Learning Wonderland

Conquering the Mad, Mad World of Digital Content

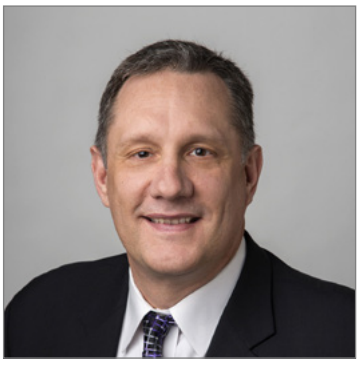
Interview several very different district technology leaders about how they are transforming their systems and a very common thread will emerge: how they are solving digital curriculum curation and delivery in a chaos of hundreds of publisher options and thousands of digital courses and resources. Technology today is a support mechanism to teaching and learning. The more tech can be ubiquitous, complimentary and invisible to the users, the better.

When was the last time you were impressed by, or cared that, your phone had the ability to instantly text anyone, to "Facetime" anyone, or to take a brilliant photo or video and then post it on Facebook in seconds? No, these things are just there and they just work and you don't have to think about it. Top level education leadership is more and more expecting that same level of operability with IT departments and the way digital curriculum and courses are accessed and used in classrooms.

Today's digital natives are more and more living in a learning wonderland of shiny devices and software, that presents them with materials which are at the same time educational and entertaining, as well as personalized (backed with full machine learning), scaffolded and standards aligned, while supported by slick assessments to make sure nothing important is ever missed.

The Learning Counsel examined what two leading executives in this space are confronting and the innovative solutions they've deployed.

The Houston Independent School District is the largest school district in Texas and the seventh-largest in the United States. It serves approximately 215,000 students at 283 campuses. Houston no longer buys textbooks. Their curriculum content is delivered digitally. It is housed within their learning management system which is accessed by teachers, administrators, students and parents, 24 hours a day, 7 days a week.



Lenny Schad
Chief Technology Information Officer
Houston ISD

Houston kicked off their digital transformation initiative in January of 2013 when Lenny Schad arrived as the Chief Technology Officer. (He is now the Chief Information & Technology Officer) "I was only there for a few weeks and the Superintendent pulled me in and told me he wanted to kick off a technology transition initiative," Schad told the Learning Counsel. "He said he would like to put laptops in every high school for every student." Planning began and Lenny developed what a digital curriculum initiative would look like for Houston.

Preparing Infrastructure—Phase One

Beyond just devices, they knew from the beginning the district had to have an infrastructure capable of supporting 60,000+ kids, every one of them having a device in a high school (as the first target). "We immediately started to look at our overall network design. We started to focus heavily on our wireless infrastructure and really started to evaluate what our readiness-state was in order to kick-off an initiative like that," stated Schad.

Based on their first evaluations of the network capability, they scaled the first phase to complete within three years. "That first year we deployed to eleven campuses, the next year we deployed to twenty-two and the third year, which is the year we just completed, we finished out the high schools." Achieving those completions and the year by year expansion of deployment was predicated on the individual campus readiness from an infrastructure perspective. Lenny told us that the technology department knew full well that success for digital transition was going nowhere without the infrastructure and network in place to be able to carry the demands from students, teachers and administrators.

"Each year we increased our bandwidth, but just bandwidth wasn't the biggest concern," stated Schad. "Where we spent the brunt of our time, honestly, was in our wireless infrastructure, making sure that we had access points in every classroom, making sure that we had the throughput to those classrooms."

They also spent a lot of time reviewing their filtering and their virus protection. Lenny told the Learning Counsel those will be the typical bottleneck points. Bandwidth can seem like the thing, he told us, but it's really not. "Bandwidth you can increase in the blink of an eye and every time you increase it, you're going to max it out the next day," he said. "If you think the answer is just simply add bandwidth to the problem, you're never going to be at a point where you're meeting the need."

Houston stepped back and looked at the layers within the network that they predicted were going to create that bottleneck. For them, it was about four key factors:

- Wireless
- Filtering
- Segmentation
- Routing

Schad reiterated that they had to look at their segmentation, how they were routing traffic and what traffic goes through their filters and what traffic doesn't need to go through those filters. "I'll tell you, now, three years into this, where we have had significant issues on our network, it has all come back to our filtering; do we have enough filtering? Do we have enough virus protection boxes out there? Because those are the things that are chunking-through every piece of information."

In three years they built a solid infrastructure to carry the system and any deployment of devices and digital curriculum.

What Are Your Biggest Bandwidth Issues?

Houston spent a lot of time managing what they were granting access too, both from their student perspective and from their teacher perspective. They reviewed what was using the most bandwidth on the network to find the inefficiencies. "We looked at utilization of our network – what were the top 25 sites being visited? Were they education-relevant? If those sites are not education relevant then we were figuring out how to block them, re-route them, give them less percentage of bandwidth."

Schad told the Learning Counsel that it is less about that bandwidth pipe out to the internet and more about how you're utilizing and managing the pieces. "It's interesting because I've had a lot of conversations with people about this," he told us. "Most people seem to think that bandwidth is the holy grail. One of the first questions I get is 'How much bandwidth do you have?' And when I tell someone how much bandwidth we're using, they kind of look at me like 'Holy Cow, I would have expected it to be three times that amount!'"

The reason it's not three times that amount, Lenny told us, is because Houston ISD's tech team believes it's more in the brick-and-mortar of true network architecture, network care-and-feeding, network forecasting. It is a lot of looking at reports and trends and what do they need to do to pro-actively manage this massive amount of traffic they have going in every direction.

"...when I tell someone how much bandwidth we're using, they kind of look at me llke 'Holy Cow, I would have expected it to be three times that amount!'"

—Lenny Schad

Honest Assessment—Look! Don't Assume!

Another point Schad relayed, something he felt key in doing this type of massive transformation for digital, is good partnerships during their initial studies of what they had.

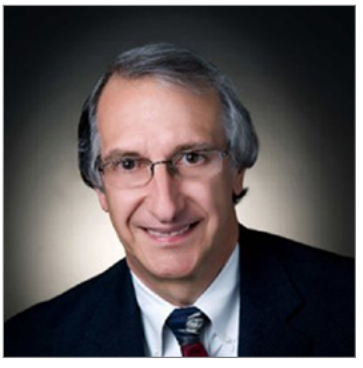
Houston had to set aside assumptions. They are big. They have an awesome network and systems. But they needed to "get real" and take stock at the outset of what Lenny termed "our real-true-as-is state." He pointed out that a lot of times there are a tremendous amount of assumptions being made about your current state and current capabilities. If you begin to act on that without a good third party review, and if your foundational assessment is wrong, then you're building a house of cards.

"We wanted to make sure that we had a true as-is state so that whatever we were doing in the future we could add to," stated Schad. "Our partnerships in this were a key strategic factor to make sure we build a strong foundation."

Building a Stable Delivery Mechanism for Digital Curriculum

Mike Jamerson is the Chief Technology Officer of Bartholomew Consolidated School Corporation in Columbus, Indiana. They oversee the administration of all schools, school-related building projects, curricula, scholarships and school technology for thirteen elementary and middle schools and two high schools.

Mike has been with the district for 18 years and been working in information technology for over 40 years.



Mike Jamerson
Chief Technology Officer
Bartholomew Consolidated School Corporation

"One of the biggest things I do today, and one of the things I would say is one of the largest changes in technology's roll in education, is how closely we now work with curriculum. It begins by answering, with them, what are all the digital materials we will use. Then, how do we support them from a technology standpoint? What do we need to do to deliver the curriculum when we're no longer using textbooks?"

Bartholomew is a 1-to-1 district. There are 12,000 devices deployed that need service and must follow every student as they move. "These are relatively new considerations and hurdles to understand and develop solutions for."

Mike pointed out that a tangent of this new operational modality is student data privacy. He's become extremely versed in the legal and contract side of tech and Big Data. "And of course the next thing we had to confront was equity—connectivity. Every student has to have access. It's something we've not fully solved yet for every home in the district. But it's a conversation we're having." The district is working closely with local area businesses, churches and fire departments, to try and enlist them in providing access. Particularly because a 'snow day' is all too common in Indiana, and now school doesn't have to stop—lessons are provided via their Learning Management System as the delivery platform.

"Our LMS is the central point for the repository of digital curriculum that's going to be used. It goes so far as being a mechanism to deliver Phys-Ed. You wouldn't think of that. But consider one of our 'snow days.' We expect our PE teacher to deliver instruction. They use the LMS for videos to instruct students on how to do the exercises at home.

Mike shared another story to point up where their LMS facilitated changing a young student's life:

"We had a student who was a self-selected mute. This is a Kindergarten student who was capable of speaking but would not speak. Whether she was embarrassed or didn't

"...we always think of our instructional delivery in terms of barriers that the students might have and how we can provide them multiple means of getting engaged in the information"

—Mike Jamerson

think that her voice sounded right, there may be many different reasons, but she would not speak. So the teacher used the LMS to videotape questions to the student and taught the student how to view the video and, how to record her response to the video. Slowly, but steadily, they expanded how she communicated with people using the Learning Management System to both deliver instruction and questions and have her deliver her responses. By January, the student was teaching 6th graders how to do videos—and speaking. The capstone of this is that in May of this past year, this young student spoke to the school board and an audience of about 100 people.

"The other piece that's really important, our district is 'universal.' We adopted the Universal Design for Learning almost ten years ago as our instructional framework and so when we look at instruction we always think of our instructional delivery in terms of barriers that the students might have and how we can provide them multiple means of getting engaged in the information, of presenting the information to the student.

"For example, we can say 'Here are the ways that you can learn or get this information; you can listen to the audio of a lecture, you can watch a piece of video, you can read the textbook.' All of those are ways a student can view this material through the Student Learning Management System.

"We also give them opportunities to present finished assignments back through the LMS. It might be a test, it might be a paper that they've written, it might be a PowerPoint or some other kind of mechanism, it might be a video presentation that they've assembled to show that. They can upload that and deliver that back to the teacher through the LMS platform.

"We brought our LMS platform online to the entire district in August of 2015 and by well into the second semester, if you looked at any given week, 95% of our students and staff had accessed it. So it's been heavily used. We also use it for our Staff PD so it's become an essential tool for us."

Editorial Contributors
Publisher LeiLani Cauthen
Editor-in-Chief Cebron Walker
Editor Dr. David Kafitz
Contributor Chris Kight

Production
Art & Design Dolly Johnson
Sales Operations Manager Kristina Hall
Advertising Sales Manager Chris Sprague
sprague@learningcounsel.com
888.611.7709 Ext 27