the LEARNING COUNSEL
Research & Context on the Shift to Digital Curriculum

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The Mindset of Change

Transformation begins in the hearts, minds and the guts of leaders

The pace of change is moving faster than anyone could have predicted. Mobile technology is putting learning into the hands of students whether teachers and administrators like it or not. Where teachers are open to transformative, differentiated and personalized learning, their classes are alive. Children move over to being in charge of their own learning path. Formal research may not yet "prove" better outcomes but feedback from instructors and parents is resoundingly positive in every corner of the U.S., from big city districts to small rural ones.

Right:
As educators, are we harnessing the power of a connected world for better outcomes? With the internet students make connections across classes, subjects, places, people, and time. They remix, repurpose, and transform information into new things, and they do it with others through collaboration or crowdsourcing.

In a recent panel discussion with middle and high school students, all at the table admitted to "teaching" their teachers about technology and use of apps in class. One 11th grader had developed her own virtual reality app for learning and was giving it to her friends. Another 10th grader said he comes to class with a phone, iPad and laptop. Then he held up his Apple Watch as an example of his connectivity.

Controlling connectivity is not even worth discussing. The conversation is about how to bring this shift to all students equally, and see to it that the professional development piece is in place for the teachers.

Where it's happening

Eric Godfrey is the Superintendent of Buckeye Union High School District. His is a smaller rural district with 4,200 students. "Just the transition in and of itself has been a hurdle, from selecting the device, to purchasing the device, to deploying the device, that's one side – that's the nifty 'stuff' piece. But then you need the PD module to train the teachers and get buy-in from them as well as the principals. Then you have to work through being able to utilize that tool and all the digital curriculum and apps that come with it, appropriately in the classroom to change how we teach and engage kids.

"The challenge now—with the excitement of it being our 'year zero' as I call it—is how we are going to affect student achievement the way we want. How are we going to quantify it and prove that these devices, content and this initiative is returning on the investment?"

Across the nation Superintendents and their cabinets are taking the brave step into the new world and even if they aren't making promises, the expectation is there. What's it going to do for our kids and their education?

How to gauge the effect of digital resources is difficult. "Research on technology's impact on K-12 achievement is limited and mixed, partly because it's difficult to isolate the role of technology from other things that occur in a classroom," says Elliot Soloway, a University of Michigan professor who studies technology use in schools. "A major report from the OECD (Organization for Economic Co-operation and Development) in 2015 showed countries that made large investments in technology for education did not see improved results on certain tests", a result that Soloway says reflects the need to adjust teaching and learning as technology is introduced.

In Shelby County Schools, where they have a student body of 116,000 students and 6,800 teachers, Mr. Cleon Franklin, the Director of Virtual Learning, pointed up that it requires a community based solution. There can no longer be different silos with, for example, curriculum and technology living apart. "We sit down and we hammer out issues. As a leader in this time you have to be everyone's champion and support them to give the teachers and principals strength."

The ultimate goal in Shelby is personalized learning. The conversation isn't about if kids learn differently, it's about how to facilitate that personalized learning environment, how to make the change with everyone invested across the whole environment of a child's world.

"Our ultimate goal is personalization," stated Franklin. "But realistically we don't have enough digital artifacts for personalization. Personalization means, given a choice, one child wants to read about cars, another wants to listen and write music, and another wants to build and code robots. Do you have enough to cover the whole gamut? And our answer is 'no'. So it's the question of how to amass enough digital artifacts that you can do the shift to personalization. Without some serious help we are some 5 to 7 years away from personalization. We would like to do it sooner, but, given what we have, that is realistic of where we are."

Where do we stand?

A national cross-section survey of 541 executive level respondents found that the top five barriers to adoption of digital curriculum are:

1) instructional design/curriculum design professional development;

2) digital curriculum systems training;

3) classroom pedagogy professional development;

4) inadequate budget to transition; and

5) teacher device use training.

In the coming year 80% of teachers will be increasing their use of ed-tech in the classroom. To further support that statistic, a 2013 Pew Research Survey of 2,462 Advanced Placement (AP) and National Writing Project (NWP) teachers found that digital technologies had helped them in teaching their middle school and high school students.

However, at the same time, the Pew survey found that 75% of AP and NWP teachers have new demands to their lives because of the internet and digital tools, stating that these tools have had a "major impact" by increasing the range of content and skills about which they must be knowledgeable. 41% report a "major impact" on their lives by requiring more work on their part to be an effective teacher.

Education company solutions with PD modules and implementation programs will be instrumental in helping those teachers move forward and embrace digital content.

Further driving the demand for digital curriculum and technology are parents. According to the 2011 Project Tomorrow report, Learning in the 21st Century:

- 87% of parents think that effectively implementing technology to enhance instruction is important to student success.
- 89% want their kids in classes where mobile devices are used.

"It's like that rock going downhill," said Superintendent Godfrey. "Those that don't want to get in, they're going to get rolled over and left behind because it's going too fast and going too well and kids are going to be the beneficiaries of it. We're in the kid business. And this is good business for kids."

Below: Cleon Franklin, Director of Virtual Learning, Shelby County Schools

Above: Eric Godfrey, Superintendent, Buckeye Union High School District

References:

- 2015 Learning Counsel national online survey of education leaders , http://www.pewinternet.org/2013/02/28/how-teachers-are-using-technology-at-home- and-in-their-classrooms/
- http://www.tomorrow.org/speakup/pdfs/SU11personalizedLearning_Students.pdf

A Model of Differentiated Instruction

A unique approach to project-based learning is bending the "laws" of teaching and learning for extraordinary outcomes

Sometimes the little guy can teach the big guy a few tricks. Renton Prep, an independent school and Microsoft Showcase School which lies a few miles outside Seattle is setting an award winning example of differentiating instruction, technology integration and work in STEM.

For Dr. Michelle Zimmerman, Assistant Principal, Lead Teacher and Microsoft Innovative Educator Expert, the answer was simple: embrace technology and take the kids out amidst real life to study the world—make them researchers who develop their own answers, make mistakes and correct themselves, with mentorship thrown in for a little control.

For Renton Prep's work in this direction they were recognized by FETC (Future of Education Technology Conference) with an award for excellence and innovation in the field of STEM. FETC's STEM Advisory Board selected them based on their "use of Interdisciplinary Curriculum, Collaboration, Design, Problem Solving and the STEM Experiences offered."

Flipping the paradigm

"When learners become educators and educators become learners there is potential for transformation in ways we can't yet imagine," says Michelle. "Researchers are constantly learning new things. When you pull that concept into the classroom it becomes a change agent that creates a new, deep level of learning and collaboration and exciting things emerge."

She explained that technology becomes useful when it facilitates communication, collaboration, design and creation of new knowledge. Human relationship, empathy, and compassion can then be further developed and become the underlying "why" to the purpose of learning. "Technology is great," she said, "But we must foster in our children the will to use it to make positive impacts on the world and people around us."

Michelle doesn't fit many of the standard molds. She teaches full-time in a non-traditional classroom where middle-schoolers and high-schoolers cooperate on project-based learning experiences using technology while conducting research outside and inside the classroom, and even outside the country with peers online.

A Ph.D. in Learning Sciences and Human Development helped prepare her to ask questions, seek answers, analyze data and create new forms of assessing learning. Much of what she does with her learners is very similar to the model she followed in graduate school. She directs their learning and then supervises as a sort of mentor. In many cases the students themselves, ages 11 to 16, help develop their own assessments, establish criteria, and evaluate their own work providing evidence for how and why they met criteria.

Peer and self-assessment not only provides feedback quickly, it allows learners to argue for or against a position and gain valuable responses. Michelle has found that this model increases accountability with the knowledge of a broader audience beyond the educator. It provides experience in similar skills to a dissertation defense, on a much smaller scale.

Below: Michelle Zimmerman with two of her students and Jasmine Fernandez and Ari Schorr of Microsoft. Michelle and her students presented at Redefine Learning *at James Madison Middle School LAUSD*

A new "classroom" model for teaching and learning

Some of the types of things you'll see Michelle's students do is give each other critiques and feedback on the research they've done. They can then revise and better identify logic or a rubric that isn't working. Presentations of results on projects are done with the technology such as with a Microsoft Sway or an interactive add-in for PowerPoint, (Office Mix) or a video that they make with a mobile phone or digital camera.

They develop and rework as they go through a project, looking at other students' work and identifying better ways of presenting an assignment, which is a valuable skill in today's working culture.

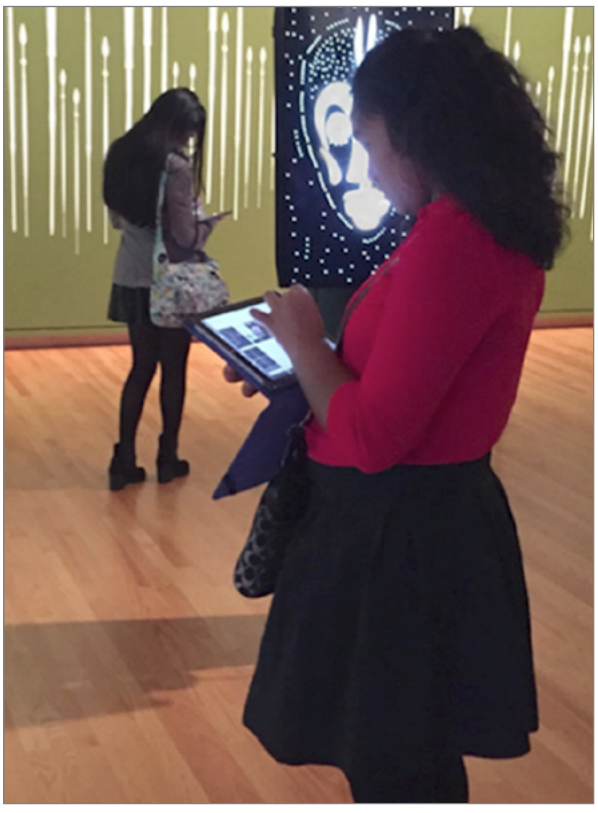
"Pulling in multiple different types of online programs that we've been using, such as Florida Virtual Schools, Red Comet and Coursera," said Michelle. "Kids get experience with all types of technical subjects and even practice with live College Professors. This prepares them for life after high school. They get challenged, like what would you do if you're sitting in a classroom with a Professor, how would you respond?"

They also use OneNote while researching and for collaboration between students and the teacher. Digital ink—writing with a digital pen on a tablet or Surface—allows students to draw, write, take notes and sketch directly on a screen. Fresh Paint, Snip and Office Mix all allow for projects with digital ink to be published and stored in the cloud. Docs.com then brings collections together that can be embedded as digital portfolios. All of a student's information, as projects go along, is kept in the Cloud and accessible to anyone in the class, shared with parents or friends around the world.

A differentiated class project with rigor

"We knew that the kids needed Washington State History, either as middle-schoolers or high- schoolers so the age range of kids we were able to involve was across the boards. We used
a course from Red Comet as a platform to do the project," stated Michelle.

She took the students to a Pompeii exhibit at the Pacific Science Center as it was a close analogy to Seattle's own geography. Italy has Pompeii, Washington has Mount St. Helens and Mount Rainer volcanos, and Seattle is right along the water.



Above: Students at the Seattle Art Museum using a Surface 3 with digitalink in OneNote, documenting and taking notes on a field trip

They were able to compare their local region to that of Pompeii and Italy and look at the culture and the languages, the different trades and industries that developed out of those situations. Within Red Comet they studied about volcanos around the area and then they looked at what happened in the exhibit and researched on their own about Italy and Pompeii. The students were able to create media projects to present their findings.

"This is a unique environment that we can create somewhat of our own path, we don't have the same restrictions because we're an independent school," stated Michelle. "Being able to have the research foundation of why these types of things work, mixed with the interaction and collaboration between the students, it sparks creativity and critical thinking and pushes how far the learning goes. It sets them up for college and life like nothing I've seen."

Is this possible at a large public school/district level?

An executive might consider that this level of student freedom and personalization isn't for them, that it's not possible at a larger public school/district scale. He or she might also consider that a public school has somany other problems—kids with behavior disorders or first-generation immigrants or no family support—that it wouldn't work.

Above: Microsoft Sway Team from Serbia visited Renton Prep to get feedback from the kids for iterative design and new feature development in Sway

While Renton Prep's is a unique circumstance of size and independence, they share the same population demographic of students as the neighboring public schools in southern Seattle and Renton areas. The families are not wealthy and there are 27 ethnic groups with many first generation immigrants. Renton's families, students and teachers are faced with the same challenges as any public school. In fact, the school's budget is half what the other local public schools receive per child. Renton Prep made the decision to reallocate funds for textbooks into technology—a decision many public schools and districts across the U.S. are confronting right now.

It's a clear sign of success for Renton Prep, how technology, project-based learning and STEM have been combined for extraordinary outcomes.

Renton's students have been requested to speak at events for Los Angeles Unified School District and to the Everett School Board in Washington State to share their story.

The point? Any school, no matter the diversity of their population, can do it. "It can work anywhere if we can do it," says Michelle. "Even when there are barriers with home and parent communications."

Michelle is convinced that whether you've got "one to one", or you have "bring your own device" or the kids only have access to mobile technologies, there is still the ability to research multiple perspectives and get the kids thinking. Whether it's an English class, a History class or a Science class, there's a similar way of thinking that can be developed.

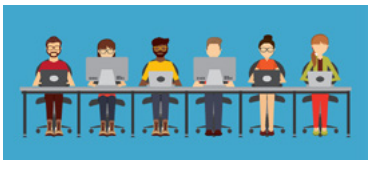
Get Started

The shift starts with executives changing their mindset. Stop any equivocating and go. Begin working with teachers and principals to make it happen. You will get buy-in from parents and students. They've wanted change for years.

The Re-Writing of Education

Technology integration in education has enabled us to access previously unimaginable spaces, visit other worlds and countries "virtually" and comprehend math, language and the arts in ways unimaginable 20 years ago. Consequently, leaders are introducing policies regarding technology implementation, while students continue to explore it on their own.

77% of districts and schools have implemented devices, some with full 1:1 and some with a BYOD or laptop cart program, but all for a significant portion of the academic day



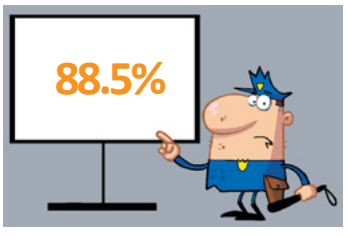
64% of education executives said new positions have been created to deal with the expansion of digital resources

67% of teachers spend 2-6+ hours per week searching for digital resources, while 73% of teachers spend between 1 and 6 hours of their week building digital learning content

59% of teachers complain of too many systems to interact with

Top **5** Digital Curriculum Policy Controls Considered Most Important by District Administrators:

1. Providing technology training
2. Advocating personalized paths of learning using resources
3. Providing ongoing professional development
4. Advocating moving to more and more digital content
5. Providing technology training for students



88.5% of executives said their school has a student data privacy policy in place

Source: 2015 Learning Counsel national online survey of 541 education leaders

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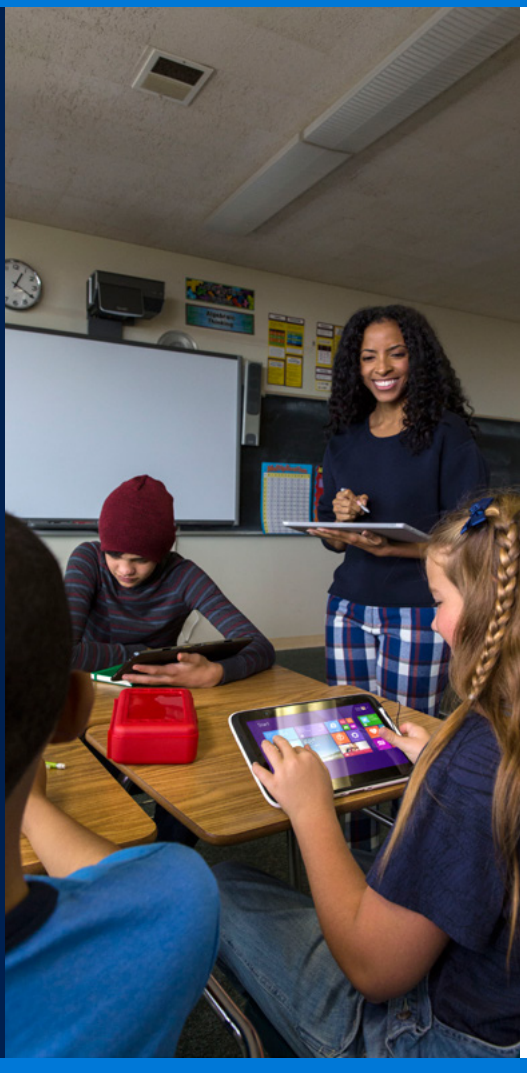

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