Lincoln Public Schools

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To: Becky McFall, Superintendent
Lincoln School Committee
From: Rob Ford
Re: Entry Plan Report
Date: May 14, 2014

Over the course of this school year, I have carried out an entry plan designed to assist me in developing an understanding of the technology resources and needs in the Lincoln Public Schools. This work has included interviews and meetings with various stakeholders, school visits and classroom observations, the analysis of survey results, and the review of existing plans, documents, and contracts.

Below, I have summarized the findings of my entry process in nine areas.

Network and Systems Operations

The district operates two distinct networks – one on the Hanscom campus and one on the Lincoln campus. Each location has a handful of servers providing DNS, file storage, curriculum software, and other services. The district's networks and servers are primarily supported by the Network Manager, with some assistance from Building Technicians and the Director of Technology. The Network Manager also supports and maintains the district's telephone systems.

Early on in my entry process it was identified that the network was a major area of concern. In a survey of over one hundred teachers, 56% of respondents reported that the network was somewhat or very unreliable. 46% described network performance as fair or below. These performance issues were primarily attributable to older hardware that had passed its usable life as well as some bottlenecks in the network topology.

Over the course of this year, we have completely redesigned the district's network, eliminating bottlenecks, and increasing security. We have installed new network switches and access points that have improved performance and reliability, and replaced the district's content filters and firewalls to provide better security and performance and ensure better filtering of inappropriate content.

On the 2014 MA TELL survey, faculty were asked to, "Please rate how strongly you agree or disagree with the following statements about your school facilities and resources." 90% of respondents, up from 84.3% in 2012, agreed or strongly agreed with the statement "Teachers have sufficient access to instructional technology, including computers, printers, software and internet access." 96.4% of respondents, up from 85.5% of respondents in 2012, agreed or strongly agreed with the statement "Teachers have access to reliable communication technology, including phones, faxes and email."

The district had formerly utilized Open Directory to provide LDAP, authentication services, and other services. As Open Directory has reduced in prominence in the industry, most components of it have fallen into disuse in the district. Important next steps in the area of network and systems operation will be to evaluate the district's needs

around directory services, DNS, and file services and to establish a plan for server and network replacement.

Technology Hardware and Asset Management

Students and faculty have access to a large amount of technology. All teachers are assigned a laptop that is typically 1-5 years old. The typical classroom has 2-4 desktop computers and each building has a mix of dedicated computer lab(s), and computer and iPad carts available. Student computers may be anywhere from 2-8 years old. In addition, the Hanscom Middle School has a 1:1 technology program with iPads in 6th grade, Chromebooks in 8th grade, and a mix of iPads and Chromebooks in the 7th grade.

The district has primarily relied on one-time funds to purchase technology. This has led to a large amount of technology in the district, however much of it is beyond its reasonable lifespan with no plan in place for replacing it. Throughout all of our schools, desktops with defective displays and laptops that are not fully operational are commonplace.

A major need for the district is establishing a hardware replacement cycle and accompanying budget plan. A first step in this direction was taken this spring with a district-wide inventory effort. All technology and equipment in the district is now bar-coded and tracked. We also began work on a technology asset management procedure manual that describes processes for deploying new equipment, equipment maintenance, inventory management, and equipment disposal. The next step in this process will be implementing a hardware replacement cycle to ensure that technology equipment is being cycled into and out of the district in a planned and purposeful manner. In addition, a process for technology hardware requests will be developed.

Classroom Audio/Visual Systems

Throughout the district a variety of audio/visual systems are in use in classrooms. These include projectors, interactive whiteboards, basic audio systems, document cameras, and a small number of voice amplification (sound-field) systems. Projection has become an essential part of most teacher's instruction, however the quality and reliability of our equipment varies widely, from professionally mounted projectors to jerry-rigged systems to projectors sitting on student desks or carts. The district needs to move towards developing a baseline classroom audio/visual system, and ensure that this system is in place in all classrooms. A hardware replacement cycle is also needed in this area.

Management Information Systems and Software Tools

The Lincoln Public Schools utilize a number of management information systems to support teaching, learning, and operations. The major systems used are Aspen, eSPED, MUNIS, BaselineEdge, Nutrikids, and curriculum-specific software. General productivity tools including spreadsheets and Filemaker Pro are utilized as well.

Aspen, from Follett, is the district's primary student information system, or SIS. Aspen is used to collect and maintain student records in a variety of areas including demographics, membership, emergency contact information, course enrollment, attendance, and standards-based grades. Teachers track students' progress towards a set of grade-level learning standards in Aspen. This data is shared with parents through a standards-based report card. Aspen also is used to collect and store staff information including

demographics, professional credentials, and attendance. All major Massachusetts state reports, including SIMS, EPIMS, and SCS are generated from Aspen.

eSPED, from eStar, is a specialized system for managing the creation and revision of individual education plans, or IEPs. Special educators in the district use eSPED to store and share information about these plans to help ensure that students' individual needs are being met. eSPED also has reporting capabilities that help ensure compliance with state and federal regulations.

MUNIS is a financial management package that is used to track budgets, process purchase orders, and generally maintain financial records. BaselineEdge is a system that is used to manage the district's Educator Evaluation program. Nutrikids is the food services and point-of-sale system.

A range of curriculum-specific tools are also used, including FasttMath, Lexia, and Dreambox. These systems provide differentiated practice for students, while also collecting useful data on students' performance to help inform instruction. In addition, custom solutions have been developed in the district using spreadsheets and Filemaker Pro to track students' performance on assessments and progress towards district standards. The district also makes use of the Massachusetts Department of Elementary and Secondary Education's Edwin Analytics system for analyzing student performance on state assessments.

The district also uses Google Apps for Education's collaboration tools with all faculty and for students in grades 5-8.

All of these systems are supported by a variety of staff. The district Data Manager trains and supports teachers and other staff in the use of Aspen and other systems. District instructional technology specialists, technicians, and the Director of Technology also provide ongoing support and training in various systems.

One of the biggest challenges facing the district is in how me manage student assessment data. When faculty were surveyed regarding the effectiveness of data tools, 68% responded that Aspen, the district's primary student data system, is not an effective tool. Faculty are tracking a growing amount of student assessments and are frustrated with the limitations of Aspen, spreadsheets, and other tools available to them. Aspen also has limitations in how it handles standards-based grading.

Throughout this year, the Data Systems Team has worked to develop criteria for evaluating data systems. The next step in this area is to evaluate Aspen and other student information systems (SIS) to determine if there is an SIS that is a better fit for the district.

Technology Policies and Procedures

The Lincoln Public Schools has comprehensive Employee and Student Use of Information and Communications Technologies Policies. These policies address important issues including appropriate use of technology, privacy, cyber-bullying, copyright law, internet safety and social media. Our Instructional Technology Specialists educate students about the student policy.

The Student Use of Information and Communications Technologies Policy is written in language that is challenging for most of our students. A recommended action in this area

is developing grade level guides that translate the student policy into language and/or visuals that are developmentally appropriate for our students.

The district's technology plan covered a five year timeframe, concluding in 2011. A new plan needs to be developed, aligned with the district's strategic priorities. The district also needs to develop a policy that addresses the Children's Online Privacy Protection Act (COPPA) and the student use of third-party software services.

Technology and Library/Media Curriculum and Instruction

The district has a full set of K-8 learning expectations in the areas of Technology Literacy and Library/Media and Information. The Technology Literacy learning expectations are focused on basic operations, ethics, safety, and society, and research. The Library/Media and Information learning expectations are aligned with the Massachusetts School Library Association standards and address topics including information seeking strategies, information access, research, and literature appreciation and selection. In both areas, the learning expectations, which were updated in 2010, are strong and generally align with or exceed state and national standards. The sequencing of learning expectations should be reviewed for alignment with other curriculum areas that have been, or will be updated. Two specific areas that need additional review in the Technology Literacy standards are media literacy, and computer programming.

One of the great strengths of the district is our team of Librarians and Instructional Technology Specialists. There is a strong sense of collaboration among this team and all deliver high quality instruction to students. One challenge in the area of technology and library/media instruction lies in the disparate models of instruction that have developed independently on each campus. Students on the Hanscom campus receive nearly double the amount of direct library and technology instruction over the course of grades K through 8. Students in grades 6-8 on the Lincoln campus receive no direct instruction in either area. This raises concerns about how important topics such as information literacy, media literacy, and internet safety are addressed at these key grade levels.

This year, the Instructional Technology Specialists and Librarians, with the Director of Technology, have begun a dialogue around the different instructional models. The next step in this process is to develop a common vision of the best instructional approach to the Technology Literacy and Library/Media and Information learning expectations.

One opportunity that arose through conversations with parents is a desire to have more parental education about appropriate technology tools and topics such as internet safety and media literacy. We are exploring a variety of possible ways to meet this need including parent education nights.

Technology Integration

Technology integration in the district's classrooms varies greatly. Viewing technology integration through the lens of the SAMR model (Substitution, Augmentation, Modification, and Redefinition), many classrooms are using technology to enhance learning by substituting or augmenting non-technology tools for modest functional improvements. Just a handful of classrooms in the district are at the transformation level, creatively utilizing technology to redesign or create new tasks that were previously not possible.

The teachers in the district are generally very enthusiastic about using technology and have been remarkably persistent in using technology in light of some of the operational obstacles discussed above. There is an expressed demand for professional development from teachers who want to learn how to use technology more effectively. There is also a need for professional development that helps teachers determine when technology tools will be effective and when other options may be more appropriate.

All of the district's Instructional Technology Specialists have a portion of their FTE dedicated to supporting the effective use of instructional technology in classrooms. This year we have worked on increasing the amount of integration support provided to teachers and we plan to continue that work next year.

Professional Development

Technology and Library/Media professional development is provided to faculty in a variety of ways. Targeted one-on-one, co-teaching, small-group, and grade level professional development occurs on an ongoing basis as Instructional Technology Specialists collaborate with classroom teachers. Faculty meetings, and school and district professional development afternoons are also sometimes used for technology and library/media work. This year, for instance, on a district Wednesday afternoon the Librarians, Instructional Technology Specialists, and the district Literacy Coordinator collaborated to deliver professional development around the research process. This summer the district is also offering a variety of technology-related workshops and courses.

One of the concerns expressed by faculty is that previous software and hardware purchases were not accompanied by adequate and ongoing professional development. It is critical that professional development be considered an essential component of any future initiatives in order for teachers to use new technology effectively. We also need to develop strategies for delivering ongoing professional development in the effective use of technologies the district has already invested in.

Technology and Library Staffing

The district currently has sufficient staffing levels in the area of technology support and instructional technology. Faculty and students are generally able to access technology support in a timely fashion, and faculty are able to find partners able to collaborate with around technology integration.

Two areas that require further exploration are library staffing on the Hanscom campus and data systems staffing. On the Lincoln campus, all library instruction is delivered by a certified librarian, while on the Hanscom campus, a significant portion of K-3 library instruction is delivered by a library assistant. This discrepancy warrants further study. In the area of data systems, the increasing demands of state reporting, assessment tracking, data analysis needs, and report writing are putting pressure on our existing staffing model. Additional review and discussion is needed to determine the best model to meet the district's varied and imminent needs.

Professional development for technical staff is another area of need. Our technicians and network manager need to develop expertise in new technologies as they are introduced and to develop their core IT skills. We have begun to address this by budgeting for training in next year's budget and have also begun to seek training services as part of new technology implementation projects.

Conclusion

Overall, the district is well positioned to move forward with the effective use of technology to improve student learning. We have a strong team of Instructional Technology Specialists and Librarians and dedicated technical staff. Technology tools are available to faculty and students, and our network infrastructure has been completely overhauled to ensure reliability and improved security and performance. In order to move forward we will need to establish a technology replacement cycle, ensure that our library and technology learning expectations are being addressed at all grade levels, improve our student data systems, and provide faculty with professional development and coaching to help them effectively integrate technology into their curriculum.

Strengths

- Strong team of Instructional Technology Specialists, Librarians, and technical staff.
- Technology is readily available to faculty and students
- Upgraded network is more reliable, with better security and performance

Areas of Focus

- Establishing a technology and audio/visual systems replacement cycle
- Improving our student data systems
- Adopting and implementing a district policy regarding student use of third party software services
- Providing faculty with professional development and technology integration support
- Developing a common vision for Technology Literacy and Library/Media and Information instruction