by campus administrators could play a key role. The vision of campus administrators surrounding new technologies is necessary to build and sustain partnerships between the district and campus stakeholders.

Long range technology plans, district based initiatives as well as campus-based initiatives should not exist in isolation but be integrative and cooperative efforts involving all stakeholders. These efforts would help districts establish a culture of innovation as opposed to isolated pockets of innovation that are scattered across individual classrooms. In a study by Berrett, Murphy & Sullivan (2012) the researchers found that in many cases campus technology initiatives are mandated from the top down with school administrators' responsible only for overseeing the implementation. This scenario, without campus buy-in and support, often meets with resistance from both the campus administration and the campus faculty.

This study explores the vision of administrators in educational technology within urban PK-12 settings. District and campus alignment of educational technology vision will aid in building and sustaining partnerships of learning and development with university principal preparation programs, district and campus stakeholders. Research has proven that effective leadership during implementation is vital to not only success of the innovation but sustainability (Ertmer & Ottenbreit-Leftwich, 2010; Hallinger & Murphy, 2013).

Methods

Participants

A purposeful sample of school administrators was solicited to participate. Of the 205 participants, approximately 61% were female 39% were male. Ethnic distribution reported 66% White or Caucasian, 21% Hispanic/Latino, 8.5% African American, 1.5% American Indian or Alaskan native, and 3% with no response. Participants' ages ranged from 20-29 (.49%), 30-39 (13.24%), 40-49 (40.69%), 50-59 (35.78%), and 60 or older (9.8%). In terms of positions held, less than 1% were Assistant Principals with the remaining 99% reporting as principals.

Instrumentation

This quantitative study utilized a 41-item survey to assess five areas regarding principal technology leadership activities: leadership and vision, learning and teaching, productivity and professional practice, support, management, and operations, and social, legal, and ethical issues. The Principal Technology Leadership Assessment (PTLA) was developed and validated by The American Institutes of Research and UCEA Center for the Advanced Study of Technology Leadership in Education (CASTLE) to measure school principals' technology leadership qualities (Castle, 2009). PTLA is aligned to the National Education Technology Standards for Administrators (NETS-A). The internal consistency reliability of the instrument as a whole has a Cronbach's alpha coefficient of (α= .95).The range of item-test correlations is r =0.39 to 0.80, with only 7 items correlated less than 0.50. (PTLA, 2006).

The Study

This purpose of this study is to provide comprehensive insight of campus administrators' vision of educational technology in PK-12 schools to support effective integration of digital age learning and implementation of technology in the classroom to prepare students for success in a global economy. A pilot group of school district administrators (n=20) were surveyed using the Principal Technology Leadership Assessment (PTLA) to determine their views of technology in five areas related to leadership and vision, learning and teaching, productivity and professional practice, support, management and operations, and social, legal, and ethical issues.

Results

Findings from the pilot indicated administrators have a strong understanding and exhibit behaviors that lead to effective productivity and professional practices, learning and teaching, and support management while needing to significantly improve knowledge and skills in the areas of leadership and vision, and social, legal, and ethical issues. A larger sample of school district administrators from across the state (n= 205) were surveyed. The findings of this extended study may provide the framework for establishing a campus administrators' comprehensive vision of educational technology. Research findings will be reported in the six domains outlined in Castle's (2009) Principal Technology Leadership Assessment: Leadership and Vision; Learning and Teaching; Productivity and Professional Practice; Support, Management, and Operations; Perceptions; and Social, Legal, and Ethical Issues.

Leadership and Vision

In this domain, administrators were asked to self-report the extent to which they participated in district or school technology planning processes, communicated information regarding technology planning and implementation, promoted participation of school stakeholders in the technology planning process, compared and aligned district or school technology plans with other plans (i.e. district strategic plans, school improvement plan, or other instructional plans), advocated for inclusion of research-based technology practices within the improvement plan, and engaged in activities to identify best practices in the use of technology. The percentage of those actively engaged in these areas ranged from 39.1% to 60.5%, with the highest level of engagement reported in the area focused on advocating for inclusion of research-based technology practices in their school improvement plan. Additionally, within this domain are 18 questions addressing the importance of a wide range of components within district technology visions. The following table provides a snapshot of the areas of no importance and high importance.

Table 1.
Leadership and Vision Importance

Component	Not Important	Very Important	Component	Not Important	Very Important
Support instructional Reform	**.5%**	**62%**	Student Proficiencies in Data Analysis	2.9%	41.5%
Collecting Data for Administrative Decision Making	3.4%	56.6%	Increasing Teacher Proficiency in Use of Technology	**.5%**	**67.8%**
Managing School Operations	1.5%	**68.3%**	Preparing Students for Future Jobs	**.5%**	**66.3%**
Improving Communication among Faculty and Staff	2.4%	**62%**	Improving Student Test Scores	1.5%	**60%**
Improving Management of Student Report Card/Records	2.9%	46.3%	Promoting Active Learning Strategies	**0%**	**63.9%**
Using Technology to Improve Classroom Instruction	**0%**	**76.6%**	Satisfying Parent and Community Interest	1.5%	38%
Using Technology to Improve Student Performance	**0%**	**70.2%**	Improving Student Computer Skills and Abilities	**.5%**	54.1%
Target Levels of Technology	2.0%	**63.9%**	Improving Student Proficiency in Research	2.9%	42.4%
Student Proficiency in Teaming, Collaboration or Communication	2.4%	50.2%	Improving Student Productivity and Efficiency	**.5%**	49.3%

It should be noted that the two items rated highest in importance were in improving classroom instruction and student performance. The next highest percentages were in the areas of Managing School Operations, Teacher Proficiency in Use of Technology, and Preparing Students for Future Jobs. Sixty percent or higher of the participants rated Supporting Instructional Reform, Improving Communication Among Faculty and Staff, Setting Target Levels of Technology, Improving Student Test Scores, and Promoting Active Learning Strategies as Very Important.

Learning and Teaching

Within the domain of Learning and Teaching, questions were clustered around support and dissemination. The questions were narrow in focus and specific to participant actions. For the purpose of this reporting, Significantly (Sig) and Fully were collapsed.

Table 2.
Learning and Teaching Extent

Component	Not at All	Sig to Fully
Provide teacher assistance to use technology for interpreting/analyzing student assessment data.	.5%	81.9%
Provide assistance to teachers for using student assessment data to modify instruction.	1%	78.5%

Disseminate or model best practices in learning and teaching with technology to faculty and staff.	.5%	61.0%
Provide support to teachers/staff who were attempting to share information about technology practices, issues, and concerns.	.5%	60.5%
Organize/conduct assessments of staff needs related to PD on use of technology.	2.4%	49.8%
Facilitate/ensure delivery of PD on use of technology to faculty and staff.	1.5%	62.9%

Significant in this data is the extent to which the actions of the administrator are focused on items related to student assessment. However, those items related to pedagogical strategies, support, and professional development related to the use of technology were reported, not only at lower levels, but also at the highest levels of **Not at All.** Without the support and engagement of the school administrator in initiatives focused on the professional growth and teachers' proficiency in technology use and integration, the inclusion and effective use of technology in the classroom will never be realized. The focus on standardized testing has been repeatedly reported in the literature as a barrier to innovation adoptions and implementations. Across the nation students, parents, teachers, administrators, and even legislators are voicing concerns regarding the need for standardized testing, explicitly the validity of testing as a measure of both student and teacher success.

Productivity and Professional Practice

In this domain, participants were asked to indicate the extent to which they participated in areas of professional development, used technology to complete day-to-day tasks, used technology-based management systems, and encouraged and used technology as a means of communication. The areas with the highest level (90% or higher) were the use of technology to complete day-to-day tasks, (e.g., developing budgets, communicating with others, gathering information) and using technology-based management systems to access student records. The lowest level was noted in the area of participation in professional development activities meant to improve or expand their own use of technology. In their leadership role, administrators must be competent and current in their knowledge and skills in technology tools and their place in the EC-12 classroom. Failing to continually seek opportunities for professional growth in technology limits not only themselves, but their community at large. Teachers who lack in the knowledge, use, and skills needed to implement technology are unable to increase the knowledge of their students who then are unable to extend their knowledge into secondary education and the workplace within their communities. This "snowball" effect then becomes detrimental to the growth and sustainability of the community.

Support, Management, and Operations

In this domain, the questions are focused on the extent to which participants perform administrative tasks directly related to support, management, and operations.

Table 3.
Support, Management, and Operations

Component	Not at All	Sig to Fully
Support faculty/staff in connecting to and using district-/building-level technology systems for management/operations.	0%	88.3%
Allocate campus discretionary funds to help meet school's technology needs.	2%	58.6%
Pursue supplemental funding to help meet technology needs of your school.	7.3%	45.9%
Ensure hardware & software replacement/upgrades were incorporated into school technology plans.	4.9%	54.6%
Advocate at the district level for adequate, timely, and high-quality technology support services.	2.9%	64.4%

Investigate how satisfied faculty/staff were with technology support services.	1.5%	54.6%
Facilitate technology integration into teaching/learning process as important instructional tasks.	0%	65.4%
Support technology integration in instruction by providing technology training experiences.	.5%	64.8%
Encourage teacher collaboration in using computer technology for teaching and learning.	0%	70.2%

The results of the survey indicated that principals gave significant time and energy to the supporting managerial and operational tasks assigned to them as the administrator. However, when juxtaposed against the actual use and integration of technology on their campus, there appears to be a disconnect. One must consider whether this particular question scored higher because it is directly linked to administrators' documented roles and responsibilities. Therefore, should use and integration of technology become an explicit charge to the administrator?

Perceptions

This domain explored administrator perceptions regarding the decision process, potential impact, and responsibility designation for technology use and integration efforts on their campus.

Table 4.
Perceptions

Component	Strongly Disagree/ Disagree	Agree/ Strongly Agree
Technology integration into teaching/learning process is a decision best made by teachers.	26.3%	52.2%
Technology provides a more efficient way to complete tasks than using paper/pencil.	3.9%	72.2%
Principals' PD to use technology has been a focus of district's efforts to infuse technology.	24.9%	46.8%
Computer technology can be used to improve student academic achievement.	.5%	93.2%
My technology expertise contributes to me being viewed as a school technology leader.	9.3%	62.9%
I am capable of evaluating computer technology that can be used to support instruction.	4.9%	80%
Technology Standards for School Administrators can assist me to facilitate technology integration into instruction.	1%	60%
My ability to use technology improves my managerial or administrative performance.	2%	94.6%

The response to the question, **"**My ability to use computer technology improves my managerial or administrative performance,**"** supports current emphasis on administrative technology use for managerial and administrative processes. While administrators acknowledged technology is efficient and can be used to improve academic achievement, they reported efforts to improve administrator knowledge in technology integration have not been a district high priority.

Social, Legal, and Ethical Issues

This domain explored administrators understanding of the social, legal, and ethical issues related to technology and their ability to model responsible decision-making related to these issues.

Table 5.
Social, Legal, and Ethical Issues

Component	Not at All	Sig to Fully
Ensured equity of technology access and use in your school.	.5%	78.6%
Implement policies/programs to raise awareness of technology related social, ethical, and legal issues for staff/students.	3.9%	56.1%
Involved in enforcing policies related to copyright and intellectual property.	6.3%	54.6%
Involved in addressing issues related to privacy and online safety.	4.9%	61.5%
Support the use of technology to help meet the needs of special education students.	2.0%	71.2%
Support technology use to assist in delivery of individualized education programs for all.	2.4%	72.6%
Disseminate information about health concerns related to technology usage.	17.1%	32.7%

While it is commendable principals reported they were attentive to technology-related social, legal, and ethical issues, it is concerning that efforts to implement and enforce policies in areas such as awareness, copyright, intellectual property, privacy, and online safety were reported at percentages of only 54.6%-61.5%. However, over 71% reported support for technology to meet needs of special education students and to deliver individualized programs. Of equal interest is the percentage of responses to the question related to health concerns impacted by technology use. These findings call into question the priority given to the safety and well-being of all students.

Significance

This study will aid in determining the areas where administrators require additional professional development and support to increase their knowledge, skills, level of interest, and opportunity for involvement in technology use on the campus. As administrators become more proficient in leading the integration of technology at the campus level, an environment conducive to effective teaching with technology will be created resulting in improved student performance. Principal preparation programs are obligated to prepare effective instructional leaders as well as effective technology leaders (Coggshall, Behrstock-Sheratt, & Drill, 2011).

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