

# DIGITAL LEARNING 2014

## Introduction

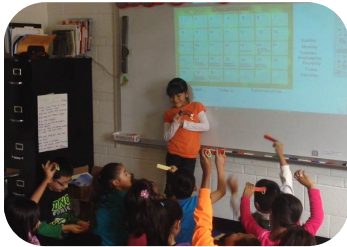
The Kansas State Department of Education is pleased to release this 3<sup>rd</sup> annual Digital Learning Report for Kansas K-12 districts. Significant shifts in the educational landscape—both nationally and within our state—are placing growing demands on schools to develop robust digital learning environments to support teaching and learning.

Nationally, there is continued focus on the need for connectivity, investing in infrastructure and access—both in terms of access to sufficient internet connectivity as well as access to devices, and teacher training to leverage these to individualize students' educational experiences. According to a recent Whitehouse Blog post:

*"Preparing America's students with the skills they need to get good jobs and compete with countries around the world relies increasingly on interactive, personalized learning experiences driven by new technology. Yet fewer than 30% of America's schools have the broadband they need to connect to today's technology."*

Initiatives such as the President's ConnectEd program is focusing efforts to resolving these challenges facing America's schools. Efforts toward E-rate modernization are a critical component of ConnectEd as efforts to align funding to support "connecting 99% of students to next-generation broadband by 2017", as well as to provide device access and teacher training—a critically undervalued aspect of this effort.

*"ConnectED empowers teachers with the best technology and the training to make the most of it, and empowers students through individualized learning and rich, digital content".*



*Liberal Public School's (USD 480) third grade students in Mrs. Cosper's class practice daily calendar and math facts by using a digital interactive tool.*

Closer to home, the Kansas educational landscape has begun to be repainted as well. Over the past year schools have ramped up implementation on a number of game-changing initiatives. Districts have begun implementing the Kansas College and Career Ready Standards and "relooking" at materials adoption as the evolving plethora of digital and open textbooks enrich the options for teachers and students.

The Kansas State Board of Education has made significant decisions related to the development of next generation Assessments for Kansas students, and as the transition to these new assessments are undertaken, an evolving focus has been shaping to ensure schools and classrooms are "technology ready". According to the whitepaper, "**Technology Readiness for College and Career Ready Teaching, Learning and Assessment**" from the State Education Technology Director's Association (SETDA):

*"Validation for technology readiness is important even for states and districts currently administering tests online, as these Kansas College and Career Ready Standards assessments are being designed to move beyond multiple choice questions to technology-enhanced items to elicit the higher order knowledge, skills, and abilities of students."*<sup>1</sup>

The report emphasizes that: "**Digital testing requires digital learning.** Students using technology to take high-stakes tests must have significant opportunities to develop and demonstrate mastery of tested knowledge, skills and abilities via substantially similar technology prior to being tested. Teachers must be prepared to support this shift in instruction."

KSDE has implemented a new Teacher Evaluation process, and continues to evolve the developing 21<sup>st</sup> Century Accreditation system for Kansas districts. These and other KSDE data-related education initiatives rely on local district technology support, access and infrastructures to ensure the data and artifacts supporting the efforts are in place.

For the majority of Kansas districts, supporting all of these initiatives will require a strategic approach to technology planning, and funding. A comprehensive plan must be developed to address device acquisition and replacement, increased broadband connectivity demands, increased school level wireless network costs, increased technical support needs, and increased professional development support for teachers.



*Mrs. Marshall's Kindergarten class at Bonner Springs Elementary (USD 204) use the iPads during class.*



*"If we are serious about pursuing a college and career readiness agenda for all students, it will be vital to leverage the power of technology to improve instruction, assessment and professional development and to realize cost savings in school operations. In so doing, education policymakers and school leaders must be proactive in charting a sustainable and comprehensive approach to using technology in schools that puts the learning needs of students at the core."*

–**"Technology Readiness for College and Career Ready Teaching, Learning and Assessment"** from the State Education Technology Director's Association (SETDA)



*Using a GoPro camera attached to a quadcopter drone, Jackson Heights High School (USD 335) agriculture students analyze neighboring fields looking for soybean pod popping, gaps in winter wheat planting, and soil nutrient deficiencies.*

In conjunction with the third National Digital Learning Day on February 5, 2014, the Kansas State Department of Education is pleased to release this report highlighting aspects of the digital landscape across the state. The technology landscape is evolving at an ever-increasing rate. District's broadband needs continue to escalate and new providers and services have been contracted since the 2013 decommissioning of the Kan-Ed network. We are at the advent of expanding growth in the use of digital and open textbooks to support Kansas College and Career Ready Standards, while challenged to meet increasing demands for access to mobile and cloud-based technologies. These are a few of the forces impacting technology planning needs for districts across the state. It is our hope this report will provide some insight and perspective for the field as the work to advance the effective use of technology within Kansas education continues.

Information in this report was collected from Kansas school districts in Dec 2013-January 2014. The data in this report is also intended to provide a catalyst for conversation, sharing, and collaboration around 'who's doing what' across the state. This report represents 210 of the 286 districts in Kansas, or 73%.

To support conversation, resource sharing and collaboration on these and related topics, please join us on the following Google Communities:

KS Ed Tech Directors: <https://plus.google.com/u/0/communities/114545899402364633472>

KS Integration Specialists: <https://plus.google.com/u/0/communities/115527638255105768240>

## Student : Computer Ratio

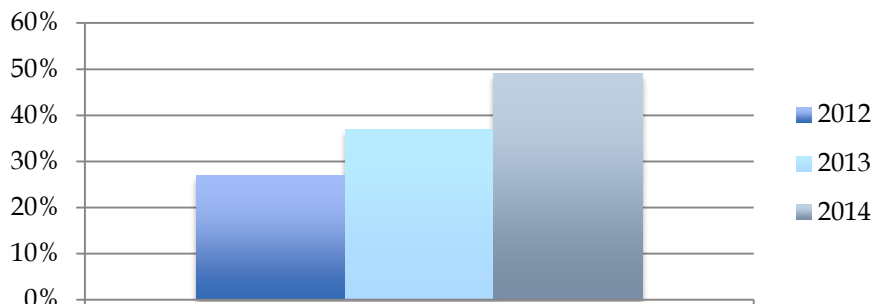


*Students at USD 298 (Lincoln Jr/Sr High) learning to code.*

Access to the equipment needed for digital learning environments can present a financial challenge to districts. Computers and devices that are more than four years old may not be adequate to provide secure internet access and robust student production capabilities. With the declining cost of device acquisition and the multitude of options, we have seen an increase in acquisition over the past year. While we provide a deeper dive on 1:1 initiatives later in this report, it is important to take note of the state average in terms of access to technology from an equity perspective. The state is reporting an average of 1.47 students for every digital learning device available to students during school hours. However, this ratio includes student computers that may be more than 4 years old. When considering computers less than 4 years old, the ratio is 2.28 students per computer. Districts reported that they were concerned about current student computers not being able to run the Kansas Assessment programs at the 1:1 level and at the over 20:1 level.

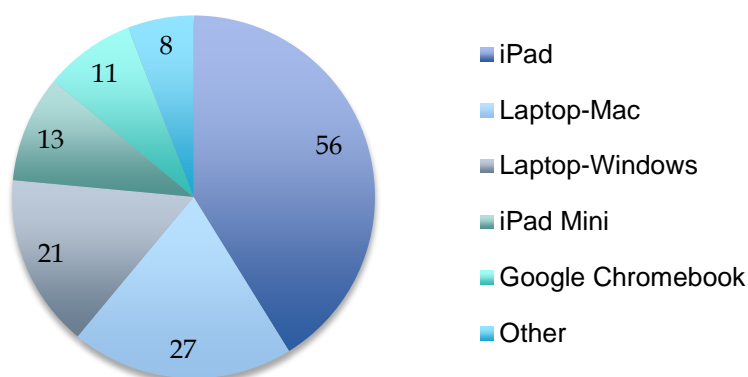
# 1:1 Device per Student Initiatives

Out of the 210 districts responding, 103 are currently implementing a 1:1 initiative (49%). 1:1 initiatives have continued to grow across the state for the past 3 years:

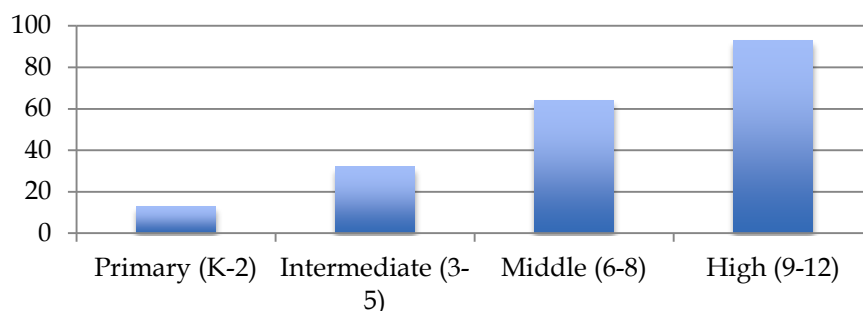


The 2014 data, representing 103 districts implementing a 1:1 initiative, 54% are using iPads and 46% are using either Windows or Mac Laptops. Google Chromebooks, which entered the market in early 2013, are starting to be integrated into 1:1 settings in schools, with 11% of the districts reporting this device as their 1:1 solution. Among the 1:1 districts, 94% assign the devices to students in the school setting. Ninety percent of the 1:1 districts report that students can take the device home, allowing for a truly digital learning environment 24/7. This home use is limited to high school students in 34 districts and high school and middle school students in 14 districts.

## 1:1 Initiatives by Device:



## 1:1 Initiatives by Grade Levels:



*Twenty additional Districts are considering a 1:1 for the 2014-15 school year!*

## BARRIERS

### To Implementing a 1:1 Program

Districts not implementing 1:1 initiatives cite the following reasons, ranked in order of overall significance for districts:

1. Cost of student devices/replacing student devices
2. Cost of infrastructure equipment/upgrades
3. Staff capacity for providing Teacher Professional Learning
4. Cost of sufficient internet service
5. Cost of software and/or subscription services
6. Staff capacity for providing Technical Support
7. Lack of available internet service
8. Other reasons

## 1:1 Deployment Phases

33 Districts indicate that they are in the Mature Implementation Phase, 4+ years of a 1:1 initiative.

35 Districts are in the Early Implementation Phase, 2-3 years of a 1:1 initiative.

32 Districts are in the Initial Implementation Phase - the 1st year of a 1:1 initiative.

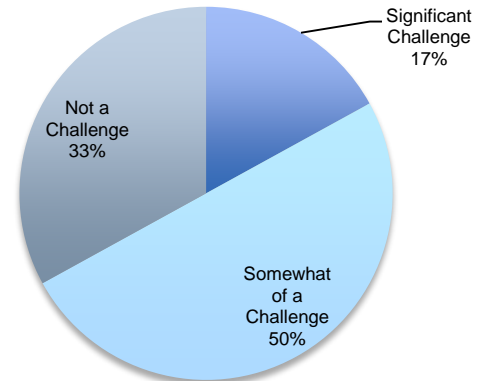
2 Districts are in the Pilot Year of a 1:1 initiative.



## Access to Broadband

With the decommissioning of the Kan-Ed network, concerns for districts being underserved have risen. This section intends to bring to light changes in district broadband needs, challenges and limitations that may not be easily identified in other ways. District Internet Connectivity is provided by one primary internet connection to the district in 176 of the reporting districts (84%). The other 16% utilize multiple internet connections to various sites/schools. Districts, oftentimes in rural areas, report considerable broadband challenges as indicated by the chart:

- **140 of 210 Districts (67%) indicated securing affordable access to broadband is a challenge. For 35 of those districts, the challenge is significant.**
- **27 districts indicated a lack of access to sufficient broadband has limited their ability to implement a 1:1 or a BYOD initiative.**
- **9 districts indicated their capacity to secure affordable broadband access has created limitations in their ability to support state assessments.**



*Mrs. Lamas's first grade class at Liberal's McKinley Elementary recognized Veteran's Day via Skype with an American Soldier in Afghanistan.*

In addition, forty-two districts (20%) report that their service provider has indicated a limit to the amount of bandwidth they are able to provide the district. Only 20% of districts are not concerned about availability and cost of sufficient internet access in their district.

### State Broadband Initiative

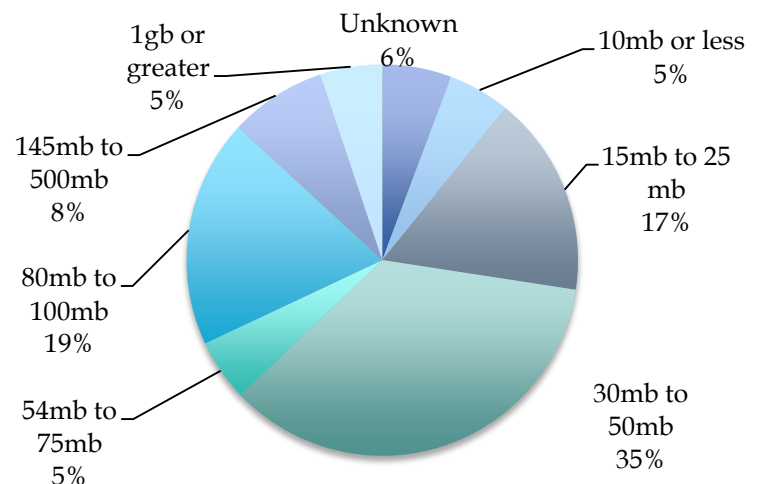
As we work with districts across the state on Broadband challenges, we recognize this is not solely an issue for schools, but for communities across our state. We have begun collaborating with the Kansas Department of Commerce to bring resources to bear on this challenging issue through the work of the [Kansas Statewide Broadband Initiative](#). One valuable resource provided through this initiative is the Kansas Broadband Map available online at: [http://maps.kgs.ku.edu/broadband\\_home/](http://maps.kgs.ku.edu/broadband_home/)

A 2013 Report commissioned by the Kansas Department of Commerce, "**Building the Broadband Future: The Telecommunications Needs of Kansas Schools, Libraries and Hospitals**" provides a strategic vision for identifying future broadband needs within the state. The report specifically recommends that "most Kansas schools and hospitals target 1 gigabit per second service if possible".

### **Finding 4.3.** **Kansas schools and hospitals will shortly require 1 gigabit service per facility...**

*Of the 175 responding districts indicating they have one primary internet connection for their district:*

*Only 9 meet the recommendation outlined above for 1 gigabit or better service and 109 (65%) have connection speeds of less than 80mbps*

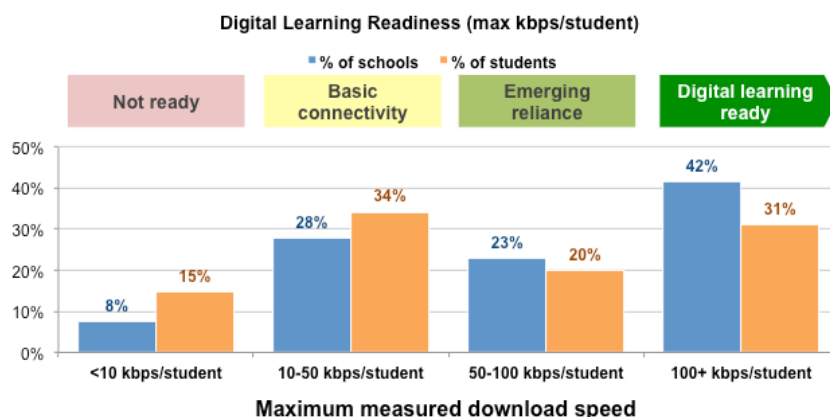


# Digital Learning Readiness

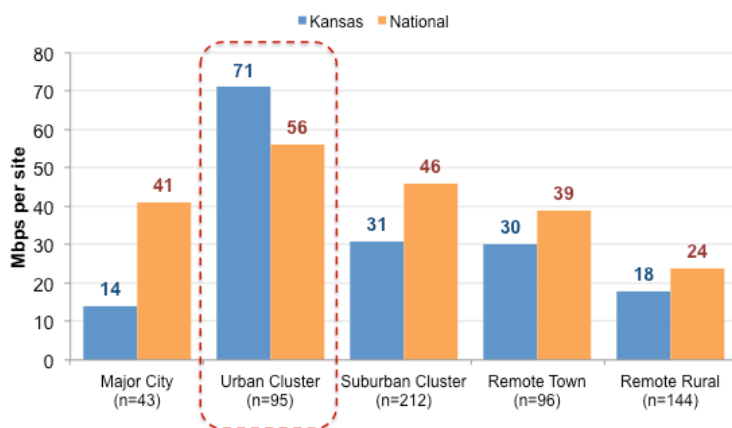
## Results from the Kansas SchoolSpeedTest

Schools across Kansas are embracing the power of technology to bring new learning tools and exciting online content into the classroom. In order to ensure that everyone can access these digital opportunities though, Kansas districts need to know which schools are struggling with Internet speeds too slow to connect their students and teachers to the resources they need to succeed. Accordingly, the Kansas State Department of Education partnered with nonprofit EducationSuperHighway during early winter in order to measure the available bandwidth in every school in the state.

**Overall Readiness.** The results of the Kansas SchoolSpeedTest indicate that slightly more schools in Kansas are prepared for robust digital learning as compared against the national average (42% vs. 37%). Unfortunately though, these schools only represent 31% of Kansas students, and 15% of young people attend schools that are not ready for even basic digital learning in the classroom. Moreover, the largest proportion of students, as illustrated in orange in the graph, fall into the 'Basic Connectivity' category, which is only sufficient to enable a rotational computer lab offering simple online research and email activities.

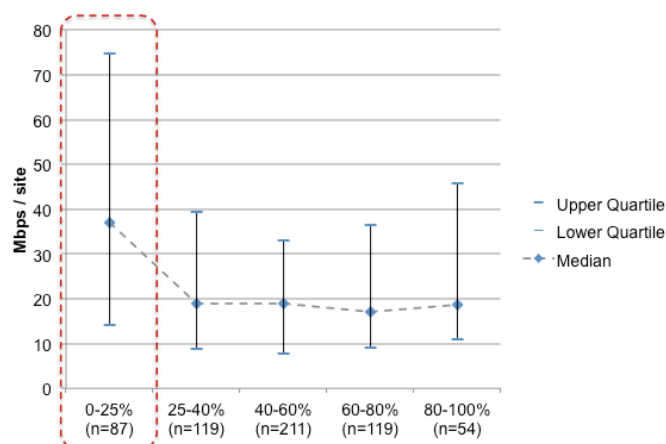


**Average Peak Bandwidth per Site by Locale**



**Bandwidth by Income.** Out of the schools that participated in the SchoolSpeedTest, those with the fewest students qualifying for free or reduced price lunch generally had faster networks than schools with more disadvantaged student populations. While the schools that were best off financially had significantly more bandwidth than their lower income peers, schools in every other economic category had networks with fewer than 20Mbps. Kansas is on the right track, but there is still a great deal of work to be done to get every classroom across the state ready for robust digital learning in the classroom.

**Urban Cluster Success.** The data collected through the SchoolSpeedTest shows that urban cluster schools in Kansas are outperforming schools in other geographic locales. As displayed in the graph to the left, the national average bandwidth per site in urban cluster schools is 56Mbps, while the average in Kansas urban cluster schools is 71Mbps. Conversely though, across major city, suburban cluster, remote town, and remote rural areas Kansas schools actually have significantly less bandwidth than the national average.



# Policies

*District policies guide the implementation of digital learning environments. These policies are developed at the district level, through the study of best practices and the identification of what works within the education community each district serves. Many technology implementations are on the horizon or being piloted within schools. The existence of formal district or school policy addressing many of these new technologies is limited and is reflected in the following information regarding district policies in Kansas.*

## Mobile Phones

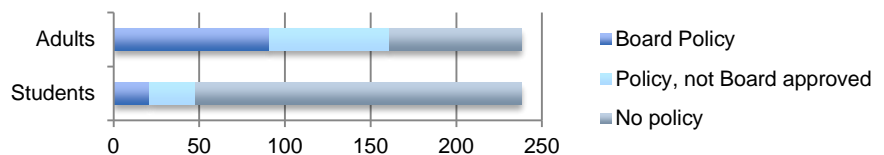
Safety and security often is the driving force for allowing students to use their mobile phones at school. In addition, mobile phones can be used for accessing educational content, participating in class discussions through “clicker” applications, or sharing classroom activities. Ninety-seven Districts have a student-allowed mobile phone policy approved by their board. Another 54 Districts have a policy, though not Board approved.

## Social Media

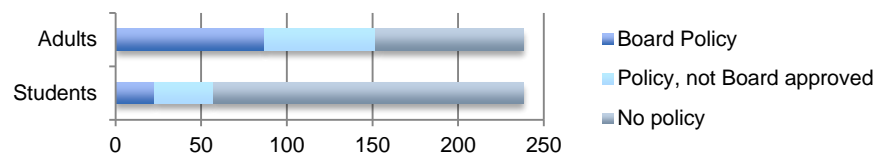
Appropriate use of social media can be a great resource for increasing parent communication and community involvement. For example, districts and schools with Facebook pages use this form of media to promote activities and student accomplishments. YouTube channels are used to promote student projects for a real audience. Access to iTunes/iTunes U provides opportunities to extend learning with new content or reinforce prior knowledge.

Districts with a policy to allow access to...

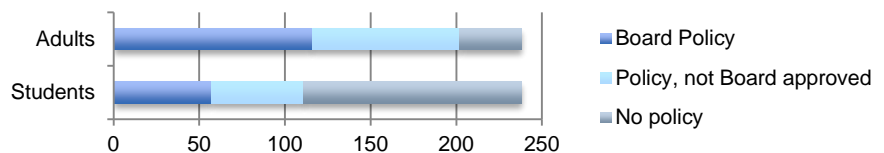
Facebook:



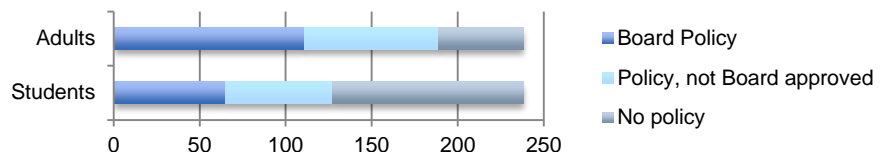
Twitter:



YouTube:



iTunes/iTunes U:



## BYOD

### Bring Your Own Device

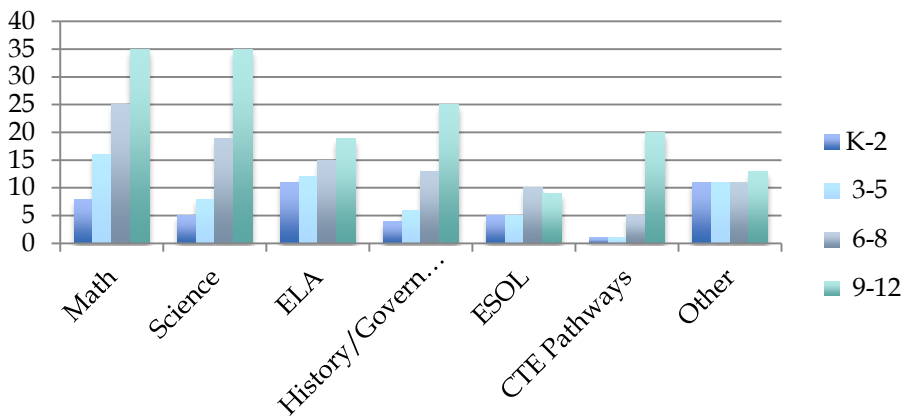
This refers to students bringing into the school their own mobile devices; such as laptops, tablet computers or smartphones for use to support learning. This question was refined to ensure those responding favorably have a policy formally allowing a BYOD. Having a policy to guide a BYOD implementation helps the technology department better secure these devices and the wireless network needed to support them, as well as ensures network security.

- 35 Districts have a formal BYOD policy.
- 40 Districts have a BYOD policy, but it is not Board approved.
- 163 Districts do not have a BYOD policy.

# Digital Textbooks & Open Education Resources

Shifts from print-centric to high quality, interactive, digital textbooks are beginning. Kansas College and Career Ready Standards, technological advancements, and innovations in intellectual property rights have prompted a sea of change in the multi-billion dollar U.S. K-12 instructional materials market. This is translating into significant shifts in development of digital and open content (often referred to as 'OER—Open Education Resources'). These newly evolving digital resources are significantly more interactive, more video-based, more widely available, but will also require more bandwidth/internet resource than a static text resource. Additionally, a number of states, districts, schools, teachers, and students will be publishing instructional resources.

Within Kansas, Mathematics and Science are reported as the content areas in which districts are purchasing the most digital textbooks:

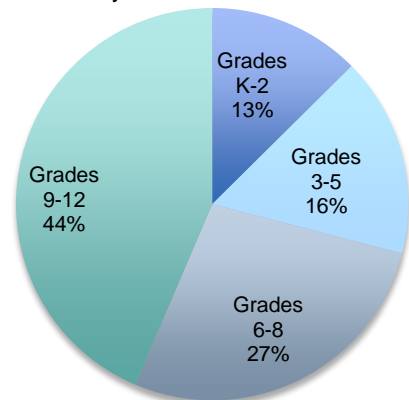


For additional information on this topic, please see *Out of Print: Reimagining the K-12 Textbook in a Digital Age* (<http://setda.org/web/guest/outofprintreport>), published by the State Education Technology Director's Association (SETDA) which outlines some recommendations for states, districts, and schools.



*Students at Atchison Middle School (USD 409) generating a scatter plot using weather data.*

In addition, districts are purchasing more digital textbooks for students at the secondary levels than for students in elementary schools:



## Filtering & Device Management

The Children's Internet Protection Act (CIPA) is a federal law enacted by Congress to address concerns about access to offensive content on the internet utilizing school and library computers. Districts must certify compliance with CIPA for E-rate and other Federal programs. Any protection measures must block or filter internet access to materials that are: (a) obscene; (b) pornography; or (c) harmful to minors (for computers that are accessed by minors).

Although some districts use a combination of products, the following list shows the top five filtering solutions being used for wired and mobile connections in Kansas schools:

- Lightspeed
- SonicWall
- TwoTrees
- Watchguard
- CIPA Filter

Managing mobile devices has been a hot topic of conversation of late. Apple Configurator, Casper, JAMF, and Meraki appear to be the leading mobile device management tools in use in Kansas districts.

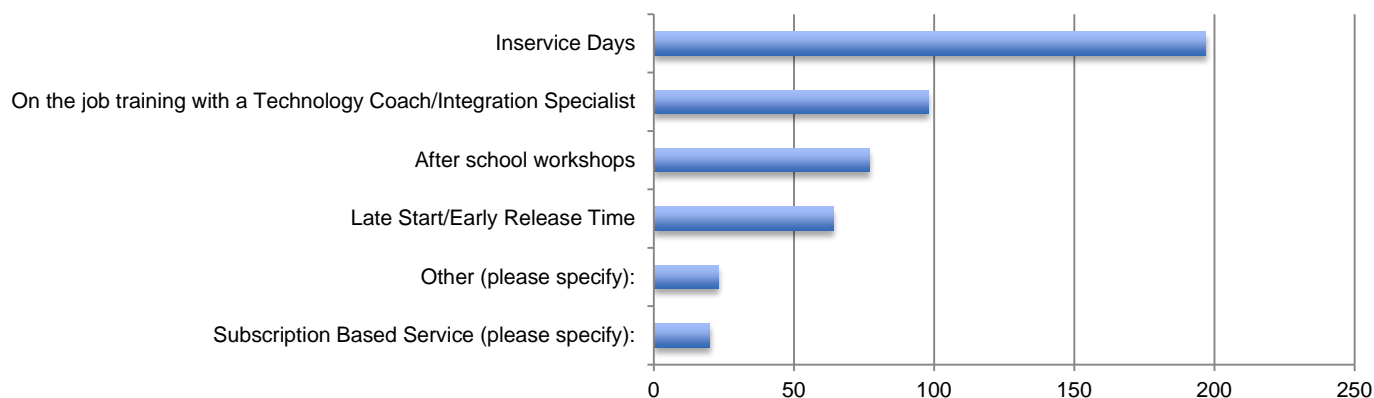
# Professional Learning

The research provided throughout the ten-year span of the Kansas Technology Rich Classroom Program provided clear evidence that in order for significant shifts in teaching and learning to occur, on-going, in-class support, professional learning opportunities and peer-collaboration are essential elements to the success of an effective classroom-level technology implementation. While the state budget challenges have resulted in eliminating funds for professional learning, as well as funding for positions, 1:1 implementations and mobile device acquisitions are increasing.

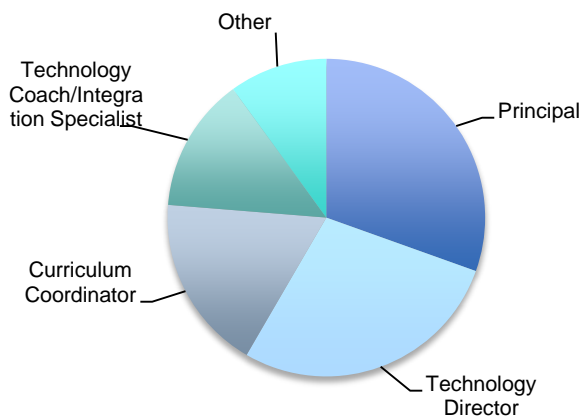
Technology professional learning occurs through a variety of practices across Kansas' districts:



*Fort Leavenworth USD 207 teachers exploring the Kansas College and Career Ready Standards - Science.*



Districts indicated the following staff members as being responsible for Teacher Technology Professional Development:



## TECHNOLOGY FEES

In order to help offset the costs of digital equipment and supplies 80 public school districts report charging a technology fee, an increase of 12 districts over last year's response. These fees are similar to text book fees. Six districts plan to implement a technology fee for the 2014-15 school year, and another 37 districts are considering charging a technology fee.



## Resources:

**Building the Broadband Future: The Telecommunications Needs of Kansas Schools, Libraries and Hospitals,** Kansas Department of Commerce <http://www.ctcnet.us/KansasCAINeeds.pdf>

**Making Progress on ConnectED,** Whitehouse, available at: [http://www.whitehouse.gov/blog/2014/02/04/making-progress-connected?utm\\_source=educationemail&utm\\_medium=email&utm\\_content=020714](http://www.whitehouse.gov/blog/2014/02/04/making-progress-connected?utm_source=educationemail&utm_medium=email&utm_content=020714)

**Technology Readiness for College and Career Ready Teaching,** Learning and Assessment, State Educational Technology Directors Association, available at: [http://www.setda.org/c/document\\_library/get\\_file?folderId=350&name=DLFE-1628.pdf](http://www.setda.org/c/document_library/get_file?folderId=350&name=DLFE-1628.pdf)

**Out of Print: Reimagining the K-12 Textbook in a Digital Age,** State Educational Technology Directors Association, available at: <http://setda.org/web/guest/outofprintreport>

**Kansas Broadband Map,** available online at: [http://maps.kgs.ku.edu/broadband\\_home/](http://maps.kgs.ku.edu/broadband_home/)



Students in Mrs. Myers 6th grade class (Council Grove USD 417) use technology to read the text to them when reading can be difficult!

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### For More Information:

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