Framing Innovation: How Do Superintendents Gain Acceptance for Large-Scale Technology Initiatives?

Executive Summary
Dissertation in Practice

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Context and Background

In recent years, school districts across the country have begun to identify the academic promise and possibilities that technology may have on teaching and learning. Despite inconclusive research on the impact of technology use on teaching and learning, school districts have moved ahead with securing the funding and acceptance from stakeholders to support 1:1 laptop/tablet, Bring Your Own Device (BYOD) or Blended Learning Environments initiatives (Nagel, 2010).

A 1:1 initiative ensures that every student has access to either a district owned or family leased/purchased device and the wireless infrastructure at school to support these devices. A BYOD initiative accommodates family owned technology devices of all kinds. A Blended Learning Environment supports a combination of a 1:1 and BYOD environment. The focus towards these learning environments has caused school districts to look for creative ways to secure funding to purchase technology devices and improve their wireless infrastructure (Salerno & Vonhof, 2011). It is estimated that in 2009 alone, U.S. school districts spent over $7 billion on technology purchases (Dexter, 2011).

A 2010 National School Boards Association survey showed that 37% of school districts have some type of 1:1 computer initiative in place and this number continues to grow (Nagel, 2010). It is our assumption that superintendents are no longer asking whether it makes sense to move towards a large-scale technology initiative, but rather when and, most urgently, how. For many school leaders, efforts to effectively and seamlessly integrate technology to meet the goals of increased student achievement and productivity require “buy-in” from district stakeholders at all levels—central office staff, teachers, students, parents and the community-at-large.

Purpose of This Study

While superintendents often seek informal guidance on technology integration decision making from other districts that have already implemented such an initiative, these methods often provide a fragmented and broad road map that often focuses on the logistics of a technology initiative and not necessarily on the leadership moves that a superintendent should employ in order to gain acceptance.

There does not appear to be a comprehensive, individualized, research-based guide to technology integrations that takes into account the unique
political, cultural and socioeconomic characteristics of various school districts that are considering this movement. There is also no research-based study available to superintendents to help them understand and consider the leadership moves that may help them gain acceptance for a large-scale technology movement.

Guided by research related to frame theory, the superintendent’s instructional vision, distributed leadership, professional learning communities, technology infrastructure decision-making and the superintendent’s use and attitudes toward technology use, this research team worked toward gaining an understanding of the leadership moves that superintendents utilize to gain acceptance of a large-scale technology initiative. These five interconnected studies are aligned to the overarching study.

**Methodology**

This study is categorized as a multi-case study of school districts within one state where a 1:1 large-scale technology initiative was implemented. Both the overarching (how superintendents gain acceptance of a large-scale technology initiative) and the individual studies focused on specific leadership moves (instructional vision, distributed leadership, professional learning communities, technology infrastructure and the superintendent’s technology use and attitudes). All individual studies employed the same methodologies and protocols of interviews from five superintendents and individuals that they
identified as being key players in their large-scale technology initiative. Interview questions were designed to address the components of both the overarching and individual studies. This is outlined in the chart below.

**Individual Study and Corresponding Research Questions**

<table>
<thead>
<tr>
<th>Individual Spoke/Author</th>
<th>Research Questions</th>
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<tbody>
<tr>
<td>Instructional Vision (Flanagan, 2014)</td>
<td>• What is the instructional vision of superintendents who implement large-scale technology initiatives in a 1:1 or BYOD environment?</td>
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<td>• How does the superintendent connect his or her instructional vision with the implementation of technology within the district to all stakeholders?</td>
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<td>• How do district administrators make sense of the superintendent’s instructional vision for technology?</td>
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<td>Distributed Leadership (Turner, 2014)</td>
<td>• Who does a superintendent work with to gain acceptance of large-scale technology initiatives?</td>
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<td>• How do members of leadership teams interact with each other around large-scale technology initiatives?</td>
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<td>Decision-Making Regarding Infrastructure (Arnold, 2014)</td>
<td>• What factors are considered by superintendents in making decisions about technology infrastructure?</td>
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<td>• What factors are considered by superintendents in making decisions about funding the large-scale technology initiative?</td>
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<td>• How did the technology infrastructure or funding decisions have an impact on the perceived acceptance of the initiative?</td>
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<tr>
<td>Communication &amp; Modeling (Cohen, 2014)</td>
<td>• How do superintendents and other district leaders use technology?</td>
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<td>• What are their attitudes about technology?</td>
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<td></td>
<td>• How do these attitudes influence their framing?</td>
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<td>Professional Learning Communities (Nolin, 2014)</td>
<td>• What are the superintendent’s expectations around collaboration?</td>
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<td></td>
<td>• What is the relationship between district expectations for professional collaboration and acceptance of large-scale technology initiatives in school districts?</td>
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Additionally a within-case and cross-case analysis of the data collected from interviews was conducted. A description of school districts that participated in this study is reflected below. The titles of district administrators that participated in this study included superintendent, principal, assistant principal, director of technology, technology integration specialist, network manager, director of academics and district grant writer.

### Description of Participating School Districts

<table>
<thead>
<tr>
<th>System</th>
<th>System size in number of students</th>
<th>Type of Technology Implementation</th>
<th>Grade Level of Technology implementation</th>
<th>Number of Interview Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams</td>
<td>3600</td>
<td>District Provided iPads</td>
<td>Grades 1, 4-12</td>
<td>4</td>
</tr>
<tr>
<td>Jefferson</td>
<td>2900</td>
<td>District Provided iPads</td>
<td>Grades 9-12</td>
<td>3</td>
</tr>
<tr>
<td>Madison</td>
<td>1000</td>
<td>Blended Design of DPD carts, Lease-to-Own and Bring Your Own Device</td>
<td>All grades, parent purchase dependent, carts at all schools &amp; levels</td>
<td>5</td>
</tr>
<tr>
<td>Monroe</td>
<td>2700</td>
<td>District Provided Mac Laptops</td>
<td>Grades 6-12</td>
<td>3</td>
</tr>
<tr>
<td>Washington</td>
<td>4400</td>
<td>Bring Your Own Device</td>
<td>Grades 6-12, parent purchase dependent, carts at all schools</td>
<td>8</td>
</tr>
</tbody>
</table>
Findings

As previously stated, this study included an overarching research question concerning the leadership moves superintendents employ when implementing a large-scale technology initiative as well as five individual studies on areas related to that process. The findings for the entire study are delineated below to reflect each aspect of this study.

Overarching Study:
How Do Superintendents Gain Acceptance of a Large-scale Technology Initiative?

1. Superintendents achieved resonance through leadership actions consistent with prognostic and motivational framing.
2. Superintendents considered constraints the initiative might face in conjunction with prognostic and motivation framing in order to gain acceptance of the initiative.
3. Superintendents developed strategic processes to gain acceptance of the initiative.

Achieving Resonance Through Prognostic and Motivational Framing

Frame theory identifies the development of resonance amongst stakeholders in any social movement as a key method of gaining acceptance (Benford & Snow, 2000). With any large-scale initiative, such as a technology initiative, the superintendent works to help his or her constituencies understand and accept the rationale for any movement through resonance (Park, Daly & Guerra, 2012). In this study, the use of prognostic and motivational framing was consistent with each superintendent. Prognostic framing works to create a solution to a
problem through goals and a structured plan (Coburn, 2006). All superintendents in this study had goals for what they hoped the technology initiative would accomplish. This ranged from access to devices to various teaching and learning goals. Motivational framing refers to how the rationale or a “call to action” is articulated (Park, et.al., 2014, p. 4). Throughout this study, the superintendents demonstrated that effective communication to all constituencies was important in gaining acceptance for the technology initiative. Superintendents demonstrated this through the use of informational meetings, district websites, social media and blogs.

**Identification of Constraints with the Technology Initiative**

Each of the superintendents that participated in this study identified and assessed constraints related to the technology initiative to their constituencies. These constraints were an element of the prognostic framing in which superintendents developed solutions to goals via structured plans for improvement (Benford and Snow, 2000). These constraints were often financial or political in nature, but also included competing interests and issues with technology support staffing. Identified financial constraints were most prominent in all the districts that participated in this study. This factor often played a role in the decision regarding what devices or implementation model would be adopted. Political constraints often centered on the lack of support from various stakeholders, whether perceived or actual. Competing interests became a constraint when local or state initiatives were in place at the same time as the technology initiative and effected time and money allocations. Nearly all superintendents identified constraints in the capacity of their existing technology staff to support the initiative.

**Superintendents Developed Strategic Processes**

Strategic processes are also components of frame theory that identify specific actions of the superintendent to gain acceptance within the district. In our study, we identified several strategic processes that superintendents utilized to create buy-in for the technology initiative. This included: conducting research about the technology implementation, equipment selection, identifying key players, piloting devices, conducting professional development, communicating the expectations for use, maximizing public relations and assessing the capacity of the technology staff.
Discussion

The overarching study produced contributions to both theory and practice. Theoretical contributions in the area of frame theory highlighted that the use of prognostic and motivational framing were highly utilized professional practices in developing resonance for technology initiatives (see figure below). This included the identification of specific leadership actions that could be utilized to gain resonance/acceptance of the technology.

In terms of the elements of prognostic and motivational framing, this study indicates that this is not a linear process in districts that are working to gain acceptance of a large-scale technology initiative. Districts in this study did not start by first identifying a problem. All started by the goal of integrating technology into their district. This study makes the important contribution to frame theory by highlighting the mix of leadership actions and effective communication that can help a superintendent gain acceptance for a large-scale technology initiative.

Limitations. Because this study only examined five school districts, the data were limiting in terms of identifying themes and conclusions. By expanding the number of districts, there could be more generalizability of the findings. Another limitation included the lack of urban districts in this study. It is unclear on how this demographic component would affect the findings. As interviews were conducted through the recommendation of the superintendent, this might have skewed interviews to support the superintendent. This study did not interview teachers, students or parents. This perspective might have created different findings particularly to the areas of instructional vision and communication. This study did not look at student achievement in these five districts nor did it quantify the use of technology in classrooms. It also did not look at districts where a large-scale technology initiative was attempted, but did not gain acceptance.

Considerations for Future Study. This study found that the diagnostic frame of frame theory, in which leaders identify a problem through the processing of blame and then define goals to resolve issues, was only present in one district. Since this study focuses on how leaders frame issues in a large-scale technology initiative, this would seem to have some relevance. Additionally, as this study examined only districts where acceptance was gained for the technology initiative, it would be interesting to examine what has contributed to districts that have failed to gain acceptance of a large-scale technology initiative. Lastly, another interesting future study would be to include teachers into the mix of participants. Our study did not measure the
degree of resonance in the classrooms that was achieved in each district. This perspective would be a great counter to this study’s focus on leadership actions.

The Use of Prognostic and Motivation Framing in a Large-Scale Technology Initiative
Recommendations

Districts that have not already implemented a large-scale technology initiative may benefit from this study by applying their own individualized lens of their district to the actions listed in this study that can be replicated regardless of demographics. These general recommendations are listed below and described in detail in the full study:

1. Prepare for the initiative with self-assessments, research and a strategic plan.

2. Carefully plan communication and public relations efforts to garner buy-in.

3. Ensure effective staff is in place to lead the initiative.

4. Anticipate obstacles so that you can plan solutions.

Individual Studies: Findings and Recommendations

Individual Study: Gina E. Flanagan

Does an Instructional Vision Help Superintendents Gain Acceptance for a Large-scale Technology Initiative?

1. What is the instructional vision of superintendents who implement large-scale technology initiatives in a 1:1 or BYOD environment?

The instructional vision of superintendents who have participated in a large-scale technology initiative is often connected to constructivist/21st century learning components such as: communication, collaboration, creativity, student engagement, real world applications and technology use. This is consistent with early studies that suggest that constructivist/21st century learning skills are supported in technology integration efforts of schools and can assist with helping to create buy-in for these initiatives (Howland, Jonassen, Marra & Moore, 2003; Jonassen, Peck & Wilson, 1999; Dede, 2010; Boschee, Jensen &
Whitehead, 2003; Haertel, Means, Penuel, Roschelle & Sabelli, 2003). However, in most of the districts who participated in this study, the superintendent’s instructional vision was not consistently re-iterated or emphasized in the district’s mission statement, technology plan or by district administrators.

2. **How does the superintendent connect his or her instructional vision with the implementation of technology within the district to all stakeholders?**

The development of the instructional vision in a district where a large-scale technology initiative has been implemented did not involve all the district administrators who were identified as key players with the technology initiative. Instead, the vision development involved primarily the superintendent and his leadership team (building principals, central office academic staff). As such, the articulation of the instructional vision in connection with the technology initiative by district administrators was inconsistent in each district. The implementation and communication of the instructional vision in these districts, specifically as it pertained to the technology initiative, was often described as much more collaborative, involving all stakeholders including teachers, parents and students. The focus was primarily on the technology initiative and how it helped students learn in general, not necessarily how technology addresses the specific teaching and learning goals of the district. Despite this factor, there was some evidence in this study that the use of prognostic framing by the superintendents helped some stakeholders see how the technology initiative could help improve teaching and learning in these districts. Motivational framing of the instructional vision and the technology initiative also helped gain acceptance by (a) emphasizing the importance of the technology initiative to teaching and learning and (b) consistently sending the message to all stakeholders that they had a part in achieving the teaching and learning goals of the district. Both prognostic and motivational framing were primarily evidenced in the utilization of strategic actions related to professional development, the allocation of resources and the communication of the instructional vision and the technology initiative. By creating resonance between the instructional vision and the technology initiative, stakeholders could understand the value of technology in their schools (Coburn, 2006).
3. **How do district administrators make sense of the superintendent’s instructional vision for technology?**

District administrators felt that the superintendent’s leadership in defining and supporting the instructional vision for the initiative was very helpful in gaining acceptance. However, in this study, although most district administrators were inconsistent in their communication and understanding of the superintendent’s articulated instructional vision, they seemed to understand and accept technology’s place in the classroom. Most district administrators often defined the instructional vision as the technology initiative. While almost all district administrators gave examples of how they support the technology initiative, they did not all give examples of how they support the superintendent’s instructional vision. Many district administrators gave their own beliefs regarding teaching and learning when describing the instructional vision for their district that was not necessarily articulated by their superintendent.

**Recommendations**

1. Superintendents should develop, utilize and consistently communicate a meaningful and sustainable instructional vision in the implementation of a large-scale technology initiative. These instructional visions should include elements of constructivist/21st century learning skills to help create resonance with stakeholders.

2. Superintendents should involve stakeholders in the development and implementation of the instructional vision—particularly with the implementation of a large-scale technology initiative.

3. Superintendents should support the development and implementation of the instructional vision in a large-scale technology initiative.
1. **Who does a superintendent work with to gain acceptance of large-scale technology initiatives?**

All five districts had a primary leader and at least two secondary leaders working to gain acceptance of the large-scale technology initiative.

**Primary Leaders**
With the exception of the superintendent of Washington, Brody, the superintendents relied on one person more regularly than the other members of the technology team to help gain acceptance of the initiative. This leader is referred to as the primary leader. These primary leaders did not take the sole power for the initiative, nor were they independent from the authority of the superintendent. Furthermore, in most of the districts these individuals typically described the collaborative work that they were involved in rather than their sole influence. However, in all of the districts a primary leader was identified as the key framer in gaining acceptance of the initiative. In Washington, Brody was the primary leader.

**Secondary Leaders**
Within each district, the superintendent identified similar positions to lead the initiative. These positions included principals, technology directors and instructional technology directors. However, despite their formal titles, each secondary member played various roles with the technology initiative. Additionally, the work that these individuals produced was different among the districts as well. The number of secondary leaders differed as well among the districts. The size of the secondary leadership that the superintendents identified ranged from 3 people to 7 people.

2. **How do superintendents interact with the members of their leadership team around large-scale technology initiatives?**
Superintendents used mainly institutional practices to interact with other leaders and the superintendents mainly took on job tasks that fell clearly within their job description.

**Institutionalized Practices.** Meetings were the more common form of interaction between the superintendent and the people that worked to gain acceptance of the technology initiative in his district. In all of the districts, meetings were an institutionalized practice of interaction between the superintendent and other members of the district. These meetings mostly occurred formally during regularly scheduled meetings.

**Intuitive working relations.** Intuitive working relations were demonstrated in three ways: (a) the technology leaders reached out to the superintendent based upon his skills, (b) the superintendent included non-administrators in an administrative meeting, and (c) the primary leader and the superintendent began working together on this initiative based upon a shared history when the superintendent was in a previous position.

**Coordinated Tasks of Superintendent.** During the interactions between the superintendent and members of the technology leadership team, tasks were coordinated. The superintendents’ tasks were implicit, meaning the tasks fell within their job responsibilities. Generally, the superintendents took responsibility for funding the initiative and communicating the initiative. Around these topics, the superintendent interacted with critical stakeholders around this initiative, which included school leadership, municipal leadership and consultants. Many of these groups made important financial decisions for the initiative. These groups included the school committee in all districts, which approved the budgets in all of the districts that purchased devices for students. In nearly all of the districts, the school committee approved budgets for the devices in the schools as well as approved budgets that included backend infrastructure in the district.

3. **How do members of a leadership team interact with each other around large-scale technology initiatives?**

Members of the leadership team interacted with each other through various interaction structures and took on both implicit and explicit job tasks.
The primary leaders and secondary leaders regularly interacted through institutionalized practices, collaboration and intuitive working relations. During these meetings they coordinated tasks that fell within and outside of their job descriptions.

**Institutionalized Practices.** Respondents described regular practices of interaction an institutionalized practice in the school district. These patterns of interactions typically occurred as part of regular meetings or planning and implementing professional development.

**Collaboration.** Primary and secondary leaders identified informal meetings to discuss and plan the initiative. Some of these less formal meetings were spontaneous meetings in which the group collaborated to address a problem.

**Intuitive working relations.** Members described working with other leaders individually based upon their history of working with the leader or based upon leaders skillset. Many of these meetings were used to troubleshoot issues with the initiative. For example, many people described working with the technology director or network administrator to troubleshoot infrastructure challenges or issues for the initiative.

**Coordinated Tasks.** During the meetings primary and secondary leaders coordinated working tasks on the initiative. Some of these tasks were completed jointly, while other tasks were completed individually. Additionally, some of these tasks were implicit and fell clearly within the job description of these leaders, such as supporting teachers in the classroom. However, some tasks were explicit and fell outside of the job description of the leaders, such as meeting with community groups.

**Recommendations**

1. Superintendents should empower leaders with an interest and knowledge in technology leadership.

2. Superintendents should interact and coordinate jobs with technology leaders and encourage technology leaders to interact with each other.
3. District leaders should create structures that allow leaders to take on responsibilities that fall within and outside of their job responsibilities.

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**Individual Study: Anna P. Nolin**
Do Professional Learning Communities (PLCs) Influence Acceptance of Large-scale Technology Initiatives?

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**Framing Innovation: Technology Implementation and Existence of PLCs in Districts**

The findings of this study indicate that the combination of framing and PLC constructs constitute the creation of an important learning medium—a technology learning ecology—with which to nurture educator learning about technology and increase acceptance of large-scale technology implementations in districts.

Superintendents created their own technology learning ecologies that functioned as PLCs for technology implementation teams, but did not necessarily “scale up” PLCs for district-wide technology learning. Key framers (primary leaders) of the technology initiative were identified in each district. Four superintendents (Jefferson, Madison, Monroe and Washington) created technology leadership ecologies with their technology leadership teams and one superintendent (Adams) did this through connections with his key framer/primary leader (leader of initiative) and through the use of social media and virtual learning networks. These PLC learning ecologies helped the superintendent to understand and implement the initiative.

In districts where more PLC constructs were described in relation to the technology initiative, participants identified more moments of resonance within the initiative and identified fewer constraints around the initiative. A possible synergy between PLCs and motivating educators to accept the initiative is sketched, as is the possibility that PLCs serve as a potential buffer to minimize worry over political or financial barriers to gaining acceptance for the initiative.

1. **What are the superintendent’s expectations around collaboration?**
All superintendents identified shared collaborative time as a formal part of their technology initiative and provided district resources to support it. Collaboration time existed in formal and informal ways. The term “PLCs” or PLC constructs were not directly used as a part of any superintendent’s deliberate strategy to support technology implementation or gain acceptance, even if the system claimed to formally implement PLCs. However, all five superintendents and their leadership teams described PLC construct expectations for shared time, collaborative teams, an action orientation and expectations for continuous improvement in their descriptions of educator work involving the large-scale technology implementation in their districts.

2. What is the relationship between district expectations for professional collaboration and acceptance of large-scale technology initiatives in school districts?

Professional learning communities as a formal part of the district’s overall instructional vision existed only in Washington and Monroe. However, across all five districts, superintendents described research tasks, formal professional development and informal professional development opportunities and provided collaboration around the technology initiatives.

Research: In all districts, superintendents actively connected professional collaboration and the technology initiative by creating technology PLCs for their own learning and planning through the use of their technology leadership or vanguard teams and by modeling technology use. Collaboration occurred through strategic planning meetings (virtual and in person), research visits to implementing districts, use of technology to model technology collaboration, and social media and online collaborative platforms.

Formal Professional Development: Formal professional development was described by all superintendents using PLC constructs. These experiences were described as a key forms of collaboration around the technology implementation. This professional development collaboration around technology was described as district-coordinated full and half day professional days and graduate workshops. Graduate workshops, due to their formal arrangement, staff’s autonomy in choosing the courses and the fact that many courses were taught by the district’s initiative’s key framer/primary leader emerged prominently as connected to PLCs and collaborative learning.
Informal Professional Development: Informal professional development was described by superintendents as connected to the technology initiative, but were not consistently described using PLC constructs. These professional development experiences were described as job-embedded shared collaboration time, workshops provided in various forms by technology integration specialists, after-school drop in technology help sessions, use of video conference distance learning to collaborate and use of memos or social media to read about new technology practices.

Like the learning medium described in Zhao & Frank (2003), PLCs help to create a “learning ecology” that nourishes development of the work in the system. While PLCs may not be necessary to gain initial acceptance for large-scale technology initiatives, they may be critical to sustaining acceptance or maximizing the initiative in the systems. This study indicates that PLCs do have a relationship to motivating staff and leaders within the district and for minimizing the effect of district constraints that threaten to hamper or slow the diffusion of technology implementation through the school system.

Recommendations

1. Grow PLC culture by combining PLCs with research, choice and formal professional development for all educators impacted by the technology initiative. The act of doing so strengthens the collaborative culture and deepens organizational learning around new initiatives, policies and practices (Talbert, 2009; Honig, 2006).

2. Create small innovation/implementation teams across the school system to aid in collaborative learning. Such teams create a sense-making learning ecology between all levels of the school organization (Spillane, Reiser & Reinter, 2002) enable innovation, sustain adult intention and autonomy while allowing for change, creativity, chaos and variety in adult learning and growing (Eisenhardt & Zbaracki, 1992; Nonanka, Umembto & Sasaki, 1998). Such regular team learning and mutual engagement sustains connections across the new implementation (Coburn & Stein, 2006).
1. **What factors are considered by superintendents in making decisions about technology infrastructure?**

Superintendents valued the capabilities and reliability of a device and were willing to pay more (within budget) for a device that had these qualities. The capabilities of the device could include things such as: battery life, audio/video recording, full size keyboard, variety of apps or software, portability, and ease of use. A reliable device would be one that is still likely to operate correctly even when it is constantly being transported from class to class and from school to home over a several year period. All superintendents considered a device to be reliable if they got three to four years of serviceable life from each device.

2. **What factors are considered by superintendents in making decisions about funding the large-scale technology initiative?**

Superintendents funded 1:1 initiatives by seizing one-time budget opportunities and through creative financial moves. Superintendents considered the financial sustainability of the large-scale technology initiative before committing to it. In addition to the reliability and cost of the device, superintendents chose devices that they believed had the features and capabilities that their students and teachers needed in the classroom. No superintendent purchased the least expensive device available (netbook, Chromebook, iPod). Instead, given the budget they had available, they purchased the device they thought offered the best reliability and capabilities for their students and teachers. Four of the five districts in this study had a portion of their large-scale technology initiative paid for by the state as part of a new building or renovation project. Some superintendents used political maneuvers to get a fixed sum in the budget that was dedicated for technology purchases. The superintendent typically worked with members of the Town Finance Committee (FINCOM) to secure these funds. Another important finding was that superintendents of this study considered the financial sustainability of the large-scale technology initiative before committing to it.

3. **How did the technology infrastructure or funding decisions have an impact on the perceived acceptance of the initiative?**
Robust and reliable Wi-Fi networks were recognized as being critical to gaining acceptance by teachers for 1:1 initiatives. A reliable network is one that is, rarely, if ever, not functioning properly (operational 99.9% of the time). All districts indicated they put the necessary planning and funds into their wireless networks in order to support their large-scale technology initiative.

**Recommendations**

1. District leaders need to make the necessary investments in their wireless networks to ensure they are robust and reliable.

2. School districts who do not believe they have the funds necessary to sustain a 1:1 initiative should consider a lease-to-own model. This should be done with the consultation of legal counsel.

3. Superintendents should have a plan to sustain the initiative when new equipment needs to be replaced.

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**Individual Study: Peter D. Cohen**

The Impact of the Superintendent’s Attitude and Use of Technology on the Acceptance of Large-scale Technology Initiatives

1. **How do superintendents and other district leaders use technology?**

All of the superintendents and district leaders in this study use technology in their everyday practice. The specific devices used include a range of laptops, tablets, and smart phones with the common thread to each of these tools being mobility and access to Wi-Fi. Regardless of the specific brand of device, having the capability to access email and the web from anywhere at anytime was vital to work of these leaders. The data suggests that the leaders in this study use technology almost daily and for two main purposes in their professional practice: communication and collaboration.
2. What are superintendents’ and district leaders’ attitudes about technology?

While the use of technology by superintendents and other district leaders is somewhat variable, the data suggests that the 5 superintendents studied are aligned their overall attitudes about technology. For example, the superintendents and other district leaders indicated that technology was an important tool for improved instruction. Secondly, leaders in each district discussed the positive influence of technology to ensure that students are college and career ready. Thirdly, there was also an indication that superintendents aspired for their districts to be on the cutting edge as innovative school districts. These leaders did not wish to be behind the technology curve, but instead worked to proactively insert the tools students need to be successful now and in the future.

3. How do these attitudes influence their framing of large-scale technology initiatives?

The superintendent in each of the five districts studied reported a positive attitude about the direction of the district in regards to technology. This attitude appears to have more of an impact on the overall acceptance of the technology initiative than the superintendent’s personal use of technology. In other words, while there is no direct correlation between the use of technology by superintendents, the superintendent’s attitude about technology is a vital factor in gaining acceptance for the large-scale technology initiative. The findings of this study indicate that a primary leader is essential to frame the initiative. That leader does not need to be the superintendent, but the superintendent needs to also frame the initiative to gain acceptance. Our findings indicate that without the support of the superintendent, the technology initiative will not gain acceptance. Ultimately it is the superintendent who needs to make the case for the funding and sustainability of the initiative.

Recommendations

1. Ensure technology leaders are in place. The superintendent will be prepared to successfully lead a district into a large-scale technology initiative when proper leadership and staff are in place at all levels of the school district.
2. **Demonstrate conviction and belief in the initiative.** Without a superintendent who fully supports the integration of technology in the schools and moving toward a 1:1 learning environment, large-scale technology initiatives will not be successfully implemented, funded, or sustained.

3. **Promote innovation and sustainability.** Because of the ever-changing landscape of technology, thorough research and planning are needed in order to ensure both technology innovation and sustainability. If a superintendent is going to give support for a large-scale technology initiative, they must insist on decisions being made only after exhaustive research and thoughtful strategic planning has been completed. A successful initiative will require a comprehensive plan where ideas have been vetted, training needs considered, infrastructure requirements delineated, and long term funding solutions created. Innovation requires leaders continuously stay current with the technology. Large-scale technology initiatives require large-scale planning and strong leadership to be forward thinking in order to maintain the direction of the initiative and plan for the future.
Overall Conclusions

As previously stated, this study looked to first understand how superintendents gain acceptance of a large-scale technology initiative. The overarching study led researchers to examine more specific aspects of superintendent leadership that could be useful in implementing a large-scale technology initiative. This included a focus on the superintendent’s instructional vision, role of distributed leadership, creation and development of professional learning around technology, technology decision-making and the superintendent’s use and attitudes regarding technology. While all five research areas presented some very unique findings relative to the area of study that are found in each individual chapter, they also uncovered some common themes across these five spokes.

Superintendents interaction with others. Whether implementing an instructional vision, developing professional learning communities or making decisions regarding the technology infrastructure, all superintendents in this study relied on interactions with district administrators and communication with all stakeholders to help gain acceptance of their large-scale technology initiative. As the study on distributed leadership concluded, superintendents relied on primary leaders/key framers of their district administrative team to develop and implement their technology initiative in all areas of the five individual studies.

The development of strategic processes. As outlined in this study, superintendents utilized a variety of strategic processes in connection with prognostic and motivational framing to generate acceptance of their large-scale technology initiative. Across all spokes of this study, superintendents identified district-wide issues related to the individual focus areas and charted out strategic plans to help address these issues. In preparing for the initiative, the instructional vision, professional learning opportunities, leadership teams, technology infrastructure and communication avenues were all considered as elements necessary to build buy-in for the initiative. These focus areas were continued throughout the implementation phase of the initiative.

Additionally, the strategic process of developing professional learning opportunities related to the initiative was also interwoven within the five spokes. Professional development focused on moving forward the instructional vision of
the district, involved the assistance of primary leaders/key framers, took into account the technology tools and infrastructure of the district and was communicated by the superintendent through various avenues including social media, blogs, newsletter and the district website to name a few.

The overall study, in conjunction with the five related studies, all focus on the leadership actions that superintendents employ when working to gain acceptance of a large-scale technology initiative. This study has shown that the superintendent’s framing of the technology initiative and the strategic actions that he or she utilizes throughout the initiative related to each of the five spokes of this study are vital to developing resonance, and ultimately acceptance by stakeholders.

Recommendations
1. Self assess and create a strategic plan.
2. Carefully plan communication and public relations efforts to garner buy-in.
3. Ensure effective staff is in place to lead the initiative.
4. Anticipate obstacles so that you can plan solutions.
References


