Smart Classroom Technology

Citizens Advisory Council - Research Topic 2015

Glenn Block, Joe Cleary, Misty Fairfield, Angie Henderson, John Kuk, Zachary Perschall, Karthikeyan Ramalingam
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Executive Summary

Smart classrooms are the amalgamation of technology used at the teachers desk and in front of the classroom, technology in the hands of the student and a physical environment that allows the successful use of that technology.

There is solid research supporting modest academic gains from the use of technology in the classrooms. In addition to academic improvement, there is the opportunity to engage the student more fully, expose them to technology used in the workplace and get immediate feedback of classroom knowledge.

The authors researched a number of sources including a detailed look at the physical environment needed for a successful smart classroom. Unit 5 has teacher technology in the classroom, classroom management software, high bandwidth internet access and Smart Boards in virtually every classroom. Student technology is rolling out laptops into every student's hands through the 1 to 1 initiative. With two legs of our stool in place, we took a detailed look at innovation in the physical environment. This included visits to Illinois State University's Studio Teach and Wesleyan's new State Farm Building.

Change is needed in the classroom environment to successfully work with technology. For example, laptops and old school desks are not designed to work well with each other. Solutions can either be new desks that better accommodate laptops or use tables.

In addition to changing the classroom, other critical factors for success are a working device for each student along with training and support for teachers.
Introduction

“In times of change, the learners will inherit the Earth while the knowers will find themselves beautifully equipped to deal with a world that no longer exists.”

~ Eric Hoffer

What is a smart classroom and how does it compare to the classroom of yesterday, today, or the future? Adding smart boards, laptops, tablets, and other similar devices in a classroom do not define a smart classroom. These modern tools are part of the classroom, that when leveraged effectively can factor into greater learning outcomes for all students. The learner’s engagement is the product of the whole classroom environment which encompasses infrastructure, methodologies, hardware, and software. These aspects working in concert create an optimal learning environment considered the smart classroom. A smart classroom involves all learning stakeholders and the learning ecosystem, and how they interact collaboratively in physical and virtual space. This model emphasizes the teacher guiding the student in an evolving journey rather than standing in front delivering messages in a linear one-way fashion.

This report looks into various tools, technologies, methodologies, and major concepts that contribute to a smart classroom. There are many considerations within the learning space that when combined with modern digital devices can influence what or how a student learns. Research material gathered will be presented to explain options and solutions for leveraging classroom technology within the framework of the Unit 5 technology policies and resources with the goal of improving learning outcomes.
Background and Existing Evidence

Technology is defined as “the making, usage, and knowledge of tools, machines, techniques, crafts, systems or methods of organization in order to solve a problem or perform a specific function.” All technology affects animals in their natural environments. In this same way technology affects humans in all sorts of ways to provide the ability to control and adapt to their environment.

Educational technology for the purposes of this paper has been broken down in the four main categories; (1) environment and infrastructure, (2) methodology, (3) hardware, and (4) software.
Environment and Infrastructure

“The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.”

~ Albert Einstein

Definition of Smart Classrooms

Northwestern University defines smart classrooms as...

“... technology enhanced classrooms that foster opportunities for teaching and learning by integrating learning technology, such as computers, specialized software, audience response technology, assistive listening devices, networking, and audio/visual capabilities.”

http://www.it.northwestern.edu/education/classrooms/

Learning Technology Demonstration Classrooms

Illinois State University, DeGarmo Hall Smart Lab

ISU’s Studio Teach was created to educate students and educators of existing new technology that they may encounter in the classroom. The facility includes a couple of mobile smart boards, collaboration stations, drag and drop table and chairs, a 3D scanner and 3D printer, steelcase buoy wobble chairs and a number of other tech gadgets designed for the 21st century classroom.

The Assistant Dean of Technology, Ken Fansler pointed out some of the built-in features of the facility. Electrical outlets were unobtrusively placed in the floor and adequately spaced for almost any configuration. Moveable tables and desks allowed impromptu collaboration efforts. Wall partitions allowed classrooms to split with the partition wall constructed of dry erase boards to allow learners ample space to work and collaborate.

Illinois Wesleyan University, State Farm Hall

In the Fall of 2013, State Farm Hall opened for classes on the campus of Illinois Wesleyan University. The facility embodies a learning environment containing various technology implements which promote and foster collaborative learning. The classrooms and study areas all vary allowing teachers and students multiple ways to share knowledge.
We were invited to a guided tour by Carl Teichman, Frank Boyd and Diego Mendez. During a tour of the facility the interesting part was how technology usage represented itself. Today when people think of technology as part of smart classrooms the focus is around computers, laptops, smartboards, and electronic ways to connect and display learning material. Instead, what was seen was a mixture of technology represented through more social sciences around flexible seating and smarter workspaces. Some collaboration work areas actually had places where students could stand while collaborating and interacting with each other. There were places for multiple people to get together as well as places for individuals to hide away for quiet private thought. There was flexibility by having fixed whiteboard areas everywhere, as well as having portable whiteboards people could take anywhere. It was seen how there were multiple and flexible ways to project all sorts of learning content from digital projectors, large flat panel screens, to digital overhead projectors. The environment was not only integrated with what is traditionally seen as technology but also open for teachers and students to manipulate the environment to best suit learning comfort.

Every classroom attempted to have simplified and standardized controls for all to interact with. This allowed teachers to be trained once and then feel comfortable in any classroom. There was integration where virtual machine desktops were implemented so that an instructor can teach using an operating system of choice for presentations (Windows or Mac).

There was various paradigms implemented in the classroom where there was flexibility with seating. Tables and chairs all could be rearranged depending on the need for the day. The whole classroom could be broken into groups with rearranged seating to face each other for close interactions with a group. Also, the concept of having a teacher in the front was changed where the podium itself can be rolled around the classroom or even rolled aside and away.

Illinois Wesleyan University, State Farm Hall information. [https://www.iwu.edu/map/state-farm-hall.html](https://www.iwu.edu/map/state-farm-hall.html)

Illinois Wesleyan University, Magazine article “An Intersection of Innovation” [https://www.iwu.edu/magazine/2014/Spring2014/state-farm-hall.html](https://www.iwu.edu/magazine/2014/Spring2014/state-farm-hall.html)

**StudioTEaCH**

Illinois State’s College of Education has a couple programs to educate students about innovative technology use to teach in today’s classrooms. Studio TEaCH is a collaborative environment where the latest educational technology can be experienced.

[http://education.illinoisstate.edu/edtech/studioteach/](http://education.illinoisstate.edu/edtech/studioteach/)

[https://www.youtube.com/watch?v=Q_reiFITsMk](https://www.youtube.com/watch?v=Q_reiFITsMk)
**Illinois State University, Golden Apple**

“Golden Apple is a non-profit organization that works to inspire, develop, and support teacher excellence in Illinois.” The program aims at preparing future teachers with their careers. The scholars program provides advanced teacher training during Summer Institutes and conferences which provide ongoing professional development.

http://goldenappleisu.com/

T21Con is a Golden Apple event where educators collect to learn about the latest education technologies.


**Smart Spaces**

There has been an emphasis where technology in the form of laptops, mobile devices, large flat panel screens, smart boards, and internet content has introduced itself into learning environments. These evolving technologies have quickly been embraced in classrooms, yet the physical spaces where this technology is being used has not changed much. There are teaching practices which have evolved over the years that are quickly becoming less effective compared to more dynamic environments seen after formal education in the professional work environment. Students learning ecosystem needs to evolve to prepare for the future. This evolution will allow for different ways to learn while working in their careers.

Steelcase Education Solutions is a division of Steelcase Inc. has a history of engineering professional workspace solutions. The world has changed and the work environment has dramatically changed. The philosophy promoted by Sean Corcorran, General Manager of Steelcase Education Solutions explains in an interview that “Learning is what happens when space, teaching methods, and technology come together to encourage deeper thought, interaction and collaboration, regardless or whether or not that’s in a small schoolhouse in Latin America or a state-of-the-art lecture hall in America.” The thought is to look at the whole ecosystem of a student and then leverage all kinds of pedagogies with various technologies to promote active learners to have a more engaging experience. As learning pedagogies are evolving with technology, it is quickly becoming common knowledge that static row classroom designs can actually hinder learning.

Major quotes from Sean Corcorran:
● “Learning best takes place in spaces that can easily morph based on teaching approaches and learning preferences.”
● “There’s a new generation of students with different experiences and expectations than those of their parents.”
● “Active learning environments improve concentration and focus and facilitate group engagement.”
● “Every seat can and should be the best seat in the room.”
● “The classroom needs to support instructors moving among teams to provide real-time feedback, assessment, direction and to support students to peer-to-peer learning.”

Edtech digest interview with Sean Corcorran, “Smart Spaces, Why our learning environments must be re-invented”

Space Impacts Behavior

Sean Corcorran from SteelCase has presented thoughts and ideas gathered from research and studies around how spaces can influence human behavior. Mr. Corcorran speaks at TED Talks describing the case for space. In his presentation he breaks down how space impacts behavior, how there are changes with how people are learning today, and the space then should adapt to facilitate the changed ways of learning since it affects our behaviors.

One powerful common story brought up during this talk was how a student had to turn backwards in a traditional school chair to learn. The instructor at one point asked students to break into groups for an activity, and students rotated their chairs to face each other. Then at some point the instructor needed all students to face forward to resume lecturing. It is similar examples such as this where the learning space actually conflicts with being able to promote pedagogy differences between lecturing and group activities.
This example seems simple and possible solutions can be simple. This can stem all sorts of similar types of space conflicts and behaviors. For example, if technology is introduced such as laptops or even different pedagogies of learning such as self paced online learning; how would that dramatically influence our space and collaborative needs? Given these needs how would that impact the kind of space or other essentials items the student needs to facilitate learning in that space? The world is sharing and learning at a global level, including collaboration with others remotely. What kind of space is needed for this kind of collaboration? There are many solutions that can be brought into the classroom that can help facilitate learning.

TEDx Talks presentation on YouTube where Sean Corcorran speaks to “The case for space”. https://www.youtube.com/watch?v=r6vOMnxGc2g

Learning Space

The Academy of Management Learning & Education has published a paper describing the complexity of how learning styles are formed through people interacting with their environment. The psychological environment where students learn in can be directly correlated to behavior and the person’s learning. Anything that can affect direct behavior such as “needs, goals, unconscious influences, memories, beliefs, events of a political, economic, and social nature” can contribute to the person’s ability to learn and how they behave in that environment. In this way almost everything in the classroom can be seen as affecting the learning environment.
The paper further describes how learning is even past classrooms where in the theory of situated learning the social environment as a whole is taken into consideration as “learning transactions” between students. Situational learning is found in communities and practices past classroom settings where this enrichment is found in learning spaces widened by “membership, identity formation, transitioning from novice to expert through mentorship, and experience in the activities of the practice, as well as the reproduction and development of the community of practice itself as newcomers replace old-timers.” At what point can learning past the classroom be facilitated by the school, and how would schools introduce and promote situational learning to widen learning experiences. What can be implemented or introduced by schools to enable and enrich the overall learning experience?

The paper also introduced a Japanese concept of “ba” which is a “context that harbors meaning.” This concept explains how knowledge is within “ba” and within a person’s own space. Sharing of knowledge involves more wherein personal feelings, thoughts, and experiences can be only shared with others when individuals remove barriers between others. This can be done where the environment or space is open to “care, love, trust, and commitment.” “Learning spaces similarly require norms of psychological safety, serious purpose, and respect to promote learning.

Over time the psychological references we all store around how we learn in the spaces we learn shape and influence our behavior to promote learning. Space definition can change how we learn or how we behave when sharing knowledge.


**Virtualizing Learning Space**

To adapt the current traditional learning space is complicated. Nowadays learning and sharing knowledge can come from anywhere and can almost be a daily process past the classroom. The challenge is how to take classrooms and enhance them so they become places that are part of the ecosystem of learning. The internet is being extended as a learning space for individuals. Our internet interaction while providing, sharing and consuming from it has expanded the classroom boundaries.

In a paper published by the Australasian Journal of Educational Technology there is some interesting history and concepts presented around how web logging (blogging) or any form of micro-publishing has created a space where collaboration can occur by expanding or enhancing classroom space through virtual means.

The most interesting part of the paper describes a major university questioning their digital identity. The major university acted on this to make a virtual space to find ways to “harness the power of the Internet to break down the silo mentality and build intellectual bridges that
would facilitate the flow of information and ideas between the University’s disparate schools and centres.” It was also seen that even though there was a minority who participated in logging and contributing; there were “lurkers” who used, learned, and advantages from these spaces. The digital space created was leveraged by passive participants and through its use had a sense of belonging. In a classroom or even professional workspace, this kind of behavior can be readily seen where there are those who are actively contributing and those who are passive. Yet, those who are passive are still equally seen as part of the physical class, absorbing knowledge and experiences. Even when there is no physical space, if there is a sense of belonging the space is then virtually created.


**Effects of Space Redefined**

“To support pedagogical innovation, educators must reexamine physical space”... The findings, based on data gathered from students and faculty, indicate that the renovated classroom increases student engagement, collaboration, flexibility, and learning. A learning space better enables innovative approaches to teaching and learning when compared to the traditional classroom.” ~ Stern Neill and Rebecca Etheridge, University of Washington

Through the experiences from University of Washington’s research there is description of linear one-way flows of learning that were constrained by fixed traditional classrooms. When endeavoring to redefine space pedagogy, physical space and information technology issues were focused on while discussing types of learning patterns found in the classroom. These patterns were around Linear (Lecture, Presentation, Video), Horizontal (Class Discussion), Cluster (Small Group Discussion and Activities), and Network (Decentralized Instruction) learning modes. The study’s findings suggested that through the various approaches the perceptions of teachers and students were affected in a positive way. This positive perspective could be seen as behavior change influenced by having renovated and flexible spaces.

The article re-emphasized “Environmental psychologists recognize that physical space can influence behavior in both positive and negative ways ~Mehrabian and Russell.” What was interesting is that the traditional classrooms had good function when engaging in linear learning activities. So it highlights there is a strength in this type of classroom function, yet the inflexibility to change to other modes constrained being able to optimally learn in other modes. This was described by the “ease”, “flexibility”, “offerings”, and “empowering” when engaged in other learning modes.
The willingness to leverage the flexibility of the rooms were a factor to disconcern the efficacy of the space changes. It was even described how faculty explain how they “trained” the class to arrange the room in various configurations for different activities. Students were seen as “actively involved” in their learning!

Article extract from Marketing Education Review, “Flexible Learning Spaces: The Integration of Pedagogy, Physical Design, and Instructional Technology”
http://digitalcommons.calpoly.edu/mkt_fac/22/

Flexible Furniture

The ability to be flexible in being able to alter the learning space can provide enhancements to learn in Linear, Horizontal, Cluster, and Network learning modes. Mobilizing furniture, although a simple idea, can be dramatic in enabling dynamic space reconfiguration. Teaching podiums, tables, chairs, and even small partitions and boards are some of the items that can utilize technology in different ways to facilitate differentiated learning.

The most differentiated pieces of technology integration can be seen in the Steelcase LearnLab Environment and the Steelcase Node Chair. These are options, and if working with a budget other types of products can be found or solutions implemented to provide flexibility in the classroom to adapt for teaching modes.

- **Steelcase LearnLab Environment**

  Manufacturer Steelcase through its research has modeled a LearnLab environment where there is a culmination of various technology around learning spaces. Through Active learning spaces, Insights, applications & solutions the LearnLab is described as the integration of “furniture, technology and work tools to support a variety of teaching methods and learning preferences.”
Steelcase Education Solutions, “Insights, Applications + Solutions, active learning spaces”.

- **Steelcase Node Chair**

Through various studies and research the Steelcase Node Chair is the re-invention of the immobile classic classroom chair. The chair is flexible in configuration, has places to stow personal effects, is movable and swivels, and is easy to maintain.

There are other low cost solutions and alternatives for chairs, but at the moment Steelcase has differentiated its chair offering, and it is hard to find other solutions as robust and as inclusive in design features with an attached workspace.

http://store.steelcase.com/products/node/

**Portable Whiteboards**

The concept is not really that high tech, and looking around online there are various options where people could even make their own low-cost portable whiteboards. Illinois Wesleyan
University had several of these portable boards that students could grab and use anywhere in the building. It was described in an article how one was even used as a makeshift projector screen!

- **Steelcase Huddleboard**

  There are multiple boards to share, and the setup with wheels provides a movable easel for teams to use.

  [Image of Steelcase Huddleboard]


- **Post-it Dry Erase Surface** - These are rolls of adhesive backed dry erase surfaces which vary in sizes from 3x2 to 8x4 feet. The material can be cut to size and used in many different creative ways.

  [Image of Post-it Dry Erase Surface]
Writeyboards - These are similar to what Post-it offers and the company has foam backed rolls as well. The company has various options as well sizes from 2x3 to 4x10 feet.
Tables

- **Standing Tables**
  
  Illinois Wesleyan University had several of these in various collaboration rooms where interestingly enough these were fully utilized. Great solution for those students who cannot sit still or for those who have been sitting still too long.

- **Steelcase Verb Tables**

  Movable tables which provide features to define personal work spaces as well as shared collaboration workspace when used in conjunction with other tables and mini whiteboards.
Video demonstrating the adaptability and robustness of the Verb Table solution
https://youtu.be/CE2GdSyDmwe
Methodology

“To improve is to change; to be perfect is to change often.”

~ Winston Churchill

Blended Learning

Blended learning and the future of education: Monique Markoff at TEDxIthacaCollege. Monique Markoff discusses the utilization of blended learning in the classroom and using the technology as a tool.

https://www.youtube.com/watch?v=Mb2d8E1dZjY

A different way to think about technology in education: Greg Toppo at TEDxAshburn

https://www.youtube.com/watch?v=D17P3kqB3_0

More pedagogic change in 10 years than last 1000 years: Donald Clark at TEDxGlasgow

https://www.youtube.com/watch?v=dEJ_ATgrnnY

Improving Student Engagement

“To summarize improving student engagement, the themes and ideas that surface most often in the literature are: embedded collaboration, integrated technology, inquiry-based learning, assessment for learning, and making learning interdisciplinary and relevant to real life. As Barak and Doppelt (2002, p. 22) note, “Imparting creative thinking … requires not only changing the teaching methods and learning environment, but also adopting new assessment methods such as portfolio assessment, which is based on records of pupils' activities.” Ramaley and Zia (2005, p. 8.15) add, “Significant changes in teaching and learning are possible, particularly when interactive technologies are involved. The changes noted in our review promise to better engage student learners. Research suggests that successful, student-engaging classrooms combine these five aspects:

1. Learning that is relevant, real, and intentionally interdisciplinary – at times moving learning from the classroom into the community.

2. Technology-rich learning environments – not just computers, but all types of technology, including scientific equipment, multi-media resources, industrial
technology, and diverse forms of portable communication technology (Project Tomorrow, 2010).


4. Collaboration among respectful “peer-to-peer” type relationships between students and teachers (horizontal organization model); Professional Learning Communities working together to plan, research, develop, share, and implement new research, strategies, and materials.

5. A culture of learning – teachers are learning with students. Language, activities and resources focus on learning and engagement first, and achievement second.”


Effectiveness of Technology

Over the last 40 plus years there has been detractors and support of the effort to add technology into the classroom. On one hand some think all classroom activities should be computer based. On the other extreme some argue computers offer little or no benefit.

First, there is solid evidence that technology in the classroom can create improvement in student performance. Ramin M Tamim and cohorts did a comprehensive study (Tamim et al 2011) analyzing the impact of technology on learning.

Tamim reports, “In other words, the average student in a classroom where technology is used will perform 12 percentile points higher than the average student in the traditional setting that does not use technology to enhance the learning process.” This amount has a wide variability with some studies showing little improvement and other showing larger numbers than the 12 percentile points of improvement.

They also sensibly caution us that other factors are likely more powerful influences on results than technology. It stands to reason that technology without effective teachers, appropriate content and methods, and students willing to learn will be ineffective. The smart classroom is not a silver bullet, but another tool we can use to increase the chances of success.

Besides improving academic achievement, there are other reasons to consider adapting technology into the classroom. The real world uses technology, students need to learn what
is most useful later in life. Using technology widely existing in the workplace helps students better prepare for a successful career.

Most students already use technology extensively in their daily life. Using technology helps engage students. Engaging students in the task of learning is difficult and technology is a natural avenue for sparking interest. Technology can make teachers more effective, get faster feedback and increase student participation.

Hardware

Hardware has three different aspects: teacher focused, student focused and campus level infrastructure.

Teachers need a PC or laptop to enter grades, email parents, and perform the administrative tasks needed for the classroom. Typically, the laptop is also used for classroom presentations.

Smartboards and similar devices provide for easy onscreen interaction during time spent teaching. The minimum hardware needed for display is a projector or large TV screen.

Student hardware can be laptops or tablets. Unit 5 has gone with laptops.

The campus infrastructure has Wifi access points for student laptops. Fiber is run to all schools except Carlock. A server farm exists with VM machines and the external access to the internet runs at a speed of 7.5 gigabits.

Camera and Projection

- Interactive Board (aka Smart Board)

  The combination of analog and digital. The smartboard is a combination of whiteboard, projector, camera, and personal computer.
Above is a solution provided by Steelcase, but there are other options in the marketplace.


- **Document Camera**

  This provides a potential alternative to displaying and interacting with content where analog whiteboard content does not need to be captured.
Interesting article around switching out classic overhead projectors with a digital camera. There are also some ideas and ways to leverage the camera.


- **Smart Pen (virtual ink solution)**

  This solution provides a system where the holder for whiteboard markers is smarter, allowing analog drawings to be captured with even projector technology giving levels of smart board functionality.
Above is a product called from a company named Mimio. The bar can be moved and the marker holder can hold standard dry erase markers. The holder can even act as a pen to interact with projected content from a personal computer.


- Custom Hacked Solutions

There is an inventor by the name Johnny Lee who provided a demo on TED Talks to demonstrate how he could create a smartboard solution with a $40 Nintendo Wii controller and some cheap LED parts from Radio Shack to make a pen. Although not a recommendation for a large scale solution, it does give rise to the question, why are there not cheaper more affordable solutions being provided given how relatively inexpensive solutions such as this can be hacked together with some creativity and resourcefulness. Watch the video and be amazed at what this cheap solution is capable of doing, there is a moment where he demonstrates head tracking and how a projected 3D image can change given the simple use of the Wii camera and LED’s on a pair of glasses.

http://www.ted.com/talks/johnny_lee_demos_wii_remote_hacks
Software

Intentions were to look more into the various software out there, but given time constraints and the amount of content we were not able to delve into this subject deeply. Yet, there is some information we stumbled on that is worth mentioning.

Google Education and Classroom

Google for Education is a collection of all the various Google tools to be used as part of the education process. There are even applications and processes built into the various tools to enhance collaborative work efforts. The efficiency promoted by these tools are ingrained into the products and solutions Google Education offers. Google Classroom is trying to build solutions for teachers and students to be more productive in the learning process.

- Google for Education 101 Video, http://youtu.be/uXFUl0KcIkA
- Google Welcome to Classroom Video, https://www.youtube.com/embed/K26lvyQMp_g
Information Gathering

Meeting with University High Schools Technology Director

The smart classroom sub committee met with Jim Kurz technology director at University High School. Jim gave us an overview of of the 1 to 1 program initiated there.

The U high program uses the Lenovo Thinkpad x130. Freshmen will get the x140 next fall. They choose their laptops for durability and long battery life. (Complete selection criteria at http://uhigh.illinoisstate.edu/blogs/techshow/?page_id=1218 ) BYOD is not allowed. Their technology fee is $125 per year with a $25 per incident repair charge.

Before implementation, their three classroom concerns were, tables, adequate power supplies and Wifi availability.

When laptops have problems they go to a student run center for repair. The majority of laptops are fixed in less than a day.

Classroom Management Software is Blackboard. Skyward and One Note are typical of software used.

Before U high moved to 1 to 1 for all students, they selected a few teachers and put laptops in their classroom. These teachers were able to put lesson plans on the computer and share with each other. The 4 year process added more teachers each year. This core of teachers shared what they learned at department and faculty meetings.

Overall Jim was very positive about how the 1 to 1 program has worked at U high. They have successfully run a 1 to 1 program for over ten years.

More information on the 1 to 1 program can be found at http://uhigh.illinoisstate.edu/blogs/techshow/

Meeting with Unit 5 Technology Coaches

Jason Nourie, Amber O'Day and Sean Mullins, the district’s technology coaches met with our committee representative and described some of what they do for teachers. Of the three coaches one is responsible for the elementary level and the other two each work with one high school and 2 junior highs.

They work with faculty to help coordinate learning between teachers. They create training PDA’s and work with teachers get classroom content into technology that can then be shared used by others. They work with technology leads within schools to support teachers. The
technology coaches also maintain a blog to communicate ideas to teachers, along with traditional email.

One example was their help creating a faux 1920's facebook page to help a class bring history to life in a more real way than reading a textbook.

They shared some of the uses of technology in the non-core classes. In PE they are able to record dances and the student can work on a routine until it's right. The teacher doesn't have to watch. Heart-rates and workout results can be monitored via computer.

In music students can record themselves using Audacity. Kids can watch themselves or parents can see kids progress. This is a very good motivator.

At least one teacher has used technology to collaborate with a school in another state. One of our technology classes had students in one school do design work while our local school did specs and then ran the finished output on a 3D printer.
Unit 5 Junior High Classroom Observation

A member of our group had the opportunity to observe in a junior high for a morning.

Observations as it relates to technology and the 1 to 1 program from classroom.

- Approximately 30% of students did not have a laptop to use for the class period, reasons of absent laptops were:
  - Laptop malfunction/damage and waiting for repair - average wait among those affected 4 days
  - Laptop not charged where some had to relocate to find an outlet, forgot their charging cord, or battery was deteriorated where it could not hold a charge.
  - Forgot laptop at home
  - New students hadn’t been issued a laptop yet for 5 days
- Connectivity issues - 2 students were not able to log on to the network - a classmate was able to troubleshoot a solution.
- Troubleshooting and getting booted up took approximately 15 minutes
- A class activity for the day was a quiz. The quiz should have been online but due to absent laptops a paper had to be handed out for all students. Students that completed the quiz online receive instant feedback and the teacher received instant scores with the range and average. Paper scores still had to be tabulated by the teacher increasing the workload and time to feedback for those students.
- After the quiz those with laptops were able to continue learning through bookmarked learning sites. Many of the activities available were organized as games and the students seemed very engaged and continued learning on the topics at hand while the students without a laptop that day were stuck sitting and waiting.
- Inadequate power access. Extension cords and power strips were strung across the floor from outlets in the walls to areas on the floor. Not all pods of desks had access to power.
The power cords strung across the floor created a significant trip hazard! A retractable cord hung from the ceiling would be a much lower risk solution. Similar to those below.

The students were arranged into pods of 4 to 6 students each. These stationary pods were a great way for the students to collaborate when an activity was a discussion. However when the teacher was giving instructions and when students from other pods were sharing someone always had their back to the speaker and were stuck in the desk and could not turn to be engaged.

As part of the literacy initiative the final few minutes of the class were organized to read a story from the smartboard. The smart board provided a great interactive tool for all of the students to read from and highlight key pieces from the story. However due to the arrangement of the desks anyone with their back to the board became disengaged from the group doodling and staring off into space.

Survey Results

A survey to get teacher responses to the of 1 to 1 computer initiative was completed for this report. The survey was taken via SurveyMonkey in late February and completed by 342 respondents. Survey responses came almost equally from all teachers. Proportionately, junior high teachers had the most responses.

The survey data indicates that there are a number of advantages to the 1 to 1 initiative. “Access to content.” and “Student engagement” are seen by most respondents as...
advantages. “Communication of information” and “Ability to teach to kids at different levels at the same time” were both picked as advantages by almost half the teachers. “Classroom Management” and “Digital textbooks” were the least likely choices, less than one third for either one.

The data also pointed to disadvantages. The following four choices were picked as disadvantages by a majority (50-60%) of teachers responding.

- Infrastructure (number of outlets/wifi)
- Inadequate teacher prep time to implement new technology into current practice
- Inadequate technology support
- Student Distraction

A survey question was asked to gauge teachers use of the interactive capabilities of SMART Boards. The majority of responding teachers (58%) use their boards every day or almost every day.

Comments on the follow-up question that looked for alternatives to SmartBoards indicated most teachers are passionately attached to their SMART Boards. (82%) The passion expressed was close to the level, “you can have my SmartBoard when you pry it from my cold dead fingers.”

Survey data also showed respondents asking for more training. Seven of ten felt their current training was inadequate to implement a 1 to 1 device program. When asked for feedback, over 100 comments expressed similar thoughts.
Conclusion and Recommendations

“It is not necessary to change. Survival is not mandatory.”

~W. Edwards Deming

Conclusion

Data clearly indicates a correlation between increasing student engagement and improved learning outcomes. Computers in classrooms are tools of modern learning, and a dedicated device for each student available on demand can greatly increase student engagement. Without an effective learning environment, teaching methodology, and software, a device for every student alone will not likely lead to greater engagement or learning outcomes.

A device in each student’s hands has many positives including:

- teaching to multiple skill levels at the same time
- optimizing the pace of learning
- constant availability of content
- availability of current content
- teaching students in a modern context
- teaching students to be good digital citizens

Keys to effective classrooms from our research and survey results:

- adequate machines are imperative
- adequate hardware support, repair, and loaner units - teaching with machines is useless if the machines don't work.
- adequate and effective consistent software
- adequate infrastructure, power, wifi, etc
- nimble and configurable seats and space to shift between learning activities utilizing different methods
● adequate and effective teacher training, support, and resources
● effective teaching methodology

Information is readily available in the digital age, we all have the internet on phones in our pockets, available 24/7. The importance of formal education lies with creating an environment that nurtures and encourages student’s natural curiosity and desire to learn while teaching them how to effectively use the information available to them. Laptops alone are not the answer, but the tool for 21st century learning if used and supported appropriately.

Recommendations

The next step to position ourselves for success is classrooms configured for modern students utilizing personal computers includes effective configurable classroom furniture, adequate infrastructure, reliable hardware, and consistent software all effectively supported.

First, we need improved classroom configuration. Adaptable and configurable seats and enough power outlets for students.

Second, is getting a machine in front of every student, every day. If we expect teachers to integrate student laptops into the learning process then all laptops need to be in place and working.

Next is teacher training and support. The survey indicated a strong desire for teachers to have additional training with available hardware and software, consistency in software packages utilized by the district, and teaching methodologies for the classroom.

Finally, we need to allocate adequate resources to achieve our goals. We must commit to either supporting student devices fully enough to make them useful, or abandon half measures that can actually lead to a detriment in the educational process.
Appendix A - Survey Results

Classroom Environment within a 1 to 1 Device Program

Q1

Within what educational level do you teach?
Answered: 342  Skipped: 0

Answer Choices

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary (K-2)</td>
<td>17.54%</td>
</tr>
<tr>
<td>Elementary (3-5)</td>
<td>21.05%</td>
</tr>
<tr>
<td>Junior High (6-8)</td>
<td>29.82%</td>
</tr>
<tr>
<td>High School (9-12)</td>
<td>25.61%</td>
</tr>
<tr>
<td>Other (Special Education, PE, etc...)</td>
<td>12.28%</td>
</tr>
</tbody>
</table>

Total Respondents: 342
Q2

How many years of teaching experience do you have?

Answered: 341   Skipped: 1

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5 years</td>
<td>12.02%</td>
</tr>
<tr>
<td>5-10 years</td>
<td>18.18%</td>
</tr>
<tr>
<td>10-15 years</td>
<td>18.18%</td>
</tr>
<tr>
<td>15-20 years</td>
<td>23.17%</td>
</tr>
<tr>
<td>20+ years</td>
<td>28.46%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
Q3

Do you currently teach a grade level participating in the 1 to 1 program? (a class where every student has a laptop computer)

Answered: 342  Skipped: 0

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>46.78%</td>
</tr>
<tr>
<td>No</td>
<td>53.22%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
Q4

What do you see as the biggest advantage to implementing a program in your classroom where every student would have access to a device (laptop computer or age appropriate tablet device) for school or at home? Please select all that apply.

Answered: 164  Skipped: 178

- Digital textbooks
- Communication
- Classroom management
- Student engagement
- Ability to teach to kids...

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital textbooks</td>
<td>29.27%</td>
</tr>
<tr>
<td>Communication of information</td>
<td>50.00%</td>
</tr>
<tr>
<td>Classroom management</td>
<td>19.51%</td>
</tr>
<tr>
<td>Student engagement</td>
<td>73.78%</td>
</tr>
<tr>
<td>Ability to teach to kids at different levels at the same time</td>
<td>73.17%</td>
</tr>
</tbody>
</table>

Total Respondents: 164

Comments (17)
Q4 - Comments

- preparation to become participating citizen of the 21st century.
- Real world technological experience and Google Docs allows for wonderful collaboration with other students and teachers.
- The ability to all publish during Writer's Workshop at the same time. Convenience of having computers available and not having to check them out and hope they are available.
- Easier to make IEP and 504 accommodations and modifications
- Not having to compete for laptop carts
- Improvement of keyboarding skills
- geogebra (geometers sketchpad) online math tools
- I do not feel 1-1 is needed at any grade level. Access to a computer needs to improve but 1-1 does not improve ANY education offered by a QUALITY teacher.
- Better prepare them to function in the world they are growing up in.
- authentic, real-world experiences
- able to participate in the programs highly encouraged by the district and able to teach with access to many technological programs we currently cannot use since we don't have the 1 to 1
- I honestly don't feel this is something we should be exploring at this time-our resources would be much better allocated to hire more teachers. Teachers are infinitely more effective than computers.
- Teaching research skills, digital citizenship, word processing, presentation skills, the list goes on
- Less paper
- I really don't see a benefit to a 1:1 classroom for the classes that I teach. If I ever need computers I sign out a laptop cart for the day.
- I am not if they are not used properly there is no purpose for them. Right now I feel they are being used in place of pencil and paper. Also to teach towards PARRC. Students don't enjoy reading off them. They don't use the resources the way it could be beneficial to their learning
- Not needing to sign up for lab space and have lessons be dictated by availability. Also, being able to have information at our fingertips for a portion of a lesson without much wasted time dealing with moving rooms or messing with laptop carts.
Q5

What do you see as the biggest disadvantage to implementing a program in your classroom where every student would have access to a device (laptop computer or age appropriate tablet device) during the school day and for home use? Please select all that apply.

Answered: 168  Skipped: 174

Answer Choices

- Infrastructure (number of outlets/wifi) 63.10% 106
- Classroom logistics (arrangement or type of tables/chairs/desks) 30.95% 52
- Inadequate teacher prep time to implement new technology into current practice 60.12% 101
- Inadequate technology support 64.28% 108
- Student Distraction 44.05% 74
- Other please list 11.90% 20

Total Respondents: 168

Comments (30)
Q5 - Comments

- I teach mixed-grade classes
- Some students not having a working device or any device at all
- Technology can be unreliable
- Students' eye vision - I worry about their eyes looking at a screen more often than they do now
- Art class...digital art is only one of many media we use
- CLASS SIZE
- Most elementary students have too much screen time already
- Issues with software and hardware
- The technology doesn't not work well and is there a plan for when the devices are older like our net books.
- Teaching students how to use them
- Several students complain after looking at a computer screen for an extended period of time. If all the textbooks were on the computer, they would be forced to look at a screen. There is something nice about having a book in front of students who have the ability to physically turn the pages and flip back to find information quickly. If all the teacher's lessons are on the computer, what happens if a student computer doesn't work correctly? Will there be backups for home that night? Or a backup so the student can continue to work with his/her classmates during the day?
- home availability
- If we rely on technology, the technology needs to work, what happens when it doesn't?
- cost to district to upgrade and maintain systems and devices for staff and students; when systems are down, learning is down
- Training would defeinately be necessary.
- The charges on the current school devices are my BIGGEST problem and being able to instantly troubleshoot tech-related problems that suddenly arise in class.
- Lack of keyboarding skills for students
- Student training.
- not doing flipped classroom homework
- Lack of quality devices
- Kids not having internet at home
- Teachers will use the computers as "babysitters" and provide poor quality lessons as a result. Limits thinking by the students. Limits collaboration and learning to work with others.
- Is there sufficient funding for ongoing technology upgrades when we switch to one to one devices?
- Students who would not be responsible to complete work whether on computer or from a textbook; misuse of device
- I do not think that all learning should be done in front of a screen.
- I would not want to go to digital textbooks. It is too important for students at this early age to manipulate a text and hold the resource in their hands. I would worry about the district trying to save money by not purchasing hard copies of the textbooks.
- device malfunctions
- maintenance of devices by younger students
- Lack of age appropriate social interaction
- all of the above
Q6

How would you say you primarily utilize the device for your class?

Answered: 149    Skipped: 193

- At school during class...
- For the students to...
- As a way to provide...

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At school during class time</td>
<td>75.17%</td>
</tr>
<tr>
<td>• For the students to utilize outside of class meeting times</td>
<td>8.05%</td>
</tr>
<tr>
<td>• As a way to provide continuity between home and school</td>
<td>16.78%</td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
</tr>
</tbody>
</table>

Comments (14)
Q6 - Comments
- Hard to use anymore because lack working computers and children being prepared (charged computers) for class
- They are so unreliable I can't
- Both at school and at home
- At school to present lessons; at home to extend learning and practice
- also outside of class to finish assignments
- they OFTEN use outside of class as well
- I don't.
- I also have the students use the computers outside of class.
- All of the above
- Never use it.
- a combination of all 3
- Used for class time and home.
- My room is a computer lab currently.
- We use laptops in the classroom as well as at home for homework or research
Q7

What do you see as the biggest advantage to every student having access to a device (laptop computer) during the school day and for home use? Please select all that apply.

Answered: 148  Skipped: 194

- Digital textbooks
- Communication
- Access to content
- Classroom management
- Student engagement
- Ability to teach to kids

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital textbooks</td>
<td>28.38%</td>
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<tr>
<td>Communication</td>
<td>47.97%</td>
</tr>
<tr>
<td>Access to content</td>
<td>84.46%</td>
</tr>
<tr>
<td>Classroom management</td>
<td>18.92%</td>
</tr>
<tr>
<td>Student engagement</td>
<td>67.57%</td>
</tr>
<tr>
<td>Ability to teach to kids at different levels at the same time</td>
<td>50.00%</td>
</tr>
</tbody>
</table>

Total Respondents: 148

Comments (24)
Q7 - Comments

- When they work and have no problems all of the above apply
- It has turned into a disadvantage as the expectations are to use them but we cannot rely on them. It has taken the place of the time tested student excuse of "my dog at it". Now it is my laptop does not work
- ability to do science labs online that we would not have materials to do in class, provide higher order thinking activities
- 1 to 1 allows for more student creativity without the limits of time and access
- variety - students can choose the type of delivery that works best for them when learning content. For instance, listening to a podcast, watching a video or reading an article
- Collaboration between students
- No need to sign up for a computer lab for activities
- access to purchased programs like CareerCruising.com
- I use the devices to access Learning Ally for reading and to use the SOLO products for writing
- virtual labs for science
- I'm able to use Learning Ally easily with each student during independent reading time. I am also able to sue the SOLO products to assist my students with writing.
- We have a laptop cart in our classroom, but students do not take them home.
- Nothing
- None
- Assessments
- Decreased reliance on labs
- Having my students type up their written essays
- No more paper
- Being able to use web programs like Powtoon or Comic Life for alternative assessments
- Differentiation is by far the biggest advantage.
- Playing games.
- I do not see an advantage.
- Reliability that the kids will be able to access - don't have to scramble to sign up for a lab/cart
- I have the majority of my class online using CMS mainly.
Q8

What do you see as the biggest disadvantage to every student having access to a device (laptop computer) during the school day and for home use? Please select all that apply.

Answered: 143  Skipped: 199

<table>
<thead>
<tr>
<th>What do you seeing as the...</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>55.94%</td>
</tr>
<tr>
<td>Classroom logistics</td>
<td>30.77%</td>
</tr>
<tr>
<td>Inadequate teacher prep</td>
<td>51.75%</td>
</tr>
<tr>
<td>Inadequate technology</td>
<td>56.64%</td>
</tr>
<tr>
<td>Student Distraction</td>
<td>53.15%</td>
</tr>
</tbody>
</table>

Total Respondents: 143

Comments (30)
Q8 - Comments

- Not every student I have has a laptop
- Students playing games during instruction.
- These devices aren't durable enough for middle school students. Students need laptop bags. It's difficult to keep all students on task because they play games. It's hard to supervise them with Vision software isn't adequate.
- We can't count on students having working laptops. We need a lot more tech support. Some students are very distracted during class time and use the laptops for games and to cruise the net. The laptops break a lot because students don't have laptop cases this year.
- It is very difficult to depend on the devices. Students are regularly without their devices for a variety of reasons (lost, broken, left home) and there are rarely enough loaner devices. On any given day and on any given hour, roughly 1/4 or 1/3 of my students are without a functioning device. Students also lose their chargers and do not replace them. Many students have working computers but cannot charge them to keep them functional. Many students do not have reliable WiFi at home. Many students are highly distracted by having a laptop and do not have an effective way to monitor them. We do not have adequate charging stations. As the year goes on, battery life diminishes greatly. Last year, our students were lucky to get 30 minutes out of a fully charged laptop. Most classrooms are not setup for this type of instruction. I believe it was a serious mistake not to require/provide a laptop case this year because it has resulted in damaged machines and lost chargers.
- length of time/resources needed when a student's computer needs repaired.
- They are garbage and the school district rushed into this just to look good in the public's eye
- reliability
- Student's do not have functioning laptops
- lack of ability to print from student devices, and teachers not having printers to be able to print for students who do not have their laptops for the day for a variety of reasons (broken, forgot it) a program that allows teacher to see all student computers is needed—vision works better this year but does not allow teachers to see loaner computers
- Students don't take care of the device and they break
- Students not having a laptop due to it being repaired and not having enough loaners. When all students don't have a laptop, it makes it hard to implement technology lessons.
- Middle school students are not responsible enough to have laptops. Most of the time they forget their laptops and/or do not have them charged to use. Many students are without laptops on a daily basis because they've been sent for repairs and have not been given a loaner.
- devices not working and paper copies needed at a moment's notice when printers aren't supported in the classrooms
- Students are downloading games at home onto their laptop and it causes issues with their device.
- not all students have internet at home
- Broken computers, students losing chargers, students leaving computer at home
- crappy quality of laptops
- students not charging their laptops at night
- Unreliable machines, battery life, amount of time it takes to login
- Laptop computers needing to be serviced; many students will be without laptops for a considerable amount of time and not enough loaners to give out
- broken laptops, internet issues, forgot computer at home, not charged, don't have the chargers.
- none
- Computers are "down" often in 8th grade. Students think if they don't bring a computer to class they don't have to participate in class.
- The technology is unreliable. Too many students’ computers aren't functioning and there aren't enough back-up computers. Extra planning must be done for students who do not have access to a computer yet the teacher's lesson revolves around technology.
- Vision not working AT ALL, at least 8-10 kids EVERYDAY do not have a laptop because the turnaround time to get them fixed is 2-3 MONTHS. It is very frustrating for kids to not have a device and know that no one seems to care that the students have nothing.
- Lack of usable computer programs—especially Microsoft Word!
- Having ALL 30 students able to log on in a timely manner without any technology problems NEVER, EVER happens! There are always a handful of students who can't access what I am asking them to access either in the classroom or at home. Sometimes paper is much easier! It's quicker and there are no technology problems that infer with getting an assignment completed.
- Many students have to submit Help Desk tickets because of computer problems, and there is not a school-wide plan in place when students are distracted by computers.
● Playing games on it.
● Lack of textbooks for parent homework help
● Students do not want to read on the laptop and they are more easily distracted when trying to do online work.
● Plethora of resources that may or may not work together effectively - and kids use manual are confused about which to use with which class
● have not been able to print and must save to a disk then print
● When student laptops break, it's very difficult when no loaner laptops to be given.
● There is a lot of great software and textbooks that have technology pieces. We do not have access to these products so how we can use the technology is more limited in certain subjects.
● routine maintenance and care of device isn't up to par when left up to a developing child.
● When they don't have one because it was taken away or because it is being fixed (which takes too long) it requires the teacher to do unnecessary extra things so the child can learn in an alternate way.
● the number of students that do not care for their devices
Q9

How often do you currently use your smart board interactivity (for more than just a projector?)

Answered: 319  Skipped: 23

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always (every class period)</td>
<td>36.41%</td>
</tr>
<tr>
<td>Almost Always (most days)</td>
<td>27.90%</td>
</tr>
<tr>
<td>Sometimes (every week)</td>
<td>18.18%</td>
</tr>
<tr>
<td>Occasionally (every term)</td>
<td>14.11%</td>
</tr>
<tr>
<td>Never</td>
<td>3.76%</td>
</tr>
<tr>
<td>I don’t have a smart board</td>
<td>7.21%</td>
</tr>
</tbody>
</table>

Total Respondents: 319
Q10

What effect do you feel that the introduction of smart classroom tools and software has had on your classroom?

Answered: 312  Skipped: 30

- Very beneficial
- Somewhat beneficial
- No difference
- Somewhat detrimental
- Very detrimental

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very beneficial</td>
<td>53.85%</td>
</tr>
<tr>
<td>Somewhat beneficial</td>
<td>32.69%</td>
</tr>
<tr>
<td>No difference</td>
<td>12.82%</td>
</tr>
<tr>
<td>Somewhat detrimental</td>
<td>0.32%</td>
</tr>
<tr>
<td>Very detrimental</td>
<td>0.32%</td>
</tr>
</tbody>
</table>

Total Respondents: 312
If all of your students have laptop computers and you have the capability to broadcast to their screens and to a projector would you feel comfortable eliminating the smartboard from a classroom you use?

Answered: 312  Skipped: 30

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>17.63%</td>
</tr>
<tr>
<td>No</td>
<td>82.37%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
**Q12**

**Could you provide a scenario or technology where you would be comfortable eliminating the smartboard.**

Answered: 152  Skipped: 199

<table>
<thead>
<tr>
<th>Absolute not</th>
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</tr>
</thead>
<tbody>
<tr>
<td>None apply</td>
<td>3/5/2015 2:21 PM</td>
</tr>
<tr>
<td>No</td>
<td>3/5/2015 10:11 AM</td>
</tr>
</tbody>
</table>

I'm not sure what type of technology or program you are referring to when you asked #9. I use the smartboard for student engagement: educational games, student presentations, to project student work, etc. I would need to know if it's eliminated because of money or because we are upgrading and have something better to use.

<table>
<thead>
<tr>
<th>No</th>
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</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>3/1/2015 2:55 PM</td>
</tr>
<tr>
<td>No</td>
<td>3/1/2015 1:15 PM</td>
</tr>
</tbody>
</table>
Q12 - Comments

- Absolutely not
- none apply
- NO
- I'm not sure what type of technology or program you are referring to when you asked #9. I use the smartboard for student engagement: educational games, student presentations, to project student work, etc. I would need to know if it's eliminated because of money or because we are upgrading and have something better to use.
- No
- No
- N/A
- No!
- No. The Smart Board is an integral part of my teaching.
- Smartboards are essential. With everything the district has taken (Discover Ed & Microsoft), I can't imagine losing the smartboard too.
- No. Smartboards are an important part of the learning that takes place in my class. Students interact with it regularly.
- Absolutely not
- No. Smartboards are a regular part of my teaching. I use it every day with my students. They interact with the board on a regular basis to demonstrate their learning.
- Smartboards are an essential part of my teaching. I use the board as an interactive tool for my students. I have put countless hours in developing lessons and assessments for my curriculum. We must have the ability to use smartboards to model lessons and instruct/assess our students. Laptops are not the answer. In fact, much of the most recent research on 1:1 initiatives has called into question their benefits. Next year, when students can bring their own devices, the problems will only be more severe. Too many of our students lose, break or forget their devices. We cannot depend on laptops alone. We cannot even adequately monitor what they are doing on their machines in the classroom. I am SHOCKED and dismayed that this is even up for discussion. It was just a few years ago that Unit 5 spent a lot of money outfitting every classroom with this technology. The district has used this as a recruitment tool. Smartboards are now pretty standard technology in districts across the state and country (not to mention other industrialized nations). If smartboards are eliminated, teachers will mount a serious protest. I suspect parents will as well considering the financial and human investment made in adopting smartboard technology. It is bad enough that the computer labs have been dismantled. Please leave my smartboard alone!!!!!!!!!
- No
- Marker and a white board or telekinesis...kidding aside, what are the odds of having every child working with a device that never fails? As of now the question you are asking is very improbable.
- I would not be comfortable with that unless it was a corporate setting and they had the IT support present. I myself cannot afford nor want the "smartphone" plans that are out there therefore it would be hard to be aware of the possibilities.
- Currently students are proficient at bypassing vision, and rendering their computers inoperable. Our technology has yet to find a way to be smarter than the students.
- I want my Smartboard.
- Being able to guarantee that all students have functioning laptops on a daily basis. Having students bring their own will likely make this worse before it gets better.
- No, I love my smartboard and couldn't imagine teaching without it.
- Individual research projects
- If there was another program that allowed students to interact with/manipulate information as well as SMART technology does and I do not know of any programs that does all the things that smart technology does
- Not that I can think of.
- I'm not sure what alternative would be offered, so there is no scenario where I would be comfortable eliminating the technology that is currently being used.
- NO
- I would give up one to one technology before I would give up a smartboard. It is crucial.
- NO
- No smartboard in our classroom.
- No, because the students still need the desktops we use because of the programs we use and the licensing issues involved.
- Do NOT take away our Smart Boards. Half the time we have 4-7 kids in a class that have no access to a computer because the IT department takes 2-3 months to fix a computer. Those kids also use the Smart Board. I use the Smart
Board everyday. Why would you want to take away learning resources for students? Why would you want to take away that helps students be successful in the classroom? We deal with enough budgets cuts, don't take away something that is already paid for that we use every day.

- No. We spent money on them, they are still useful, and I have designed quite a few activities specifically for use with the smartboard. It gets my kids up and moving in the classroom while interacting with the material that I want them interacting with.
- No. Whenever I need students to bring their laptops to my classroom, at least 1/3 of the students don't have a working computer (they are waiting for a loaner), and then a few more quit working for one reason or another during class. The laptops are not dependable at this point.
- I use the features of Smart Notebook in every class and course level I teach. Taking away the smartboard would be a significant change in my teaching strategies at this time. I would still employ devices with some sort of connectivity to broadcast, even as a 'mirror' application or blue tooth connection, to show student screens or share my screen with them. There are websites I can use to broadcast my screen to them currently, but I do not trust connectivity enough to plan a lesson around it.
- No, I use my SmartBoard for every lesson. It would be very inconvenient if the SmartBoard was eliminated.
- None since the smartboard allows students to be out of their seat and interacting with the class physically - touching, moving and utilizing tactile and bodily kinesthetic learning style. Software for the board allows me to create lessons that are interactive, have sound embedded and gives students the chance to participate with me as another instructor.
- Not at this time.
- No, bad idea.
- Removing the Smartboard would be detrimental to our classroom. It is an interactive tool that allows me to show and do things that are not possible on a projector. While I can project student work to the smartboard, we then write on the work shown. In class we will brainstorm ideas and project it on the Smartboard. I can save the file and then continue again the next day. For students that struggle to write down what we are working on in class, I can print what is on the Smartboard for them. In addition, I can show dilations in math and use other math tools on the smart board that make meaning of what we are learning. The Smartboard revolutionized how I teach and is THE best investment our district has made in technology tools for education.
- No, the interactive display is very useful to me
- No! The elementary still needs it for kids.
- Why eliminate it?
- I would think you'd need the smartboard for directions or to demonstrate something to everyone at the same time so everyone having a laptop with the capability for the teacher to demonstrate would allow the smartboard to be removed.
- Video has become more accessible and is a means for student growth and learning. There is a time where we all need to be watching and discussing the same video at the same time, but not sure how we could do that if everyone was accessing it only on his/her laptops. There are times we all need to be seeing the same thing at the same time...and to know they actually watched the clip or excerpt leading to a full class discussion. This doesn't answer the question; but it does explain why eliminating Smartboards would be a problem unless there was an alternative to show clips in a whole class setting.
- never... The laptops are too slow and time consuming to use for everything. We would waste an incredible amount of time every day waiting for the students to log on to show them something that I can show them in one minute or less.
- My students are very visual learners, and they need to see what I am doing on the smartboard as a model.
- I never want to be without my smartboard.
- There are times when I feel I need the whole class with me, so no scenario will be given.
- NO! Eliminating the smartboard is one of the dumbest ideas I have heard. I use it every day and often need to show kids how to do something on the computer, so just pushing something out to their laptop is not going to help. Guest speakers use it for their presentations etc etc. Don't even think of getting rid of the smartboard.
- No. It's purpose is very different than a one to one device. It is used for instruction and modeling. It also provides so many opportunities for interactive learning.
- No, I would always want the smartboard!
- NO. Because our tech dept. cannot handle the responsibility of fixing all of the issues when they occur. It would be a nightmare to get rid of the Smartboards. At least I can count on my Smartboard to work even when my computers don't.
- No. The students benefit greatly from the SmartBoard. No individual computer can compare. Students can come up and participate in a hands-on way.
- I don't have a smartboard.
- I cannot imagine this.
- No, I cannot imagine giving up my smartboard. I use this all of the time!
- I want to keep the smart board. In the visual arts we make reference to images when students are working on art projects. There isn't space on their tables for their computers and project materials such as clay, paint, etc.
- I have totally embraced and utilize this technology daily in my classroom. It would be detrimental to remove it from my room. I use it for way more things than just a display device. It is essential when I teach the software for my curriculum.
- Based on the needs of my students in an instructional classroom, I would not feel comfortable eliminating the smartboard.
- Our WIFI goes down frequently. If there was no smart board to use in it's place we would be stuck.
- NO!! I love the SMARTboard and use it constantly!! It has become essential to classroom instruction.
- I am unable to imagine a scenario where I would be comfortable eliminating the smartboard.
- Can't really say since I have never had one but am required to be using technology that doesn't work properly. When I see classroom teachers using smart boards I think of how much more I could accomplish if I had one too.
- I would still like to have a teacher screen large enough for the students to follow along with. It does not need to be a smartboard necessarily, but definitely the screen should be able to do what the students can do on their device - if not a little more.
- None
- No.
- I would not feel comfortable getting rid of my smart board. The district made a huge push about 4-5 years ago for everyone to switch over to using the smart technology when they put a smart board in each room, so I converted most of my lessons to that, knowing that was the direction we were moving. Now, only a handful of years later, I'm being told that could possibly be taken from me, which would mean hours upon hours of work would be lost, and I would have to convert it all back to a different technology yet again. This is just very frustrating.
- why would you ever eliminate the SmartBoard? Are we leasing these or something? I love that I can use PowerPoint and make my own annotations as we discuss material. Please don't get rid of these.
- no
- I can't.
- To be honest, I feel that the smart board is absolute plus for a classroom and I can think of situation as to where I would be comfortable eliminating the smartboard. As always, I am open to learning more and exploring best practices and perhaps by view could be changed; however, right now the smartboard must stay in the classrooms.
- I feel like for some students, the Smartboard is a tool that is necessary to their learning. Not only am I, as the teacher, able to display information, but it also allows students to come up to the Smartboard and interact with it.
- If my class transitioned to entirely seminar discussions and project-based I probably wouldn't need or use the Smartboard. But the Smartboard is useful for introducing notes and topics.
- NO! My problem is when they remodeled Chiddix is that they put the SMART board on a side wall instead of the front wall. It is difficult to use appropriately with 60+ students in the classroom at the same time.
- I can't. The smartboard is what the chalkboard was in the early 1900's. We use hours each day-- even if we are not "using" it, it is often broadcasting directions. Should we go to one on one with the computers, we'll use it for showing how to locate items and as a common source for discussions and presentations. Getting rid of the smartboards is a bad idea. It worries me that we are even being asked about it.
- No
- NEVER!!!!!!!
- No. Another change in the classroom environment that involves removing technology is not appropriate.
- I would never eliminate the smartboard. I use it for behavior management, student engagement, and instruction.
- I am not comfortable eliminating the SMARTBoard.
- I use the smartboard for group interactive activities as well as for a projection screen. I use it daily in one way or another and can not find any reason to eliminate it.
- I would not be comfortable. My lessons are designed so that we can write on the Smart Bard, save the writing, and not being tied to my computer.
- No
- I am not able to provide a scenario. My IEP students need visuals to help them have access to the curriculum and be engaged in the lessons. I use mu SB every period.
- ??
No. We already have the Smartboards in every classroom, why would we ever get rid of them. That doesn't seem cost effective.

If I had a tablet that I could write on and have the writing displayed on the student's laptop.

I LOVE my smartboard and wouldn't want to give it up. We do so many things at our grade level on the smartboard!

NO WAY!!!! I love the Smartboard and use it ALL the time for everything...as more than just a projector.

I used to have a SmartBoard. My new room does not have one. I REALLY want a SmartBoard again. I work with young children in small groups. SmartTechnology is effective for Assisted Writing, one of the RtI interventions where we do group writing. Laptops would not work well with the younger grades for this purpose. This is only one scenario where we still need SmartBoards.

I would be comfortable if the 1-1 technology still allowed me to have the students interact with the lesson without being tied to their own device (i.e. still be up and moving to interact with peers and the lesson)

If there was access to a document camera

The Smartboard is an important tool

Learning should also be communal, if everybody stares at his/her laptop, then why even bother coming to school.

I don't have a smartboard, but I would love to have one or even a permanent projector.

No. The ability to create with students on the Smart board is too valuable. I guess this could be accomplished in a shared Google Doc, or on a piece of anchor chart paper, but the ability to interact with the board is quite brilliant and the middle school students are more engaged when they can interact with the Smartboard. More so than they are interacting with their computers.

No, none...especially at the elementary level it is essential to be able to draw the class together as a group to share a lesson, have discussion, and record discussion points. Doing this with everyone behind a tablet/computer allows for more distractions and encourages isolation rather than face to face conversation. I'm not a huge technology person but can't imagine why anyone would want to eliminate smart boards after teachers have worked so hard to learn to use them. If you want to ADD the capability to project a laptop on the smart board, that would be great, but I would not consider eliminating them.

There is no scenario. I have no idea why you would even suggest this as an option - to take away this technology out of our classrooms. We are already dealing with enough budget cuts and technology that doesn't already work with the student laptops. About the only thing I can depend on is that my SMART Board will actually work. If you take my SMART Board away, just send me back to the 1980's and get me a ditto machine.

Nope

no

I would not feel comfortable eliminating it at the primary level. It is very powerful and beneficial to all have one screen to look at and gather around.

I can't. Primary students need both the visual that the teacher manipulates as well as the chance to manipulate on their own. I haven't seen or read of that being possible, or best practice for primary students.

document camera projecting

None

No

None. Eliminating a smartboard would make no sense.

Why would we even discuss or entertain losing the smart boards? This is very disturbing and confusing.

No

The smartboard is just used as a screen in my classroom with occasional use of the smartboard tools. Teachers need to be able to project to have shared readings or activities.

I don't think I would know the scenario until I am living it. Then I would know it.

It would be impossible to teach without the Smartboard. Since there are no televisions in classrooms, very few students have ear buds, and the fact that so many of the student laptops break.....there would be no way to ensure that ALL students are getting the content in an effective and efficient way. The Smartboards are used to show video clips especially those from Youtube. Students are blocked from such sites and would not be able to see them on their devices. We also have no district funded video websites to access for educational purposes like Discover Education, Brainpop, etc. Teachers are being forced to find their own educational videos and many of them come from Youtube.

I would not be comfortable eliminating the smartboard

The wireless in the classroom would have to be more consistent. At this point, the wireless goes down and then internet is not available. If the internet were faster and more reliable, it would be easy to teach without a smartboard.
● I absolutely under no condition would want to get rid of my smartboard. That's the dumbest idea ever and it should not even be under consideration.

● No

● When the same types of interactions could take place. A variety of activities is always better. Since all students do not learn the same way, the more methods and tools we have available to use, the better.

● No. I love my Smart board.

● No, we have not had smartboards for very long. We have spent a great deal of time converting our lessons to smart notebook which includes demonstrations, simulations and interactive activities. Whole class direct instruction is something high school kids need to get used to and a smartboard allows the teacher to accomplish that.

● Not right now

● NO. I use my smart board every day for multiple tasks.

● In kindergarten, I think that being able to demonstrate is vital. Students need to watch how to write letters, numbers, perform strategies for adding, the list goes on & on.

● NO. NO. NO. The Smartboard is incredibly useful for teaching. They should not ever be considered optional for a teacher or removed from the room.

● If there was absolutely no money to keep it.

● No because I cannot count on all students to have a fully charged working laptop with them at school.

● When students are logged into Lexia Reading or Symphany Math which is an individual program, they won't need the smartboard.

● Not really.

● I could not, with the population that I teach.

● No there are times when it is important to have the big picture for all at the same time. Too many laptops are not working, not charged or not available which makes 1 to 1 unreliable for daily use to disseminate information. Teachers must depend on being able to provide information to all.

● Not all day. Certain subjects maybe, but not all day.

● I cannot find any reason at this time to not have a smartboard.

● Absolutely not.

● No. I use the smart board too often to exchange it for other technology.

● If: - I was educated on how to use the projection technology - I was taught over a period of time (NOT 25 minutes on an institute two days before the school year starts) - there was a dedicated, in building, not crazy-overworked person in the building for tech support that is bound to pop up - it was easily compatible with the plethora of devices the kids will bring in - the SMART Board was left in the room for "backup" while I was learning to use the tech with my kids

● Not at this time, but perhaps with further implementation of the 1 to 1 initiative

● No

● I would need more information to adequately answer this.

● If I had the ability to write or manipulate objects/files/lesson tools electronically on another device that could be then broadcast on my students' devices in real time, I might be comfortable with removal of the smartboard.

● no

● we just got them what a waste of resources and funding!

● None smart board is one of the most valuable piece of technology we have. It would be better to get rid of laptops than smart boards. When mine is down and we go back to the dry erase board instruction lacks

● No

● I wouldn't. Even if I could project it to their laptops all together it wouldn't be beneficial. Then, I would have them not paying attention to me and distracted by other options of their laptop. Sometimes it is crucial to be able to have them locked from their computers and only paying attention to me and the Smartboard and interacting with it to learn. I think the more we let personal devices take over the more attention issues and growth and development issues we will see in children.

● NO! It is a useful tool. Is this survey just a fake distraction to somehow eliminate smartboards?

● No! We use the Smartboard too much to eliminate it! There are too many students without technology or need directions/classroom examples.

● Nope. I love my Smartboard. One to one isn't age appropriate for my grade level.

● My smart board is used as a glorified white board. The classes that I teach are so advanced that there is no technology on the smart board for what I need. You can take it out of my classroom, sell it, and use the money to help fund other initiatives that have been cut.

● I feel like I would always need the smart board in some way.

● No
Q13

Do you feel you have had adequate training to implement a 1 to 1 device program in your classroom?

Answered: 315  Skipped: 27

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Q14

Please provide suggestions to become more prepared

Answered: 133    Skipped: 209

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<tr>
<td>All grades would need a device since I teach mixed-grade level classes</td>
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<td>Training, better lab management software, where are students going to learn the technology to use the 1 to 1 devices, better tech support</td>
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<td>More training opportunities</td>
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Q14 - Comments

- Specific training and TIME to prep
- All grades would need a device since I teach mixed-grade level classes
- Training, better lab management software, where are students going to learn the technology to use the 1 to 1 devices, better tech support
- More training opportunities
- More classes and time to collaborate with other teachers to plan lessons using the technology.
- More paid professional development options
- More training opportunities after school and in summer
- More training
- More training for teachers but only if the district plans to keep the software applications. Teachers have gotten sick of learning a program and investing a lot of time and energy in making lessons only to have the software eliminated (ex. Discovery Education). Google Docs is not the answer. I cannot believe we are getting rid of Microsoft for students...so much for career readiness.
- More pda classes
- More professional development classes after school and during the summer
- I suggest better options when a student device needs repaired. I have had to loan my own personal laptop to students during a class period to have them use for a lesson, otherwise they could not complete the in-class activity. No they could not share for the lesson, and no they could not complete on paper. I am considered an unsatisfactory teacher while being evaluated if I do not provide these lessons to students, so in my opinion, this is my only option during those times. I would suggest that the district provide each classroom (pipe-dream) or team with laptops as in-class loaners for students. The two netbooks we share as a team for 130 students is very inefficient. The netbooks are also extremely slow, and do not allow the student the same advantage of a large screen as the other students. So a slower and smaller computer is what they have to work with, that is, if the other teachers on the team don't need them in their room for two other students that hour. It's usually first come, first serve. Teachers are then having to (again) share their desktop (which I use to guide the students throughout some 1-1 lessons), and loan out their own personal district-provided laptops (which houses a lot of private information on student information if the right program is clicked). There just needs to be a better plan that is taught to teachers that the district would like us to carry out during these times of technology situations. I feel like we were just thrown into this world of laptop usage and didn't get adequate training unless we seek it on our own. I love having the students having their own devices to use because I use technology daily, so for those of us that do, I think we now need to start having conversations about trouble-shooting some daily problems so we are all on the same page. While technology is the topic of discussion, it saddens me to no end that the district wants us to push technology and programs to enhance student learning, yet will no longer subscribe to programs like Discovery Education. Talk about a breakthrough piece for any teacher trying to share information on content in engaging ways using the 1-1 goals. I think the district's next step should be to reevaluate PROGRAMS given as content, rather than just the tool to access them. We are missing that link. I would love to be on a committee to find research-based programs that students can use to look up safe content at school or at home. Google is wonderful, but as a 11-14 year old, it is very tough to navigate to credible sources. Not to mention what pops up in Images when you simply search 'Ancient Greece'...yikes. Anyways, thank you for taking the time to get our feedback. I look forward to seeing how our views and opinions shape the future of our ever-growing technology-based classrooms.
- Institute day training.
- Figure out what program the teachers WANT and train on that ONE program and nothing else so we all become fluent in that one program....FOLLOW THROUGH! Don't add more and more and more....
- I would suggest a tutorial, but that is something else on our plate. Plus, one could take this in so many directions a tutorial may be counterproductive.
- Unit 5 has offered beginning classes, but rarely allots time for actually transferring information onto the technology. And I am no longer going to use my personal time to that end. If you want to implement a change, then quit taking away our planning time and adding additional requirements which you don't give us time to understand.
- Very small group in-house training during institutes. Since professional development is so limited due to funding, we are exposed to new initiatives in very large settings for a short period of time, one time, and then expected to be able to implement them.
- Provide real training not quick "late start" trainings. We need time to have access to materials prior to having them in student hands. We need training on the software/textbook usage. Something needs to be out in place for students who don't have Internet access at home. Fees for rental should be required from everyone who receives a 1-1 device. It is my understanding that some students did not have to pay the rental fees but we're provided 1-1 devices.
More training such as late starts and workshops. I think each building should have a technology coach.

Trainings

I am VERY concerned with students being allowed to bring their own devices. As a 6th grade teacher I have learned over 3 years how to troubleshoot many problems on the devices students currently have. I do not have the technology background to be able to troubleshoot problems on a classroom full of different computers. I am also extremely concerned with being able to manage/see what students are doing on their devices. Currently we use Vision which works ok, but vision will not work with bring your own device. We also do not have nearly enough tech support to be 1 to 1. Problems with the devices/wifi/drives go wrong and it takes way to long to fix. We also do not have enough power strips and plug ins in our classroom for the devices since most students need to be plugged in most of the day.

I observed middle school classes but I would have liked some demos by those teachers and more time to discuss with them. I find the one on one very useful because I'm an English teacher and they come with their own lab reservations - that's helpful

More individual PLC time at late starts and less "group" PLC.

Teach analytic thinking

I would need training from step one and beyond.

Give teachers time to collaborate with one another by subject. Then we can see what our colleagues are doing and get some ideas.

Visits to other classrooms, modeled lessons taught to my class by technology coach, late start time allocated for planning and prep

Inservice and PDA classes

PDA's where we get either credit or stipend for our time, not trying to cram in teaching sessions within the school day when we don't have time to then practice or try things out afterwards. Thanks!

Training in the building that is scheduled during late start and institute days. Continued training after implementation. Scheduled tech assistance each week/month. Teachers don't have time to go to a coach for assistance but would benefit if someone was in the building. Provide current IMC time to work with teachers on implementation.

I would like to given some more options for possible resources for the students to use.

More time to prep on how to use it in my classroom

PDAs offered that would show how this would be beneficial in each subject area at the elementary level.

Teacher training in the summer prior to implementation.

I do not want to use technology just to say "we use technology". I want some better ways to use implement student teacher communications. I also think having vision so that I can limit what students have access too would be very helpful. As it is now, VISION doesn't always work (if at all)

one specific activity to use each month By the end of the school year = 9 new types of learning activities in our digital portfolio.

Our technology is not reliable enough to eliminate the smart boards. Teachers have outdated computers that barely work. The computer programs that we are required to use in special ed are slow and delay getting work completed in a timely manner. I hesitate in always having a student use a computer due to it's impact on their vision. I tried this week to have my students complete guided notes on their computers, but it took almost 15 minutes for them to get logged. Mixed grade classrooms do not have updated computers to utilize in class.

I have had very little training in implementing 1 on 1. Fellow teachers who are currently teaching in a 1 on 1 setting have had to figure out everything on their own. While I assume this will just be the way it is, it would be helpful to provide more in-depth training on how to best implement 1 on 1 in the classroom.

training on institute day safe applications for students to interact w/

It has been challenging to see how to better weave the 1:1 idea into our lessons. I understand the technology but need ideas on how to use it.

Time to plan and create lessons/activities

The use of 1:1 technology should not be forced to create curriculum that already has structure, essence, and rigor. The availability of 1:1 will benefit any curriculum, but to enforce the curriculum to be driven from the technology is unnecessary.

We have had no training.

I find that the students are often more computer savvy than I am so I would need lots of training on how things work on-line. Also, we'd need training on what to do for trouble shooting so we could adequately continue with lessons. There would be a definite need for additional outlets, etc so all computers could be plugged in.

the district must continue to provide teacher workshops to train and educate all of us on Google Classroom, etc.,

I need time to become more prepared for 1 to 1 tech. I also teach students with special needs and I don't think they have been included in the conversation as much as they should be.

PDA classes
● We definitely need extension cords in EVERY classroom if all students are going 1 to 1.
● Need to roll out technology more slowly. CMS, Mastery Manager, Google Drive etc. were all thrown at us at the same time that we are also working on CORE and NGSS. Way too much. I never did get to learn VISION well and now that will be replaced? Will we get adequate training on that?
● We would need training on the actual device, as well as some general troubleshooting to help our students when they have technology issues.
● Time to use technology... don't just make it a text. Security issues (sharing and cheating) our server is SOOOO SLOOOOWWWW it would be miserable. We also have problems with lower socioeconomic status having computer A others with B. Teachers need time to plan with other teachers using technology well.
● I don't believe my opinion matters on this as it is another mandate coming to the teachers that we are to implement. There has not been a technology-related implementation that teachers have had adequate training to implement in 10 years. I anticipate that the teachers will be responsible for figuring out how to do this on their own time. As our class sizes are enormous (30+ students) I believe that most teachers will only continue to do things in a similar manner without the benefits of the 1 to 1 device as there are still only 24 hours in the day and only 8 in our contract.
● I'm not sure that teachers will want to go to training at this point. Due to how many other things the district is asking us to do!
● Keep providing PDAs that teach us about using technology in the classroom. this also provides prep time for the implementation.
● Longer training periods on institute days
● TRAINING.
● More professional development classes
● Being made aware of the technologies that exist to use in the classroom. Most of what I use now, I have looked up and researched on my own.
● Provide training on technology for teachers. Have more tech. support and better plan for when the kids’ laptop do not work.
● Teachers will need ample planning time to create their lessons with the use of this technology, then special education teachers will need planning time to make appropriate accommodations and modifications to those lessons. Ideally, we would plan together as a grade level. This definitely cannot be a new initiative the district expects of us to be implemented within a week or even a month.
● Intense training on the technology. We constantly roll out new things without adequately training people, then stuff doesn't work and becomes more of a frustration than the benefit it could be.
● We need classes during institute days and time to practice and implement what we learn.
● What is good for HS students is not good for 1st graders. This needs to be looked at as a possibility for our older students perhaps, but not our younger kids who are learning fine motor skills, such as printing. It does not need to be district-wide.
● Offer PDAs throughout the spring semester, share information with teachers over the summer that they can read and study on their own to prepare for the following school year, offer PDA and training sessions over the summer, give planned institute day time for training and explanation.
● I would like more info regarding Vision to monitor student work and behavior on the netbooks.
● Several trainings in small instructional classes would be needed for me to fully understand and use this.
● I am tech savvy, but I am not sure that I fully see all of the possibilities in shifting to 1:1. I would like to see some strategies on how we can use this effectively.
● First off, more outlets need to be install in classrooms. It is not effective to have 3 outlets in a classroom that has 35 students. Secondly, the largest problem is hardware (cords or computers) breaking. It may be helpful to provide teachers with extra power cords and/or the knowledge to fix the computers. The District wide Technology Coaches do not help any of these issues, or really any issues at all. The District pays the salary of teachers who do not have any students contact time and do not directly effect the learning of students. Lastly, teachers need to be given more extension cords for their classrooms. The technology department only gave each teacher one extension cord and again, one cord is not feasible for 35 laptops.
● the projector thing sounds like a GREAT idea...however, will we be provided training for that? With BYOD at the high school level, what will it take to have every student have the software needed to implement this tool. With using the laptops, the kids know more than I do about technology, I find there is more cheating on assessments when they do them on the computer than when I do them on paper and pencil. it is nearly impossible for me to catch, but other kids tell me, or I catch them taking screen shots, pulling up screen shots, accessing old pages, etc. How can you help me with this? ? ? ?
● It would be nice if the district provided additional trainings after school like we did in years past.
● It would be helpful to offer training on using this new technology in teaching reading/writing in a more seamless manner.
● It's going to take a lot of training. We will need to learn the technology part of keeping different devices working. We'll need to learn the paths of maneuvering with different machines. Most importantly we'll need to learn the best practice of implementing a curriculum that is engaging and will allow students to grow as much as possible each year. All of this will NOT be a fast process— it will require patience from the administration.
● QUIT FORCING COMPUTERS ON US
● No sure, there doesn't seem to be enough time to learn anything completely.
● I am very concerned about the practical aspect of 1:1. Even though the high school is NOT yet 1:1 we still have frequent issues with internet access. With school computer carts, there are always computers that are broken and the turnaround time for them to be fixed is incredibly slow. I am also concerned about the expectation that all the students in our district have access to the internet at home. Since many to do, the effectiveness of 1:1 outside of the class is limited.
● I would like to have training on how to know what certain games and websites students use so that I am aware when they are not on school approved sites. I would also like training on how to report what to do when students are on unapproved sites.
● District-paid passes to the Moveable Feast at BHS this summer.
● Even when we have training on certain programs, we have no time to practice them outside of teaching in the classroom. When we use it in the classroom without fully understanding the technology then it leads to a lot of time troubleshooting rather than teaching. I'd like more time before implementation to practice or get used to new technology.
● I have learned to use the 1 to 1 devises by trial and error. Even though I am a veteran teacher I have embraced the technology, both computers and smart boards. The technology sessions have been useful to get a start on using the devices then you just try it!
● I think our district should have bigger priorities than 1-to-1 and our financial resources should be put to use elsewhere.
● I would like time to receive training PRIOR to be expected to have students in a 1 to 1 situation. I want training on how to use software that allows me to view all the students computers at the same time, tips on how to troubleshoot technology problems, as well as information on successful configurations of the classroom that would lend itself to having 1 to 1 devices.
● training opportunities at institutes, PDAs, focusing on effective use of the technology as well as specific programs. (Google apps, Google classroom, CMS.
● For older students, they need keyboarding skills.
● Institute days devoted to technology education.
● Training and more training ......before implementation!
● Professional development classes
● I would like our tech support to create documents for us. For example, as we are getting a new Everyday Math Series, I feel that our elementary tech person SHOULD create smartnotebook documents for us, rather than individual teachers doing it for us!
● Professional development classes
● Targeting a few programs/uses at a time to offer training on Suggest uses that go beyond turning devices into a replacement for worksheets (so teachers are not just uploading and sharing digital worksheets with students ...the technology should ENHANCE he learning) Offer paid or release time Communicating clear expectations for use
● Offer professional development classes again, teacher training during school hours.
● Training needs to be done. How to use CMS, Office 365, Google Classroom. We are just expected to figure it out and muddle our way through the technology. Any training that is provided is "sit and get". Give teachers time to collaborate with other teachers to see what they are doing with technology instead of lecturing about what "should" be done.
● There are too many programs thrown at us at one time--CMS, Mastery Manager, Google Docs, Vision etc. SLOW DOWN!!
● Small group training for teachers and students.
● vision practice
● Training and time to experiment before full implementation.
● Students are very distracted by technology, mainly cell phones. Laptops and tablets will add a new level of distraction. I am concerned about all of the different types of devices and will all of our programs work with their devices.
● Significantly more teacher training
● Professional development on how this could be utilized during district approved interventions
● Having less initiatives to focus on.
Providing 1-1 conversion simply makes textbooks electronic. Teachers are not using the computers to teach programming skills beyond what students already know from home use. Teachers need to be trained to teach students to manipulate and program computers not just get online to play "learning" games or other simplistic, non challenging activities. I'm not convinced that 1-1 is necessary with what I see any of my children's teachers using from middle through high school.

- TRAINING and TIME TO PLAN using technology.
- All teachers need additional training. Microsoft Office products should be installed on all student devices. Students need H-drive space. Google Drive is AWFUL!!!!!! All students should be issued their own headphones with their laptops. Students need to be able to print from their own laptops at school. Vision should be used by all teachers and the tech department should already have ALL students device codes loaded into vision so teachers don't have that burden on top of everything else. Teachers also need newer laptops to understand the technology students are using. Our current laptops are 7 to 8 years old. Batteries in our laptops can't even hold a charge.
- Teachers need more time to learn, to collaborate, to create, and to organize our digital world.
- More educational opportunities and examples of how to incorporate it in area classes.
- Continual training of small amounts of information is most helpful.
- Time to learn, practice and implement are needed.
- Time to meet with other teachers who teach my subject to share ideas.
- Observe classrooms where it is in use. Be trained in the programs I would use.
- More time to develop activities.
- Prep time for teachers so they know all the bells and whistles of Unit Five technology like Google Classroom, CMS, Google Drive, Smart Board, etc. New technology is great but only great if the user (the teacher) knows how to implement & use it.
- Professional Development is ESSENTIAL if we are to move forward.
- Allow teachers time to prepare and plan for utilizing the laptops. Communicate new initiatives (like BYOD) and have answers ready for the questions about how we handle repairs, loaners, and PARCC testing on these devices. Keep in mind that 1:1 is essentially adding a prep to already full platters (we moved beyond plates a couple of years ago).
- I was never trained on the 1 to 1.
- More training and knowledge of available resources for the students online (Google forms etc....)
- How about offering professional development classes specifically for area teachers?
- I could benefit from training from a COLLEAGUE who already uses the technology in their classroom and has done so for more than one school year. I would work better with specific ideas (in print) and then have at least one hour or more to work with colleagues in my same department to figure out how to make it work.
- Continual, progressive instruction with low teacher to student ratio: I don't even know what all resources we have Dedicated time to plan with my department AND my co-teachers Not shoved into "during your PLC time" - and not a "sampler" of several things the institute before the school year begins
- Time to collaborate and develop lessons with colleagues. PLC time on late starts is currently being taken by the development of assessments instead of instructional practice.
- In house training, institutes, late starts, majority of training during contractual workday with workshops outside being offered as well
- Not necessarily more training but time to collaborate with grade levels.
- We would need extensive training for not only teachers but students as well. We would need a SIGNIFICANT increase in the number of technology personnel. The way teachers have been "trained" for programs in the last 10 years would be far insufficient to make this initiative effective for classroom use.
- It is unclear what the expectations would be for 1 to 1 computer use in the Kindergarten classroom. If there are expectations to utilize software that I am unfamiliar with, then more training must be provided. If I would have the ability to decide how the laptops would best be used to meet the needs of my students and if I would have the decision making power to use the laptops to challenge the high performing students, make adaptations to assist my struggling learners, and incorporate laptops in a way that I see beneficial and useful - then I will not need additional training and am very prepared to add extra technology to my classroom.
- just more prep time!!
- Often, the technology training sessions overlap with other professional development sessions that are equally (if not more) important (ex. PARCC ELA and Math sessions). I would love to see technology training be pulled into our PLC meetings so that we could collaborate on how we are using the technology within our content areas. I do appreciate the Technology Corner for teachers, and I am thankful that information is shared in that capacity. I am also grateful to be in a district that offers 1-1 for students. Thank you for all that is being done to keep our students competitive in a digital world.
• Time. I know that this is so hard to do but I don't need training, I don't need a presentation, I just want time to do everything the district asks me to do, not just 1:1 although that is a big one on the list.
• What special Ed programs are available. Need assistance to set up computers the first week if school. Students are not able to do this.
• On going training during late starts
• We have a good handle on literacy now, how about switching out literacy coaches for technology coaches. Similar concept, different area of focus.
• Stop pushing through initiatives that are only important to a minority of teachers. This is costing the district a significant amount of money but has a very minimal impact on learning. My child is at a grade where there is a 1:1 initiative. All they use it for is to play games. According to them, they have used their laptop less than ten times the entire school year. Not a good use of money if you ask me.
• Being hired late, I may have missed training, but I only know about student computers by asking them. (student access, how to log on initially, etc.)
• I would like to have more training outside of my prep time and school day. In the past, I have had to use my prep periods to get training on specific things I needed help with.
• We need to know the specific logistics and details and resources available BEFORE we leave for the summer. The traditional bombardment of info and initiatives at our opening August institutes is unacceptable and ineffective.
• Training