



BEYOND THE BUZZ: The New Era of Technology Integration

Winter 2015



INSIGHT

A 3-5 Year Vision for Instructional Technology

Introduction

As districts continue to explore the opportunities to improve their technology programs in this age of mobile and cloud technology, the Central New York Regional Information Center (CNYRIC) offers this document as a resource to help administrators make strategic decisions regarding their technology investments. While there are many facets of a PK-12 technology program to consider, the focus herein is on instructional technology and how it relates to the classroom for the purpose of improving teaching and learning.

Strategic Planning

Today's PK-12 educational landscape is rapidly evolving as technology advancements continue to develop and find their way into classrooms. In order to successfully support learning and prepare students for life beyond the classroom, district leaders must be forward thinking and adept at making shifts "on-the-fly" as new technologies emerge. Mobile devices and cloud computing have radically changed the game plan from years past, and while it can be difficult to predict future trends, there remain a few constants that will be critical to success. **We have shaped our thoughts around six strategic areas:**

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|------------------------------|---|
| 1. Infrastructure | 4. IT Support |
| 2. Data, Apps, and the Cloud | 5. Professional Development |
| 3. End-User Devices | 6. Technology Integration Trends and Strategies |



THE BUZZ

MOBILE DEVICE

teacher training

1:1

Social Media
community

web 2.0

TECHNOLOGY
app

iPad

BYOD

integration

Google Drive

digital

INNOVATIVE

QR codes

flipped classroom

TWITTER

Chromebook

Strategic Area One: **Infrastructure**

Ubiquitous WiFi is the new standard

Infrastructure:

Perhaps the most important foundational element in a district's technology deployment is a stable, accessible, and robust network infrastructure. In today's mobile world, this means a substantial wireless network to accommodate the need for teachers and students to connect to the Internet with a variety of devices. Ubiquitous access in all spaces on a campus is quickly becoming the expected standard, with sufficient access points and bandwidth to handle

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hundreds of simultaneous user connections. Many districts have a WiFi network with decent coverage, but one that is not ready for mass use. The success of instructional technology initiatives in the classroom relies heavily on seamless access. Therefore, an audit of the district WiFi network is the first step in planning for any investments around your infrastructure. According to our in-district instructional technologists, teachers are far more confident in using technology when they know their connection is reliable. It should be noted that the traditional wired network will still be needed for the near future, especially for stationary devices such as desktop/laptop computers for clerical and administrative staff, and for labs that are used for classes in CAD or graphic design.

Critical questions to ask:

1. What is the lifespan of the current network infrastructure?
2. How many devices can reliably and simultaneously connect wirelessly?
3. What is our current bandwidth utilization and how will that change as more devices connect?

Strategic Area Two: Data, Apps, and the Cloud

Remote storage and application delivery

Data, Apps, and the Cloud:

Cloud computing has changed the educational landscape over the last decade. The need for centralized, in-house data centers with multiple file servers has diminished as the ability for remote storage and application delivery has emerged. Many districts still maintain an array of physical servers or virtual servers that reside in their main data facility. The purpose of these servers is to offer file storage (aka home drive, home directory, or H: Drive), and the delivery of applications such as email or server-based educational software. Alternatively, cloud computing refers to the use of servers located outside of your immediate network, perhaps at the local RIC or with a third party vendor such as Google. And, while there are valid concerns over the security of data not stored in your local data center, many institutions are becoming more comfortable with the notion of cloud storage as they examine their needs. A major factor in this decision is the cost savings in terms of hardware replacement, personnel, and ongoing licensing. So, how does cloud computing impact learning in the classroom? The answer: 24x7x365 access. With local data centers, it is often difficult and expensive to manage remote connections to data or applications,

How does cloud computing impact learning in the classroom?

often requiring specialized VPN software. With cloud computing, users simply need a device and an Internet connection. The use of client-based software installed on a computing device is diminishing rapidly as the availability of cloud-based applications skyrockets. Web 2.0 tools are in abundance, and services like Google Apps for Education (GAFE) have worked their way into classrooms around the world. Having a strategy for software/application deployment and use is a critical element in the technology planning process.

24x7x365 access.

Critical questions to ask:

1. Do we still need local servers given the availability of cloud tools and cloud storage?
2. What applications are we still installing on computers or delivering from our data center and can they be delivered from the cloud?
3. How sensitive is the data we store in our data center and are we comfortable with it being housed on remote servers we don't manage?

Strategic Area Three: End User Devices

Computing devices are connection points to the Internet

End User Devices:

The variety of computing devices available for classroom use ranges from mobile phones and tablets, to laptops and Chromebooks; all of which are able to access information, produce content, and take the place of a variety of different tools (e.g., cameras, calculators, calendars etc.). With the emergence of cloud-based application delivery, the need for device and platform consistency has diminished greatly. The days of, “We are a Mac district” are past. As a result, it is becoming more commonplace to see a mix of devices within one school building, or even one classroom. This reality has encouraged districts to not focus so intensely on the hardware, but rather on the instructional goals they want students to achieve with a device in hand. Quite simply, the 21st century computing device is merely a connection point to the Internet. And, as prices on devices continue to drop and districts consider allowing teachers and students to use their own devices, this trend will strengthen.

Most importantly, whether districts purchase devices for students or permit Bring Your Own Device (BYOD) (or deploy a hybrid model of the two), one thing remains clear: the future will see every student with a device in every class, every day. The “one-to-one” concept seemed unattainable for many years, but with the massive societal change in personal device acquisition upon us, it is now a reality that is within reach.

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Critical questions to ask:

1. Does the district need to continue purchasing and maintaining devices for students and teachers?
2. If we choose a BYOD policy, what standards will we require?
3. Should we consider a hybrid model where we allow personal devices, but also have extras on hand to loan as needed?
4. Are devices like tablets more appropriate for younger grade levels, and devices with keyboards (like Chromebooks) more suited for older children?

Strategic Area Four: IT Support

Open connections, working devices, and functioning software

IT Support:

As district IT budgets diminish, data begins residing in the cloud, hardware becomes disposable, and personal devices begin entering schools, how does the role of IT staff adapt and change? Regionalized IT support is a growing model as evidenced by the increased participation in such things as the Managed Technical Support Service through the CNYRIC. Shared support in this regard has evolved from the changing dynamics of district technology deployments and shrinking IT staff. Regardless of the model a district chooses, it is important to look at the infrastructure, number of computing devices, and software use to determine the skills and staffing levels needed

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to support the technology program. Such initiatives as BYOD could be catastrophic for a district if not handled properly. Most importantly, no matter what the technology support model, ensuring connections remain open, devices work, and software functions is paramount to success in the classroom.

Critical questions to ask:

1. Should the district support personal devices in a BYOD model or leave it up to the user to fix problems?
2. How much work is currently required to maintain our current technology deployment (servers, computers, software, etc.)?
3. How does cloud computing change our workload if there are no servers locally, devices are merely connection points, and applications are delivered remotely?

Strategic Area Five: Professional Development

High-quality, consistent training is critical to success

Professional Development:

One-shot workshops and after school tip sessions never had the impact most districts hoped they would. Sadly, it took much longer than everyone thought to bring the vast body of educators to a point where technology integration happened seamlessly in the classroom. In many ways, we have backed into a much better position as a result of students pushing the bar higher in this new world where everyone has a personal device, and everyone relies heavily on technology. That said, the need for high quality, ongoing training is critical and must be a part of any successful technology plan. The CNYRIC's technology integrators have found much success with the embedded model of professional development by working with teachers shoulder-to-shoulder in the classroom. Many teachers need to have time to work with technology specialists to relearn how to teach using digital modalities, others simply need time to get acclimated to the devices themselves. One thing is clear, investments in new technologies are often wasted if teachers don't know how to efficiently integrate the tools into their lessons. Online professional development is a growing trend that seems to accommodate the busy lives of teachers; pre-made video tutorials and online classes allow educators to work at their own pace and learn from wherever they are.

“...investments in new technologies are often wasted if teachers don't know how to efficiently integrate the tools into their lessons.”

Critical questions to ask:

1. In terms of technology integration, what is the skill level of our teaching staff?
2. How can we embed ongoing training into the daily routine of teachers?
3. What forms of training are available for teachers to learn at their own pace?
4. Does our professional development plan for technology match up with our hardware/software deployment?

Strategic Area Six: Trends and Strategies

Rethinking the approach to technology integration

Trends and Strategies:

So, you have a robust WiFi network, a device in the hands of every student, an embedded PD model for teachers, and access to all the Internet has to offer. Now what? How do you put all of this to good use to support instruction? After decades of over-engineering the effort to inject technology into classrooms - often letting gadgets drive instruction - technology integration seems to be settling into its intended role of supporting teaching and learning in transparent ways. Take for example the flipped classroom model, where teachers record lectures for students to watch outside of class, so in-class time can be spent problem solving and working collaboratively. Technology plays an important supporting role, but it's the change in how students are learning that is capturing so much attention. SmartBoards, clickers, and other gadgets are quickly becoming obsolete in favor of students having a personal device. Learning is transformed by simply allowing students to access, collaborate, and produce digitally. More and more teachers are able to focus on the tenets of their instructional lessons, not the gadgets, as students transform the learning process with a device in hand.

We feel educators should be utilizing technology that does the following:

1. Extends learning beyond the four walls of the classroom to the online world (i.e., learning management systems).
2. Engages learners in content delivery and caters to different learning styles (i.e., the flipped classroom model and the use of media).
3. Provides immediate device access for students to write, analyze, share, and communicate locally and globally (e.g., tablets, laptops, Chromebooks).
4. Promotes a creative learning process with the goal of practical application in a competitive global society (e.g., programming, video production, blogging, web development).
5. Facilitates assessment so teachers and students can monitor teaching and learning, and make adjustments more quickly (i.e., literacy assessment applications).
6. Allows students to search, share, collaborate, organize, produce, create and acquire (the learning actions of good technology use).

These elements can be achieved by using a variety of software applications, apps, and devices, as long as the focus remains on engaging students, supporting instruction, and improving learning.

Critical questions to ask:

1. How are teachers using technology in the classroom today?
2. Are we engaging students by allowing them to use technology to search, collaborate, and create in every classroom, every day?
3. What resources do we have to help teachers move to the next level of technology integration?

Final Note

From the Central New York Regional Information Center

We hope this information is helpful in stimulating discussion around your instructional technology program. If we can offer any assistance as you move forward in your planning, please let us know.

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-Instructional Technology Team,
CNYRIC

ITD TALKS: Flipped Classroom in Action, March 2015

Save the date for CNYRIC's flipped classroom panel discussion



Flipped Classroom Pioneer Jon Bergmann inspired more than 100 Central New York teachers and administrators during his interactive workshop at the CNYRIC this past October 2014. Throughout the day-long ITD TALKS event, Bergmann shared insightful tools, tips, and tactics for implementing flipped K-12 classrooms.

Flipped Classroom Defined

A flipped classroom is a form of blended learning in which the typical lecture and homework elements of a course are reversed. Students learn content by watching teacher-created video lectures at home and homework is conducted in class. "If kids go home and don't have the help they need with homework, then the flipped classroom will provide support outside of school," said Bergmann.

Technology Has Changed

Bergmann's goal is to encourage educators to change their teaching styles to meet the needs of 21st century students. Bergmann emphasized that while implementing a flipped classroom does take time and commitment, it's well worth the effort. "You're going to be working really hard that first year you flip your classroom. But to be successful, you need to invest time. In the end, this will create time for you in the classroom."

Bergmann's Flipped Classroom Highlights:

- Create an environment for active learning
- Move from a teacher-centered to a project-based classroom
- Allow students to learn at their own pace via video
- Cultivate personal connections with students before flipping classroom
- Take time to teach students how to interact with videos



Save the Date: March 19, 2015

The flipped classroom conversation continues this March. The next ITD TALKS event, "**Flipped Classroom in Action – A Panel Discussion**" takes place March 19, 2015.

What does the Flipped Classroom look like? Join us for a panel discussion of local educators at the middle and high school levels to address the successes and challenges they face in implementing the flipped classroom approach to teaching and learning. Practitioners from area school districts will be on hand to demonstrate their approach to flipping their instruction and discuss what works in their classrooms.

Go to itd.cnyric.org for registration information.



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