Technology Decision-Making in K-12 Organizations: A Roadmap for Success

Diana Theisinger, M.Ed.

College of William & Mary

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With terms like 21st century learning and college and career readiness creeping into countless school mission statements, it is hard to ignore the push for increased technology in K-12 schools. Even casual observers are likely to have made note of wave after wave of technology trends—digital whiteboards, LCD projectors, laptop carts, and iPads for all students. But little is understood about how and why organizations make the decision to implement these new technologies; even less is understood about what might be considered "best practices" in organization decision making around technology adoption. In other words, what should K-12 organizations do to ensure they are making good decisions when it comes to implementing new technology?

In many cases, implementation has been followed by spectacular, public failure, as in the case of the Los Angeles Unified School District (Lapowsky, 2015). Writing for technology website Wired, Lapowsky noted that asking a few simple questions before implementing iPads could have saved Los Angeles many headaches and dollars: "What will students learn? How will students learn? What resources will be needed? How will it work?" (para. 28). These questions provide a roadmap that is echoed by researchers and observers alike as they study the way organizations make technology decisions.

A search of the literature related to organizations' technology decision-making reveals little in the way of current, scholarly research. However, there are areas of clear agreement between the scholarly research that exists and the accounts "from the field" of those who have experienced and observed K-12 schools' technology adoption processes firsthand. Taken together, these areas of agreement point to a handful of actions organizations can take at the

beginning of their technology adoption and implementation plans, as well as throughout the integration process, to pave the way for ongoing success.

Research Synthesis

Challenges with Technology Adoption & Implementation

The biggest challenges school divisions seem to face when implementing new technologies are: inefficiently allocated resources for professional development/sustainability; failing to change school schedules to provide adequate time for teacher preparation; and forgetting that introducing new technology creates its own digital divide (Rivero, 2005). Fundamentally, these are issues related to having a narrowed perspective, rather than a systems perspective that views the K-12 organization in the context of countless variables and moving parts (Hoy & Miskel, 2013). The fact is decision-making should be a very much context-dependent process, with each school division approaching problems in the way that fits their unique, complex situation. That context has to be considered broadly, at the level of a whole division instead of a single department or school. School divisions have to think about technology decisions in terms of how they will affect the entire system, not just on a school-by-school basis (Rivero, 2005). And, although lessons can be gleaned from problems and solutions other schools have encountered, ultimately, organizations need to decide what will work best for them by considering what makes their context unique.

Additional problems arise when K-12 organizations use a generic approach to technology decision-making, borrowing advice or implementation strategies from the business or higher education sector. This is often the result of considering a particular vendor's sales pitch before considering the division's distinctive teaching and learning needs (Lapowsky, 2015). Despite the fact that many technology-related priorities and concerns are similar across K-12, business, and

higher education, what works for technology implementation and integration in one field does not necessarily work in the others; again, success is context-dependent (Ensminger & Surry, 2008). The work of adopting and implementing new technology, especially across an entire school division, is front-loaded. Divisions should be prepared to put in a lot of thinking and planning work up front, prior to making any purchasing decisions or even soliciting bids from vendors.

Importance of Professional Development

One area where researchers and observers seem to agree on the issue of technology implementation is that school divisions need to provide explicit leadership development and training for technology decision-making and organizational change (Rivero, 2005, p. 33). It is not enough to hire a technology specialist and delegate all technology decisions to that person. Rather, key personnel throughout the division need to receive specific training in what good technology decision-making looks like and in how to manage change at the organizational level. Similarly, school divisions must be prepared to provide ample time for professional development (Toy, 2008). This means creating time in teachers' schedules, but also in the schedules of building administrators and division leaders. Building and division administrators should be proficient in the technologies used in their division (Ramirez, 2011) and model the appropriate use of technology for teachers (Toy, 2008). Divisions have to be willing to make professional learning a priority if new technology initiatives are to be successful.

As mentioned previously, a frequently overlooked need for professional development comes with those in the role of technology decision-maker (Rivero, 2005). Often, a single person is tasked with making large-scale organizational decisions about which technologies will be best for the division. This person may have little to no training in how to make good decisions at the

organizational level or in what to expect when implementing system-wide changes. Rather, the key decision makers are often technology experts, who may not have broader perspective needed to manage the impact of a division-wide technology initiative. Training these decision makers is key, as is making sure they are not working in isolation to make decisions that impact the broader system.

Throughout any new technology initiative, school divisions should be prepared to adjust their approach to teacher and administrator learning. Plans for professional development should be differentiated by the phase of technology adoption: one plan for implementation, another for integration, and another for sustainability (Ramirez, 2011). Each of these plans should be envisioned and fully funded before any steps are taken toward actually purchasing any specific technology. In short, school divisions need to answer the essential questions of, "What resources will be needed?" and "How will it work?" (Lapowsky, 2015, para. 28) before anything else happens.

The Decision-making Process

The primary focus of K-12 organizations—that is, the technical core—is teaching and learning (Hoy & Miskel, 2013). All decisions should flow from this reality. When K-12 organizations face decisions related to adoption of new technologies, the technical core should drive those decisions. In other words, school divisions should start with why the need for technology exists before making a plan for how it will happen, and must consider content before devices (Cortes, 2015; Herman, 2015). Missteps occur when divisions are forced into making rushed decisions or get lured by the latest trend into making purchasing decisions ahead of teaching and learning decisions. The more curriculum guides decision-making, the greater the chances of success with technology implementation and integration (Cortes, 2015).

Rivero (2005) has asserted that the fundamental question school divisions are trying to answer with technology is this: Are we aligning school learning environments with real-world environments? With the push for producing students who are 21st century learners and college-career ready, many divisions have looked to technology as a solution. However, simply purchasing technology will not solve the problem of preparing students for the world they will face after K-12 education. School divisions need to make decisions with a global perspective, looking ahead to future needs and looking beyond traditional mindsets and approaches (Rivero, 2005). The alignment divisions are seeking cannot happen in a bubble, but neither can it happen if schools fail to make a plan that will lead to successful technology integration.

Ensminger and Surry (2008) have identified eight conditions that play a role in the success of technology integration initiatives. They recommend that technology decision-makers evaluate each condition in light of the unique context of their organization before proceeding with decisions:

- dissatisfaction with the status quo;

- availability of adequate resources for implementation;

- rewards and incentives that will result from integrating the new technology;

- knowledge and skills required to use the new technology successfully;

- adequate time for users to learn the required knowledge and skills;

- participation of stakeholders in the decision-making process;

- commitment of the organization to the success of the initiative; and

- leadership, which the authors define as "the level of ownership and support given by the leaders who will manage the daily activities of those implementing the innovation" (p. 616)

In short, if organizational leaders have not considered the items on this list and given thought to how their school division will address each concern, they can expect to face challenges in that area during technology implementation. For example, a decision-maker who fails to plan for the knowledge and skills required to use the new technology successfully may later be surprised by the steep learning curve encountered by students, teachers, and administrators when attempting to integrate the new technology in the classroom. And underestimating the learning curve likely also means inadequate time has been allotted for professional learning, which is a frequent stumbling block schools encounter when attempting to implement new technologies (Rivero, 2005).

Timeline for Adoption & Implementation

A major challenge school divisions face when implementing new technologies is trying to do too much too fast. Implementation should be slow and methodical (Herman, 2015). Some experts recommend teachers and administrators be given access to tools "at least a year before they are asked to use these resources with students" (Toy, 2008, para. 35). Returning to the previous idea of the school division as a complex, open system (Hoy & Miskel, 2013), school divisions struggle when they adopt technology without a plan for its long-term sustainability. Adoption of new technologies needs to be concurrent with plans for sustaining those technologies, with a whole district perspective (Rivero, 2005). And although decisions should start with teaching and learning, considerations do not stop at the classroom door. There are many facilities-level concerns, like bandwidth and wireless access, that have to be addressed before a school can roll out something like a 1-to-1 computing effort (Herman, 2015). Ramirez (2011) recommends school divisions should plan for long-term allocation of funding to support technology initiatives and the professional development they require, not just the initial startup

costs. Further, communication about timelines is vital. Expectations about how quickly technology is integrated need to be "clear and reasonable" (Toy, 2008, para. 24). This means organizational leaders need to communicate clearly with building leaders, teachers, and the community about the timeline. Rather than being a fast solution to all of the division's problems, successful technology implementation takes time; organizations that promise their stakeholders overnight change are all but guaranteed to disappoint.

Precursors for Success

Those who have studied successful K-12 technology initiatives have identified several factors that can best be described as precursors for success. First, success starts with effective decision-making: successful technology decisions and integration happen from the organizational level down, when school division leaders align technology with a broader educational vision (Lapowsky, 2015; Rivero, 2005). This guiding vision helps protect school divisions against hasty decisions and outside influence from technology vendors.

Next, successful initiatives are driven by collaboration. Clear communication is needed between the technology department and the rest of the school division (Johnson, 2013; Ramirez, 2011). When the technology department acts as a silo and does not consult with other departments, decisions may be misaligned before the initiative can even get started. Researchers and observers of educational technology agree: decision-makers cannot work in isolation. Rather, decision-making about technology has to be a shared process between administrators, technology experts, and teachers (Johnson, 2013). Johnson (2013) has recommended school divisions create "technology advisory committee[s]" (p. 81) to navigate issues as they arise and anticipate future challenges. This is consistent with the advice of other researchers and observers

who recommend school divisions include all stakeholders, including the community, in planning and implementing new technology programs (Cortes, 2015; Herman, 2015; Toy, 2008).

Finally, organizations must be ready for administrative-level changes; the burden for successful initiatives should not fall solely onto teachers' shoulders. New technologies require new policies (Anderson & Dexter, 2005), and those policies should be in place prior to purchasing or implementing new technologies. Poor planning and policymaking leads to conflict and tension that could otherwise be avoided (Johnson, 2013). Administrators should be prepared to take the lead in shepherding new initiatives from implementation to integration. Anderson and Dexter (2005) have posited that administrators must be "active technology leaders" (p. 74) to ensure successful integration. Further, those in positions of leadership must explicitly voice clear expectations about technology integration (Toy, 2008), including clear expectations about the timeline for success.

Position Statement & Summary

Those in positions of leadership in K-12 organizations should heed the research and observations of those who have studied successful technology implementation in K-12 settings. This means having a clear understanding of their own organization's vision for teaching and learning and letting that vision guide decision-making. It also means planning collaboratively, with input from stakeholders throughout the organization, before making any technology-adoption decision. Organizations should secure adequate funding from grants, school board support, or fundraising not only to make the initial technology purchases, but also to fund ongoing professional development efforts for administrators, who should serve as technology leaders, and for teachers who will be on the frontline of implementing the new technology. Administrators can make use of resources like TICAL (www.portical.org), an online resource for

selecting and using technology tools as well as professional development related to technology

integration (Rivero, 2005). Along with adequate funding, organizations should also plan

adequate time—time for decision-making, time for professional development activities, and time

for the new technology to become truly integrated into the organization—before evaluating the

success of the initiative. The bottom line is that technology decision-making should not be a fast,

one-tool-fits-all process. Rather, it should be a methodical, contemplative progression guided by

the organization's central mission. Organizations that are unwilling to take this slow, measured

approach will find themselves facing failure more often than success.

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