

WYOMING DEPARTMENT OF EDUCATION

STATEWIDE EDUCATION TECHNOLOGY PLAN



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AUTHORITY

The goal of the Statewide Education Technology Plan is to provide a framework to ensure education technology is put into place to support the provision of equal access to educational instruction and information for students. The requirements of this plan are outlined in statute as follows:

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.

CORE ADDRESSABLE AREAS

The areas of primary focus included in this report are the current status of online education, including the needs of both part-time and full-time online students, Wyoming Equality Network (WEN) video component, integration of educational technology into Wyoming curriculum, staff training and professional development opportunities, network connectivity, and data security.

Online Education

Online course options continue to meet the needs of educational access for students who either prefer the online learning environment or who need to supplement their coursework with dual enrollment courses. During the 2014-2015 school year school districts reported that 1,168 students took K-12 virtual education courses. Of these students, 1,051 were enrolled in online courses full-time. Additionally, 544 students took postsecondary distance education classes. This totals 2.2% of Wyoming's student population participating in virtual education courses.

It should be noted that the actual number of students participating in part-time online courses is difficult to assess. In some cases, students are taking online courses within their district with a teacher of record assigning their grades and monitoring their progress. In these instances, the students receive some instruction from the teacher of record, so even though all of the course

content is online, the student is reported as taking a face-to-face course. As a result, it is difficult to determine the exact numbers of students participating in online courses across the state.

Currently, there are eleven virtual education programs offered in Wyoming, with two programs offering courses to students statewide. An overview of all courses offered through the statewide programs is listed on the Wyoming Switchboard Network (WSN) website.¹ As per current Chapter 41 Distance Education Rules, Section 4, Process to Join the Wyoming Switchboard Network (WSN), all courses must be submitted to the WDE to be verified and approved prior to being offered to students.

Two districts in the state offer full-time virtual education courses statewide to students from kindergarten through 12th grade. The Wyoming Connections Academy program is located in Big Horn County School District No.1 and the Wyoming Virtual Academy program is located in Niobrara School District No.1. These providers partner with the district to offer core courses (mathematics, English, science, foreign languages, health and physical education) in addition to numerous supplemental courses, such as accounting, sign language, and web design.

Nine districts currently offer approved WSN online programs to only their students.² These programs offer both full-time virtual educational opportunities as well as part-time supplemental course offerings. In order to offer these additional online education opportunities for their students, districts choose to use a variety of resources from various virtual education entities. Some districts choose to purchase seats from virtual education companies while other districts choose to purchase single courses from virtual education institutions in other states. Examples of out-of-state offerings include purchasing individual courses from Florida Virtual Schools or purchasing a program such as Odysseyware.³

Currently, students throughout Wyoming need to have access to both full-time and part-time virtual educational opportunities. Although students do have options when choosing to take full-time online courses, there are few choices for these students to take single courses from in-state providers. In terms of part-time course offerings, the only in-state single course choices offered through Wyoming Virtual Academy are not widely known nor is this option facilitated at a state level. Some districts address the need for part-time online courses by obtaining approval for in-district virtual education programs or by purchasing courses from out-of-state providers.

¹ Wyoming Switchboard Network can be found at <http://www.wyomingswitchboard.net/Home.aspx>

² Campbell County School District #1, Carbon County School District #1, Carbon County School District #2, Fremont County School District #21, Natrona County School District #1, Park County School District #1, Sheridan County School District #2, Uinta County School District #1, Washakie County School District #1

³ Florida Virtual Schools website can be found at <https://www.flvs.net/>. Information regarding Odysseyware program software can be found at <https://www.odysseyware.com>.

However, not all districts have the time or resources to obtain these methods of providing supplemental online courses to their students.

The Wyoming Department of Education will be collaborating with the the community colleges and the University of Wyoming to add a K-12 section to the [WyCLASS](#) course catalog system. Students will be able to locate all online classes being offered by the Wyoming Switchboard Network approved providers and utilize the WyCLASS pre-registration system⁴. The utilization of the WyCLASS catalog system will provide a cost effective solution to fulfill the statutory and rules requirements of establishing and maintaining online courses available statewide to students.

Pursuant to House Enrolled Act 101, a distance education task force was established in March 2015. The task force members reviewed online education in the state and found that while full-time delivery of online courses was working well for students, there is limited access to supplemental online courses. The task force made several recommendations to increase equitable educational access for online learners which can be found in the [Distance Education Task Force](#) report located on the WDE website⁵.

WEN Video

The Wyoming Equality Network (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” through distance learning. With financial incentives for teachers to provide courses over the WEN Video, at its peak, there were roughly 16 K-12 courses delivered per school year. Since that time, the number of K-12 WEN Video courses being delivered has dwindled to zero. There were no WEN Video K-12 courses delivered during the 2014-2015 school year. For the 2015-2016 school year, no applications were made to offer either K-12 or college courses via the WEN Video.

While the WEN videoconferencing technology (WEN Video) was state-of-the-art in its time, the required synchronous delivery of courses (teachers and students in different locations but on the conference together) was part of what led to its downfall. As very few schools in the state operate on the exact same daily schedule, it was an ongoing challenge for students and staff to make the timing differences work. In addition to issues with course delivery scheduling, there were also numerous issues with connectivity in districts with limited broadband capacity. Therefore, due to both the scheduling and connectivity issues, and the elimination of financial incentives to provide such courses, the WEN Video never reached its anticipated potential of providing supplemental distance education courses to students across the state.

⁴ <https://wyclass.wy.edu/> WyCLASS Wyoming Course Locator & Support Services

⁵ <http://edu.wyoming.gov/downloads/distance-ed/2015/detf-report.pdf> Distance Education Task Force Recommendations October 2015

Fully online courses have become increasingly more common to replace video conferencing courses as online courses are a more viable distance delivery method. Although fully online courses have become more common, a more robust offering of supplemental online courses for secondary students could meet the intent to provide 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 would no longer be an issue. Additionally, bandwidth issues are minimized by the ability to download any video content rather than livestreaming it. The challenge still remains for Wyoming teachers to develop and teach online courses, but the Wyoming Virtual Academy currently offers a wide variety of single online courses for secondary students including Advance Placement, Hathaway Success Curriculum and foreign language.

While part-time online courses may be a more effective course delivery method, the requirement to provide two-way interactive video at each high school in the state remains. The current WEN Video system is funded through the 2015-2016 school year and will continue to operate through June 2016. The Tandberg core infrastructure are at end-of-life by the manufacturer which means there is no longer an option to purchase maintenance or warranty from the manufacturer.

For the 2016-2017 school year, the Wyoming Department of Education (WDE) is recommending Google Hangouts and/or Chromebox for meetings be used to meet the two-way interactive video needs of school districts. The Wyoming Switchboard Network course application forms will be updated to reflect the utilization of Google video conference solutions. All video conference policy guides will also be updated, and the WDE will collaborate with the Department of Enterprise Technology Services (ETS) to identify roles, responsibilities, equipment needs, and training needs of all parties including school district personnel.

Curriculum Integration

Technology is one of the most powerful tools available to our educators today, and using technology resources can drastically and positively impact the educational success of our students. Education technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources for the purpose of enhancing student experience and increasing learning opportunities⁶. One way in which the WDE will incorporate education technology resources into every classroom in Wyoming to help prepare students to thrive in their future careers and become successful members of society is through the implementation of various free educational resources statewide. This will help build sustainable capacity for integrating technology into curriculum and instruction, which will directly increase student opportunity, engagement, and achievement throughout Wyoming.

⁶"What Is Educational Technology?" Department of Educational Technology, n.d. Web. 30 Nov. 2015
<http://etec.hawaii.edu/aboutbackground.html>

To begin incorporating education technology resources into the classroom, the WDE will provide a list of free educational technology resources on the Wyoming Department of Education website for access by educators, parents, and students. This list will include resources available to teachers to incorporate into their daily lessons, tutorials for students to access outside of school hours, and games and tools for students to use to further their understanding of core concepts and enhance their overall educational experience.

There is a pressing need for students today to have continuous access to technology in the classroom in order for them to be prepared for the workforce of the future. Effective education technology integration into all courses is vital to the success of all students, as research has shown technology integration enhances the learning process, engages students, and increases student success⁷. A number of schools throughout the nation have fully incorporated technology into their curriculum, whereas other schools have embraced a blended learning model of education. In these schools, data collected through statewide test scores and student achievement scores have shown an increase in both student achievement and growth as well as students excelling in all grade levels and across curriculum⁸. This impact of education technology can be seen in both rural and urban schools, with a number of schools in neighboring Colorado experiencing an increase in student achievement due to the incorporation of technology into the classroom⁹.

This same strategy of incorporating technology can be used in Wyoming in order to increase both the opportunities available to our current 93,303 students and the success and achievement they are able to realize. With future projection of enrollment increasing, it is vital to continuously enhance the quantity and quality of education technology being used in the classroom to ensure students of our state have been properly prepared for the workforce upon graduation. In doing so, all students in Wyoming will have equal access to increased learning opportunities, enhancing their daily learning and preparing them for future careers.

Wyoming statute provides guidelines to the WDE as to the purpose of distance and digital education in Wyoming. Wyoming State Statute 21-2-202 (xxxii) (B) clearly describes the requirement to provide technical assistance to school districts “Provide training and technical assistance to school districts for the delivery of distance education.” Providing a list of highly rated free education resources will assist the agency in meeting the goal of providing training and technical assistance to school districts for the delivery of distance education programs by assisting both educators and administrators in enhancing their courses through the incorporation of free digital, virtual, and educational technology resources.

⁷ "The Impact of Technology on Student Achievement." <http://fndusa.org/wp-content/uploads/2015/05/The-Impact-of-Technology-on-Student-Achievement-A-Summary-of-Research-Findings-on-Technologys-Impact-in-the-Classroom.pdf>

⁸ <http://www.christenseninstitute.org/publications/proof-points/>; Clayton Christensen Institute, Blended Learning Success in School Districts

⁹ <http://www.christenseninstitute.org/wp-content/uploads/2015/04/PSD-Global-Academy.pdf>; Clayton Christensen Institute, Proof Points: Blended Learning Success in School Districts, Poudre School District Global Academy

Due to the variety of free educational resources available to teachers, the Digital Learning Team has determined that the most effective way to outline published offerings is to organize them according to grade level and subject area. The [current list of free resources](#) has been compiled in conjunction with educational professionals from around Wyoming and will be published on the Digital Learning Team page of the Wyoming Department of Education website¹⁰. All resources will be aligned to applicable Wyoming State Standards and will continue to be updated as new resources are identified and researched.

Allowing the WDE to provide educational technology resources in a centralized easy access location will facilitate:

- Access to free quality educational resources for students, parents, teachers, and administrators at low or no cost
- Increased teacher access to digital learning content allowing a greater percentage of students to access virtual education courses, digital learning tools, and other online educational resources
- Monthly updates of virtual courses, resources, and tools to enhance student learning
- An avenue for increased collaboration between industry experts and teaching professionals
- Increased percentage of students achieving college, career, and military readiness
- Increased use of blended learning, student collaboration tools, and other technology integrated teaching practices

Currently, the State of Wyoming offers an opportunity for all Wyoming public schools to apply for the [Wyoming Education Trust Fund for Innovative Education Grant](#)¹¹. The purpose of the grant is to create innovative education opportunities for public school students at all levels. These funds are from a separate general fund revenue source and are available to the Wyoming Department of Education via W.S. 21-22-102 to distribute to school districts annually as innovative program grants. The funds are available as one-year grants to any public school district with the opportunity for districts to apply individually or in conjunction with other districts. Wyoming State Statute 21-22-106 states that the funding should provide innovation in or improvement of public education through the creation of new, different and improved educational opportunities in elementary and secondary schools inclusive of the following:

- **Curriculum development activities** such as initiatives in foreign languages, mathematics, social studies, English and the sciences; programs to develop critical or creative thinking; programs involving the private sector and programs providing parental and family training.
- **Operational initiatives** such as modification to class schedules, school day, week, month or year calendar and scheduling of extracurricular activities.

¹⁰ Free Educational Resources for Students

<https://docs.google.com/document/d/15sWi29u4arc8wmV91b5LgFs7pMp3j98AM1TOiSoX0Bw/edit>

¹¹ Wyoming Trust Fund for Innovative Education Grant

<http://edu.wyoming.gov/beyond-the-classroom/grants/innovative-education/>

- **Administrator and staff development and improvement programs** such as performance incentives, awards for excellence, professional training and development programs, and performance evaluation programs.
- **Acquisition of technological equipment for programs** expanding curriculum, enriching student education, enhancing staff development and providing community service.
- **Applied science and technology programs** designed to meet future labor market demands and to integrate public school programs with needs of business and industry.
- **Technical preparation programs** integrating specific public school programs with community college programs and working with business and industry to prepare students for technical and academic careers.
- **Evaluation programs** designed to determine the effect and achievement of innovative programs previously funded or currently provided within the district.
- **Public early childhood programs** including those designed to better prepare children for elementary school, and to improve parents' skills in developing their children's learning skills.

Each year, approximately 20 school districts apply for the Wyoming Education Trust Fund for Innovative Education Grant. A total of \$250,000.00 is available for this RFP and an estimated five to seven grants are awarded each year with at least one qualifying grant awarded in each ADM classification based on average daily membership. With these funds, school districts are able to offer additional programs to their students and increase professional development opportunities for teachers in addition to greatly increasing the quantity and quality of educational technology available to both teachers and students in their schools.

In July 2014, five Wyoming school districts received the Wyoming Trust Fund for Innovative Education Grant with awarded funds totalling \$250,000.00. For the 2014-2015 school year, awardees pursued projects ranging from Robotics and Engineering programs to expanding curriculum through acquisition of technological equipment and creating student improvement programs. These programs all directly and positively impact student engagement, achievement, and success which assists the WDE in meeting the goals of providing access to resources allowing increased usage of digital learning tools to be used by teachers in classrooms and increasing the use of blended learning, student collaboration tools, and other technology integrated teaching practices.

The Wyoming Department of Education has the focus of increasing the number of students enrolled in online learning by increasing the percentage of students accessing virtual education courses by at least 5% by the end of the 2019-2020 school year. The WDE is also committed to providing access to resources allowing increased usage of digital learning tools to be used by teachers in classrooms and increasing the use of blended learning, student collaboration tools, and other technology integrated teaching practices. The WDE strategic plan highlights the need for the State of Wyoming to provide and publish a list of free educational resources to be accessible by Wyoming teachers, students, and parents with the goal of meeting this need and enhancing the educational experience of all students. Developing and encouraging use of educational technology resources in every classroom in Wyoming will assist the department in meeting this goal, as well as ensure that all students throughout Wyoming have been afforded

every opportunity to thrive and succeed in our educational system. The WDE aims to provide additional tools, connections, and virtual educational technology resources to all teachers and students to support and enhance their academic experience. With these opportunities present, it is necessary for the WDE to dedicate time and energy to researching and compiling a working list of educational technology resources as well as maintaining this list to ensure validity, accuracy, accessibility, and relevance of resources to meet the goal of enhancing the educational experience of Wyoming students.

The ultimate goal of this project is to enhance student learning through continuous access to global educational opportunities for all students throughout Wyoming. In doing so, the Department of Education will ensure access to free quality educational resources for students, parents, educators, and administrators, increase the percentage of students accessing education technology tools, and resources, increase collaboration between industry experts and Wyoming education professionals, increase the percentage of students achieving college, career, and military readiness standards by enhancing their learning and allowing them to become prepared for the future workforce, and increasing the use of blended practices through the increased availability and accessibility of free educational technology resources.

Staff Training

Professional development opportunities for effective classroom technology integration are an essential element for teaching in our digital age. With the end of the federal Title II Part D - Enhancing Education Through Technology program, there is no longer a formal process for the Wyoming Department of Education (WDE) to collect information about the professional development opportunities occurring in districts. However, the WDE was aware of and supported a wide variety of education technology training happening across the state during the 2014-2015 school year. The following section will provide an overview of the education technology professional development occurring on a statewide level, postsecondary conferences available, and the Distance Education Grant staff training award activities. The opportunities provided statewide all included Professional Standards Teaching Board (PTSB) and/or University of Wyoming graduate enrichment credit opportunities for educators.

[Technology & Innovation in Education](#) (TIE) is an organization that provides classroom technology professional development to schools and districts in Wyoming with thirteen districts identified as TIE members¹². AdvanceEd Wyoming has also partnered with TIE to provide an education technology strand at each of the Continuous Improvement Conferences in September 2014 and March 2015. In late March 2015, TIE conducted a Wyoming Personalized Learning cohort kick-off event with 39 people in attendance including nine principals, thirteen teachers, five technology directors, and one superintendent representing eight school districts. The purpose of the cohort meeting was to learn what personalized learning could mean for Wyoming students and discuss how the group work could benefit students and educators.

¹² <http://www.tie.net/default.htm>

TIE describes personalized learning as follows: “Customized learning is a viable option for transforming the current Industrial Age, assembly line delivery system to a system that empowers learners and takes full advantage of available technologies. The Industrial Age system provided a mechanism for batch processing students based on age – it is a time and space based method of mass production. *An empowerment learning model allows us to mass customize learning to meet individual learning needs based on what we know about student motivation and learning.*”¹³

[EdCamp Yellowstone](#)

EdCamp Yellowstone was held in October 2014 and was based on the Edcamp principles of providing free, participant-driven professional development for K-12 educators¹⁴. Nearly 100 Edcamp attendees gathered at Cody High School on a Saturday morning to determine what educational technology, pedagogy, and other topics they wanted to discuss, learn about, and be engaged in throughout the day. Topics selected ranged from social media use in the classroom to engaging students with technology-based instruction. Educators discussed these topics in group breakout sessions and gathered as a large group to watch and participate in a demo slam¹⁵.

[Wyoming Technology-Curriculum-Engagement Connection](#) (WyTECC)

WyTECC is the Wyoming [ISTE](#) Affiliate with an aim “to connect a diverse statewide community of educational and community leaders from across Wyoming for the purpose of discussing and sharing information and ideas relating to technology, engagement, and curriculum in PK-20 classrooms”¹⁶. The 4th annual conference, “Unleash your Superpowers,” was held in May of 2015 and included sessions with topics ranging from robotics, to using applications to enhance student learning and experience, to incorporating Google Classroom into curriculum. Over 200 educators and professionals and 15 vendors participated in the conference.

[EdTechTeam Summits Featuring Google for Education](#)

EdTechTeam Summits, also referred to as GAFE Summits, are two-day, high-intensity events focusing on deploying, integrating, and using Google Apps for Education (and other Google tools) to promote student learning in K-12 and higher education. The program features Google for Education Innovative Educators, Google for Education Certified Trainers, practicing administrators, and other solution providers. Google Apps for Education (GAFE) provides Google Apps Unlimited features for free to nonprofit K–12 and higher education institutions in the U.S. and other countries¹⁷.

In January of 2015, Wyoming’s 48 school districts were surveyed and asked which enterprise application service they used. All but three school districts responded to the survey with 17 of them using Google, 10 of them using Google and Microsoft and 4 of them using some Google.

¹³<http://www.tie.net/content/customizedLearning/default.htm>; TIE - Technology & Innovation in Education; Customized Learning

¹⁴ <https://sites.google.com/a/park6.org/woedcamp/>; Wyoming EdCamp-Yellowstone

¹⁵ This is Demo Slam. (2010, October 20). Retrieved from <https://googleblog.blogspot.com/2010/10/this-is-demo-slam.html>

¹⁶ <http://wytecc.org/>; WyTECC-Wyoming Technology-Engagement-Curriculum Connection

¹⁷ <https://www.edtechteam.com/summits/>; Global Summits Featuring Google for Education

With 31 of the 48 school districts using Google, it is advantageous for their teachers to have Google Apps for Education (GAFE) professional development.

There were two EdTechTeam GAFE Summits offered statewide to teachers in June 2015. Up to two free educator registrations per each of the 48 school districts were provided by the WDE for both Summits. The first Summit was hosted by Park County School District No. 6 in Cody and the second was hosted by Natrona County School District No. 1. There were close to 200 educators at each event with most of the Casper attendees being district staff while most of the Cody attendees were from other districts.

[Intel Teach Elements Courses](#)

In April and May 2015, with support from the Wyoming Department of Education, Natrona County School District No. 1 offered five online Intel[®] Teach Elements courses to all educators in the state. The courses were taught by Natrona 1 teachers with graduate degrees trained and experienced in teaching their peers online. Intel[®] Teach Elements is a series of elearning courses that provide deeper exploration of 21st century learning concepts¹⁸. A brief description of the five courses follows:

- **Moving into Mobile Learning** - An introductory course to understand the benefits and challenges of mobile learning and the components of a successful program.
- **Designing Blended Learning** - This course explains and demonstrates blended learning with interactive activities and locally relevant classroom examples.
- **Collaboration in the Digital Classroom** - An interactive e-learning experience that offers an in-depth look at collaboration with a focus on online collaborative tools.
- **Assessment in the 21st Century Classroom** - A course that offers an in-depth look at assessment that meets the needs of 21st century teaching and learning.
- **Project-Based Approaches** - Using specific classroom scenarios, teachers explore characteristics and benefits of Project-Based Learning (PBL).

In addition to the K-12 statewide education technology professional development opportunities listed above, there are two annual conferences offered by the Wyoming postsecondary institutions. The organizers of the e-Volution Technology Forum and the WyDEC Distance Education Conference welcome K-12 involvement at their events both as participants and presenters.

[e-Volution Technology Forum](#)

In September 2014, the Annual e-Volution technology forum was presented by the University of Wyoming Outreach School, Ellbogen Center for Teaching & Learning, UW Libraries, Laramie County Community College, and the Wyoming School-University Partnership¹⁹. The central goal of e-Volution is to help teachers and trainers discover and share innovative ways of using technology to enhance teaching and learning. The e-Volution conference provides a free forum in which educators share “best practices” examples of technology used at university, community college, K-12 and other learning environments. The aim is to facilitate dialog about effective uses of existing and emerging technologies in learning environments.

¹⁸ <http://www.intel.com/content/www/us/en/education/k12/teach-elements.html>; Intel[®] Teach Elements

¹⁹ <http://www.uwyo.edu/outreach/ocp/wyoforum/>; University of Wyoming e-Volution Technology Forum

WyDEC Distance Education Conference

The Wyoming Distance Education Consortium (WyDEC) also hosts an annual conference. The event has a tradition of sharing innovative ideas and practices for enhancing teaching and learning at a distance, as well as uses of emerging technologies that support traditional campus-based courses²⁰. The conference was held in May 2015 with mainly postsecondary staff in attendance.

WyDEC Conference objectives:

- Examine key elements of best practices in teaching and learning at a distance
- Share information about new and emerging learning technologies
- Discuss current trends and developments in Distance Education
- Facilitate networking opportunities

Distance Education Grant - Professional Development²¹

Each year approved Wyoming Switchboard Network (WSN) online programs are eligible to apply for a Distance Education Grant (DEG) to develop and sustain courses. The DEG funds may also be used to provide professional development for educators teaching WSN courses. For the 2014-2015 school year, the following professional development activities were conducted by DEG awardees:

- **Campbell County Virtual School** - Sent four staff members to the International Association for K-12 Online Learning (iNACOL) Blended and Online Learning Symposium.
- **Natrona Virtual Learning** - Trained six newly hired full-time teachers and two administrators in the comprehensive use of the Fueleducation and Odysseyware online systems and the management, supervision, and delivery of online courses.
- **Wyoming Virtual Academy** - Provided 1) eight newly hired teachers with essential training for teaching in a virtual environment; 2) face-to-face professional development for all online staff in tandem with Niobrara 1 brick and mortar teachers related to administering statewide tests as well as district mandated training; 3) elementary teachers with instructional strategies to increase mathematical skills of all students; 4) WyTECC membership for 45 staff and fees for four teachers who attended and/or presented at the May 2015 conference; 5) iNACOL membership for access to the webinars to keep administrators and teachers abreast of the newest policies and technologies related to online learning; 6) AdvancED spring and fall conference fees for four teachers per event to become informed on accreditation requirements, Wyoming education issues and current educational trends; 7) K-12 teachers with Claserch best practices training; 8) elementary teachers with RTI research based intervention strategies; and 9) effective writing instructional strategies and best practices for twenty-five teachers.

²⁰ <http://wyclass.wy.edu/WyDEC/WyDEC+Conference/>; WyClass-Wyoming Course Locator and Support Services, a WyDEC 2016 Distance Education Conference

²¹Distance Education Grant (DEG) <http://edu.wyoming.gov/beyond-the-classroom/grants/deg/>

In addition to the statewide professional development activities briefly described in this report, there are many more technology focused efforts taking place throughout the state's school districts. Some districts have gone one-to-one with each student having a laptop or mobile device, some are implementing full-scale blended learning initiatives, and some are taking more cautious approaches to learning and instruction supported by technology. Additionally, many districts utilize technology integration specialists and technology instructional facilitators to provide ed-tech professional development and coaching to teachers at the classroom and building level. However, this information is not captured in the WDE602 WISE School District Staff Member Collection because these types of staff members and instructional facilitators are not identified in any of the reports collected from school districts.

Regardless of the number of events, or level of training and implementation taking place, currently none of it is being coordinated around a statewide strategy. Future state plan endeavors will include aligning efforts occurring in school districts and across the state to meet identified digital learning goals and objectives for students and educators to have the best opportunities for success. A coordinated effort for providing digital learning professional development would provide the opportunity for the state to leverage resources and implement viable support strategies for districts, educators, and learners.

Network Connectivity (In and between schools, communities, the state, and the world)

Wyoming has been proactive in fulfilling its need to ensure Wyoming school districts have the infrastructure to deliver online courses and allow technology to be integrated into the classrooms and curriculum. To support school districts, the Governor of Wyoming directed the State Chief Information Officer to build the Wyoming Unified Network to replace the Wyoming Equality Network. In 2012 the Department of Enterprise Services (ETS) began work on the Unified Network project with tremendous progress and work being completed since then.

The Unified Network capacity improvements have significantly increased the capabilities of student access to valuable Internet resources. What was a normal student access rate of 5Kbps, peak usage per student, has now increased to 200Kbps, peak usage per student. This helps to reduce data delivery and resource access delays, allowing districts to provide increased internet-based learning opportunities for their respective students. In a technology rich environment where “Bring Your Own Device” methodologies have become mainstream, districts now have the core infrastructure to implement, configure, and manage technology in order to best support their students. With the Unified Network already in production, this backbone currently exceeds the White House's [ConnectED](#) educational broadband targets for 2018²².

For additional information on the Wyoming Unified Network please reference the following resources:

²² <https://www.whitehouse.gov/issues/education/k-12/connected> ConnecteED, The White House

[Wyoming Unified Network Map \(Basic Design\)](#)²³

[K12 Map \(Green "pin points"\)](#)²⁴

[Wyoming Unified Network District Spreadsheet \(Technical\)](#)²⁵

Data Security

The WDE's goal of establishing and maintaining the [Data Security Plan](#)²⁶ pursuant to W.S. 21-2-202(a)(xxxiv)(A-J), is to protect information assets while aligning with privacy and confidentiality regulations and educational requirements. As the core mission of the WDE's Information Management Division is to provide accurate and timely data while ensuring student success and guiding educational policy decisions; securing the data that traverses our environment is critical to students, parents, teachers, and educational stakeholders across the state.

The WDE Data Security Plan is part of a multi-layered data security approach in which resources will be required to complement a fully developed WDE data security architecture. Identified resources for such an endeavor will include, but are not limited to, security awareness and training for all educational entities and stakeholders, data security policy, procedures, and guideline development, and technology related gap analysis identifying current capabilities and future requirements.

GOALS TO ENSURE EQUAL ACCESS TO EDUCATIONAL OPPORTUNITIES

The WDE and school districts have steadily worked to ensure students have increased access to educational opportunities through the use of technology. This includes providing opportunities for students to take virtual education courses as well as increased integration of technology in the classroom. These technologies allow students to access new information and provide more engaging ways to learn course content.

Across the country the delivery of K-12 instruction has evolved from requiring face-to-face interactions between students and teachers to situations where at least part of the learning occurs asynchronously through the use of technology and digital resources. More frequently students

²³ https://docs.google.com/drawings/d/1Uv4MF8PPIGVbBEI1430jR7F_NNVUyxcKi-NMEjUrNI/edit?usp=sharing

²⁴ https://www.google.com/maps/d/u/0/viewer?mid=z6i0uFOC6Lt0.kGwn7_6QyBDg

²⁵ https://docs.google.com/spreadsheets/d/18g_fRNqUwYKRoMJs5IVE3vQNABeU0U9zOt8arsTtZZw/edit#gid=0

²⁶ <http://edu.wyoming.gov/downloads/data/2015/governance/Data-Security-Report-2014-Final.pdf>

learn in environments where student access to instruction occurs through digital resources, allowing students a personalized learning experience. The need to have a teacher as the “sage on the stage” is diminishing, thus freeing the teacher’s time to provide more individualized instruction to address students’ specific needs.

As educators in schools and districts continue to embark on increasing the integration of digital resources and technology in the classroom, a shift in the required technologies is occurring. For example, the need for face-to-face video conferencing solutions has been dramatically reduced, while the need for increased broadband connectivity, wireless access, and mobile devices has skyrocketed. The expanded use of digital resources has also led to a need for greater protections around student data.

With this expansion comes the need to provide the most current professional development to educators and the staff supporting them. The changes in how education is delivered requires educators to know how to effectively integrate these resources and technology to enhance instruction. These professional development opportunities assist with equipping educators with the knowledge on how to better use digital resources to increase student engagement and learning.

Although there are pockets of excellence throughout the state with educators fully embracing the digital shift, there is no overarching vision for digital learning for our state. There are classrooms in which personalized learning for students has become the norm and districts in which virtual education courses are used to support the academic needs of students. With the increase of access to broadband connectivity to schools, districts are upgrading their own infrastructure and mobile device usage to take advantage of this resource. It has become clear that with the shift in how educational opportunities are accessed, a statewide vision and associated support for districts is critical as education continues to move forward.

To accomplish this goal, an advisory panel consisting of education and technology partners identified in W.S. 21-2-202(a)(xx) has been created. Their work over the next year will be to develop a comprehensive statewide digital learning plan with input from all stakeholders. The digital learning plan, to be released in October 2016, will provide a strategic framework with related activities to support Wyoming’s educational system in ensuring increased educational opportunities for all students through the use of technology and digital learning resources

Advisory Panel

To support the envisioning process for developing an effective plan, and to access a broad knowledge base, the Wyoming Department of Education (WDE) has created a cross-sectional Advisory Panel with members from several relevant state agencies and different positions, as required by W.S. 21-2-202(a)(xx). This allows the WDE to ensure we have multiple perspectives covering different areas of expertise to develop a statewide plan. This group of individuals, the Statewide Education Technology Plan Advisory Panel, will be meeting monthly through October

of 2016. The goal of this team is to create a comprehensive plan to guide the state of Wyoming in developing and utilizing technology resources to further advance and improve education throughout the state. Table 1 provides a list of the Advisory Panel members and the organization they represent.

Table 1: Statewide Education Technology Plan Advisory Panel Members

| Partner | Role | Representative(s) |
|---|------------------------|---|
| Classroom Teacher/Instructional Technology Integrator | Collaborative Partner | Scott Mecca |
| Department of Enterprise Technology Services | Collaborative Partner | Troy Babbitt |
| Public Service Commission | Collaborative Partner | Tom Wilson |
| School District Boards of Trustees | Collaborative Partner | Brian Farmer |
| School District Curriculum Coordinators | Collaborative Partner | R.J. Kost |
| School District Superintendents | Collaborative Partners | Jon Abrams Dustin Hunt |
| School District Technology Directors | Collaborative Partners | Jaraun Dennis Joshua Jerome James Kapptie |
| School Librarians | Collaborative Partners | Jennifer Markus Melissa Sipe |
| State Board of Education | Collaborative Partner | Paige Fenton Hughes |
| University of Wyoming | Collaborative Partner | Christi Boggs Tonia Dousay Jeff Miller |
| Wyoming Distance Education Consortium | Collaborative Partner | Les Balsiger |
| Wyoming Community College Commission | Collaborative Partner | Andy Corbin |
| Wyoming Department of Education | Lead Agency | Laurel Ballard Lori Kimbrough Alicia Kearns |

| | | |
|--------------------------------------|------------------------|------------------------------|
| | | Aaron Roberts |
| Wyoming Department of Transportation | Collaborative Partner | Ken Shultz |
| Wyoming State Library | Collaborative Partners | Jamie Markus Brian Greene |

2016 Action Items

The WDE will collaborate with the Department of Audit (DOA) in order to assist districts with the mitigation of technology related vulnerabilities in their respective environments. As indicated by the DOA, 15 Dec 2015, report on school finance audits completed in the last year; “as presented last year, most school districts had lax policies/configurations/settings related to data security (42 out of 48 districts)” and 11 Dec 2014, JEC Summary; “We also continue to do a small number of high-level IT audits of school districts mainly focusing on data security as it relates to network architecture, and physical and logical security. Physical security of servers and related equipment tends to be weak, increasing the risk of compromised data. Additionally, it is common for district IT personnel to lack necessary knowledge to perform some of their job functions, which again increases the risk of compromised data. W.S. 9-1-513(a)(i) requires “Audits under this paragraph shall include audits of systems supporting data collection and shall be performed on each school district at least once within each three (3) year period.” We feel it would be beneficial to perform more in-depth IT audits on the systems supporting data collection, but are hesitant to do so without explicit statutory authority to perform any test we determine to be appropriate.” The WDE supports the forward thinking of the DOA and will work to support them as they assist the districts.

The WDE will identify all data collections containing student related PII. When and where possible the WDE will eliminate the collection and/or storage of PII and at a minimum identify data retention and disposition of this data.

Additionally, the WDE will survey districts identifying technology and data related areas that are not fully utilizing the capacity of the Wyoming Unified Network. This includes but is not limited to each school district's Local Area Network (LAN) capabilities. The WDE will compile the area specific survey results and leverage the expertise of all educational stakeholders in order to identify network connectivity shortfalls in order to make the appropriate recommendations ensuring the maximum use of Wyoming's Unified Network.

Development of a Five Year Plan (to span 2017-2021)

With the help of the Advisory Panel and the [North Central Comprehensive Center](#) (NCCC), the Digital Learning Team proposes the following set of actions to develop and write a five year statewide education technology plan pursuant to W.S. 21-2-202 (a)(xx):

- **Communication Plan** The WDE Communications Team and Digital Learning Team will develop a cohesive strategy to keep all stakeholders informed during the creation and writing of the five year plan to include items such as the following:
 - A listening tour to gather information from schools (teachers, students, and parents), businesses, postsecondary institutions (students and faculty) and communities about education technology ideas, needs, and hopes. (January and February 2016)
 - Attending state organization meetings to collect feedback and build buy in and momentum for a comprehensive education technology plan for the state (e.g. Wyoming Association of School Administrators, Wyoming Association Secondary School Principals, Wyoming Association of Elementary and Middle School Principals, Wyoming School Boards Association, Curriculum Directors Association, Technology Directors, Wyoming Education Coalition, etc.). (January - May 2016)
 - Communicate gathered information to stakeholders after the listening tour and attending association meetings for additional input and feedback through a Superintendent’s Memo and a website input form. (May 2016)
 - Include the plan, with an emphasis of needs not currently being addressed, in the Report to the Legislature on the General Status of Wyoming Public Schools. (October 15, 2016)
- **Advisory Panel Planning Meeting** A face-to-face vision planning meeting with the advisory panel members and NCCC to fully develop the goals and direction for a five year plan for the state. (December 15, 2015)
- **District Survey and Information Gathering** Determine what information we want to know from our stakeholders during the listening tour and visiting with organizations by looking at what other states are doing statewide to implement education technology/digital learning and developing a survey to be disseminated to districts. (December 2015/January 2016)
- **Listening Tour** Gather input from stakeholders around the state using the ed tech plan framework developed by the Advisory Panel and the district survey results regarding what ed tech is being implemented around the state and what the identified needs are to increase student access and success. (January and February 2016) The dates and times for these listening tours are located in Table 2.

Table 2: Dates, Location, and Time for Proposed WDE Listening Tour

| Date | Location | Time |
|-------------------|--------------|--------------|
| January 25, 2016 | Evanston | 4:00-6:00 pm |
| January 26, 2016 | Rock Springs | 4:00-6:00 pm |
| January 27, 2016 | Rawlins | 4:00-6:00 pm |
| January 28, 2016 | Riverton | 4:00-6:00 pm |
| February 1, 2016 | Casper | 4:00-6:00 pm |
| February 2, 2016 | Cody | 4:00-6:00 pm |
| February 3, 2016 | Sheridan | 4:00-6:00 pm |
| February 4, 2016 | Gillette | 4:00-6:00 pm |
| February 9, 2016 | Laramie | 4:00-6:00 pm |
| February 10, 2016 | Cheyenne | 4:00-6:00 pm |

- **Focus Groups** Simultaneous with the listening tour, information will be gathered from focus groups scheduled to take place at schools and colleges in the communities we will be traveling through or to for the listening sessions. (January and February 2016)
- **First Draft** Taking the vision framework for the plan, the district survey results, and input from stakeholders gathered during the listening tour, focus groups, and other stakeholder input, the Digital Learning Team will draft the five year education technology state plan section by section with writing support from NCCC and input from advisory panel members during monthly meetings. (February - April 2016)
- **Solicit Feedback from Stakeholders** Once a draft of the plan has been prepared, it will be shared with stakeholders (listening tour attendees, association members, constituents, etc.) for additional input. (May 2016)
- **Plan Revisions** The plan will be revised based on stakeholder feedback. (June - July 2016)
- **Final Draft** The refined draft of the plan will be sent to the advisory panel members for final edits and revisions on 8/1 and any additional edits will be completed by 10/1. (August - September 2016)
- **Present to Legislators** Include the 2017-2021 State Education Technology Plan in the Report to the Legislature on the General Status of Wyoming Public Schools. (October 2016)

GLOSSARY

Blended Learning - A formal education program in which a student learns: (1) at least in part through online learning, with some element of student control over time, place, path, and/or pace; (2) at least in part in a supervised brick-and-mortar location away from home; (3) and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. (Christensen Institute)

Digital Learning - Any instructional practice that effectively uses technology to strengthen a student's learning experience. (Alliance for Excellence in Education)

Technology - Modern information, computer and communication technology products, services, or tools, including the Internet and other communications networks, computer devices and other computer and communications hardware, software applications, data systems, and other electronic content (including multimedia content) and data storage.

Virtual Education Courses - Courses where a series of lessons are delivered to students through a web browser or mobile device, to be conveniently accessed anytime, anyplace. (As defined by the Distance Education Recommendations Report October of 2015).