West Aurora
School
District 129

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Curriculum and
Instruction

Technology
Integration

West Aurora 129
Culture and
Structure

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EQUITY IN TECHNOLOGY INTEGRATION IN WEST AURORA SD 129

The roadmap to equal access

Table of Contents

Our Situation

Our economy and workforce is changing, sometimes at a dizzying pace. Employers report that new graduates entering the workforce are deficient in 21st Century Skills that employers deem essential for today's economy: critical thinking and problem solving, communication, collaboration, and creativity and innovation (the "4Cs"). Our educational practices and pedagogies on which we have relied for years "must diligently and intentionally seek strategies to adapt to our changing world" (Levin-Goldberg 2012). Additionally, "technology must be leveraged and used as an accelerant for student learning" (Sheninger and Murray 2017). Thomas C. Murray and Eric Sheninger, respected voices in education say, "We must create and lead schools that are relevant for the world our students live in—not the world our staff grew up in."

In addition, when it comes to educational access, low income students and students of color have less than their white and affluent peers in regards to school funding, qualified teachers, high-quality curriculum, books, materials, and computers. Low-income teens and young people of color are less likely to own computers and use the Internet than high-income or white teens. This disparity reduces the readiness of at-risk students "to engage in the primary means of information access and transfer in a technologically based society and economy." (Darling-Hammond et. al., 2014) According to Darling-Hammond et. al., when at-risk students are given access to appropriate technologies and technology-rich experiences, they "can make substantial gains in learning and technological readiness" (2014). Technology can also "expand growth possibilities for all students while affording historically disadvantaged students greater equity of access to high quality learning materials, expertise, personalized learning, and tools for planning for future education" (NETP, 2017). Whether or not a student has access to a device is commonly referred to as "The Digital Divide." However, as connected devices become more commonplace, the "New Digital Divide" encompasses more than the presence or absence of a connected device. The New Digital Divide refers to the disparity between students who use technology to create, design, build, explore, and collaborate and those who simply use technology to consume media passively. (NETP, 2017)

We are not reaching all of our learners. As educators, we know that every student learns differently. Students should be able to express their knowledge on a particular subject in whatever way is most appropriate for their learning style. As West Aurora educators, we believe that students need to be given opportunities for authentic learning experiences that are engaging and profound. We are doing a disservice to our students if we are not providing them with a well-rounded, personalized learning experience.

District 129's Response

In 2014 the District was charged by the community and Dr. Craig to form a technology steering committee that would be comprised of all district stakeholders. Parents, students, teachers, staff and administrators came together to help determine the district's technology strategy for the next three years. After investigations that included researching primary source material, visiting neighboring districts, and insightful discussions, the committee made its recommendations.

It was decided that a Bring Your Own Device strategy wouldn't be feasible in the district given the district's economic situation. It was also determined that the district wasn't ready for a full-blown implementation of one to one technology. Rather, the committee opted for a technology pilot program that would allow for substantial professional development, and the option to explore different devices. From this committee and their recommendation, the Board of Education approved a 3 year pilot program to explore the use of one to one (1:1) devices in our classrooms, meaning each student would have a device to use when in the classroom. Continued research and work was conducted by various groups of administrators, teachers and board members, including an application process to identify the teachers that would participate in the pilot program, and the addition of a Technology Integration Coach as a support to those teachers. This would enable the district to determine what technology was appropriate for its students, how to support that technology in a sustainable environment, and most importantly, how to use technology as an effective tool in its student's education. The committee believed that it was imperative to not implement technology for technology's sake, but to use it as a tool where students derived clear benefits from ubiquitous access to technology.

Through school years 2015-16 through 2017-18, the district carried out the pilots recommended by the steering committee. Growing from 40 classrooms in 2015 to almost 140 in 2018, the pilot proved that the district could support affordable technology from a technical standpoint. Three technology coaches, in total, were hired to support the teachers who applied and were accepted in the program. These pilot teachers agreed to extensive, unpaid professional learning led by the technology coaches. The district measured the success of the pilots through three main tools: administrator classroom walk through tools, the BrightBytes data collection tool, and the student propensity data gleaned from the district's standard suite of grades and assessment tools.

Technology Pilot Program – The Outline

I. 2014-2015 (Year 0)
   a. Technology Steering Committee Developed
   b. Site visits
      i. Berwyn, Leyden, Indian Prairie
      ii. BOE approved Pilot Program & Instructional Technology Coach (Melissa Cikesh)
   c. Technology pilot teacher applications filled out and approved

II. 2015-2016 (Year 1)
   a. Summer professional development for Round 1 pilot teachers (2 days in June, 2 days in August)
   b. Teachers began using 1:1 iPads or Chromebooks as part of their daily instruction
   c. Monthly professional development for pilot teachers
   d. Introduction of the SAMR technology model in pilot classrooms

III. 2016-2017 (Year 2)
   a. 52 teachers added to the pilot program
   b. Technology Microcredential Course developed and instituted
   c. West Aurora University at-large technology courses offered
   d. Instructional Technology Coach hired for West High (Cori Sparks)
   e. Start of wireless infrastructure update
   f. Student device take-home procedures began in November 2016

IV. 2017-2018 (Year 3)
   a. McCleery Elementary School, Jefferson Middle School 6th grade, and West High Freshman Academy were added to the pilot program.
   b. Device Deployment and Wired Network
      i. iPads: the district has added 2490 iPads for use in the pilot, the district owns 2945 iPads overall.
      ii. Chromebooks: 1860 Chromebooks have been added in the pilot, the district owns 4190 Chromebooks total.
      iii. Remaining wireless infrastructure updates were completed
      iv. The district has upgraded from an aging 10/100Mbps Cisco infrastructure to an HP switching platform with 1Gbps port speeds. IDF switches communicate with core switches at 10Gbps. Wireless access points support the latest wireless protocols and support transmission speeds of 1.3 gigabits per second.

Our Current Challenge

Over the last three years we have launched nearly 140 technology pilots across our K-12 classrooms. During this time, we evaluated the professional development needed for staff, curriculum implications, and efficiency of deployment. At the end of the three year pilot, it was determined that the overarching problem that we are trying to solve deals with accessibility and equality for our students. Without strategically integrating technology into the educational landscape, we are no longer equipping our students to become competitive and marketable when they have graduated from West Aurora.

The establishment of the pilot program has both highlighted areas of excellence and exposed areas of opportunity in our district. The process has allowed us to increase our capacity for handling, managing, and navigating technology within our classroom. This pilot has also exposed that our current deployment of devices is inefficient and limited. With improved methodologies of purchasing and deployment for the upcoming school year, we will have enough devices for every student.

Moving forward, our challenge is to effectively deploy technology throughout the district to foster a classroom environment of intellectual engagement and to improve logistical inefficiencies for our students. We are completing our third year of technology pilots and need direction for the future. We need to position the district in a way that we are prepared to integrate this resource as a tool and not as a solution. Only then can we purposefully integrate curriculum to include technology as a learning tool.

This is a significant challenge because over the past year, we have developed a portrait of a West Aurora Graduate. This vision for our graduates speaks to the ability of students to navigate the complexity of technology to be productive and socially responsible citizens. The reality is that technology is increasingly becoming a foundational skill. It is our responsibility to find a way to effectively and efficiently find ways to provide access to our students and staff. In addition, it is important to ensure that our structure fosters that the focus is on learning with technology and not just "using technology".

The Ideal Outcome

The ideal outcome for District 129 is to develop a process where the district efficiently deploys and uses the resources that are available to help achieve equity and opportunity for all students. In addition, this deployment should contribute to the academic and personal growth of a West Aurora graduate through developmentally appropriate technology integration. This would include purposeful incorporation of communication, collaboration, creativity, and critical thinking (4C's). Our goal is to promote personalized learning and authentic learning experiences that foster true intellectual engagement within our classrooms. Ultimately the goal is that students will take ownership of their learning, have equal opportunities and access to technology, and will be able to select the right tool for the right job.

Factors to Consider

When considering a change in our school environment, many factors must be taken into consideration prior to implementation. One major point of contention would be the professional development needed for our teachers and staff. Adding technology integration into their daily lives will require purposeful implementation. Ongoing learning and support will be required for teachers as they adjust their practice. Additionally, some teachers may be reluctant to adopt regular technology use into their pedagogy. These teachers will require additional support from our current curriculum coordinators and coaches.

Technology staff needs to be increased as technology use increases. Students and staff will need additional support to troubleshoot and repair technology. With three years of pilot teachers currently implemented, we already see an increased need for technology assistance as devices are more heavily used and both students and teachers are seeking assistance from the technology support team.

Technology for education needs to be supported by the students' families. As a district, we can and have helped families embrace digital learning and digital literacy within our curriculum. We will continue to offer parent education, such as our Parent Boot Camp, and encourage positive interaction with the school-issued devices.

Supporting Data

Device Evaluation (2016)

From the outset, the district choose to separate any decision about the efficacy of using technology in the classroom from the actual technological device in use. While other school districts have labored to determine which device is best to deploy across a district, District 129 opted to allow teachers to apply to use one of two devices: Google Chromebooks or Apple iPads. The pilot was partially aimed at determining which of these devices worked best across the K-12 spectrum, but it was mainly aimed at helping teachers integrate technology in education, no matter what technology they had to implement. Chromebooks were used from 2nd to 12th grades. Similarly, iPads were used from Kindergarten to High school.

At the outset of the pilot process, the District chose to focus on student achievement as the sole success measure of the efficacy of using technology as a classroom tool for learning. Determining what specific data points to use in the process of understanding technology's impact on student learning was more complicated than simply looking at test scores or student propensity data. While high stakes test scores should not be ignored, they shouldn't be considered in isolation when evaluating technology deployments, for the simple reason that it is very difficult to tie test score outcomes directly to a single causal factor.

Project RED, in conjunction with the International Society for Technology in Educations (ISTE) published the results of surveys conducted in more than a thousand schools in 2012 under the title <u>Revolutionizing Education through Technology: The Project RED Roadmap for Transformation.</u> In this report, ISTE and Project RED suggest that key educational success measures factors for students should include, among others, attendance rates in classrooms where students have equal access to technology. We found that in this last school year, attendance rates for classrooms participating in the pilot exceeded non-pilot classrooms:
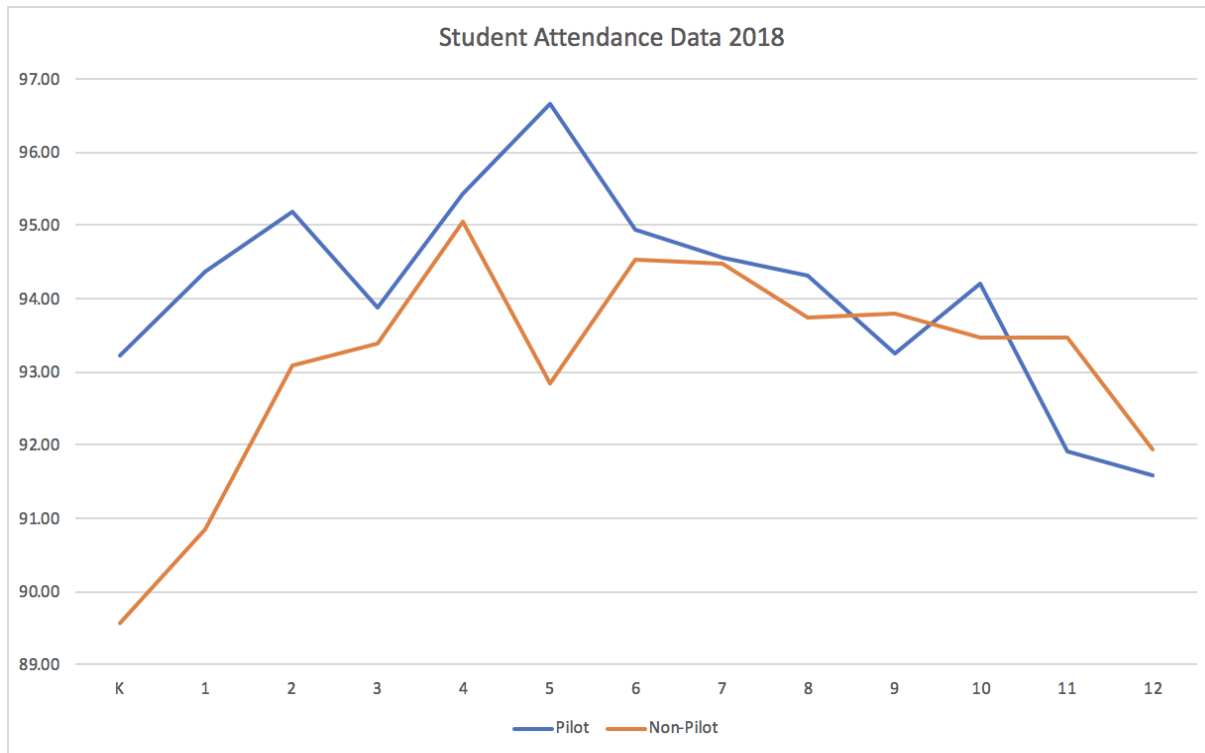
Qualitative Data: Administrator Walk Through Data and Teacher Survey Data (2017)
The District generated surveys for parents and teachers. We also complied administrator perceptions of student engagement garnered from classroom walk through tools. We asked parents if they perceived their students to be more engaged in school worked while their student was in the pilot program, and gained the following results:

My child is more engaged in schoolwork while in the Technology Pilot program.
(341 responses)
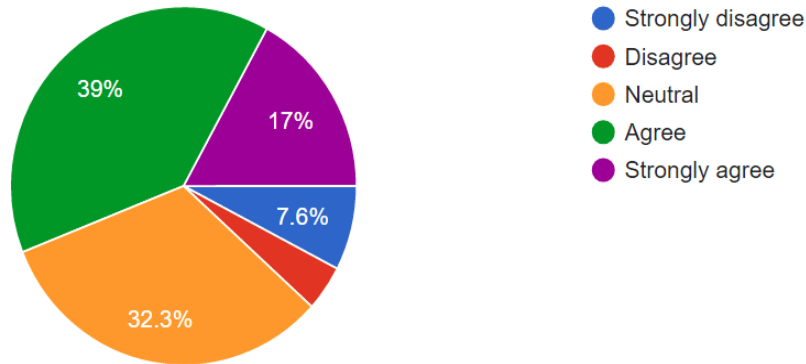
56% of the responding parents agreed or strongly agreed that their students were more engaged, while 32.3% had no opinion. Only 11.7% disagreed.

We also asked parents about their perceptions around their child's understanding of what was being taught when using technology, and got the following results:

My child understands more of what s/he is taught when using technology.
(341 responses)
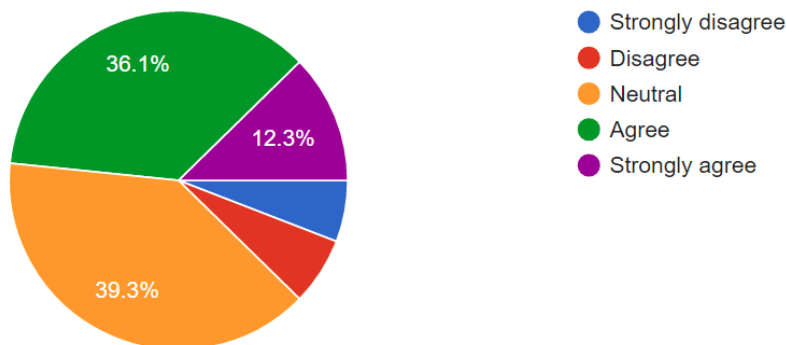
46.4%, a plurality, agreed that their students were understanding more using technology. Only 14.3% disagreed with the statement.

We asked teachers about their perceptions about student collaboration as a part of the pilot, and received the following results:

Based on what how you have used your devices thus far, how would you describe the impact of our pilot on STUDENT COLLABORATION?
(69 responses)

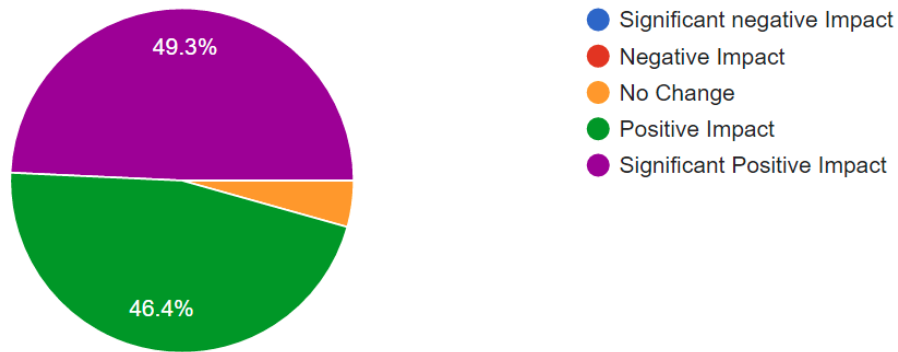- Significant negative Impact
- Negative Impact
- No Change
- Positive Impact
- Significant Positive Impact

In short, nearly all teachers surveyed agreed that being in the pilot and using technology had a positive impact on student collaboration. Only 4.3% saw no change.

Teachers had an even more favorable view of student engagement as a product of participation in the pilot:

Based on what how you have used your devices thus far, how would you describe the impact of our pilot on STUDENT ENGAGEMENT?
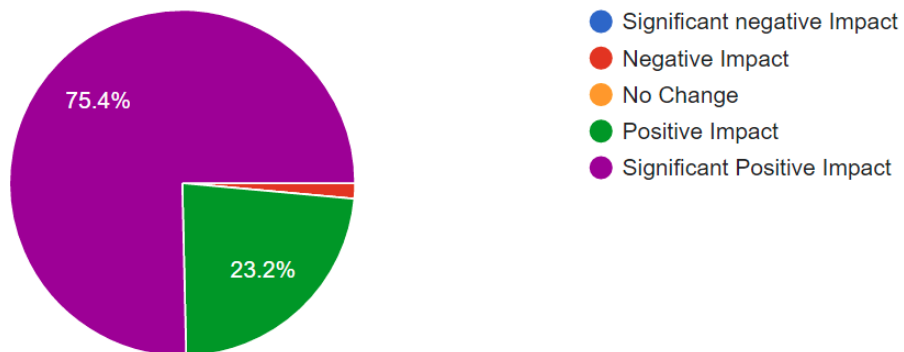(69 responses)

- Significant negative Impact
- Negative Impact
- No Change
- Positive Impact
- Significant Positive Impact

Over 75% of the teachers responding saw a significantly positive impact on their student's engagement in class with ubiquitous access to technology. This view was corroborated by school administrator's perceptions as recorded in walk through data. Student engagement was rated between 1 (not engaged at all) and 6 (engaged and focused on learning). Elementary school administrators saw engagement at level 6 in 38.19% of the classrooms they visited, whereas 29.22% of non-pilot classrooms achieved this level of engagement. The impact was even greater in secondary schools, where administrators saw 41.13% of the pilot classrooms being very engaged and focused on learning, whereas 27.87% of non-pilot classrooms were seen to have that level of engagement.

Bright Bytes Survey Results (2017-18)
We collected data using the Bright Bytes tool (widely used in peer districts in Illinois for evaluating the efficacy of technology implementations) in the Spring and Fall of 2017. We also collected data in the Spring of 2018.

The results were encouraging. While our district is still at an emerging stage in terms of technology implementation in many respects, we have made significant progress in others in the short time we've been piloting technology. At the highest level of abstraction offered in the BrightBytes tool, we have achieved a CASE score (based on a research-backed framework developed through research, higher ed statisticians and K-12 practitioners) of 1068 on an 800-1300 scale. In the middle of the range, this score suggests that we are proficient; we have some areas of excellence, but at the same time, we have some significant opportunities for improvement as well.

In terms of the access and skills categories in the BrightBytes instrument, we score "advanced," in that we have good access to Internet bandwidth at home and school, and most of our teachers report that they have access to devices when they want them. We also have advanced foundational skills with both our teachers and students. For example, we found that student's skills in using technology is growing: 81% of students indicated that using email was easy for them, and 86% said that collaborating using online tools like Google Docs was easy as well. 68% of students agreed that they can usually find a good solution when they are faced with a technology problem, and 81% said that they learn technology easily.

Teacher's advancing skills using technology are abundantly in evidence as well. 69% of our teachers said that they can usually find good solutions when faced with technology problems, and 68% said that they learn technology easily. 87% of our teachers say that technology use in the classroom can enhance education, and 81% think that learning is more engaging when using technology. 66% of our staff feel confident about managing classrooms in which technology is in use, and 57% say that they easily find new technologies to meet their teaching goals.

As one would expect, we have opportunities around integrating technology in the classroom, specifically around the use of the 4C's and teaching digital citizenship. For example, our teachers report that they rarely ask students to collect and analyze data using technology, or to perform measurements, conduct research, or identify and solve authentic problems. Students also report that in some cases their ability to create new information or knowledge is secondary to their use of technology to consume information. For example, 65% of students say it is difficult or impossible to create a spreadsheet.

These areas of opportunity are to be expected. While our technology pilot has been running for three years, most of our students and staff haven't been exposed to being able to use technology in a more consistent basis. Thus, they have not had the opportunity to develop these skills. Nonetheless, our staff clearly believes that the implementation of equal access to technology for all of our students is important. 87% of the staff indicated that the implementation of equal access to technology was either an important or very important goal for the district.

47% also indicate that increased professional development would be important for the district to provide. Clearly, our staff has indicated a desire to further equal access to technology for our students, and they are hungry to gain more knowledge to make it effective.

We have had 150 teachers participate in various technology pilots. We have another 140 teachers who have indicated that they would like to participate if the pilot was expanded in the future. Of the 37 micro-credentials that were earned in 2017, 17 were in the area of technology. We have added technology integration specialists in each building and we have three teachers on full release to support technology integration. In short, we are just beginning this journey, and we have plenty of opportunities to grow as a learning community. Most importantly, a solid foundation has been established for the district to build upon.

Supporting Research

4Cs and 21st Century Learning
Established in 2002, the Partnership for 21st Century Learning worked with various educational experts and private business to develop a framework that outlined the necessary skills that a student needed to be successful in the 21st century. Included in this framework are key subject areas in education, life and career skills, information media and technology skills, and the 4Cs: **critical thinking, creativity, communication** and **collaboration**. These skills, in conjunction with a solid backbone of curriculum and instruction, forms a system that fully prepares our students to become college and career ready.

Why should we integrate the 4C's into the classroom?
- **Communication** is a vital skill. While traditional modes of communication such as oral and written are still as relevant as ever, the Internet's ubiquitous use requires people to communicate in new and different ways, including following net-work etiquette, or "netiquette." According to Levin-Goldberg, "Netiquette skills are essential. Employers are yearning for proper netiquette skills in response to burgeoning virtual communication. Netiquette is net-work etiquette; the formal and informal rules of how one should behave while online."
  - [Connecting the 4 C's of 21st Century Education](#)
- **Collaboration** is ever changing in the current workplace. "In addition to collaborating face-to-face with colleagues across a conference table, 21st century works increasingly accomplish tasks through mediated interactions with peers halfway across the world whom they may never meet face-to-face…[C]ollaboration is worthy of inclusion as a 21st century skill because the importance of cooperative interpersonal capabilities is higher and the skills involved are more sophisticated than in the prior industrial era. (Dede, 2009)" Within the context of our educational setting, students must be capable of expressing themselves in both face-to-face as well as a virtual collaboration to build a team environment. Studies have concluded that as many as 94% of companies have identified teamwork as "very important" or "absolutely essential" when identifying necessary skills for new hires.
  - [Comparing Frameworks for "21st Century Skills"](#)
  - [Collaboration: Executive Summary for Educators](#)
  - [Skills for Today: What we Know about Teaching and Assessing Collaboration](#)
- **Creativity** allows for the student to demonstrate their skills and mastery in a variety of ways, thus making them active participants in the learning process. By focusing on creativity during the class day,

students are generating ideas and projects that showcase their knowledge in a way that best suits their own learning styles. When teachers incorporate creativity into the educational curriculum, they are able to engage many facets of the learning experience. As quoted by Plucker et al., "Creativity is the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context (p.90)."

- ○ Technology Integration for the New 21st Century Learner
- ○ What We Know About Creativity
- ○ Why Creativity in the Classroom Matters More than Ever

● **Critical Thinking**, as defined by the Oxford Dictionary, is "the objective analysis and evaluation of an issue in order to form a judgement." The goal in many of our classrooms is to create authentic learning experiences so that students can apply their knowledge base to a variety of real world applications. The focus on critical thinking allows students to analyze, synthesize, evaluate claims and perspectives, and draw conclusions based on given information. In today's society, many businesses use technology as a tool for things such as global collaboration and problem solving, authentic creation and implementation of new ideas, and data analysis and manipulation. Students must be masters of technology integration in order to be successful in their careers. In our current educational world, this includes modeling the use of effective technology integration in our own classrooms.

- ○ Teaching Generation TechX with the 4Cs: Using Technology to Integrate 21st Century Skills

How do we integrate the 4C's into the classroom?

● Continuous professional development in integration of the 4C's is important. With the ever changing landscape of educational technology, teachers must be kept abreast of new applications of their pedagogy into the 21st century world. The best integration of the 4C's is when it is weaved into the learning experience. This allows the teacher to showcase the "why" to students: why do we teach the information we teach and why this is important and relevant in their future lives.

- ○ National Education Technology Plan - pg. 10

● "Educators have a civic and academic responsibility to teach students the 4C's where utilizing technology provides a logical, efficient means to better prepare learners for global citizenry." - Jennifer Levin Goldberg *Teaching Generation TechX with the 4Cs: Using Technology to Integrate 21st Century Skills.* Modeling and showcasing teachers who are changing their teaching practices using the 4Cs will assist in adoption across our district. Teachers who can see how the application of a concept occurs in the classroom and how this concept can benefit students are more likely to incorporate it into their teaching. According to Jim Knight's *Unmistakable Impact,* a combination of administrator influence and modeling from instructional coaches creates the perfect recipe for adoption in the district wide environment. While the 4C's does not explicitly include the use of technology in the classroom, it is difficult to fully obtain results in the topics of collaboration and critical thinking without the use of tools made available by technology.

- ○ Teaching Generation TechX with the 4Cs: Using Technology to Integrate 21st Century Skills
- ○ Knight, J. (2011). *Unmistakable Impact: A partnership approach for dramatically improving instruction.* Corwin Press.

Personalized Learning

Personalized learning refers to differentiated instruction that includes students' diverse backgrounds and student choice in instructional delivery. Personalized learning enhances students' learning experiences by changing teachers' instructional approaches to support students' specific needs. It also provides learners with an opportunity to develop a sense of agency in their learning and the belief that they are capable of succeeding in school (NETP, 2017). This all may sound overwhelming for a teacher with a large class of diverse learners, but this prospect gets much more manageable with the integration of student devices in the classroom.

Why use technology to personalize learning?
- Technology can present new teaching and learning experiences, "particularly with the affordance of customisation (sic) of learning to individual learner needs" (OECD, 2016, p.2)
- Technology can enable personalized learning or experiences that are more engaging and relevant (NETP, 2017, p.12). Students all learn differently. Technology allows for student choice in how the learn best by providing many options to deliver content and instruction. These options include instructional videos/audio clips, animations, interactive games, collaborative tools (Edutopia, 2010).
- There are many challenges faced by classroom teachers "especially when they present the same lecture to all the students in the class, regardless of their contextual differences. It is not surprising, therefore, that ...technology could make a big difference, by adjusting the learning process and materials presented ...to the specific learner's context" (NMC.org, 2017).
- Although it is not _the_ focus of a student-centered classroom, technology plays a big part in the success of this (personalized learning) approach because it allows the differentiation of instruction, assessment and expression of learning as well as the collection of student data (ISTE, 2017).

How do we use technology to personalize learning?
- Use technology to enhance the learning process, not just to replace face-to-face teaching. *(Example- a teacher creates a screencast of a lesson to allow students to pause and take notes, or go back and watch again.)* This allows for more authentic, project based learning to take place in the classroom (ISTE, 2017).
- Schoology Learning Management System- allows for student choice through curriculum resources posted by the teacher; allows for differentiation among students without singling out individuals.
- Web, App, and Extension resources- Research sites, creation tools; allows for student to more fully express their process of learning and accumulated knowledge via diverse tools that are not available without access to technology.

Authentic Learning Experience
Teaching and Learning is always the backbone

Learning experiences should prepare students for our future technology-based economy. Though we often say our students are "digital natives," they require educational experiences that require students to do more than navigate smart phones, download programs, and play online games. According to Gordon (2011), "Work readiness is no longer just about the three R's; now it's also about turning information into knowledge through Web searching and vetting...It's about seamlessly using digital tools to collaborate and problem-solve." Educational Technology is an integral part in providing authentic learning experiences. The vast majority of our

students interact with technology outside of school on a regular basis. We should help students navigate their technology-filled reality by encouraging productive use of devices and applications. Students should use technology as a tool of creation, not just a passive source of information or a platform for social networking.

Technology also allows students additional means for creating and sharing information, using media that have not been available before. Business partners in the community can find more opportunities to share the societal burden of education by working with students as they develop work product that are valuable not only as demonstrations of learning, but also as products valuable to businesses. Technology can also serve to eliminate the distances between learners and guest speakers or readers, who can join a classroom by simply "skyping in" to share their knowledge. Students can also leverage these distance reducing tools by sharing their work with students all over the world, providing an opportunity for students, world-wide, to work together in solving authentic, and pressing, problems of our day.

Future Ready Learners

In 2015, the Alliance for Excellent Education created a project called "Future Ready Schools" to "help school districts develop comprehensive plans to achieve successful student learning outcomes by (1) transforming instructional pedagogy and practice while (2) simultaneously leveraging technology to personalize learning in the classroom." This project includes a research-based Framework to guide districts as they change to meet the needs of the modern learner and the world in which we live.

The Framework focuses on seven areas (the gears) plus collaborative leadership, with Student Learning being central to all content. The seven areas are as follows: Curriculum, Instruction, and Assessment; Use of Space and Time; Robust Infrastructure; Data and Privacy; Community Partnerships; Personalized Professional Learning; and Budget and Resources.

Curriculum, Instruction, and Assessment

Future ready schools recognize that learning is personalized, individualized, and differentiated. This approach ensures all learners are successful.
- **21st Century Skills/Deeper Learning:** The 4Cs are woven into the curricula. Deeper learning is encouraged through opportunities to think critically, create and innovate, and self-direct. Additionally, students practice being Digital Citizens, an essential component of citizenship in the 21st Century.
- **Personalized Learning:** Students are empowered to regulate and take ownership of their own learning. Learning is personalized through choice of content, pace of learning, and individualized feedback.
- **Collaborative, Relevant, and Applied Learning:** Students work collaboratively with others inside and outside the school environment to create content, think critically, and engage in real-world experiences.

- **Leveraging Technology:** Educators use technology to enhance the learning experience, not hinder it or use it as a substitution for an otherwise analog task.
- **Assessment - Analytics Inform Instruction:** Data is used to guide instructional choices. Districts use technology as a "vehicle for diagnostic, formative, and summative assessment."

Use of Space and Time

Learning takes place both inside and outside of the school hours and building. Technology is used for:
- **Flexible Learning, Anytime, Anywhere:** Internet access and digital learning tools make learning available anytime, anywhere.
- **New Pedagogy, Schedules, and Learning Environments for Personalized Learning:** An example of this would be a "flipped" model, where the content is accessible both before and after school, not just during the school day with the teacher. In a flipped classroom, the teacher is available for individualized and small group instruction as much of the content delivery can happen outside of the classroom.
- **Competency-Based Learning:** A facet of personalized learning, students work on mastering a skill or standard.
- **Strategies for Providing Extended Time for Projects and Collaboration:** Digital learning extends where and when learning can take place.

Robust Infrastructure

High quality, high speed technology is necessary to advance digital learning.
- **Adequacy of Devices; Quality and Availability:** "The school has considered a host of creative options to ensure that diverse and appropriate technology devices are available to all students and staff to support powerful digital learning at any time, from any location."
- **Robust Network Infrastructure:** Adequate bandwidth and supportive infrastructure are in place. Responsible use, privacy, safety, and security are all considered.
- **Adequate and Responsive Support:** Technical and instructional support are in place. "The support is proactive, providing resources, coaching, and just-in-time instruction to prepare teachers and students to use new technologies."
- **Formal Cycle for Review and Replacement:** Technologies (software, hardware, and infrastructure) to ensure timely updates and replacement.

Data and Privacy

Data is used to improve the effectiveness and efficiency of learning. Data privacy and security practices are in place and followed.
- **Data and Data Systems:** Data is available, understandable, and useful for supporting decision-making.
- **Data Policies, Procedures, and Practices:** FERPA is the basis for data policies, procedures, and practices.
- **Data-Informed Decision Making:** District data will drive teaching and learning practices and decisions.
- **Data Literate Education Professionals**: "Effective use of evidence and data [is] a priority for all."

Community Partnerships:

Partnerships formed in local and global community.
- **Local Community Engagement and Outreach:** School is a hub of local community and involves the community in achieving its learning goals.
- **Global and Cultural Awareness:** Diversity is valued, and cultures beyond one's own are appreciated.
- **Digital Learning Environments and Connectors to Local/Global Communities:** Digital learning environments facilitate interactions among peers and between teachers, parents, and students in school and beyond.
- **Parental Communication and Engagement:** Schools communicate with parents regularly both over the Internet and other modes.
- **District/School Brand:** The district develops a brand that "represents visionary thinking and 21st Century learning."

Personalized Professional Learning:

West U exemplifies this facet of the Future-Ready Framework.
- **Shared Ownership and Responsibility for Professional Growth:** "Educators have access to collaborative tools and digital environments that break down classroom, school, and district walls." Teachers utilize PLNs, online communities, eLearning, social media, etc.
- **21st Century Skill Set:** PD allows for educators to expand their knowledge about 21st Century skills, such as teaching with the 4Cs.
- **Diverse Opportunities for Professional Learning Through Technology:** PD opportunities are "diverse, customizable, and often supported by the latest technologies."
- **Broad-Based Participative Evaluation:** The educator is involved in reflective practice and is heavily involved in their own evaluation process.

Budget and Resources:
- **Efficiency and Cost Savings:** A district team comprised of district leaders, teaching and learning leaders, and teachers develop a budget and strategies for efficient instructional technology use.
- **Alignment to District and School Plans:** Technology programs are linked to School Improvement Plan goals and professional development goals.
- **Consistent Funding Streams:** Budgets for technology should have short-term and long-term planning, and should be adjusted accordingly each fiscal year.
- **Learning Return on Investment:** When reviewing the budget for technology, instructional goals and student learning goals should be made a priority.

Plan of Action

We are pleased to say that we have found the pilots to be successful, and upon that basis, we offer the following recommendations for a Technology Strategic Plan for the district's 2019, 2020 and 2021 academic years.

Implementation Strategy: 3-Year Device Deployment

Year	K	1	2	3	4	5	6	7	8	9	10	11	12
2019	Volunteer School Grade Level Teams						CB	CB	CB	CB			
2020	Redeployed Devices						CB	CB	CB	CB	CB	CB	CB
2021	iPad	iPad	iPad	iPad	CB	CB	CB	CB	CB	CB	CB	CB	CB

Notes:
- CB denotes Chromebook
- Designates the year that grade level will have enough devices to serve all students
- Current devices will be redeployed to other grade levels or content areas as they become available
- Grades 6-12 devices will be assigned to a student
- Grades K-3 devices will be assigned to a classroom
- Grades 4-5 devices can go home with student when appropriately supporting classroom instruction
- Insurance for students remains at $25 (if a student does not take insurance then they are responsible for cost)
- Devices are turned in at the end of the year, checked and then redeployed at the beginning of the year.
- Currently we have 2600 iPad within the system that will be deployed appropriately every year.

Technology Hardware and Infrastructure:

2019 Focus Areas	2020 Focus Areas	2021 Focus Areas
- Upgrade Wide Area Network - Voice over IP phone system - Printing Systems (enabling printing from Chrome devices)	- Next Gen Firewall and Security - Server and Storage Refresh - Wireless Access Point Upgrade - Evaluation of SIS	- Staff Laptops - Evaluate ERP

Professional Development Structure:

2019-2021 Structures: Focus on ISTE Standards for Teachers
● Micro-Credential Technology ● West Aurora University Courses ● Competency-Based Badges ● 3 Instructional Coaches ● Summer PD ● Summer Ed Camp ● Redefined TIPS positions ● Restructured Institute Days

Curriculum Development Focus:

2019 Focus Areas: Communication & Critical Thinking	2020 Focus Areas: Collaboration	2021 Focus Areas: Creativity
● Schoology Expectations ● Insights into Student Understanding ● Enhanced Communication to stakeholders	● Full Integration of ISTE Standards for Students ● Technology Support Course ● Google Integration	● Personalized Learning

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