



2017-2021 Digital Learning Plan



Written on behalf of the Wyoming Digital Learning Plan Advisory Panel
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Wyoming Digital Learning Plan Advisory Panel

Special thanks to members of the Digital Learning Plan Advisory Panel, who contributed their expertise, gave their time generously, and collaborated effectively to guide the development of this plan, ensuring that Wyoming's students were always at the forefront of each decision.

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Executive Summary

By state statute, the Wyoming Department of Education (WDE) is required to develop and implement a statewide education technology plan ensuring equitable access to Digital Learning opportunities. A representative Digital Learning Plan (DLP) Advisory Panel was convened to guide this effort and ensure the plan not only meets the statutory- and court-mandated requirements, but also delves deeper into what is needed to ensure every Wyoming student has high quality Digital Learning experiences.

In order to assist in the development of this plan, the WDE collaborated with several existing groups on initiatives to ensure that the state's DLP was cohesive and inclusive. In addition, stakeholder feedback was gathered from district and school administrators, teachers, students, business owners, and various other education stakeholder groups to ensure that the plan addressed the specific needs and concerns of a broad spectrum of individuals across Wyoming. This included coordinating a listening tour, conducting surveys, facilitating focus groups, synthesizing feedback from stakeholders. Having sufficient broadband capacity coming into the school along with enough wiring and wireless capacity inside the building are foundational in making digital learning possible. Information from every school and district across the state was gathered to determine infrastructure strengths and needs, including having enough infrastructure to allow for technology usage in the classroom, for online assessment, and assistive technologies for students with disabilities.

To address the Digital Learning priorities Wyoming's stakeholders identified, the DLP Advisory Panel adopted the Future Ready Framework as a structure for organizing and communicating Wyoming's DLP. The Future Ready Framework provides "a robust structure for Digital Learning visioning, planning, and implementation focused on Personalized Student Learning."¹ The research-based Framework includes seven key areas, or gears, that are critical to address during a comprehensive planning process. The DLP includes sections that describe the current state of each of the gears and goals and recommendations for the next five years that will move the state toward the vision of The Future Ready Framework, and, more importantly, ensuring all Wyoming students graduate college, career, and military ready.

The State Digital Learning Plan Advisory Panel will continue to have a crucial role in this work. While the WDE will serve as a hub, coordinating the work across organizations and creating more detailed action plans with objectives, timelines, and accountability measures, the Advisory Panel will meet quarterly in order to assist with prioritization and monitor implementation.

1 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *Future Ready Schools: A Systemic Approach to Implementation*. Web. Accessed 13 July 2016. Used with permission. <<http://futureready.org/about-the-effort/framework>>

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Section 1: Introduction

Defining Education in a Digital World



A Vision for the Future

Imagine a student arriving at school in the year 2021. From the outside, the building looks like a typical brick and mortar school with windows, classrooms, athletic fields and even a playground. When the student walks in, however, the experience is far from traditional.

Our student begins her first class in a study carrel in the library. There she is, engaged in an online course, learning computer programming. The student is afforded the opportunity to work together with other students across the country, learning together and working collaboratively to problem-solve the course content. While no teachers at her school have the content expertise to teach the course, she has access to an excellent online instructor who ensures she's demonstrating mastery of the content, answers questions, and addresses any misconceptions. The school librarian is also available to our student, on whom she can call, if needed.

For her second period, our student attends a more traditional course in a classroom, where the teacher delivers a lecture utilizing an interactive whiteboard to highlight key learnings and to illustrate complicated concepts. Students raise their hands to ask and answer questions, and are engaged in critical thinking around the course content.

For yet another course, the student engages in a blended environment, where the teacher leverages technology in different ways to ensure mastery of the content. Students are in centers throughout the classroom, some on computers and tablets, some working collaboratively in small groups, and still others working with the teacher. The teacher utilizes formative assessments to determine what each student needs, and assigns projects and activities based on those needs. Students engage digitally with experts from around the country, watch informative videos, play educational games, write blogs, and develop creative projects to demonstrate competency with the content for the course. Looking around, one sees all of the students are deeply engaged with the work they've been assigned.

At this school, every student can explain what their learning goals are, how the work they are engaged in helps them to achieve those goals, and what they need to do to show the teacher they've accomplished their goals. The teachers in this school leverage technology and effective instructional practices to provide personalized learning experiences for every student. Students work toward their strengths, receive targeted instruction designed to address their specific needs, and are excited to come to school each day. The four C's: communication, collaboration, creativity, and critical thinking, are practiced by students while both consuming and producing content that connects them with their world in ways that are relevant and meaningful.²

2 Watson, Angela. "What Does 21st Century Learning Look Like in an Elementary School?" *The Cornerstone for Teachers*. May 2012. <<http://thecornerstoneforteachers.com/2012/05/what-does-21st-century-learning-look-like-in-an-elementary-school.html>>

The students who graduate from this school system leave confident that they have the skills and knowledge necessary to enter college, a career, or the military prepared for what the future holds.

Need for the Wyoming Digital Learning Plan

Wyoming has a powerful opportunity to harness technology, as an extraordinary resource, to our advantage. Information technology can help Wyoming grow an economy that overcomes the obstacles of distance and time. It has the potential to engage students and promote deeper understanding of concepts and skills. The proposed goals of the 2017–2021 Statewide Digital Learning Plan are intended to leverage Wyoming’s great strengths toward even greater gains for students across our state.³

By state statute, the Wyoming Department of Education (WDE) is required to develop and implement a statewide education technology plan ensuring equitable access to Digital Learning opportunities. A representative advisory panel was convened to guide this effort and ensure the plan not only meets the statutory- and court-mandated requirements, but also delves deeper into what is needed to ensure every Wyoming student has high quality Digital Learning experiences. To understand the historical requirements, a brief overview of the court cases and legislative mandates is provided below.

The Wyoming Supreme Court’s ruling in *Campbell County School District, et al., vs. State of Wyoming, et al.*, in 1995, was a landmark case that laid the foundation for a need for a State Digital Learning Plan. As a result of the ruling, the Wyoming State Legislature created a funding mechanism for the K–12 education system that provided opportunities for equitable education for all children attending Wyoming’s public schools. Subsequently, the State Superintendent of Public Instruction was directed to oversee the development and implementation of a statewide educational technology plan, distance education programs, and the development of the education network, which became known as the Wyoming Equality Network (WEN). In recent years, this education broadband network has been redesigned, modernized, and is now overseen by the Department of Enterprise Technology as a part of the Unified Network.

The WEN Video component was developed to provide interactive two-way video capability to each high school in the state in an effort to deliver the education “basket of goods” equitably through distance learning. Unfortunately, the WEN Video was not able to deliver the variety of supplemental courses to students in remote areas, as was originally intended. The downfall of the WEN Video was due to a number of problems, which included the lack of incentives for educators to teach courses in that fashion, bell scheduling issues (because very few high schools run classes on the same daily schedule), and the struggles related to poor broadband connectivity in many locations.

Since the initial implementation of distance education in our state, education technology has evolved; the needs of educators and students are not the same as they were more than twenty

³ Utah State Board of Education. *Utah’s Master Plan: Essential Elements for Technology Powered Learning*. Utah State Office of Education. Salt Lake City, Utah. Web. 2015. <http://schoolboard.utah.gov/wp-content/uploads/Utah_Essential_Elements_Technology_Powered_Learning.pdf>

years ago. Technology has advanced to the point that with currently available equipment, students are able to access learning opportunities from around the globe; examples include virtual field trips, Q&A sessions with experts who visit classrooms virtually, and collaborative work with peers located in classrooms across the state, across the country, or around the world. For these reasons and more, the need for a better platform than the WEN Video equipment has become increasingly apparent.

Fully online courses have also become increasingly common as a replacement for videoconferencing courses, due to better viability of web-based curriculum as a distance delivery method. In spite of this, a more robust offering of supplemental online courses for secondary students could better meet the intent of the law, providing equitable access to education opportunities across the state. When polled in September of 2015, 93% of the district respondents (194) indicated they thought their district would utilize part-time online courses available statewide. Since synchronous delivery is not required in online courses, scheduling conflicts are not an issue. With online courses, bandwidth issues are also minimized by the ability to download video content rather than livestream it.

The requirements of the statewide education technology plan are captured in W.S. 21-2-202 (a) (xx). The statute sets forth a wide breadth of stakeholders required to support the development of the plan, and provides key areas to address including: staff training; curriculum integration; and network connectivity in and between schools, communities, and between the state and the world. It shall have as its goal the provision of equal access to educational instruction and information.

The last five-year state education technology plan was developed in 2007 and ran through 2013. In January 2016, the Wyoming Department of Education released a [Statewide Education Technology Plan](#)⁴ documenting the need to develop a five-year plan. Over the last year, significant effort and input has been provided to develop a plan for addressing education technology and Digital Learning for the next five years.

In the fall of 2015, a representative advisory panel was convened to guide this effort. In order to achieve the vision described above, the advisory panel made the decision to broaden the scope of the plan, developing a more comprehensive Digital Learning Plan (DLP) for education. The focus of the DLP going forward will be on the continued advancement of broadband connectivity for every classroom, along with increased awareness of the free Digital Learning resources that are available, and how educators can implement them effectively to the advantage of every student, no matter where they reside in our state.

The world is changing whether we want it to or not; technology is a central part of our lives whether we embrace it or not. Failing to support the integration of technology in our schools and classrooms means failing to prepare our students for the future. Embracing technology—and making Wyoming’s schools and students the most innovative in using it—can establish Wyoming

4 Wyoming Department of Education. *Wyoming Department of Education Statewide Education Technology Plan*. Cheyenne, Wyoming, Web. 2016. <<https://edu.wyoming.gov/downloads/distance-ed/2016/sdlp-report.pdf>>

as a leader in the country. If Wyoming has the most technologically talented workforce, and the most technology-powered schools, we are confident economic growth will result.⁵

Definition of Digital Learning

Digital Learning is any instructional practice that effectively uses technology to strengthen the student learning experience. It encompasses a wide spectrum of tools and practices, including:

- increased focus and quality of teaching resources,
- creative use of time and space,
- online and blended content and courses,
- online classroom assessments,
- applications of technology in classrooms and school buildings,
- adaptive software for students with special needs,
- learning platforms,
- high-level and challenging content and instruction,

and many other technology advancements related to teaching and learning. Additionally, Digital Learning provides a platform for collaboration within professional communities of practice for educators and students alike.⁶

Vision for the Plan

The Wyoming Digital Learning Plan is designed to provide a roadmap with recommendations for action that focuses on Digital Learning, which empowers all stakeholders to provide and expand learning opportunities, to be adaptable, and to evolve with the ever-changing learning environment to meet the needs of all Wyoming students.

Guiding Principles

The Advisory Panel recommends that the statewide work to advance the DLP be guided by the following core principles:

- Focus on equity of educational opportunity for all students throughout the state.
- Plan and prepare thoughtfully to maximize success of this complex and significant change management process.
- Gain support from leadership, which is crucial for meaningful technology integration
- Engage teachers, administrators, students, parents, and other stakeholders.

5 Utah State Board of Education. *Utah's Master Plan: Essential Elements for Technology Powered Learning*. Utah State Office of Education. Salt Lake City, Utah. Web. 2015. <http://www.uen.org/digital-learning/downloads/Utah_Essential_Elements_Technology_Powered_Learning.pdf>

6 Alliance for Excellent Education. *Digital Learning Day*. Washington, D.C. Web. Accessed 27 July 2016. <<http://www.digitalllearningday.org/domain/54>>

- Focus on the teacher as the key to quality instruction with support from technology.
- Support effective and ongoing professional development as an essential element for success.
- Acknowledge public schools are managed by elected local school boards with their own policies, priorities, and constituents who prefer local control of the education system for their students.
- Leverage the infrastructure investments, economies of scale, and planning teams in districts and across the state.
- Provide flexible guiding principles for school districts to craft and implement their technology vision for teaching and learning.
- Identify and share existing innovations, expertise, and resources throughout Wyoming, while also building upon national and international promising practices, models, and research.
- Plan for long term sustainability, continuous improvement, and educational return on investment.

Process and Outreach in Developing this Plan

In order to assist in the development of this plan, the WDE collaborated with several existing groups on initiatives to ensure that the state’s DLP was cohesive and inclusive. This included the DLP Advisory Panel, the Broadband and Digital Learning Policy Academy, the Infrastructure Steering Team, EducationSuperHighway, and the National Governors Association.

The DLP Advisory Panel sought to collect stakeholder feedback from district staff, school administrators, teachers, students, and various other education stakeholder groups to ensure that the plan addressed the specific needs and concerns of a broad spectrum of stakeholders across Wyoming. This included coordinating a listening tour, conducting surveys, facilitating focus groups, synthesizing feedback from stakeholders, and using the synthesis to inform the writing and editing of the plan.

More than 185 people representing 39 school districts attended listening tour sessions or responded to questions online to share their insights and ideas about Digital Learning. Participants included parents, students, school board members, superintendents, technology directors, directors of curriculum and instruction, teachers, higher education representatives, business owners, and state legislators.

In addition, three surveys were developed to assess district staff, school administrator, and teacher perspectives on Digital Learning in their districts and schools. The surveys focused on district and school strategic planning for Digital Learning and technology use, interest in networking with others on student Digital Learning, online learning needs, barriers to implementing Digital Learning, and current and desired technology integration. Seven percent of the state’s teachers representing 71% of the districts participated in the surveys. 35% of school administrators completed their survey, representing 90% of districts. 37% of district administrators completed a district-specific survey representing 98% of districts in Wyoming.

Focus groups were also conducted, with 30 teachers and 24 students participating. A representative sample of nine schools, including five elementary and two secondary schools, were selected.

Another key component of Digital Learning is sufficient infrastructure to support its usage. This includes having enough infrastructure to allow for technology usage in the classroom, for online assessment, and assistive technologies for students with disabilities. Having sufficient broadband capacity coming into the school along with enough wiring and wireless capacity inside the building are foundational in making digital learning possible. As of July 29, 2016, 38 out of 48 school districts participated in an infrastructure survey. Detailed information from 249 schools and 5,343 classrooms have been gathered to determine the current capacity of school and district infrastructures. Districts are continuing to add and update information on their schools and classrooms.

All of the data were assembled and analyzed for common themes, which were then compiled into a report. One key finding was that all stakeholders—community members, parents, students, and educators alike—believed that it is imperative to provide our students with the best Digital Learning experiences possible to increase their engagement in learning and to ensure they are prepared for college, career, and the military. With these findings in mind, the DLP Advisory Panel made recommendations grounded in the research regarding what should be included in the plan. What follows are the detailed findings and specific recommendations for state practices and policy to best leverage the power of technology for learning.

It Takes a Community

To make this Digital Learning Plan Vision a reality by 2021, Wyoming will need to harness the power of numerous stakeholder groups. It will take time, resources, and partnerships among a variety of organizations and individuals working together—from the state level to the local level; from Pre-K through post-secondary; from classrooms to libraries; we will all need to work side-by-side in each of our areas of strength and expertise. Empowered leaders will need to communicate the vision, provide resources and support for implementation, and monitor practices to ensure educators across the state have what they need to provide robust digital learning opportunities for students. While we may be at various stages of implementation, we must all move forward as partners, supporting the best possible outcomes for our students.

The State Digital Learning Plan Advisory Panel will continue to have a crucial role in this work. While the WDE will serve as a hub, coordinating the work across organizations, creating more detailed action plans with objectives, timelines, and accountability measures, the Advisory Panel will meet quarterly in order to assist with prioritization and monitor implementation.

Section 2: Findings and Recommendations

The 7 Gears of the Future Ready Framework⁷

To address the Digital Learning priorities Wyoming’s stakeholders identified, the DLP State Advisory Panel decided to adopt the Future Ready Framework as a structure for organizing and communicating Wyoming’s Digital Learning Plan. In September 2016, the WDE signed the state level Future Ready Pledge. The Future Ready Framework provides “a robust structure for Digital Learning visioning, planning, and implementation focused on Personalized Student Learning.”⁸ The research-based Framework includes seven key areas, or gears, that are critical to address during a comprehensive planning process. The seven gears are as follows:



- Curriculum, Instruction, and Assessment
- Use of Space and Time
- Robust Infrastructure
- Data and Privacy
- Community Partnerships
- Personalized Professional Learning
- Budget and Resources

There is also a strong emphasis on collaborative leadership where state, district, and school leadership vision, plan, implement, and assess continually to create an innovative school culture of continuous improvement. Leaders must provide the vision, resources, and accountability to ensure digital learning is implemented, while empowering educators across the system to take risks, to learn, and to implement the emerging and promising practices digital learning affords. The roadmap defined through the Framework requires a systemic approach to change, with students graduating from our school system future-ready as the ultimate goal.

Following are a brief definition of each of the seven gears and detailed findings from the data gathering process, as well as recommendations for action to be taken by the WDE.

Curriculum, Instruction, and Assessment

Description

To engage students in 21st century, personalized, technology-enabled, deeper learning, it is critical for schools and districts to ensure curriculum, instruction, and assessment are tightly

7 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *Future Ready Schools*. Web. Accessed 13 July 2016. Used with permission. <<http://futureready.org>>

8 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *Future Ready Schools: A Systemic Approach to Implementation*. Web. Accessed 13 July 2016. Used with permission. <<http://futureready.org/about-the-effort/framework>>

aligned. Curricula and instruction are standards-aligned, research-based, and enriched through authentic, real-world problem solving. Students and teachers have robust and adaptive tools to customize the learning, teaching, and assessment, ensuring that it is student-centered and emphasizing deep understanding of complex issues. Assessments are shifting to be online, embedded, and performance-based. Data and associated analysis serve as building blocks for learning that is personalized, individualized, and differentiated to ensure all learners succeed.

The elements that comprise this gear are as follows:



- 21st Century Skills/Deeper Learning
- Personalized Learning
- Collaborative, Relevant, and Applied Learning
- Leveraging Technology
- Assessment—Analytics Inform Instruction

A foundation for each of these elements is the increased use of digital content and providing learners with a range of high quality media, accessible 24-hours-a-day, 7-days-a-week. This provides all students many more opportunities to personalize learning, reflect on their own work, think critically, and engage frequently in deeper understanding of complex topics. This necessitates equitable access to devices and high-speed networks and broadband both at school and beyond, into the community and homes.⁹



Findings

- The majority of district administrators, school administrators, and teachers indicated that Digital Learning guidelines and recommendations would be helpful for their district or school (74%, 69%, and 70%, respectively).
- Teachers believed that Digital Learning is important for student success in a K–12 setting.
- Teachers reportedly used a variety of devices (e.g., tablets, laptops, SMART Boards, 3-D printers, etc.) and programs (e.g., IXL, PowerPoint, Google Docs, Kahoot!) for Digital Learning.
- Teachers talked of a digital divide among students, where students from disadvantaged backgrounds struggled to use technology in the classroom as compared to their peers. This divide has led to inequity for these disadvantaged students.
- Students expressed that they enjoyed using tablets, SMART Boards, laptops and computers. However, at times, they did want breaks from technology to have hands-on activities that do not involve devices.
- Students reported that technology skills are not well-defined in their school or classrooms, and they stated that teachers typically teach them about technology specific to an assignment or device used during class.

⁹ Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Curriculum, Instruction and Assessment*. Web. Accessed 13 July 2016. Used with permission. <<https://dashboard.futurereadyschools.org/framework/curriculum-instruction-and-assessment>>

- Students generally felt confident in their abilities to use technology to complete assignments, work with other students, and learn new content. Students indicated that their teachers worked with them to improve their typing speed, mathematical proficiency and use of programs for class assignments.

“We need common tools, along with collaboration. There’s so much limitation, because my piece of software does something that your piece of software doesn’t, and you want it to do mine, the way that we did it. Having a common guidance in the tool set is important.”

“We use the technology we have available in the best way we can. And we use different programs like Kahoot! and ClassDojo for behavior, but Kahoot is also for formative assessments. And then we always can use our computer lab for our research projects we do, and we use a kid-based search engine called Kiddle. Students use Google Docs to create their documents or their research projects. And that’s pretty much what we do in second grade.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
Provide a common understanding of what students should know, understand, and be able to do, specific to Digital Learning and digital citizenship.	Develop K–12/16 Digital Learning and Computer Science Education standards, guidelines, and a scope and sequence that educators can access and utilize to understand and engage in best practices at each grade level to meet the legislative requirements outlined in W.S. 21-2-202(a)(xx).
Technology is used to gather and utilize data to inform educators and students with personalizing instruction.	<p>Establish collaborative procurement for Digital Learning resources and processes.</p> <p>Provide guidelines for evaluating and selecting Digital Learning resources that enable educators and students to use student data to improve teaching and learning.</p>
Educators use instructional practices that shift their role to be facilitators of learning.	Provide a menu of differentiated professional development offerings for educators that includes face-to-face, online, and blended options that can be personalized and tailored to educators’ needs and assist with understanding the changing role of educators.

Use of Space and Time

Description

Student-centric learning requires changes in the way instructional time is used and the learning space is designed. Many schools are shifting away from Carnegie units to competency-based learning. This type of system adapts learning to meet the needs, pace, interests, and preferences of the learner.

The elements that comprise this gear are as follows:



- Flexible Learning; Anytime, Anywhere
- New Pedagogy, Schedules, and Learning Environment for Personalized Learning
- Competency-Based Learning
- Strategies for Providing Extended Time for Projects and Collaboration

This transition is made possible through innovative uses of technology for diagnostic, formative and summative assessments, for managing learning, for engaging students in learning, and for providing anywhere, anytime learning. Such transitions require districts to rethink and more effectively leverage the use of instructional time.¹⁰

Findings

- District and school leaders are required to make critical decisions about dedicating time and space to various learning opportunities.
- Two-thirds of district staff (67%) believed there are distance education programs that would benefit students in their district, if such opportunities were offered.
- The majority of district staff chose courses related to gifted and talented (70%), Advanced Placement (69%), foreign language (59%), and technical training (59%)
- Listening Tour Participants expressed that Digital Learning provides the opportunity to re-engage students at risk of dropping out by offering a system for credit recovery and online courses that are more relevant to career opportunities.

“If the state plan could get rid of that red tape in there, I mean the network is there, the schools are there, the colleges are all on the network. Kids could be taking college classes in high school. The network that is there between all the school districts is ready to go. It’s the red legislative tape that is in the way of learning taking place. Why do we have to have X number of minutes of seat time for a kid to get a credit? And, again, that’s back to the regulations that tell us that we have to have certain things that we [have] to do in order for a kid to get a credit.”

Comments from focus groups and listening tour

10 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Use of Time and Space*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/use-of-space-and-time>>

“My student, your student, they’re taking classes together. And it could be – you know, it’s infinite. You could be learning French from a teacher in France. You know, I think those opportunities are endless for kids.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
Students will be provided with a continuum of high quality learning opportunities that can be easily identified, personalized, and accessed.	Facilitate the reduction of barriers to implementation such as ‘seat time’ requirements that focus on time in class rather than competency based learning, Carnegie unit requirements, or the ability to take classes from more than one district.
Educators across the state will have access to models of effective Digital Learning across time and space.	Develop a clearinghouse with models of effective Digital Learning across time and space.
Offer quality online and blended courses for students that include opportunities for students to demonstrate mastery of content in a variety of ways.	<p>Develop a best practices guide for teaching online and blended courses.</p> <p>Incentivize the development and teaching of high quality online and blended courses.</p>

Robust Infrastructure

Description

When employed as part of a comprehensive educational strategy, the effective use of technology provides tools, resources, data, and supportive systems that increase teaching opportunities and promote efficiency.

The elements that comprise this gear are as follows:



- Adequacy of Devices; Quality and Availability
- Robust Network Infrastructure
- Adequate and Responsive Support
- Formal Cycle for Review and Replacement

Such environments enable anytime, anywhere learning based on competency and mastery with empowered caring adults who are guiding the way for each student to succeed. High quality, high speed technology and infrastructure systems within a school district are essential to the advancement of Digital Learning.¹¹

¹¹ Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Robust Infrastructure*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/technology-networks-and-hardware>>



Findings

- Barrier to Digital Learning implementation: Equipment needs and problematic internet connection.
- Teachers reported a lack of devices.
- Administrators reported lack of technical staff.
- Wyoming’s districts are purchasing 0.92 AP’s per classroom, on average
- A majority of school buildings in Wyoming are constructed of brick or cinder block – these materials might drive up cabling costs
- 62% of schools have a “moderate” digital learning environment, 15% have a 1:1 environment and 23% have a media rich environment.

“We’ve got some elementary schools in town that even struggle to do maintenance and upkeep on the machines they have, schools that have ten or twelve kids and don’t have any funding to go towards that. We used to have some distance classes and we had to shut them down because of the rules about who’s going to pay for what.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
Every school has the capability to meet the LAN/Wi-Fi standards.	Adopt LAN/Wi-Fi infrastructure standards.
Support a technology infrastructure providing opportunities for equitable education for all children attending Wyoming’s K–12 public schools.	All school sites are on fiber optic and all districts can provision at least 1 Mbps of internet access per student. Report annually through the DLP on school connectivity and utilization and support schools with improving connectivity.
Every school has the capacity to successfully plan, procure, and manage their LAN/Wi-Fi networks.	Across state agencies, schools, and partners, work to leverage all available resources and support to identify which schools need support and engage the resources to support them and achieve sustainability.
Every school has the capacity to provide sufficient funding, staff, and expertise to manage LAN/Wi-Fi networks.	Across state agencies, schools, and partners, work to leverage all available resources and support to identify which schools need support and engage the resources to support them and achieve sustainability.
Technology directors, superintendents, curriculum directors, and other stakeholders consistently collaborate to support a common vision for supporting teaching and learning.	Align the planning process across infrastructure, devices, curriculum, facilities, and professional development.
All schools have the capacity to sustainably provide the devices needed for learning.	Provide guidance and framework for considering best practices for device implementation, evaluation, criteria, evaluating funding options.

Data and Privacy

Description

Data privacy and security are foundational elements of Digital Learning. The district ensures that sound data governance policies are enacted and enforced to ensure the privacy, safety, and security of confidential data sets. Such policies and procedures ensure that access to authorized persons is secure. Education professionals have a range of resources, trainings, and services available to build their awareness and capacity to implement such policies and procedures with precision.

The elements that comprise this gear are as follows:



- Data and Data Systems
- Data Policies, Procedures, and Practices
- Data Informed Decision Making
- Data Literate Education Professionals

A personalized, learner-centered environment uses technology to collect, analyze, and organize data to provide continuous cycles of feedback to students, teachers, and other education professionals, with the intent of increasing the depth, breadth, complexity, and efficiency of learning.¹²



Findings

- The Taskforce on Digital Information Privacy is a legislative committee drafting legislation specific to protecting student data and privacy.
- Collaborating on and reviewing data on student performance has become an essential component of education for educators. The WDE has received significant positive feedback requesting to continue providing professional development to districts and schools on data analysis and use.

“Just to think about this, why is it that kids like gaming so much? They get that instant gratification. They know their score. They know what level they’re on. They know what badge they’ve earned. The same thing is true with technology within a classroom. If we’re using it correctly and, you know, you might be using this app here, you might be using this digital tool here, all of a sudden students see where they’re at. They see their progression. They see how many questions they got right according to this, or they see their level of understanding here and how powerful it is when we start to use that data, when we start to use those reports to continue to encourage students in their learning and in their capacity.”

Comments from focus groups and listening tour

12 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Data and Privacy*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/community-partnerships>>

“Teachers can look at students’ work and the feedback is almost instant, whereas when it was paper and pencil students turned assignments in and had to wait a week. So I think the application has increased the feedback loop, and made it faster, and have allowed kids to apply the feedback to the problem at hand, versus waiting until it’s too late.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
Student and educator data will be protected, with privacy maintained in accordance with state and federal mandates.	Provide guidelines and support for the mechanisms, safeguards, processes, and standards for protecting and maintaining student and educator data.
	Provide professional development and support to ensure district and vendor personnel understand student data privacy laws once they are in place and when they change to maximize both safety and learning opportunities for Wyoming Students.
	Provide guidelines and professional learning opportunities for educators to build skills toward data-based decision making and including students in the process.
All teachers will use assessment data that enables them to personalize instruction and increase student achievement	Provide guidelines for evaluating and selecting Digital Learning resources that enable educators and students to use student data to improve teaching and learning.
All students will use data to understand their progression through the learning standards.	Provide guidelines and professional learning opportunities for educators to build skills toward data-based decision making and including students in the process.

Community Partnerships

Description

Community partnerships include the formal and informal local and global community connections, collaborative projects, and relationships that advance the school’s learning goals.

The elements that comprise this gear are as follows:



- Local Community Engagement and Outreach
- Global and Cultural Awareness
- Digital Learning Environments as Connectors to Local/Global Communities
- Parental Communication and Engagement
- District Brand

Community partnerships include the formal and informal local and global community connections, collaborative projects, and relationships that advance the school’s learning goals. Digital communications, online communities, social media, and Digital Learning environments often serve as connectors for these partnerships.¹³

Findings

- Teachers talked of a digital divide among students, where students from disadvantaged backgrounds struggled to use technology in the classroom as compared to their peers. This divide has led to inequity for these disadvantaged students.
- Teachers, and school and district administrators often use technology to communicate with parents.

“With our Infinite Campus system, we have several parents that are logging in and viewing their students’ grades. They have access to teacher emails. But, the other thing that we’re able to do with the Infinite Campus system is, push out text messages, emails that we have going on here in the school, so that allows us to mass communicate with parents, if we’ve got certain issues.”

“I’ve worked the last year-and-a-half with our local Makers’ Space, and I’ve taken students down there, and to use their laser cutter, vinyl cutter, 3-D printer, and we actually just got a grant to get all of that equipment in our school, so we demolished the old darkroom.”

Comments from focus groups and listening tour

Goals and Recommendations

Goal	Recommendations
Develop learning spaces in local communities that engage all learners (K–12, postsecondary, businesses, parents, etc.).	Develop a communication plan so all community members know what learning resources are available.
Develop partnerships between K–12 systems, postsecondary institutions, and libraries that enable opportunities to learn from each other and leverage resources together.	<p>Convene a workgroup to identify and coordinate the utilization of education resources available statewide and across institutions.</p> <p>Partner with postsecondary institutions to integrate Digital Learning best practices into pre-service coursework and to increase digital learning pedagogy course offerings for pre-service educators.</p>
Students have access to learning opportunities beyond the school walls by connecting to local community, national, and global partners.	Develop a clearinghouse of resources to support districts with providing students with opportunities to connect with global communities and projects to ensure college, career, and military readiness.

13 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Community Partnerships*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/community-partnerships>>

Personalized Professional Learning

Description

In districts and schools that prepare students for the digital age, technology and Digital Learning expand access to high-quality, ongoing, job-embedded opportunities for professional learning for teachers, administrators, and other education professionals. Such opportunities ultimately lead to improvements in student success and create broader understanding of the skills that comprise success in a digital age.

The elements that comprise this gear are as follows:



- Shared Ownership and Responsibility for Professional Growth
- 21st Century Skill Set
- Diverse Opportunities for Professional Learning Through Technology
- Broad-Based, Participative Evaluation

Digital professional learning communities, peer-to-peer lesson sharing, and better use of data and formative assessment, combined with less emphasis on “sit and get” professional development sessions eliminate the confines of geography and time. These ever-increasing resources offer teachers and administrators vast new opportunities to collaborate, learn, share, and produce best practices with colleagues in school buildings across the country. Digital leaders establish this type of collaborative culture. They model and are transparent with their own learning. In addition, educators must be engaged in more collaborative, goal-oriented approaches to the evaluation of their own teaching to serve as a personal model for the experiences that they might bring to students.¹⁴

Findings

- Teachers indicated that professional development slightly increased the use of technology resources, gave them confidence to implement student Digital Learning, and helped them understand differentiated instructional strategies.
- District staff, administrators, and teachers reported that professional development on Digital Learning strategies for differentiated instruction, integrating technology resources, implementing blended learning, and understanding the importance of Digital Learning implementation would be beneficial for educators.
- District staff, administrators, and school staff are interested in networking (e.g., face-to-face meetings or events, online professional learning communities, district-hosted webinars).

¹⁴ Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Personalized Professional Learning*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/professional-learning>>

- Barrier to Digital Learning implementation: Availability of Digital Learning professional development opportunities.
- The survey results suggest that 98% of survey respondents perceived their computer skills to be “intermediate” or better, whereas findings from the listening tour suggested that participants had a lower level of skill in using technology.
- The majority of district staff (63%) stated they may have some interest in learning how to develop online courses, while 29% of respondents stated they are, in fact, interested in online course development.
- A little more than half of teacher respondents indicated they are not interested in teaching online courses (51%). However, the remaining respondents indicated having some interest (maybe, 31%) or full interest in teaching courses online through their school (yes, 18%). There were 32 districts represented by the teachers interested in online courses.

“I worry that technology training for teachers is more of just a check. It’s more of a static, “Yes, every teacher has been trained.” It really takes individual focus and returning to what is the purpose of technology, what are we using it in our classroom for, what are we trying to get out of it, and looking at the data coming out to redefine the process and doing that continually over and over and over, and personalizing the professional development for teachers. That needs to be revamped and changed and continually refined in order to be really effective.”

“Teachers need to be taught over time to implement online learning. They need professional development about how to manage the devices, how to use them as tools, how to collaborate and communicate with parents, how to collaborate and communicate with students.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
Ensure all educators across Wyoming know what personalized professional learning opportunities are available.	Develop a communication plan so all community members know what personalized professional learning opportunities are available.
	Provide a professional development repository that is easily accessed where educators can pick and choose from offerings that result in micro credentials, University of Wyoming, Professional Teaching Standards Board (PTSB) credit to complete a personalized learning path.
Provide educators with a continuum of professional development choices that can be easily identified, personalized, and accessed.	Provide a menu of differentiated professional development offerings for educators that includes face-to-face, online, and blended options and that can be personalized and tailored to educators' needs and assist with understanding the changing role of educators.
	Utilize existing data regarding effective Digital Learning practices to pair high performing schools with novice or lower performing schools to increase capacity and improve Digital Learning practices.
	Incorporate and model Digital Learning within all professional learning opportunities.
Provide recognition (e.g. micro-credentialing, credit, higher degrees) for educators to continue their professional growth toward implementing effective Digital Learning practices.	Work with University of Wyoming Professional Studies and Outreach School to develop certificates from different disciplines.
	Develop guidance for districts to incentivize educators to engage in badging or micro-credentialing (e.g., bump on pay scale, recertification credit).
Statewide network of educators and organizations focused on sharing Digital Learning best practices, implementation strategies, and successful outcomes.	Form a professional learning network among the education technology organizations that already exist in Wyoming to include WyTECC, WyDEC, e-Volution, Information Power Institute, and others coming together for a shared annual conference and a variety of other peer-to-peer learning opportunities.

Budget and Resources

Description

The transition to Digital Learning will require strategic short-term and long-term budgeting and leveraging of resources. All budgets at the district and the school should be aligned to the new vision, with consistent funding streams for both recurring and non-recurring costs to ensure sustainability. During the transition, district leaders should strive for cost-savings and efficiencies through effective uses of technology.



The elements that comprise this gear are as follows:

- Efficiency and Cost Savings
- Alignment to District and School Plans
- Consistent Funding Streams
- Learning Return on Investment

The financial model should include the metrics and processes to ensure not only sustainability, but also accountability for learning returns on investments.¹⁵



Findings

- Teachers, school and district administrators all reported that significant barrier to Digital Learning implementation is the financial challenge.
- Administrators indicated they did not have financial resources (22%) or only had some of the necessary financial resources (40%) to accomplish goals for Digital Learning.
- Administrators stated that they experience difficulties in maintaining their current technology should anything need repaired or replaced in their buildings due to budgetary restrictions.
- Administrators and teachers felt that the financial barriers they faced were due to statewide budget cuts or limited availability of funding specific to technology.
- Administrators provided a variety of goals they would achieve with sufficient financial resources. Many aim to supply teachers with devices for all of their students or provide a bank of extra tablets or computers when technological difficulties arise. Administrators believed the state or districts should develop a one-to-one initiative for technology integration in classrooms. They also added that technology could support communication with and needs of parents and students outside of the classroom. In addition to equipment needs, administrators felt they could increase the amount and quality of professional development opportunities specific to Digital Learning strategies.
- A third of the teachers (33%) indicated that their school had the financial resources to meet their goals around Digital Learning. Approximately 38% of respondents felt their schools had some of the resources to meet their goals, whereas 29% reported their school did not have adequate financial resources.
- Teachers identified specific areas where financial resources could improve Digital Learning implementation. Respondents indicated that their school or district did not have sufficient funds to provide computer labs or provide tablets to all students, nor did their school or district have funds to support specific programs they would like to implement in their classrooms. Teachers reported that schools lack technology altogether, or that updates or additional devices are needed to fully meet their implementation goals. Some teachers noted that the state does not support the schools in maintaining current technology due to the expensive nature of products and restrictions on financial distributions. Respondents reported that students would benefit from exposure to multiple platforms and online resources to develop content and technical skills.

15 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Budget and Resources*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/budget-and-resources>>

“We’ve got some elementary schools in town that even struggle to do maintenance and upkeep on the machines they have, schools that have ten or twelve kids and don’t have any funding to go towards that. We used to have some distance classes and we had to shut them down because of the rules about who’s going to pay for what.”

“In our district, we had kids that were alternative high school students taking classes from our teacher at a regular high school. And so many rules came into play there, just, ‘Oh, nope; they can’t do that. Nope, we don’t count that as a class. No, that’s not ADM.’ It’s not my student then. It’s just ridiculous so they stopped doing it. And they were doing it at a time when we didn’t have the broadband and the access to the internet that we do now. And now there’s more than ever, and it’s not used at all. Regulations have become a very big hindrance.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
Increase cost savings and reduce costs when appropriate for Digital Learning.	Maximize funding opportunities like E-Rate (develop a statewide E-Rate strategy, repurpose existing funds for more effective opportunities).
	Coordinate purchasing opportunities to increase efficiencies—including partnering with higher education for economies of scale.
	Use of free, open source, and open education resources.
Develop innovative use of funds to incentivize work on Digital Learning.	Repurpose existing funds to incentivize Digital Learning.
	Promote collaboration between district technology leaders with other district leaders to understand how technology/Digital Learning can be funded.
Leverage partnerships with businesses to increase funding opportunities.	Build partnerships with industries across the state and nationally to support education and create new funding opportunities.
Provide guidance for developing sustainable technology and Digital Learning procurement plans.	Develop guidance for developing replacement cycles and budgetary requirements.
Provide guidance for prioritizing investments.	Develop return on investment analyses to assist in prioritizing efforts around Digital Learning.

Empowered, Innovative Leadership

Description

The Future Ready framework provides a roadmap toward Digital Learning; success within a district is dependent on innovative leadership at all levels. First and foremost, leaders within a district must be empowered to create cultures of innovation, must believe in the district’s shared, forward-thinking vision for deeper learning through effective uses of digital, 21st century technologies.

The elements that comprise this are as follows:



- A Shared, Forward-Thinking Vision for Digital Learning
- A Culture of Collaboration, Innovation, Capacity Building, and Empowerment
- High Expectations for Evidence-Based Transformations to Digital Learning
- Transformative, Coherent Thinking, Planning, Policies, and Implementation

Critical to their success will be a culture of innovation that builds the capacity of students, teachers, administrators, parents, and community to work collaboratively toward that preferred future. The policy foundation that results must be coherent with that vision. Unleashed in a culture of vision and empowerment, leaders will have the flexibility and adaptability they require to prepare their students to thrive in the 21st century.¹⁶



Findings

- Overall, district administrators somewhat agreed or agreed that the district has a strategic plan for student Digital Learning that is being implemented and that there is a process through which stakeholders formulate a shared vision that clearly defines expectations for technology use.
- Overall, school administrators and teachers somewhat agreed that the district has a strategic plan for student Digital Learning that is being implemented and that there is a process through which stakeholders formulate a shared vision that clearly defines expectations for technology use.
- Administrators at larger schools were more likely to agree to the questions “My school has implemented its strategic plan for student Digital Learning” and “My school offers professional development to school staff to use student Digital Learning.”
- Overall, the majority of the district staff and administrators indicated interest in networking with others (75% and 79%, respectively).

16 Alliance for Excellent Education and the U.S. Department of Education Office Educational Technology. *The Future Ready Framework: Collaborative Leadership*. Web. Accessed 13 July 2016. Used with permission. <<http://dashboard.futurereadyschools.org/framework/empowered-innovative-leadership>>

- Half of teachers indicated they may be interested in such opportunities (50%). An additional 33% of teachers stated they are interested in networking with other educators on Digital Learning topics.
- Listening tour participants reported greater success and innovation when the interactivity of students' Digital Learning experience was increased, allowing them to work collaboratively with peers.
- Listening tour participants indicated that students' access to online programs, courses, and resources has allowed for them to connect and collaborate with one another from across the state, receiving opportunities to participate in classes and trainings that would not otherwise be available, particularly for remote students.

“Students are doing a lot more collaborative work. They’re spending a lot less time just sitting there in class writing on a piece of paper. They’re working together across classrooms on all kinds of things in just about every subject area.”

Comments from focus groups and listening tour



Goals and Recommendations

Goal	Recommendations
District Digital Learning Plans align and integrate with school improvement, professional development and other plans within the district while aligning with the Statewide Digital Learning Plan.	<p>Integrate Digital Learning into the state consolidated comprehensive plan.</p> <p>Provide templates, recommended protocols, and opportunities to develop Digital Learning Plans with consultation from state or other district personnel.</p>
Innovative teachers, principals, and district administrators are recognized for effective Digital Learning practices that achieve improved student outcomes.	<p>Develop a Teacher, Principal, Student, Local School Board Member, Business/Community Member, Legislator, Future Ready School, and District Administrator of the Year program to honor and recognize innovators in Digital Learning.</p> <p>Develop a clearinghouse with examples of innovative Digital Learning practices.</p>
Educators can access opportunities to collaborate and problem-solve in innovative ways.	Provide networking opportunities for educators to learn from and problem-solve with one another.

Section 3: Policy Coherence

The Statewide DLP Advisory Panel took great care in ensuring that the recommendations proposed in this plan are aligned with the needs and desire of stakeholders from across the state, are research-based, affordable, and practical. The Advisory Panel was aware of and concerned that some of the recommendations will require amendments or repeal of some pieces of existing statute and current state procurement policies, which, together, may lead to problems with implementing the recommendations of this plan. In this section, we identify the specific statutes that will need to be amended or repealed in the next year in order begin implementing the Advisory Panel’s recommendations. This section does not contain an exhaustive list of those statutes that require adjustment, and it is possible amendments to other statutes will be identified in future DLP annual reports.

- 1. W.S. 21-2-202(a)(xx) In cooperation with the state board, the Wyoming community college commission, University of Wyoming, public service commission, department of transportation, department of enterprise technology services, public libraries, school district boards of trustees, classroom teachers and other appropriate groups identified by the superintendent, develop and implement a statewide education technology plan which shall address staff training, curriculum integration and network connectivity in and between schools, communities and between the state and the world, and which shall have as its goal the provision of equal access to educational instruction and information. The statewide technology education plan may include telecommunications services provided by the department of enterprise technology services pursuant to W.S. 9-2-2906(g). Not later than January 10 of each year and with the assistance of participating agencies, an annual report on the status of the statewide education technology plan shall be prepared and issued by the state superintendent.* This clause requires an annual report be developed and submitted to the legislature by January 10 each year describing the status of the statewide educational technology plan. The Statewide DLP Advisory Panel recommends adjusting the date the plan is due to be September 1 of each year. This will allow for more timely recommendations if changes to legislation or budgets are required. In addition, the Advisory Panel recommends that, as part of the reporting requirements specific to “network connectivity in and between schools, communities and between the state and world,” a reporting requirement be added reflecting broadband utilization by schools and districts.
2. A number of legislative recommendations were made by the Distance Education Task Force in 2015. The DLP State Advisory Panel concurs with those recommendations, and believes they are in alignment with the recommendations of this plan. As explained in Section 1 of this report, the provision of supplemental online courses allows for equitable access to courses that may not be available to students located in area where staff may not be available to offer a broad curriculum. For more information, please see Appendix D of the Distance Education Task Force Report: <http://edu.wyoming.gov/downloads/distance-ed/2015/detf-report.pdf>.

Section 4: Promising Practices

While it is helpful to understand the current state of each of the gears of the *Future Ready Framework* individually, none can be implemented in isolation. The more a teacher, librarian, school, library, or school district considers how to implement the gears in conjunction with one another, the better the coherence and outcomes. This section provides a few examples from Wyoming where attention to multiple gears of the Framework has occurred, and Digital Learning implementation is gaining traction. More importantly, these examples reflect promising Digital Learning Practices that are producing improved results for student.

Blended Learning Classroom

Black Butte High School, Sweetwater County School District No. 1



Sharon Seaton is a science teacher at Black Butte High School, an Alternative High School. Ms. Seaton developed ten online courses and offers a variety of others that have captured students' interests. Physical science and biology, along with a third elective science course are required for graduation. Seaton was inspired to develop a wide variety of course options for the elective science because she believed that if students were able to choose a science topic that interested them, they would be more likely to succeed in the class.

The typical class size at this alternative high school in Rock Springs is 10-12 students with Seaton's largest class being 18 students. Freshman are grouped mainly into physical science and sophomores mainly into biology, but there may be students taking a variety of science courses in the same physical location one class period. In each course, students are allowed to work at their own pace knowing they are responsible for meeting the deadlines for assignments and labs outlined in their specific course.

While Seaton reminds students of deadlines, one of the goals for allowing students to work at their individual pace is to teach them to be more self-directed learners. This helps prepare students for the expectation they will encounter with college professors and employers is to meet deadlines without someone guiding them through every step. If students fall behind, it hurts their grade, but if they work ahead, they are able to spend time working on a variety of enrichment activities available in the classroom.

The enrichment activities include robotics, flight simulations, and Google Expeditions to name a few. With Google Expeditions, students can go anywhere in the world and outer space to look at the surface of other planets or the moon. Google Hangouts are used to consult with local or national experts and are arranged for a group or individual students depending on the science course topic(s) they are studying. Students are motivated to work ahead in their courses in order to access the engaging, hands-on learning available to them. True to the enrichment description, the hands-on activities take students to deeper levels of learning the topic and content.

With the information that would typically be delivered through lectures available online, Seaton has more time to provide individual instruction and assistance when students need it. She is able to see how each student is progressing through their course through the school's online learning management system and is able to adapt each unit of instruction as needed. With students working at different paces and on different courses, they aren't all completing the same lab projects at the same time. Since Seaton is able to closely monitor the online work, she can prepare the lab materials and setup as students are ready for them. This means she may have seven different labs setup at the same time, but since the work isn't completed simultaneously, she is able to spend more time with those seven individual students than she would if the whole class was working together at the same pace.

Students access their online courses through a cart of laptops and a dozen tablets available in the science classrooms. The devices are only available during class period but the school has laptops available for check out to students who may not have computers at home. Since the coursework is all online, students have access to their science classes 24 hours a day, seven days a week and may chat or email their teacher outside of class. Again, even though their teacher is juggling more classes, by leveraging technology, she is able to spend more time with each individual and answer questions during her evening and weekend office hours.

Students have been very responsive to the choices which include options not typically provided at a small, alternative high school, such as genetics and marine science. Seaton's students are deeply engaged by the science inquiry, project based, blended (online and face-to-face) format. In fact, this year's cohort of seniors originally celebrated completion of their science credits as juniors. However, when they found out about the new science classes Seaton developed over the summer, they enrolled in a fourth science course as seniors, even though it wasn't required for graduation.

School-Wide Personalized Learning

Upton High School, Weston County School District 7



After researching blended and personalized learning, the Upton High School principal and staff took on the task of implementing web-based instruction and curriculum for core content classes. The decision to change from the traditional classroom lecture model was largely based on the student success they witnessed while visiting schools in a neighboring state. They took the information gathered while exploring this student-driven method of teaching and learning, and figured out how to make it work within the school's existing resources and parameters. Over the summer of 2016, classrooms, computers, and schedules were rearranged and reconfigured while teachers were trained to use the selected personalized learning platform. Students returned to school in the fall to find they were now the main drivers of their own learning and their teachers were able to spend more time with them providing one-on-one and small group instruction targeted to their needs.

The Schedule

	1	2	3	4	5	6	7	Study Hall
Garcia	AD	Math	Math	Math	Math	Planning	Math	
Finn	English	English	English	English	Planning	English	English	
Johnson	Social Studies	Social Studies	Social Studies	Planning	Social Studies	Social Studies	Social Studies	
Booth	Forensic	Forensic	Planning	Science	Science	Science	Science	
Warbis	Alg I	Middle School	Middle School	Middle School	Middle School	Middle School	Middle School	
Sharkey	Span I	Span II	Span I	Planning	Eng II	Span II	Span III	
Gould	Child Develop	FACS	Planning	Cul III/IV	Guidance	Guidance	Hlth Crs	Guidance
Garland	Lifting / Fitness	Adv. PE	Middle School	Planning	Lifting	Outdoor Rec	Health/PE 9th	
Tonkel	Planning	Weld II	Welding III/IV	Drafting/ CAD	Woods II/III	Weld I	MS Fall	
Ludemann	Planning	Yearbook	Yearbook	Acct I / Acct II	Entrep. Or WWW	Finance Pers / Bus	Work Skills	
Buchholz	Planning	Plant Sc	Ag Ldrshp	Ag Mech	Ag I	Animal Sc	MS Sp	
Womack	Intro to Art	Intro to Art	Adv Art	Planning	Elem School	Ceramics	MS Fall	
Rushton	Middle School	Middle School	Middle School	Choir	Band	Middle School	Middle School	

During Math, Science, English, and Social Studies times, students have the flexibility to be in any of those classes in any of those rooms working. For example, in first period Social Studies, the teacher is with students taking Government, Advanced Placement World History, and World Perspectives. Students have the option of working on classes other than their social studies class if they feel the need or desire to work on a different course. This means a student who is ahead in work for Government, and would like to work on an English project, can choose to do that. Since the curriculum is online, the student also has the choice to do this work in the Social Studies room, or choose to go to the English room to work.

The Instruction

Instruction begins with a pretest that identifies areas that the student has already mastered and those he/she still needs to work on. The student then works through the online curriculum which includes doing activities, completing projects, writing papers, and watching videos. Formative assessments are done frequently providing the students with immediate feedback. At any point a teacher may pull a small group together to work on a specific area of concern; a student may ask the teacher for help/instruction/clarification; a group of students may collaborate to better

understand a concept; or the teacher may supplement students’ learning with new resources (e.g., add a video or reading to that student’s lessons). Students take a posttest when they believe they are ready. If they fail the test, they are given an intervention and can try the test again (different questions, same concepts).

Along with the academic classes, time is also dedicated in the schedule for character building/mentoring, career development, and study hall. Bobcat Time is the first activity on Monday and Wednesday mornings. During this time, students meet with a mentor teacher who provides the students with support, and works with them on important elements of their education such as 8 Keys of Success and digital citizenship. Teachers also use this time to build and maintain connections with students. This can also be a time for occasional class or club meetings.

On Tuesday and Thursdays there is Opportunity for students who have not missed school or had any tardies in the previous five school days, and who are ahead in their school work, to leave school at 2:34 with parental permission. Those students who qualify to leave early are not REQUIRED to leave. They may remain at school and work in the library, commons, or computer lab if the student or parents want that. This allows teachers the opportunity to provide interventions for students who need that.

On Fridays, a shortened schedule is included in the morning during the first semester, and the staff plans to have project based learning in place during the second semester. After lunch on Fridays, students meet with a teacher who is their mentor for career exploration. Teachers use a program called Naviance and are encouraged to supplement it with articles for discussion, videos, virtual field trips or speakers.

	Mon–Wed		Tues–Thurs		Friday
8:00-8:27	Bobcat Time	8:00-8:49	1	8:00-8:30	1
8:30-9:18	1	8:52-9:41	2	8:33-9:03	2
9:21-10:09	2	9:46-10:35	3	9:06-9:36	3
10:14-11:02	3	10:38-11:27	4	9:39-10:09	4
11:05-11:53	4	11:30-12:19	5	10:14-10:44	5
11:53-12:23	Lunch	12:19 - 12:50	Lunch	10:47-11:17	6
12:26-1:14	5	12:53-1:42	6	11:20-11:50	7
1:19-2:07	6	1:45-2:34	7	11:50-12:25	Lunch
2:10-2:58	7	2:37-3:30	Opportunity Time	12:28-1:00	Career
3:01-3:30	Study Hall				

Twice a semester teachers have the opportunity to take students on field trips. The trips are open to all students who wish to attend. Recently, over a weekend, one group went to the Black Hills to do Geocaching and one group went to the Sanford Research Lab in Lead, South Dakota. Students who did not wish to go attended the regular Friday school day working on class work. Because their progress is personalized, students can continue working on classes even when teachers and their peers are absent.

The Technology

Incorporating digital learning to this level typically requires that students and teachers each have access to a personal device such as a tablet or laptop. Rather than making the one-to-one device investment, the school district technology director worked with the principal to equip four classrooms with desktops. The desktops were acquired by converting a former computer lab to a classroom. Also, computers from another school that were replaced by new equipment during the district's annual upgrade cycle, were re-imaged for use at the high school. A few inexpensive Chromebooks were purchased to ensure an adequate supply of computers and provide some flexibility as students elect to move from one classroom to another as described above.

While the investment in hardware was minimal, the district did purchase a personalized learning platform that allows for the program in place to even be possible. Teachers are able to customize each course as well as individual student course work. They are also able to assess how each student and the class is doing in any unit or lesson and make modifications as needed including to provide individualized instruction.

The Support

The work described above started when Weston County School District No. 7 Superintendent, Dr. Summer Stephens, recommended that the staff read *Inevitable: Mass Customized Learning: Learning in the Age of Empowerment* by Charles Schwahn & Beatrice McGarvey. Linda Crawford, the high school principal, conducted a book study with interested teachers to discuss the concepts in the book which describes the inevitable changes that schools need to make to ensure we are teaching for the Informational Age and the Age of Empowerment, and not stuck trying to meet the needs of these ages using an education system that was created for the Industrial Age. After starting through the book chapter by chapter and discussing how they might implement some of the concepts, teachers wanted to see examples of what they were discussing and considering “in action.” At that point, Stephens arranged a trip to Utah where the group visited two schools with well ingrained project based and personalized learning practices.

In addition to observing the logistical aspects of creating an innovative learning environment, students at one of the schools captured their attention. Each of the students had come from other schools where they had been unsuccessful. Upon enrollment, student abilities covered the spectrum from students with learning disabilities to those with Gifts and Talents, and all levels in between. In the personalized learning structure, all of these students, regardless of ability, were succeeding and producing high quality, rigorous work. Seeing the student success and enthusiasm for learning was a turning point for the Upton High School staff; they were so

excited about the possibility of being able to provide what they saw for their students, their focus shifted to how to make it happen.

As they worked through figuring out how they could make personalized learning work in their school, Crawford's leverage as a principal allowed for the removal of some of the existing barriers. Changing the class schedule was one of the largest undertakings and was pivotal in making it possible. The teachers and Crawford collaborated to make this happen while Superintendent Stephens has supported the work from the district level. Some school board members are very excited about what's happening while some aren't yet sure it is a good idea. Essentially, the school is supported from the top down, and while they know what is in place isn't perfect, they are willing and able to work together to evaluate and adjust the program as they go.

The staff and administrators at Upton High School have short term plans to address any major adjustments that may be needed after the first semester. Even though there is still a lot of work ahead to complete the goal of providing personalized learning one hundred percent of the time, they are willing to put in the work because they know their students are benefitting from their efforts.

District-Wide Blended Learning and Personalized Learning

Uinta County School District #1

Uinta 1 district administrators have been working towards a personalized learning experience for every student for seven years. They started with technology purchases but there was also a strong focus on the pedagogy and how to could personalize learning. In 2013 when Technology Director, Jaraun Dennis asked for more money to buy devices and software, Superintendent, James Bailey asked what difference using technology was making with students. That question spawned more research into implementing a district wide plan that would benefit all students.

Not long after this conversation, district staff attended a conference focused on online and blended learning for K–12 students. There, a superintendent from another state described the positive impact blended learning made in his district. Impressed by the presentation and possibilities, the district began working with an education consulting service specializing in blended and personalized learning. In the spring of 2014, blended learning professional development was provided to staff. Teachers were offered the training on an opt-in basis with the understanding they would be teaching in a blended environment, with the expectation that part of the coursework be offered online starting the next fall.

Initially, 70 teachers volunteered to implement blended learning in their classrooms, although the district had to scale that number back to 50. The following fall, 60 more teachers opted-in to the program and for the 2016-17 school year, blended and personalized learning was implemented throughout the district. At each stage of implementation, a strategic professional development plan was followed, which included staff providing blended learning training to their peers and classroom observations. Initially the training focused on awareness and technical aspects and grew to include instructional practices.

In concert with the implementation of the blended learning initiative, the district used Google Apps for Education and then subsequently, Google Classroom, when it became available. This provided a free and easy-to-access platform that allowed for real time collaborative among students as well as between students and teachers. Teachers were able to provide feedback on student work much sooner than traditional paper grading allowed. And rather than feedback being a “red ink” experience, students saw the comments or suggested edits on a Google document as more collaborative prompting to improve, than compliance focused correction of mistakes.

The personalized learning initiative in Uinta 1 is supported by the School Board, the district administrators, building administrators and teachers. The Technology Director and staff play an active role in purchasing and maintaining equipment, as well as supporting the pedagogical aspects of blended and personalized learning. There is a Personalized Learning Representatives (PLR) team of educators in each school building to support the work of their peers and provide just in time training as needed.

Through the years of focusing on Digital Learning, the school district has purchased one-to-one devices for all 4th through 12th grade students. In the lower elementary grades, there are ten devices per classroom as it isn’t necessary for each student to have a device. At this level, small groups of students receive instruction from their teacher based on the data from their online work as well as classroom observations. Before using the digital tools for small periods of time, the students receive instruction, including the purpose for using the digital content and how to use it. The content students receive digitally is customized to their needs, just as the small group or one-to-one instruction is, which allows students to advance through the material at their own pace. Students who need additional instruction on specific topics receive it from their teacher and through fundamental skills building software and programs that adapt to a student’s learning level and needs.

What started as a blended learning initiative in the district expanded to personalized learning because the district administrators realized with tools such as Google Classroom, many teachers were already personalizing learning for students. They have also seen an increase in student engagement and the enthusiasm that comes from the responsibility of being able to make choices in their learning from elementary through high school.

Reflection on Promising Practices

Students having ownership over their own learning increases engagement and the desire to learn. Digital, blended, or personalized learning looks different in each district, school, and classroom. There are a multitude of ways to implement these practices and districts, schools, and teachers can and should adjust implementation practices to suit the needs of their students. These examples are robust and more advanced on the Digital Learning spectrum. Implementation took research, a willingness to take risks, and support from empowered, informed leaders. Individuals took informed risks, revised, and re-worked their efforts to arrive where they are today. They continue to refine implementation in order to be responsive to the students they teach. These innovators provide a vision for what teachers, principals and district personnel can strive for, though they are not the only options available. With Digital Learning, the sky is the limit for how we strive to meet the needs of every learner.

Section 5: Conclusion

We recognize that today’s students must be prepared to flourish in a continually changing technological landscape. As noted in the 2016 World Economic Forum report, *New Vision for Education: Fostering Social and Emotional Learning Through Technology*, it is estimated that 65% of children entering elementary school will ultimately work in jobs that don’t exist today.¹⁷ To prepare our students for college, career, and the military, they will need access to infrastructure, devices, and applications that can be embedded seamlessly into learning environments.

This Digital Learning Plan represents the Statewide DLP Advisory Panel’s recommendations for the course of the next five years. The recommendations are intended to be carried out over time, with progress reported annually to the Wyoming State Legislature. Ultimately, the goal of this plan is to provide every Wyoming student with the skills, understandings, and confidence she or he needs to enter college, a career, or the military successfully in the digital age. It is intentionally designed to meet the requirement for providing equitable access to educational opportunities. A collaborative effort from the entire community is essential to accomplish the goals and recommendations set forth in this plan—from Pre-K–12 to postsecondary, from classroom teachers to local and state policy-makers, from libraries to businesses, from students, to parents; it will take everyone partnering and working side-by-side.

Next Steps

Staff at the WDE will take the recommendations, partner with other state organizations such as the State Libraries, post-secondary institutions, ETS, and the Governor’s Office, and develop more detailed action plans. The Statewide DLP Advisory Panel will assist with prioritization and monitoring of progress. The WDE and its partner organizations will report progress to the Wyoming State Legislature on an annual basis.

17 World Economic Forum. *New Vision for Education: Fostering Social and Emotional Learning Through Technology*. 10 March 2016. <http://www3.weforum.org/docs/WEF_New_Vision_for_Education.pdf>