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State of Wyoming Governor's Task Force on Distance Education, Videoconferencing, & IP-Based Communications

Needs Assessment, Inventory, Gap Analysis, Recommendations, and Primary Research

Revision C FINAL
September 2, 2009



NOTE: The material presented in this report is based on primary market data coupled with our professional interpretation of the facts. We believe that the basic information and recommendations presented in this study provide a basis for sound business decisions, but no warranty as to completeness or accuracy is implied. We welcome your comments on this report.

This report contains 118 pages comprised of four sections and five appendices, and 35 figures. *This Revision C modifies Figure 33, page 111*, based on revised input from all seven community colleges concerning number of learners served by and number of instructors involved in distance education. This revision also amends some statements concerning several community college programs and WEN Video usage, adds a statement concerning UW Outreach weekend courses, and adds commentary regarding the desire to achieve potential reductions of carbon footprint.

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Wainhouse Research (www.wainhouse.com) is an independent market research firm that focuses on critical issues in enterprise-level unified communications – presence, instant messaging, telephony, audio conferencing, unified messaging, web conferencing, mobility, videoconferencing, and streaming media – and their applications such as distance education and telemedicine. The company takes a “dual” approach to understanding rich media communications, by placing a focus on vendor activities and product/technology developments, and by placing significant resources into understanding buyer requirements and end user applications such as distance education.

About Pine Cove Consulting

Bozeman-based Pine Cove Consulting (www.pinecc.com) provides small businesses and school districts throughout Montana and Wyoming full-service technology support, service, and solutions. With 15 years of service to businesses and K-12 schools in the area, PCC has emerged as a leader in technology and provides its customers with a firm balance between innovation and reliability. With multiple market-leading partnerships, PCC provides personalized Information Technology support.

About Center for Interactive Learning and Collaboration (CILC)

Indianapolis-based CILC (www.cilc.org) is a nonprofit organization dedicated to supporting and advancing education through videoconferencing and other collaborative technologies. CILC has supported the implementation of a statewide network for videoconferencing in Indiana, provides a content program database and portal, and has consulted to many state departments of education, school districts, and content providers.

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1 Executive Summary

Wyoming is the tenth largest U.S. state by size, but it is the least populated state, with a 2007 U.S. Census estimated population of 522,830. Wyoming ranks 49th among the United States in population density; 5.1 persons per square mile reside in the state. Because of Wyoming's rural nature and its relatively small population, it is critical that Wyoming have quality distance education structures, practices, processes, and delivery technologies that include and support effective learning in all major learning segments: K-12 education (including K-12 education equity requirements), the Wyoming community colleges, the University of Wyoming, government agency training, and professional and lifelong learning. With approximately 16,000 state employees, 46,400 county/city employees, 85,600 K-12 public school learners, 23,000 community college learners, and 12,900 University of Wyoming (UW) learners, the state has been challenged to coordinate educational opportunities among its various constituents.

Wyoming Governor Dave Freudenthal appointed a Task Force to "examine and make recommendations regarding the various efforts taking place in Wyoming concerning distance education, video conferencing and general Internet Protocol based communications." Wainhouse Research (WR) was appointed by this Task Force and partnered with Pine Cove Consulting (PCC) and the Center for Interactive Learning and Collaboration (CILC) to investigate the distance education needs of the state. The resulting deliverables contained in this report include a needs assessment, inventory, gap analysis, and set of recommendations to the State of Wyoming Task Force. These recommendations are offered with the intent of providing a set of new approaches to the challenges of time and distance as they are experienced by the state's learners, educators, and general citizenry.

1.1 Methodology

Four major methods were used to gather input from stakeholders. These consisted of approximately 50 interviews with individuals or groups of stakeholders, five local and virtual focus groups, an online survey completed by 976 respondents, and an inventory completed by more than 30 organizations.

1.2 Major Findings

The state has many highly educated, passionate individuals involved in distance education, many of whom themselves have received undergraduate and graduate degrees via distance education. A long history of addressing the need to overcome geographical barriers has led to an appreciation of distance education. Certain organizations have very robust programs for distance education, using a wide variety of technologies and methodologies; others are lagging, missing programs, focus, and leadership.

A short summary of findings includes the following:

- The most commonly voiced concern – with only a few exceptions – is the need for greater leadership and coordination from the state. While Wyomingites have done an excellent job creating programs and introducing distance education technologies, we find great disparities between the uses and understanding of best practices throughout the state. Those desiring greater leadership feel there is no single place to go for information and that everyone is left to their own devices when it comes to distance education. As a result program quality and depth varies from institution to institution.

- Those organizations that make distance education part of their mission, or embed it in their culture, are successful, and have been ultimately rewarded with successful, happy learners and instructors. Those organizations struggling with becoming programmatic about their distance education may still offer programs and have some distance education learners, but they are struggling to scale their efforts. State agencies are especially in need of guidance, with many trainers feeling that no resources exist to help them create distance education programs.
- Anecdotally, almost everyone believes they are losing distance education learners to programs out of state.
- Insufficient network bandwidth is cited as an obstacle by one third of those surveyed who are involved in delivering distance education; one in five cite the problem of other applications competing with distance education for bandwidth as a factor.
- Wyoming – more than many other states – has a strong cultural emphasis on travel. State agencies in particular appear to have paid insufficient attention to the best ways to shift non-essential travel to electronic meetings and distance education.
- The Hathaway Scholarship Program and its Success Curriculum have done much to encourage K-12 learners to excel as a means of funding their postsecondary education. An unintended consequence, however, is that some educators and parents fear Advanced Placement courses and distance education. This is because they perceive there is a chance that such programs might threaten learner chances for Hathaway merit-based grants if such courses are not recognized as legitimate modes of meeting Success Curriculum requirements.
- Among survey respondents, access to equitable opportunities (degree programs or non-credit courses) appears to be an issue. Among the community colleges, some discrepancies in funding for distance education exist that may impact learners by region. Adult learners in particular expressed the desire for a Hathaway-like program for those who wish to return to postsecondary education.
- Distance education technologies have brought educational opportunities to the citizens of Wyoming, but a feeling of inequity still exists among many rural community members, which manifests itself in a sense of isolation, lack of high bandwidth connectivity, and missed economic and educational opportunities.
- Even with the many distance education programs that exist, we find disparities in enrollments, offerings, credit hours, and learners served at the community college level. Among Wyoming community colleges, Laramie County Community College, Western Wyoming Community College, Casper College, and Central Wyoming College could be considered top-tier community colleges for distance education. Northwest Wyoming Community College is mid-tier, and Northern Wyoming Community College (Sheridan-Gillette) and Eastern Community College are lagging by these criteria. Several community colleges lack distance education directors, resources, compensation models, and instructional designers.
- At a local level, many school districts and community colleges – which have a vested interest in topics like dual credit, concurrent enrollment, and Advanced Placement courses – express concern that the Wyoming Department of Education (WDE) is never left alone by the Legislature to maintain

a consistent set of offerings. Some local districts mistrust the WDE memorandum of understanding (MOU) process for host/resident distance education agreements (feeling it “takes too much work,” though in fact the WDE is wisely taking a light hand to allow districts autonomy) and opportunities exist for the WDE to offer more guidance.

- At the learner level, the ability to work more independently and take courses they could not otherwise have taken are what learners have liked most about their distance education classes. About half of those surveyed indicate it helped them get their degrees, and almost half also felt the technology was useful and effective. The reverse of this, however, is telling: more than half did not particularly feel that the technology used in their distance education program was useful and effective – primarily because some individuals have had negative experiences with out-moded or inadequate technologies.
- The University of Wyoming (UW) has created a high bar for distance education, and compares favorably to other four-year institutions in the area of distance education. Yet the challenge is constant to address how to adapt to rapidly evolving college-age learners with high expectations for technology, as well as an (often) older learner population reached through the Outreach School.
- Some state agencies appear to be well-resourced for use of technologies in training, but many are at the starting block and in dire need of help getting started. Some also use electronic technologies for meetings only, not for training. In essence, distance education is missing in action at the state agency level. A telehealth network is currently working with the three large hospitals throughout the state to deliver Continuing Medical Education (CME) credits to state nurses and doctors. Much of this programming comes from out of state, but the desire exists to build upon the talent of the state's resources.
- Business and community leaders, including some in local government, feel that the workforce lacks access to many of the tools available to younger learners – and that this has an economic impact. Business leaders – particularly those located in more remote areas of the state – do not feel engaged in helping to define the needs of their existing and future workers. Some express concern that non-credit options that might contribute to their own professional development are limited.
- A summary of major obstacles to scaling distance education throughout the state consists of:
 - Funding challenges
 - Lack of awareness of the possibilities (marketing, education about education)
 - Lack of equipment and technologies
 - Lack of training
 - Lack of staffing support
 - Lack of policy and leadership from the state
 - Lack of acceptance of and trust in technology
 - Inferior equipment
 - Insufficient network bandwidth
 - Lack of content, programs, and resources
- Knowledge exists within the state for best practices and methods for building distance education programs. Some of these include:

- Use of distance education advocates and outreach
- Use of incentives (financial, workload, training and support) to educators
- Use of instructional designers for curriculum support

Wyomingites are doing exceptional things – often the result of partnerships – but many people are unaware of activities or opportunities one county or half the state away. The sheer quantity of regional and statewide consortia, committees, partnerships – many often created as a result of addressing a local need when the state is not taking a coordinating role and many ad hoc in nature – results in many efforts that are duplicative or at cross purposes. This offers a significant opportunity for adding efficiencies to all segments of the state's stakeholders, if the state steps up to the challenge and leads.

1.3 Top Ten Recommendations

A vision for the future – one that includes an understanding of where the state wishes to head economically, culturally, and socially, may be necessary to help Wyoming scale its distance education practices and offerings. While we encourage readers to review the entire set of Recommendations contained in this report for a more complete explanation of each recommendation, we offer here the top ten initiatives we believe the state must explore if it is to take distance education to the next level. The results would be better served rural communities, more programs reaching more learners, greater productivity, reduced costs, and greater economic viability. The top initiatives include:

1. **Create a Governor's Advisor on Distance Education** -- Because no single logical place for leadership exists amongst the many stakeholders – and because of the consistent calls from the state's residents for more leadership and coordination – we recommend that the governor's office create a position for an individual to lead and serve as a liaison with the various stakeholder groups throughout Wyoming. This would ensure that the citizens of Wyoming know someone is looking after their educational interests.
2. **Establish one or more Centers for Distance Education or Digital Education** -- Establish at UW (or one or more of the community colleges) one or more groups chartered with becoming the locus for education, training, best practices, technology trials, and pedagogical research.
3. **Establish and fund ways to reach technology competency targets for high school learners and competency training mandates for education majors** -- Because Wyoming wishes to create and retain lifelong learners, while also scaling the concept and practice of distance education, we recommend creating technology competency targets for high school graduates.
4. **Mandate change at state agencies through travel budget policies in concert with introduction of distance education technologies** – It has become standard practice in the corporate world that individuals must justify travel or use electronic means of holding meetings. The Wyoming Legislature and Governor easily could foment change among state agencies through travel budget reduction accompanied by programmatic introduction of distance education and meeting technologies. State policy should *only* be modified, however, in tandem with deployment of proper infrastructure and technologies for supporting electronic meetings *and* distance education.

5. **Create outreach positions at the WDE for Distance Education Advocates** – Primary and secondary learners may not be getting the experience with technology – or how to be online learners – necessary for successful completion of their postsecondary educational programs. Funding WDE or reallocating internal resources to create outreach positions throughout the state – individuals to be a combination of distance education advocates, learner supporters, and coordinators between different entities – would go a long way in helping K-12 to catch up.
6. **Create adult learner Hathaway grants and other grant approaches to address rural economic development** -- Create a distance education-specific program that will provide adult scholarships for Hathaway-like higher education funding. Such a program would a) encourage some of Wyoming's best and brightest adults in the workforce to further their educations and b) encourage those who did not complete their education to do so while remaining in the workforce.
7. **Improve incentives for educators to teach over distance** – Wide disparity exists in how educators are taking advantage of existing incentives to adopt distance education. It makes sense then to address the shortage of distance education instructors by examining what is working and not working, and by creating further incentives for them to teach over distance. Besides research grants, course load reductions, and recognition programs, the single most important component is to fund conversion of existing traditional curricular materials into a format suitable for distance education. Grants for instructional designers are a related need, as strong instructional designers are crucial to successful distance education programs.
8. **Modify Wyoming Community College Commission funding formula with additional funds for distance education** – The WCCC distributes funds based on a formula built around numbers of learners and courses at each community college, but has no influence over how those funds are spent. While we believe that the community colleges are well served by this approach, and much of their autonomy may be maintained, it is not unreasonable to assume that some funds could be earmarked for distance education-only applications.
9. **Create a single e-Wyoming portal for all things related to education including distance education** – Described elsewhere in this report as e-Wyoming.org, this online portal would aggregate distance education information from all sectors of Wyoming, becoming the single initial source of information about all opportunities available to Wyomingites.
10. **Address the state's bandwidth issues by negotiating with a major telecommunications company and funding true broadband statewide with robust last mile connectivity** – While not the province of this consultant group to measure bandwidth by availability and network topologies, it is clear from the state's citizenry that bandwidth remains a challenge. Though Wyoming can “get by” with implementing some of the recommendations contained herein and thus achieve incremental improvement, addressing bandwidth is a singular requirement that will do much to take the state to the next level and open up new vistas – while supporting existing needs.

The recommendations proposed by Wainhouse Research and its team are best taken in “concert” as a group of inter-connected strategic concepts and tactical methods for elevating the role of distance education in the state of Wyoming. Some of the recommendations implemented alone will provide

incremental change over time; we believe the group of recommendations in totality will help the state achieve substantial, visible change within a very short time.

Additional recommendations are discussed in the full Recommendations section of this report.

Needs Assessment

1.4 General Findings

1.4.1 Leadership Gap

Topmost as an issue for Wyoming is the need for greater leadership in distance education at the state level. While Wyomingites have done an excellent job creating programs and introducing technologies for distance education we find great disparities between the uses and understanding of best practices throughout the state. There are many reasons for this, which are explored throughout this report, but the desire for greater leadership at the state level was expressed throughout Wyoming from *almost all* respondents. Those desiring greater leadership feel there is no single place to go for information; that everyone is left to their own devices when it comes to distance education, and that as a result program quality and depth varies from school to school, community college to community college. This gap also affects the quantity and quality of programs offered, as many respondents complained that without coordination or leadership at the state level, little seems to improve.

A number of accomplishments have been reached in recent years, from the Wyoming Distance Education Consortium (WYDec)'s new [WyCLASS website](#) to the Wyoming Department of Education (WDE)'s [Community Fusion](#) web pages, Distance Education Grants (DEGs), and Switchboard Network efforts. Programs have been introduced at virtually every level of education throughout Wyoming. Many college age and adult learners throughout the state have achieved associate, undergraduate, and graduate degrees. Yet the general sense of those involved in the business of distance education is that too many disparities exist; that programs are not scaling; and that even with organic growth – the ability to grow on their own without attention and management – they could “do better.” The situation at state agencies is similar: some agencies are haves and some agencies are have-nots when it comes to money, technologies, and distance education resources. The have-nots appear to lack any semblance of a place to go for information about the use of technologies and best practices for training and adult learning.

A handful of programs that think of themselves as leaders and innovators felt somewhat suspicious of state efforts, fearing a mandate for change would have negative impacts on their programs. To some extent this is a natural behavior in a state full of people proud of their independence and “can-do” attitudes. And this sentiment is also expressed because the state has given and taken away funding and changed rules over the years; this makes some organizations based across the state, away from Cheyenne and Laramie, naturally suspicious.

1.4.2 Success Factors

Those organizations that make distance education part of their mission, or embed it in their culture, are successful, and have been ultimately rewarded with successful, happy learners and instructors. These organizations typically dedicate sufficient resources for faculty and learner support and go out of their way to treat distance learners *the same way they treat their local learners*. Similarly, they frequently compensate instructors for teaching over distance, limit class sizes, perhaps reduce course loads, provide instructional developers and training, and help promote distance education classes to their target markets. They also try to set learner and educator or trainer expectations to ensure that a match exists between

learner or teacher and the method of instruction. Even the most successful organizations struggle with shortages of instructors and technology, and program building, but they understand the value of planning and somehow match that ability to plan with their most successful programs.

Those organizations struggling with becoming programmatic about their distance education may still offer programs and have some distance education learners, but they are struggling to scale. A community college reported “organic growth” (growth without particular focus of resources or programs) of about 10% annually in its distance education learners, even without having the resources such as infrastructure, marketing support, and knowledge base to help it scale. State agencies are especially in need of guidance, with many trainers feeling that no resources exist to help them create distance education programs.

As a whole, Wyoming has a robust offering of distance education programs, particularly within the community college and university venues and in pockets within K-12. The Wyoming Equality Network Video services are rich and robust in some areas for K-12 users, thinly utilized in other areas, as described in the Inventory section of this report. Online offerings to K-12 students are not as clearly defined or communicated, in part because the Wyoming Switchboard Network (WSN) has only completed its first year of operation. Data on numbers of online learners served by the WSN is being accumulated for the first time during summer 2009 and was unavailable for inclusion in this report.

1.4.3 Out-of-State Programs

Anecdotally, almost everyone believes they are losing distance education learners to programs out of state. While this consulting team was not tasked with identifying such learners, the number of individuals interviewed who indeed are going out of state for graduate distance education programs is sufficient to warrant further study on the part of the state in two areas: its economic impact, and whether particular degree or non-credit programs might easily address those learners who currently feel they are better served by non-Wyoming resources. Franklin University, University of Phoenix, Capella, Kaplan, and Iowa were all mentioned as schools attended by people interviewed or surveyed, typically for post graduate studies.

1.4.4 Today's Technology

As the world moves steadily into the 21st century, technology advances at an astounding pace. Data moves across the World Wide Web instantaneously, bringing today's learner video and audio bites with current news and information and with immediacy. Many learners have the ability to access knowledge from the comfort of their own homes anytime, anywhere. The avenues to learning are only impeded by our ability to access robust networks for data delivery.

Students today do not just ask for, but need quality programming, robust offerings and the delivery of content via today's technology standards. The Wyoming learner is no exception. Learners throughout Wyoming expressed their desire to receive quality programs that meet their needs.

Wyoming's investment in network capacity clearly is not meeting the majority of needs today; the question continued to be raised concerning the capacity of the many networks, particularly the WEN Video and Wyoming Video Network (WyVN), to handle growing demand. Focus groups and interviews conducted in the more remote areas of the state pointed to clear concerns voiced by rural learners

regarding the ability to access instruction and data in their homes and communities, while even individuals who live near the largest cities also complained of difficulty with accessibility due to network challenges.

The rural nature of Wyoming means network reach is an essential lifeline for the state to remain vital and competitive, or its citizens will leave. It is important to build networks for the future, as well as define expectations for instructional design to meet today's learner, whether they are K-12, community college, university or lifelong learners within the Wyoming business sector or remote rural communities. Concerns regarding insufficient network bandwidth or applications competing for bandwidth continue to lead the technology concerns for the state (see Figure 1).

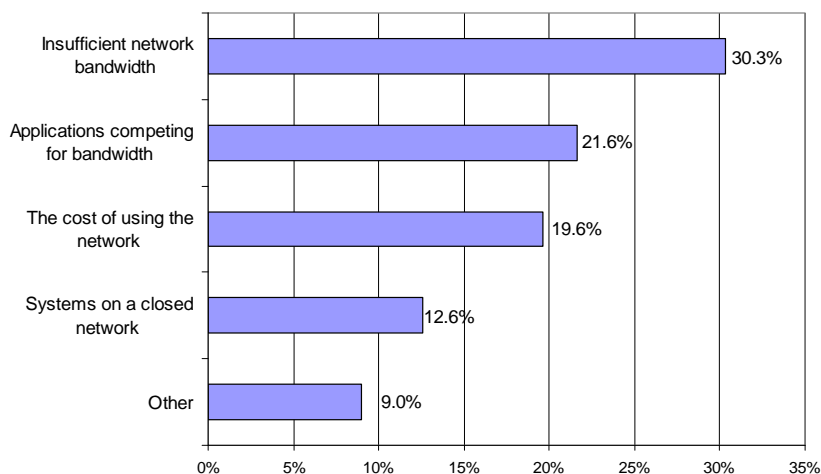


Figure 1 Network Bandwidth Concerns

1.4.5 Today's Learner

Wyoming's distance education reaches learners from all age groups. It is evident that the citizens of Wyoming value education. There is a desire by many individuals to advance their learning in pursuit of economic self-reliance. As a result, Wyoming learners feel that distance education is extremely important to the economic viability of the citizens and their communities. Overall, many learners in Wyoming appreciate the distance education opportunities afforded them and realize that their levels of educational advancement would not be possible without distance education. Many learners in Wyoming accept online, video and audio-based courses as a lifeline, and most of those learners joining the variety of post-secondary distance education programs and the K-12 virtual schools believe that these schools are addressing their unique learning styles. Today's learners in Wyoming participate in distance education first and foremost as a necessity to complete their education. A secondary emerging use of distance education is based on convenience and learner preference – people seek a flexible solution for course work within the convenience of their lifestyle and environment.

The survey conducted for this project (see Figure 26 in Appendix III) determined that the ability to work more independently (noted by 74.5% of respondents) and taking courses they could not otherwise have taken (noted by 66.8% of respondents) are what learners have liked most about their distance education classes. About half of the respondents (52.3%) indicate it helped them get their degrees, and almost half

(47.4%) also feel the technology was useful and effective. The reverse of this, however, is telling: more than half do not particularly feel that the technology was useful and effective, primarily because some individuals have had negative experiences with out-moded or inadequate technologies.

While community colleges and the university as a whole in Wyoming are seeing substantial growth in the numbers of learners participating in distance education programs, K-12 institutions are in transition. K-12 is in the middle of a transformation process that requires a shift to online learning. The drivers and applications for online learning are somewhat different than the original drivers for videoconferencing-based learning. And thus, the transition to more robust online learning will take multiple years to accomplish.¹

As the distance education network advances throughout Wyoming it is important to note that learner expectations grow exponentially. Learners today in Wyoming are looking for seamless access to courses that meet their needs, as well as delivery of quality programming on today's technology.

1.4.6 Culture of Travel

Wyoming – more than many other states – has a strong culture of travel. It's as if the long winters and general isolation – and the populace's general sociability – lead people to desire face-to-face contact whenever it is possible. This does create great opportunities for distance education and IP-based communications, however, as many respondents expressed the desire to travel less. According to one respondent, "it's not unusual to drive three hours for a one-hour meeting, and then return the same day."

State agencies in particular appear to have paid insufficient attention to the best ways to shift non-essential travel to electronic meetings. While training is only one application that can draw on use of IP-based communications, the culture of travel embedded in state agencies will need to evolve before the state can begin to save financially and improve productivity. One state agency we interviewed reduced the cost of an annual training session from \$70,000 to \$8,000 by not bringing several hundred employees to Cheyenne, and instead using electronic means to meet. While not all meetings should be eliminated, wise use of IP-based communications can lead to similar cost savings (complemented with productivity gains and reduced carbon footprint) at many agencies.

1.4.7 Accessibility to Funding and Equitable Opportunities

The Hathaway Scholarship Program and its Success Curriculum have done much to encourage K-12 learners to excel as a means of funding their postsecondary education. An unintended consequence, however, is that some educators and parents fear Advanced Placement courses and distance education if such programs might threaten learner chances for Hathaway merit-based grants. (The fear is that such courses may not be recognized as legitimate modes of meeting Success Curriculum requirements.)

The expense of distance education was not mentioned as a particular barrier in many survey verbatim comments² (9 of 385 learners who made comments mentioned affordability). But because the surveys and

¹ Survey results reflect lower-than-desirable K-12 teacher/learner responses because the survey was fielded during summer break.

² Verbatim comments are voluntary, open-ended remarks made in response to a handful of questions at the end of the survey. They offer a "top-of-mind" perspective of what respondents are thinking, and are most valuable in making rank

interviews primarily were conducted with individuals already involved in distance education, we cannot state with any certainty that funding is not an issue for those not served.

Access to equitable opportunities (degree programs or non-credit courses) appears to be an issue, however.³ Access to a broader range of courses is the most mentioned request in the survey's learner verbatim comments (129 of 385); more degree programs not offered today (48 of 385); varied/extended hours of course availability and more classroom video-based courses (each 35 of 385); and more web/online courses (25 of 385) follow as major concerns. Individuals in focus groups complain that many post secondary schools require them to be in a degree program when all they desire are individual courses to supplement their professional development and advanced degrees, and that the availability of distance education in the state is inconsistent and unpredictable. More than one individual complain of needing to wait a year to take a prerequisite course required by UW but not offered in a given semester, thus being forced to "delay" their educational progress.

Among the community colleges, some discrepancies in funding for distance education exist that may impact learners by region. The Wyoming Community College Commission (WCCC) is responsible for the equitable distribution of funds for distance education and instruction at the community college levels. This distribution, calculated on a formula for instruction and students, is where the WCCC oversight concludes. Each community college may use these funds toward its own ends, thus in some cases the distance education programs may see the funds and in other cases the funding may go toward technology support or other activities. This varied use of the distribution has contributed to some of the disparities in offerings that appear to exist among the community colleges, in turn impacting learners as well as the institutions themselves.

Adult learners in particular expressed the desire for a Hathaway-like program for those who wish to return to postsecondary education. See the discussion of business and community leaders later in this section for further discussion of equity and access issues.

1.4.8 Rural Community Needs

Wyoming has been described as "a small town with long streets." These long streets reach at their endpoints many very rural, remote neighborhoods and communities. At times the isolation factor felt in these remote locations is great, but distance education technologies have brought educational opportunities to the citizens. However, a feeling of inequity continues to exist among many in rural communities, partly based on lack of high bandwidth connectivity and their distance from other communities. This can manifest itself in a sense of isolation and missed economic and educational opportunities and make them less likely to remain in the state. Business leaders feel their children are not able to access advanced program opportunities within the K-12 institutions and they desire shared program opportunities across rural communities for their business and service sectors.

comparisons and understanding the relative importance of respondent statements. They are less reliable as statistical gauges of attitudes because they are voluntary.

³ Access to non-credit programs may become an even bigger issue with the recent closure of the UW Center for Conferences and Continuing Education (CCCE).

1.4.9 Issues with Today's Distance Education

Interviews, focus groups, the inventory, and survey data all point to the existence of a robust offering of distance education course work throughout the state of Wyoming. It is clear that distance education has been a priority for the state and its learners. Multiple networks support the exchange and interchange of instruction throughout the state. Wyoming offers far more opportunities than many states and clearly prioritizes distance education as a vital component of its community.

Despite the success and popularity of distance education, there still exists a contingency of educators that do not believe distance education is an effective instructional modality, digging in and holding to traditional on-site classroom preferences. This is in part due to lack of sufficient training resources designed to meet the growing demand for distance education delivery. This varies by segment and applies to some community college and K-12 instructors, primarily. Some of these educators receive little incentive to teach via distance education and in some cases many see it as a burden and extra work for the instructor.

1.4.10 Lack of Information and Communications

The seven Wyoming community colleges communicate their programs to learners through the WyDEC WyCLASS online portal. The University of Wyoming partners with the WyDEC to inform learners of its offerings, as well as listing its offerings through the University and Outreach channels. Telehealth supports a website communicating their mission and early offerings. The Wyoming Department of Education is in the embryonic stages of designing and supporting the Wyoming Education Fusion website to communicate program offerings to K-12 institutions of learning throughout the state. State agencies are communicating their programs through a variety of access points, each reaching a few of their constituents.

Despite these valiant efforts, a consistent message resonated throughout the state. Several respondents made statements like the following: "We need a portal that clearly defines all offerings state wide and a list of accessible videoconferencing endpoints state wide."

Rural communities expressed this frequently, particularly at the business and community service level. Many folks throughout the state do not know what others are doing, thus redundant offerings appear particularly on the community front. Bankers, real estate brokers, police departments, business leaders, mayors, and small town leadership desire a common location to view and access available programs, support, and an understanding of what is credible among distance education trainings and programs. Survey results for the state indicate that lack of awareness and possibilities for programming rank as one of the highest challenges for Wyoming's learners (Figure 2).

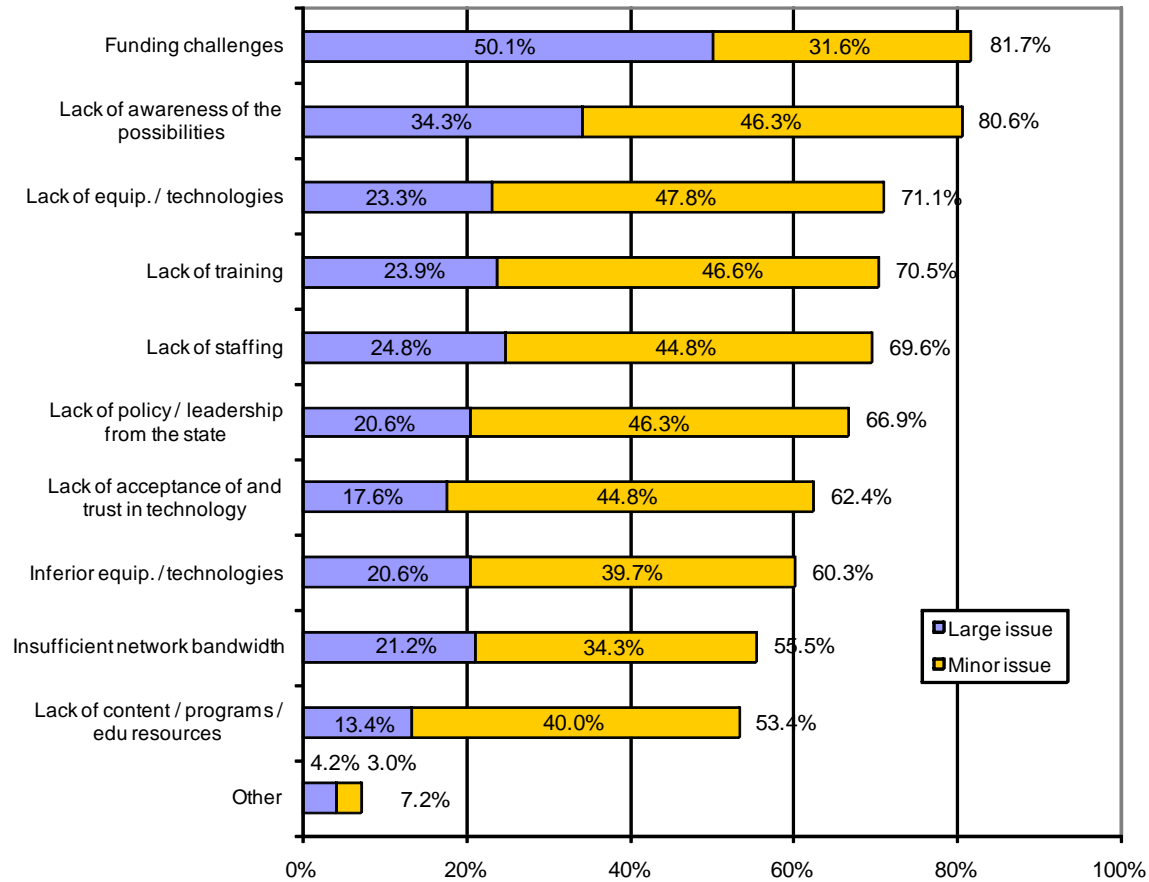


Figure 2 Obstacles to Distance Education as Perceived by Educators and Administrators

1.4.11 Partnerships Between Organizations

Though respondents like to state that cooperation between organizations appears to not exist or be minimal, we point out that this is not necessarily an accurate perception. In fact, we find a high level of cooperation and sets of interactions taking place:

- UW and community colleges (WyDEC)
- Community colleges, UW, and WDE
- WDE and community colleges
- City/county governments, local businesses, and UW
- Local businesses and community colleges
- State agencies and local businesses

Part of the misperception, however, arises from two factors. First, a lack of communication means people are unaware of the amount of activity taking place. Put simply, Wyomingites are doing exceptional things – often the result of partnerships – but people are unaware of it. Second, the sheer quantity of regional and statewide consortia, committees, partnerships – many often created as a result of addressing a local need

when the state is not taking a coordinating role and many *ad hoc* in nature – results in efforts that are duplicative or at cross purposes.

Creating common course numbering was an effective step forward in bringing together the community colleges and UW. Central Wyoming College, with the help of its fellow community colleges and UW as a part of the Wyoming Distance Education Consortium, took the lead in establishing the highly successful WyCLASS online course registration portal. This approach offers a model for delivering program information that could be emulated by the WDE and state agencies.

But partnerships between non-credit or personal enrichment providers have been harder to achieve. An effort complementary to WyDEC has been established among UW, the Wyoming Community College Commission, UW Cooperative Extension, BOCES, and others, called the Building Partnerships program. This effort is still in its early stages and could grow to be a model if properly resourced over time. As one respondent stated, “we have a lot of in-migration and out-migration, returning veterans with issues and disabilities, increasing ethnic and racial diversity. Wyoming is ahead of many states in dealing with these issues but we need more concrete structures, and concrete support for collaboration.” It was clear from interviews with providers and consumers of *adult-learner* distance education that the same type of resource made available by WyCLASS is highly desirable for adult learners seeking non-credit courses or offerings other than those available through the WyCLASS portal. The impact on communities throughout Wyoming would be profound. Yet access to non-credit programs may become an even bigger issue with the recent closure of the UW Center for Conferences and Continuing Education (CCCE).

1.4.12 Distance Education Advocates

1.4.12.1 UW and Community Colleges

Distance education advocates (referred to by UW as Outreach Academic Coordinators) are placed strategically throughout the state by the University of Wyoming Outreach School. These advocates represent the face of the University of Wyoming in their regions. Their primary role as distance learning advocates is to support regional learners in accessing necessary content and programs to complete their degrees and lifelong learning needs. Perhaps because of their isolation and independent roles, most advocates we interviewed find themselves adding additional functions to their workload, including marketing of programs, counseling students regarding course work, student registration, class scheduling, occasional instructional support, and other daily tasks.

Interviews with eight UW distance education advocates located throughout the state revealed excellent communication and partnerships with local community colleges. Synergies between UW Outreach distance education advocates, regional community colleges, and community members highlighted working partnerships in the delivery of course work for Wyoming citizenry.

Challenges exist for the UW distance education advocates. At a personal level, the majority of them feel they lack training in the most current technologies. Comments shared during interviews highlighted audio class practices that may need to be updated, and course sharing of tapes and video material that is outdated both technologically as well as instructionally. Advocates voice a strong desire for access to training and professional development in use of current distance education technologies and instructional methodologies.

At least half of the UW distance education advocates are experiencing space and location issues. While many of their shared locations are spacious and lack scheduling issues, others complain that their locations are always on the move and their spaces are small and often cramped or less than ideal.

Community college advocates residing in some of the more rural regions of the state often must deal with bandwidth issues as a result of current configuration of regional network routing. They are concerned that the citizens they are attempting to support are not able to receive new technology opportunities that may emerge in instruction, such as access to streaming video. In some cases these advocates are working very closely with their regional community leaders to develop new community center locations for distance education opportunities. In other cases, local business or service organizations were unaware of the location of the outreach site and its availability.

While UW and the community colleges have developed and strengthened their distance education advocate positions to some extent, it is apparent that there is room for growth.

1.4.12.2 WDE Advocates

At the WDE, Cheyenne-based staff members are serving in the role of distance education advocates – though some we interviewed suggest that the virtual schools also are fulfilling this role in their particular regions. A clear need exists for coordinators or advocates to represent K-12 students *and the WDE and its mission* and to be placed in distributed locations throughout the state (as opposed to being Cheyenne-based). The physical presence of an advocate in a resident district statewide is part of what has been shown nationally to be an exemplary method of driving adoption of distance education throughout the state, and is a model followed in states with large quantities of K-12 distance education, e.g., Kansas, New York, Michigan, Arkansas, Texas, and Indiana. Not using sufficient numbers of advocates (along with lacking programmatic content) was one of the contributing factors that led the 300-endpoint Georgia GSAMS statewide network to atrophy and literally die out within a 10 year period.

Three examples of leading statewide networks that illustrate the value of distance education advocates are:

- Arkansas provides 16 regional distance learning coordinators who work out of educational service centers, coordinated by 1 statewide coordinator from the Department of Education. These coordinators work with regional schools to determine needs and share opportunities for the students. In 2005 there were approximately 3000 students enrolled in distance classes. As of spring 2009, that number had grown to over 14,000 students. The regional distance learning coordinators are credited with being a big part of this growth.
- Texas has 20 regional service centers utilizing the support of the Texas Education Telecommunications Network (TETN), which facilitates communications among educational entities throughout Texas to improve student performance and increase efficiencies of educational operations via an effective telecommunications network. TETN membership consists of a consortium of the service centers and the Texas Education Agency, and each pays annual membership fees to the TETN. In return they receive equipment (purchased and owned by the TETN), bandwidth and support for H.320 and H.323 point-to-point and multi-point videoconferences, IP data transport services, and special project support. Distance education advocates are located at most, but not all of the service centers. And in 2008 11,000 learners in

Texas participated in dual credit courses delivered from community colleges via videoconferencing.

- New York has 37 Regional BOCES (Boards of Cooperative Educational Services) distributed throughout the state. The BOCES are responsible for supporting their regional school districts. BOCES adopting videoconferencing within their school districts place supporting coordinators within the BOCES to oversee the school implementations. This type of arrangement allows each BOCES to monitor and implement programs to meet specific goals and requirements of their region, while championing distance education.

The reason distributed advocates are important is that they are living components of a marketing plan. They help overcome ignorance about distance education that occurs in some school districts, which may be unaware of the opportunities that exist for their learners. They also help overcome the fact that some districts are reluctant to utilize distance education to fill needs, thinking it might be a sign of weakness within their school. Finally, even though the virtual schools established thus far in Wyoming can be considered somewhat effective advocates for the concept of distance education, they are being tasked with addressing resident district suspiciousness (of their motives) – something impartial WDE advocates might more easily overcome.

1.4.13 Lack of Educator Buy-in

Those responsible for program delivery are fairly unanimous in stating that not enough educators are available to deliver programs and classes via distance education. The successful programs have classes filling and find it difficult to add classes without extensive preparation; all programs struggle to find qualified teachers willing to teach online or through other distance technologies. The 4th top verbatim comment captured in the survey is the need for more student and instructor training in how to use distance education technologies (30 of 183).

This is important to note because even what is considered the flagship for distance education in Wyoming, UW Outreach, is “not scalable” and hitting a “brick wall” when it comes to faculty resources. Similarly, some community colleges have instructional designers on staff, as does UW, but a number of community colleges do not. This appears to be affecting the quality of online and videoconferencing course programs, where some complaints were lodged that not all instructors are effective at transferring their traditional brick-and-mortar content to a distance delivered class.

This also is behind the WDE's desire for a staged, phased-in approach to promoting the virtual school concept. The WDE faces a number of challenges in working with school districts on this topic as well as WEN-based videoconferencing, not the least of which is the lack of consistent bell schedules and the over-arching belief in local control. As a result, the WDE believes that phasing in a self-selecting set of virtual schools over time and creating the logistical infrastructure for supporting these schools via the Wyoming Switchboard Network will allow for organic, gradual growth in a climate not necessarily receptive to the concept of a “statewide 49th school district.” The WDE admits that it is in the very early stages of delivering on the needs for virtual schools and distance education.

Yet because of the WDE's cautious approach, its ability to lead, convert, or champion distance education is hampered, and K-12 appears to be missing out on the classroom enrichment opportunities offered by

distance education. As a WDE administrator says, "Being cautious ensures quality programs and helps us in the future to provide a good foundation to 'lead, convert, and champion' distance education."

In the various charts contained in the survey results are subtle data points: curriculum enrichment tends to be cited as less important than courses or degree programs. We recognize the value of the WDE's attitude towards quality but believe that greater marketing and outreach would go far to increase uptake of distance education in K-12.

1.4.14 Shortage of Qualified Instructional Designers

Related to the shortage of qualified distance education educators is a shortage of qualified instructional designers. Availability of instructional designers is crucial to successful program building, yet as described earlier, several community colleges lack instructional designers. Others, and UW, indicate those they have on staff are fully booked and limited in ability to help them scale their programs. This in turn contributes to the limited ability to convert traditional instructors to distance education instructors.

1.5 Findings by Stakeholder

1.5.1 Community Colleges

Wide disparity exists between distance education enrollments, offerings, programs, and sustainability at the community college level and communications among the seven schools has admittedly "been a challenge." The disparities are reflected in inventory and anecdotal discussion:

- Western Wyoming Community College (WWCC), with 11 outreach sites (13 by 2010) offers seven degree programs and three certificate programs online and 25% of its full-time equivalencies (FTEs) are online only; 35% of full-time learners are distance (via outreach centers combined with online learners). WWCC has been providing online learning since 2001 and has grown its program slowly and carefully. Yet the school continues to struggle to find enough qualified instructors.
- Central Wyoming College (CWC) hosts the WyCLASS portal and has created a high speed broadband network in the area between Teton, Hot Springs, and Fremont counties using a combination of microwave and fiber technologies. CWC has a successful nursing program in Jackson that uses videoconferencing, and has successfully influenced all faculty members to use some sort of distance education – even if only a course management system – in all of their teaching strategies. Some 70% of their distance education learners also take some courses on-campus, and the school credits itself on how it has structured courses to be flexibly offered and easily scheduled by learners.
- Casper College (CC) has 15% of its 3300 students classified as distance education learners, and is experiencing about 10% growth organically, even while lacking a distance education Director. This role reportedly was filled during the preparation of this consultant report.
- Laramie County Community College (LCCC) requires a full application from any learner and recently functioned without a full-time distance education director for over a year. The responsibility for distance education activities were placed with the Dean, Health Sciences and Wellness in July 2009, who reportedly intends to hire a full time director someone during the 2009-2010 academic

year. Though LCCC has a robust program with the greatest number of distance education learner enrollments 2008-2009 (see Figure 33), the challenge for LCCC is in securing qualified instructors. Gaining support from many of its on-site faculty is also reportedly a challenge.

- Northern Wyoming Community College (Sheridan and Gillette Colleges) lacks any actual online degree programs and is currently working with the Higher Learning Commission to become approved to offer degree programs at a distance. Its distance education director has been in place for a year, and is in the process of ramping up its offerings (from 33-34 online courses fall 2008 to 89 fully online courses scheduled for fall 2009).
- Northwest College (NW) reports that its fastest enrollment growth is coming from distance education learners, but is concerned that lack of time and resources for instructors has limited institutional acceptance of distance education. As one respondent stated, “instructors do not have the time to create distance education programs with their existing workloads; students complain there are too few degree options online, and state funding decreases have caused problems.” So even a relatively successful program at Northwest College – which claims to be the WEN’s largest user by number of hours – appears to still lack a programmatic structure for solid growth that would meet demand.
- Eastern Wyoming College (EWC) appears to have some outreach taking place but reports needing funding, bandwidth, best practices, and “marketing support.” Eastern has a unique challenge with connectivity. Interviews unanimously pointed out the lack of stable connectivity and bandwidth. In addition, capacity and space issues exist between the partner Eastern Wyoming College and the University of Wyoming Outreach program.

Wide disparity is shown in how best practices are in play in some locations, but not all. There are business model implications. Some community colleges reduce teaching load, provide instructional designers, compensate instructors for teaching online, and strictly limit class size. Others simply do not have those resources or programs in place, and their programs remain relatively static as a result. Some are strong at building partnerships with K-12 constituents regarding dual credit registrations; others are not.

As one distance education director said, (my) “‘pie in the sky’ type request for distance education in Wyoming would be a statewide consortium similar to Michigan Virtual Learning Collaborative from the Michigan Community College Association. An organization that provided manpower and organizational support to help the colleges’ online courses to better benefit the students (would be ideal).” Another individual said “WyCLASS needed \$15,000 and it took us 18 months. The next step would be to have common course registration. With some funding we could write a common interface, tie the college data together into our respective Student Information Services systems. Yet funding from the Community College Commission is going away.”

Because it was discussed by more than one Wyoming educator as an effective role model for governance and programming, the consultant team interviewed the Michigan Community College Virtual Learning Collaborative (MCCVLC). This group is funded through membership dues from all 28 community colleges, based on enrollment numbers. About \$160,000 to \$170,000 is budgeted annually from dues, and enrollment dollars are shared and distributed based on 70% to the host (providing) community college, 20% to the resident community college, and 10% to the MMCVLC. Current governance consists

of a President and trustee member from each of the 28 community colleges, with a 7-member elected executive Board of Directors. Distance learning directors at each of the community colleges comprise an advisory council.

Some also indicated they would welcome IT services from the state as a means of driving further collaboration and improving on relatively “thin” technology infrastructure. “We need a segment of quick and dirty training, plus multimedia and instructional designers. Innovation dollars go away with no goals or partnerships to define. We're not identical community colleges, we're all unique.” Yet distance education is not easy to deliver, requires its own set of capital expenditures and ongoing expenses, and requires additional support.

The community colleges provide a tremendous resource to the state. Many of the administrators and educators with whom we spoke value the differences among the schools – feeling that each one serves its regional constituents well, and fearing that too much control from the state (even in the form of central investment in infrastructure and coordination of tools) would undermine their autonomy and ability to meet their organizational and learner needs. Thus there is a tension in what we heard from them: they want support and incentives, without what they perceive as punitive behavior. For example, they fear control that over-directs them to eliminate what on the outside appear to be redundant courses (e.g., general education courses), but which may be valid offerings because they get filled up anyway.

Similarly, the community colleges universally fear that with state services might come state mandates, e.g., a single course management system. Much work has already been put into Moodle, Blackboard, eCollege, ANGEL Learning, and other CMS deployments. The more successful community colleges believe that WyDEC was successful because there was no bureaucracy, and that it was built bottom up instead of top down. These schools fear that the state typically mandates “the cheapest,” solution, not the best, and argues that as a result they would never accept a “common platform” mandated by the state. Though no one expresses the desire for a common course management system and we do not recommend such an effort, several other colleges nonetheless are eager for as much state support as could be made available. Some are concerned that the WyDEC is only as good as the local college's willingness to populate and update the portal. Some leaders in the community college effort feel that the *ad hoc* approach definitely led to a great process, but that without leadership, efforts will begin to wane, as indicated by anecdotal reports of lower participation in recent WyDEC conferences.

1.5.2 Wyoming Department of Education and K-12

The Distance Education group within the Department of Education faces a difficult position: distance education is a subset of an agency tasked with serving all Wyoming K-12 schools and learners, and its mission to support distance education is hamstrung by an inability to always gain acceptance from some local stakeholders who prefer to go their own way. This results in a cautious, paced approach on the part of the WDE to introducing virtual schools. The agency demonstrates a willingness to tackle tough issues and would address distance education more aggressively were it more fully resourced and had greater marketing resources.

The WDE gets respectful marks from those *already* involved in the virtual school movement, many of whom have been working with the WDE to further online education in K-12 (though they believe more can be done by the WDE). As one respondent put it, “The WDE staff members working with the distance

education program demonstrate a strong commitment to delivering a high-quality online learning program to Wyoming students. While maintaining high standards, they also provide support and direction in meeting those standards. Their work is accurate, consistent and focused.”

At a local level, many school districts and community colleges – which have a vested interest in topics like dual credit, concurrent enrollment, and Advanced Placement courses – express concern that the WDE is never left alone by the Legislature to maintain a consistent offering. For instance, one community college respondent said the “WDE created dual enrollment but didn't ask what people are doing. In the past the Legislature paid \$500 per dual enrollment student. We have 1-1 contact via outreach sites and conduct online classes in computer labs. We then reimburse. They had to pay for college class. The Legislature took these dollars away and school districts then had to pay it back ... though some districts then said they could not pay it.“ This respondent is remarking on the fact that the Distance Learning Initiative (DLI) \$500 grants program (which used a simple per-student formula) was replaced by the Legislature in 2008 with a bloc grants program – the Distance Education Grants. Dual credit courses delivered by community colleges now permits them to receive somewhat less than the full \$500 originally awarded to them.

One virtual school proponent cites three areas of concern related to distance learning programs, as he describes below:

1. “Funding – Superintendents want to be able to see where the funding generated by students enrolled in online programs is included in the district funding.”
2. “State test accountability – Superintendents are concerned that the PAWS results for students enrolled in online programs are attached to the local district, not the program provider. This relates to both Adequate Yearly Progress (No Child Left Behind requirements) and drop-out rates.” Put differently, PAWS testing impacts the resident district even when they may have minimal contact with the distance learner.
3. “Body of evidence graduation requirement – If the student enrolls with an MOU, the student must still satisfy the local Body of Evidence requirements. Problems meeting the assessment requirements are unique for each district.”

The respondent making the statements above is attached to a virtual school and indicates he is running into these concerns in the course of playing an advocacy role for his school.

Related to these issues are two areas we find in which K-12 educators may misunderstand or suffer from confusion surrounding some of the WDE's policies related to distance education, one relating to the MOU process and the other relating to grants and funding.

1.5.2.1 MOU Agreements

The WDE has created a process for Memorandum of Understanding (MOU) agreements between host (virtual school) and resident (where learner resides) districts that relies on partnerships and inter-district negotiation. The intent of the MOU process is to help resident and non-resident districts reach an understanding of responsibilities involving funding and tracking pertinent to each learner's distance education program. The recommended process and minimal guidelines and requirements are outlined in the Wyoming Switchboard Network Resident District Handbook. Yet because the entire virtual school

concept is so new and so few examples of MOUs exist, individual resident districts may fear that the process requires more effort than it's worth and thus then attempt to discourage local learners from enrolling in virtual schools. Related to this are concerns that negotiating a percentage split of the state's Average Daily Membership (ADM) per learner funds feels awkward to some districts. The very light hand taken by the WDE is designed to encourage autonomy – but the net result is that resident districts may be reluctant to promote distance education if they believe they will lose ADM funds and have to work to enable individual learner involvement in distance education.

1.5.2.2 Grants and Funding

A \$500 (per learner) Distance Learning Incentive (DLI) – which the 2007 State Distance Education Task Force recommended be increased to \$850 or more – was replaced by the Legislature in 2008 by a pool of funds for Distance Education Grants (DEGs). The DEG is a bloc grant approach providing \$250,000 annually to primary, secondary, and post secondary educators for development and sustainability of distance education. The original DLI stipends were earmarked to encourage host districts to create distance education content that might be delivered to remote learners, and were considered by educators simple to administer because they related to individual learners. The DEG, however, appears to result in potentially relatively smaller sums of support, and some K-12 educators are ignoring the DEG because it appears to them to be far more trouble than applying for U.S. RUS grants. Dual credit courses delivered by community colleges now permits them to receive somewhat less than the full \$500 originally awarded to them – another reason they express some dissatisfaction with funding formulae. This consultant team had some difficulty interpreting the amounts available through the DEG program and believes the WDE should consider additional marketing and clarification of the program specifics.

Besides MOU and funding issues, other concerns exist. Though most local (resident) school district administrators are reportedly aware of the growing options for online learning, some resident districts feel resistance or a lack of appreciation of the value of distance education. This is not the fault of the WDE, but instead, a natural byproduct of resident district ambivalence about what appears to them as a complicated process that will cause them to “lose” their learners.

This fear was echoed across the state in focus groups and interviews with K-12 educators. Districts with many small schools reportedly fear partnering with other districts due to a belief that this will lead to a perception that the smaller schools are not valid entities unto themselves and might be closed down. Ironically, distance education might provide a lifeline to small schools were they able to begin to share their teacher expertise remotely.

Other *perceptions* among some are that the Wyoming Switchboard Network concept – a Legislatively-mandated offshoot of the 2007 Distance Education Task Force (DETF) plan – and dual enrollment policies were created to support private industry (e.g., K-12.com) instead of public schools. The DETF and the grant program to support it were designed to support the development of supplemental courses. Monetary supports from the DEG allocations are prioritized to assist in the course development and professional development of distance education programs. The perception – and how it does not necessarily map to the actual intent of the WSN – reflects a marketing and clarity issue at its heart.

The WDE faces major communications issues among its stakeholders, notwithstanding valiant efforts via the Fusion Community Pages, WEN video efforts, Wyoming Switchboard Handbook, and the like. At the same time it is challenged to reach all of its stakeholders with the value proposition of distance education,

as well as the carrots that could lead schools throughout the state to embrace distance education more willingly. While it has made an excellent first start in these efforts, more can be done from a programmatic fashion were the organization better resourced or current resources reallocated to support distance education.

The WEN intrastate video network (referred to as WEN) is the object of widely varying perspectives. People generally agree that the WEN served a great purpose upon its creation and in its early days. But the perception exists that the WEN video component is now under-resourced for a K-12 focus; that placing endpoints at high schools (and limiting placement to high schools) limits its flexibility and availability, and that some principals do not care to take advantage of its capabilities (often resenting the need to share space with what is perceived as an “external” resource). Agreement varies concerning the reliability of the network and its ability to handle future needs as demands on it grow. Many agree that the WEN video team’s priority is to support K-12 educational needs; however, the perception exists that some K-12 students are underserved throughout the state. In addition, full availability of WEN resources to communities and non-educational users seems to be missing.

1.5.3 University of Wyoming

UW reflects the centrality of outreach throughout the state to the University’s mission, and as much as any organization we interviewed, distance education is embedded in the University’s DNA. The University takes a very planning approach to distance education, reflected in its dozens of degree programs and courses available online – including 11 master’s degree programs offered at a distance. The University uses eCollege to host on-line programs and content, and eCompanion for other course shell supplements.

We heard concerns from some learners throughout the state that they believe UW charges more for Outreach classes. In fact, some delivery fees for outreach courses (\$15/credit hour for non-online courses and \$40/credit hour – which goes directly to eCollege – for online courses) are charged, but at the same time the University does not charge Outreach students other standard local UW student fees, e.g., health, athletics, student union, etc. Currently approximately 21% of UW Outreach graduate and undergraduate credit hours are delivered to non-resident, out-of-state learners; 76.4% are delivered to resident, in-state learners, and 2.63% to “special residency learners.” The university is considering raising Outreach out-of-state tuition by 50%, which would generate an additional sum of approximately \$414,000 annually.

The University is seeking ways to address challenges, e.g., how to adapt to rapidly evolving college-age learners with high expectations for technology, as well as an (often) older learner population reached through the Outreach School. In particular the Outreach School continues to search for strategies and methods to evolve from the “brick-and-click” classroom model of blended technologies to an even more robust set of outreach offerings, even though it already offers far more credit hours online (10,097 spring 2009) than via videoconferencing (1,205), audio conferencing (1,407), or other purely real-time methods. One administrator said, “educators need to recognize that how people do learn varies, and how do we break out of classroom model ... the Internet has changed the role of higher education. We as a university are not keeping up with the technology.” As someone else stated, “Students are living through the Internet and handhelds. They sample course content in a smorgasbord fashion, locally, remotely, 24 x 7, in a 365/anywhere, anytime culture.” This presents its challenges to instructors accustomed to focusing on content and their own instructional styles.

Some concerns have been expressed that UW Outreach could take more courses online, and rely less on intensive weekend sessions, which are difficult for adult learners in particular to attend.

1.5.3.1 The Challenge of Credit Programs

Student expectations also present challenges to an organization accustomed to going the extra mile (literally sending instructors out to other sites) to evolve with the times and determine the best ways to grow programs over a distance. Certain successful departments, such as Education or Nursing, struggle to identify new delivery mechanisms, knowing that they cannot grow simply based on local enrollments. And yet planning programs is a challenge: the College of Education spent three years developing an undergraduate elementary education program for learners who could not move to Laramie. Expecting 60 enrollments statewide, after two years of marketing the program has only about 20 enrollments as of fall 2009. Reportedly one reason is that some community colleges – which had expressed the need and requested this program – apparently have signed agreements with some out-of-state institutions to provide elementary education programs to their students. Whether it is a marketing issue, or a partner issue, this type of incident suggests that greater coordination between entities is in order.

Besides attempting to handle constantly evolving technologies and evolving learner expectations, faculty resources are a challenge. While demand has steadily increased, the University has not proportionately increased teaching staff in Outreach programs. This has an impact on both degree programs already offered via Outreach (where instructors understand heavy loads) and departments that do not already have programs – which then do not provide the resources necessary to meet demand. This makes it hard for UW Outreach to continue building a sustainable program – in effect, to scale.

Because 25% of its operations budget comes from the State's Section 1 funding, and 75% from tuition and fees, UW Outreach is somewhat constrained from adding faculty until it knows the need exists for that faculty – it draws upon the University's general faculty. At the same time, some state residents voiced the desire for another four-year institution, perhaps one located in the Bighorn Basin or western part of the state – specifically because they believe UW distance education is not today addressing their local needs, and despite over 30 degree and certificate programs being offered through the Outreach School. This consultant team does not recommend addition of a second four-year institution, believing that in fact distance education is a far more equitable solution to unmet needs.

1.5.3.2 The Challenge of Non-Credit Programs

A typical scenario for some departments might be the one faced by Cooperative Extension, which is housed in the College of Agriculture. This organization has field offices throughout the state – and uses some videoconferencing and has a 20-seat license to Adobe Connect. Cooperative Extension sees itself as a complementary method of promoting lifelong learning, focusing on community development, 4-H, and youth development, among other charters. Yet it is challenged by lower tech “markets” that may not have sophisticated technologies or bandwidth, and competition with environments that may already be dedicated to using WEN videoconferencing resources, not Outreach Video Network resources. Cooperative Extension desires to improve the information it makes available to the public, and enhance the expertise of its field-based staff, but needs help in achieving that goal. Meanwhile, access to non-credit programs may become an even bigger issue with the recent closure of the UW Center for Conferences and Continuing Education (CCCE).

1.5.4 State Agencies

While some agencies appear to be well-resourced for use of technologies in training, many are at the starting block and in dire need of help getting started. Some agencies have trainers accustomed to using nothing more than limited activities with videoconferencing – and are hamstrung by the culture of travel described earlier. Even agencies with outreach offices throughout the state appear limited in some circumstances by bandwidth, leadership constraints, training, and space. Other agencies – such as Game and Fish and Family Services – are not actively using any technologies for distance learning at this time. Several agencies expressed the desire for delivering training via distance education but have no knowledge of where to go for support. Recent budget cuts and hiring freezes have contributed to a sense that new initiatives are not available.

In one brand new initiative, Workforce Development has been working in concert with public and private partners to attempt an “e-Wyoming.com” initiative, a portal for all things related to education, training, and development in Wyoming. Workforce’s efforts are at an embryonic stage as of summer 2009, are not well resourced yet, and are not expected to be ready until sometime in 2010.

1.5.5 Telehealth

The telehealth network is currently working with the three large hospitals throughout the state to deliver continuing medical education (CME) credits to state nurses and doctors. Much of this programming comes from out of state, but the desire exists to build upon the talent of the state’s resources. The state of Wyoming has a critical shortage of both nurses and qualified nursing instructors. Current practices and programs run by the University of Wyoming are showing gains in qualified nurses and an ability to build the instructor pipeline, but it is the hope of both the University and members of the telehealth initiative that this network might also help address the shortages.

The plan for year two is to provide support for clinical work throughout the state, a well understood need. Clinical opportunities to mentor and work with regional nurses are desired. Local University nursing faculty could connect directly to the hospitals and locations of the clinical nurses to discuss progress with their students and the doctors and nurses overseeing their on-site work. “This would save a tremendous amount of money and meet the nurses on the clinical site in action.” Department of Health leadership expressed the need to reach patients in remote sites and to build strong connectivity within the network to allow doctors to treat and diagnose patients beyond the three major hospitals. A local legislator shared her concern that K-12 students and their families are underserved by clinical needs in their communities. “Many schools lack counselors or adequate family counseling care in some of our remote areas of the state.” Similar concerns were expressed in a small rural area of the state by a mental health director concerned that there are many underserved citizens across all of Wyoming in need of mental health services. A strong, robust telehealth network outfitted not just for today’s needs, but designed for 10 to 15 years out, would well serve the citizens of Wyoming.

A third year for the program is intended to focus on adding emergency care medicine.

Those involved in the telehealth sector are asking for “central scheduling, stable funding, adequate bandwidth – and then get out of our way.” Some concern has been voiced that funding often is inconsistent. Funding initially was earmarked for the telehealth network, then during the implementation

it was put on hold. Money is flowing again, but there is a concern that the Legislature might take it away again and that perhaps they just do not clearly understand the goals and vision of telehealth. The emergence and recent approval of a telehealth commission by the Legislature is a step in the right direction, but there is a strong need for continued stability in the funding.

1.5.6 Business and Community Leaders

Business and community leaders, including some in local government, feel that the workforce lacks access to many of the tools available to younger learners – and that this has an economic impact. Progress gets made when businesses can ask a community college or UW to offer programs that will help produce qualified workers. But several business leaders indicated they do not feel engaged in helping to define the needs of their existing and future workers. This gap is clearly visible among community members and businesses in the more rural areas of the state. Community and business leaders are keenly aware of the economic needs of their constituents and employees. These leaders desire a clearly defined articulation of available opportunities for their communities and workers, including understanding which distance education offerings are credible or accredited, and a means of posting needs or sharing resources related to distance education throughout the state.

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2 Gap Analysis

Any gap analysis must address what the state wishes to accomplish compared to where it is today, and what is missing that might help it reach its goals. We heard these desires from the various stakeholders:

- The governor wishes to address under-served learners and provide leadership and coordination.
- UW wishes to continue in its mission and address the under-served, while transitioning to newer technologies and methods of addressing learner needs.
- The seven community colleges wish to expand their distance education offerings and continue their cooperation.
- The WDE wishes to continue to provide a framework for promoting distance education amidst its many other duties
- State agencies (some) seek cost efficiencies and new ways of delivering training – and need guidance.
- Community and business leaders seek support for workforce training and economic development, while also hoping that educational opportunities will help prevent losing learners to other towns and cities.
- Citizens seek lifelong learning opportunities.

Figure 3 shows the survey responses of 357 educators, policymakers, and administrators asked to identify the major and minor obstacles in delivering distance education. Four out of five (81.7%) cite funding challenges as a large or minor issue – 50% believe it is a large issue. Lack of awareness of the possibilities is an equally high number, 80.6% – a surprising number given the prevalence of videoconferencing, online courses, and outreach efforts on the part of many involved in education. For the most part these likely are educators and trainers involved in distance education who believe that other educators and trainers are not aware of what can be done – something that was articulated in the focus groups and interviews as well.

To scale distance education for the state, we find the need for greater centralized communications, training, program development, and outreach. These are cited individually in responses concerning obstacles to delivering distance education: lack of equipment and technologies (71.1%), lack of training (70.5%), lack of staffing (69.6%), lack of policy/leadership from the state (66.8%), lack of acceptance and trust in technologies (62.4%), inferior equipment/technologies (60.3%), insufficient network bandwidth (55.5%), and lack of content, programs, and educational resources (53.4%). Another way to look at these numbers is to view only what are cited as large issues (the blue bars): half cite funding; one in three, lack of awareness; one in four, lack of equipment and/or technologies and lack of staffing; one in five lack of policy and leadership from the state, inferior equipment and technologies, and insufficient network bandwidth.

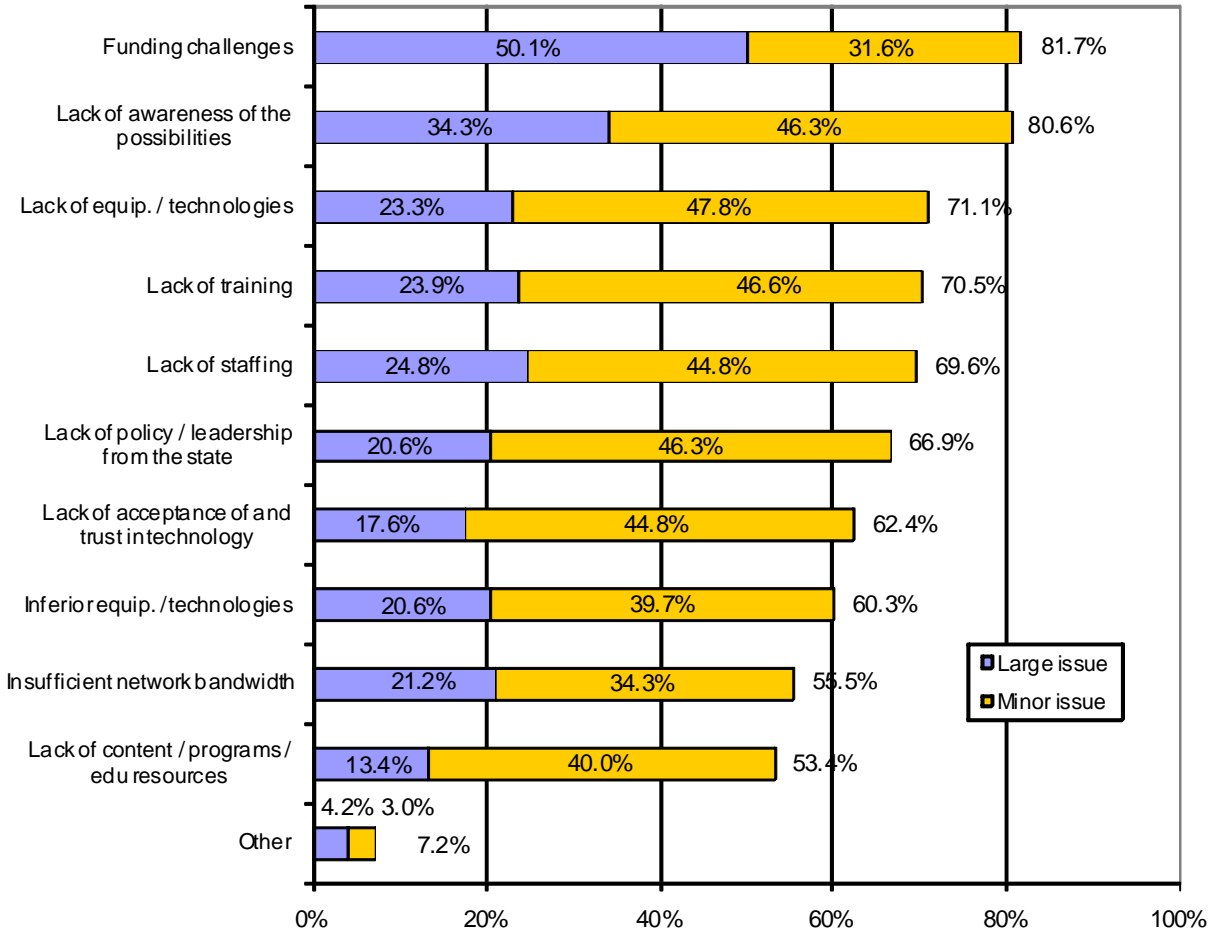


Figure 3 Obstacles in delivering Distance Education

The needs assessment, stakeholder findings, and gap analysis suggests to us that there are many addressable areas of concern, and we address these areas in the Recommendations.

3 Recommendations

The Wainhouse Research - Pine Cove Consulting - CILC team was encouraged to be bold and aggressive in our thinking, and thus offers to the state a wide range of potential initiatives, some short-term, some longer ranging, some strategic in nature, and some tactical. These recommendations are designed to help overcome many of the challenges cited by Wyomingites, in particular lack of leadership, lack of awareness of what is possible with distance education, lack of communications, lack of knowledge of best practices, and lack of staffing and training. Funding is a separate issue, and while we make some specific recommendations regarding funding, and believe that funding is indeed an issue in many instances, we recognize that grants already have been available to many schools and that money alone is not the solution to improving Wyoming's systems for distance education.

These recommendations are grouped by type of concept (leadership, funding, communications, and technologies) but may apply to or benefit different stakeholders, depending on the specific recommendation. A vision for the future – one that includes an understanding of where the state wishes to head economically, culturally, and socially – may be necessary to help the state scale its distance education efforts and make them more effective.

3.1 Leadership

3.1.1 Governor's Advisor

- **Governor's Advisor on Distance Education** – Because no single logical place for leadership exists amongst the many stakeholders – and because of the consistent calls for more leadership and coordination from the state's residents – we recommend that the governor's office create a position for an individual to lead and liaison with the various stakeholder groups throughout Wyoming. Alternate locations for generating additional leadership include the Wyoming Community College Commission, one or more of the community colleges themselves, University of Wyoming, or Workforce Commission. But we believe that placing distance education on the same axis as telehealth, energy, or economic development in the Governor's office would go a long way to ensure that the citizens of Wyoming know someone is looking after their educational interests. This individual should be not a maker of rules and reporting requirements, but a leader, facilitator, supporter, and liaison who will help the variety of distance education efforts become more visible, effective, and collaboratively integrated. This leader also could help to drive any distance education consortium that may evolve within the state. *Caveat:* Wherever this position or role is located, it must be in a stable environment, and not directly subject to political changes. The position must also be funded for the long term via Legislative mandate.

3.1.2 Center(s) of Excellence and Services

- **Center of Excellence for Distance Education or Digital Education** – Establish at UW (or one or more of the community colleges) one or more groups chartered with becoming the locus for education, training, best practices, technology trials, and pedagogical research. Such an organization could address the needs expressed by many at the community colleges and in UW Outreach for better technical and educational support. It could be the breeding ground for new programs and new

methods of using technology to support learners. Such centers are not uncommon in states like Pennsylvania, Texas, Indiana, California, and Massachusetts – and they often become the hub for educational innovation and leadership. Such centers also could be designed to be components of a state-funded consortium that would include representatives from the WDE, WCCC, University, seven community colleges, and others. Yet they also should be “matrixed” or otherwise carefully linked to the Governor’s advisor, because high-level advocacy must be connected to the knowledge of best practices. And they could leverage the distance education advocates that exist at all levels of education throughout Wyoming.

- **Technology Service Center(s)** – Via the state, provide purchasing and technology services for a variety of technologies related to distance education. Such organizations have been commonly found in virtually every large or well-populated state in the country. Sometimes they focus only on educational users, sometimes on state agencies, and sometimes on both constituencies. Such a service center could offer “consulting services” via a team designed to help those trying to get a start on distance education, helping them match technologies to goals.

3.1.3 Technology Competency Targets, Requisite Distance Education

- **Technology Competency Targets, Requisite Distance Education Courses for High School** – Because Wyoming wishes to create and retain lifelong learners, while also scaling the concept and practice of distance education, we recommend creating technology competency targets for high school graduates. Such targets should relate to computer literacy, software applications, productivity tools, and/or specialized work-related applications (CAD/CAM, programming, etc.) A component or related approach would be to require a one-credit, online distance education course to be taken by every graduating high school senior. Such a goal would need to be phased in over a multi-year period by the WDE, as some combination of high school technology instructors and college-level instructors would be required to support such a massive effort. Special treatment would need to be provided to ensure that all learners have access to the tools and bandwidth necessary to actually take such courses. The value of technology competency education and testing is an issue of significant debate throughout the U.S. but has been gaining currency in recent years. While the No Child Left Behind (NCLB) Title II, Part D rules mandate eighth grade technology literacy standards testing, the idea behind targeting distance education for all high school graduates is that this experience will better prepare these learners to later access lifelong learning opportunities via distance education.
- **Distance Education Technology Competency Training for Education Majors** – One way to begin the process of creating a cultural shift is to ensure that graduates entering the workforce with education degrees have their own understanding of the applicability of distance education technology in the teaching and learning experience. As much as schools of education are open to use of technology, they may not be ensuring that their education majors are receiving technology competency training. Formalizing offerings could go a long way to ensure that new educators enter the workforce prepared to spend some time delivering or participating in distance education for their learners.
- **High School Teacher Mandate for Distance Education** – Many high school teachers are ignorant about the benefits of distance education and have little incentive to encourage them to learn about it. This is particularly true of older teachers who have found success in their own ways, but who could

be more than competent online instructors with some assistance (instructional designers) and carrots or sticks. Any mandate that they take a modular online course for professional development, as an example, should match subject matter and teaching style with the appropriate distance delivery medium.

3.1.4 State Agency Culture Shift

- **Mandated Change Combined with Distance Education Introduction** – It has become standard practice in the corporate world that individuals must justify travel or use electronic means of holding meetings. The Legislature and Governor easily could foment change among state agencies through travel budget reduction accompanied by programmatic introduction of distance education technologies. State policy should *only* be modified, however, in tandem with deployment of proper infrastructure and technologies for supporting electronic meetings *and* distance education. Such an approach cannot be heavy handed, however, as it will backfire if not offered as a tool that adds to productivity. Technologies that should be investigated include web conferencing, web casting, video on demand, and videoconferencing. The technologies should be introduced in concert with the concepts discussed elsewhere concerning state services and e-Wyoming.org. And these technologies will also contribute to reduction in carbon footprints, expressed to us by some Wyomingites as a concern.

3.1.5 Better Resource WEN Video Network

- The WEN Video Network is under-resourced and cannot scale as demand increases, contributing to haves and have nots: its customers who are successful get rewarded with happy learners and teachers, additional T-1 lines, etc. Those unsuccessful simply stop accessing it or seek alternatives. The WEN is in a challenging spot, as some bandwidth issues are beyond its control. It can only deliver its services to locations that are capable of receiving those services in a robust fashion. Thus we place this recommendation in “Leadership,” though it has implications and is affected by many other recommendations: the WEN can only begin to scale through two factors: 1) additional staff and services designed to take it to the next level, and 2) additional bandwidth to all towns throughout Wyoming. Better resourcing WEN Video must include determining where it is under-utilized and promoting increased uses at those locations, along with addressing chokepoints and locations where it is under-resourced (based on PlanNet’s recommendations).

3.1.6 Better Bandwidth Throughout the State

- Our hope is that the videoconferencing consultants engaged by the Task Force have identified specific bandwidth gaps and suggested means for the state to overcome those gaps. We believe that without fiber networks and true last mile delivery, the state will remain static in its delivery of distance education. See Section 4.2.3, which discusses broadband funding opportunities currently available from the U.S. Department of Commerce and Department of Agriculture.

3.2 Funding

3.2.1 Fund Outreach, Fund Distance Education

Without outreach, distance education tends to lag, as outreach provides the marketing and support necessary for successful distance education. UW and community colleges that do have outreach offices offer a model for how to approach increasing the reach of distance education in Wyoming, as most of these offices spearhead efforts to identify and support remote learners.

- **Outreach Positions for the WDE** – UW and community colleges feel that their entry learners lack the technology skills and in some cases basic educational competency – and that often they are required to deliver remedial work to bring their learners up to speed. While this is a complaint every generation of postsecondary educators tends to make about its latest crop of learners, it is clear that primary and secondary learners may not be getting the experience with technology – or how to be online learners – necessary for successful completion of their postsecondary educational programs. We believe that funding WDE (or encouraging it to reallocate internal resources) to create outreach positions throughout the state – individuals to be a combination of distance education advocates, learner supporters, and coordinators between different entities – would go a long way in helping K-12 to speed adoption. This outreach would simply emulate the same success factors that have helped UW Outreach – and emulate WyDEC in K-12, where the WyCLASS system eliminated some decentralization without interfering with autonomy. Such an effort would need to be designed with clear metrics and goals. This effort is not just about reaching home schoolers or at risk learners through virtual schools. It is about providing another layer of support to the under-resourced WEN Video Network and distance education component of the WDE. A side benefit is that these advocates could promote the under-utilized TANDBERG Content Server that is available for video on demand archival.
- **Mega-Instructional Designers** – Additional instructional designers that as one respondent put it, “cut across several technologies, not just on distance delivery” might help at every level of education. These “MID’s” could work with outreach coordinators at every level of the educational system. At a minimum, instructional designers who have expertise in distance education should be placed in every community college.
- **Adult Learner Hathaways** – Create a distance education-specific financial aid program that will support adult scholarships for Hathaway-like higher education funding. Such a program would a) encourage some of Wyoming’s best and brightest adults in the workforce to further their educations and, b) encourage those who did not complete their education to do so while remaining in the workforce. This does not need to be a blanket free-for-all; acceptance would be based on a combination of need and merit (much like the Hathaways) and could take into account community service and involvement, local economic needs, and so on.
- **Community Need-Based Distance Education Grants** – Less affluent communities struggle for resources and often would do more were funding – identified as the top barrier to distance education – not an issue. Besides the other grants programs discussed, one other possibility is to fund less affluent community adoption of technologies and more importantly, programs. Such an approach could be

worked through the state's Workforce Development agency or through Cooperative Extension at UW, but it would require a programmatic thrust with content goals.

- **Improve Incentives for Educators to Teach over Distance** – Though the UW Outreach School has an annual \$10,000 grants program (with individual grants up to \$2,500), those grants are research-oriented in nature. Other grants are provided for course development support to encourage faculty members specifically at UW to convert content to suitable distance education; during academic year 2008-2009 UW Outreach paid \$67,000 to faculty to develop distance courses. Note that such grants do not address UW's need for more faculty positions to support distance education, nor do they fund the administration necessary to scale. In K-12, the Distance Education Grants (DEGs) are designed to promote distance education, but some districts fail to consider them because they do not consider them sufficient incentive, while insufficient professional development is available. Meanwhile, distance education is the fastest growing component of most of the community colleges, but the availability of incentives is limited at some community colleges. It makes sense then to address the shortage of distance education instructors by creating incentives for them to teach over distance. Besides research grants, course load reductions, and recognition programs, the single most important component is to fund conversion of existing traditional curricular materials into a format suitable for distance education. This recommendation dovetails with the idea of Mega-Instructional Designers.

3.2.2 Change Funding Formulas

- The Wyoming Community College Commission distributes funds based on a formula built around numbers of learners and courses at each community college, but has no influence over how those funds are spent. While we believe that the community colleges are well served by this approach, and much of their autonomy may be maintained, it is not unreasonable to assume that some funds could be earmarked for distance education-only applications. This may require Legislative mandate, but could prove to be a strong method of providing incentives to those community colleges still struggling with integrating distance education into their cultures
- While the WDE had very good reasons for encouraging schools to create MOUs based on individual negotiations for each learner or situation, further guidance should be provided regarding formulae for distribution of Average Daily Membership (ADM) funds and the MOU process in general. Over time the WDE will be able to obtain enough example MOUs to create templates that should ease the MOU process. The goal should be to reduce *the perception or the reality* that complex paperwork and a complex negotiating process stand as an obstacle between resident districts and host districts.

3.2.3 Fund Technologies into New and Existing Locations

- **Library and Community Center Videoconferencing** – Among the complaints in many communities was a sense of isolation and frustration that videoconferencing resources provided by the state are not available for non-educational use. Libraries or community centers could be a key central access point for users in all communities, particularly because libraries would be more willing to drive content, making the equipment meet their charters of information management and

community support. This concept only works if it is made programmatic.⁴ The WEN's initial purpose was to support learners *and* their communities, but this was overtaken by its educational applications (or situations where it did not get used in education but consequently was unavailable to local non-educational users).

- **Aggressively target stimulus funding for broadband and technology** – To address Wyoming's bandwidth issues, the state should examine closely the U.S. Department of Commerce's National Telecommunications and Information Administration's (NTIA's) Broadband Technology Opportunities Program (BTOP) and the U.S. Department of Agriculture's Rural Utilities Service's (RUS') Broadband Initiatives Program (BIP). Because these initiatives are broadband-based, it will be important to involve local Internet Service Providers (ISP's). This funding is designed for a wide array of entities from school districts and government agencies to not-for-profit and for-profit companies. A major focus of these grants is to create public technology centers that provide a place where community members can go to use technology resources. This idea of technology centers falls in line with our recommendations and dovetails with the UW and some community college Outreach Centers. Since these centers are already established, funding might be used to add updated equipment and additional bandwidth. The grants are being offered in three phases, with the first round of application deadlines occurring mid-August 2009, second round December 2009, and third round spring of 2010. Approximately \$1.6 billion are being awarded nationally under the joint Commerce and USDA Notice of Funds Availability.

3.3 Communications

3.3.1 Portals and Wikis

- **Create a single portal** -- An e-Wyoming.org online portal would aggregate distance education information from all sectors of Wyoming, becoming the single initial source of information about all opportunities available to Wyomingites. This portal could be placed within the Office of the state's Chief Information Officer (OCIO) or Workforce Services, though it also could be associated with the concept of state service centers mentioned elsewhere, or with a Center of Distance Education Excellence. Residents in the various parts of Wyoming are unaware of options that exist in other parts of the state; agencies are unaware of where to go for help; business owners and local and county government need help understanding educational and training options for their employees. While the WDE Fusion portal is intended to be the place for all education information lifelong, it currently has a K-12-centric nature and may need additional attention and overhaul were it to be made a broader portal focused on all aspects of the state. An e-Wyoming.org portal could accomplish all of this and more, while getting maximum leverage from existing funding because many of the existing stakeholders already have their websites and sources of information developed. It would not cost that much to develop it.
- **Create a state wiki or discussion board** – While wikis have been around for awhile, the value they offer remains constant: they bring subject matter expertise together with enquiring minds, offer a

⁴ By programmatic, we mean that a community center or library has a rationale for receiving or delivering content – not just technology without content or focus.

means of capturing that expertise, and grow over time into substantial knowledge bases. A wiki, which to some extent is a subset of the portal idea, would be a place that parents, learners, educators, trainers, and administrators could draw upon to help identify resources, understand distance education better, and match learners to types of distance education. A discussion board could be a component.

3.3.2 Marketing and Research

- **WDE Marketing Plan** – WDE currently does its best to meet with schools to discuss distance education, but may rely too heavily on e-mail and personal contact with technology coordinators and educators throughout the state. We believe the WDE would be well-served by the addition of additional resources to their marketing staff, to be further engaged with the idea of promoting distance education in a holistic, integrated marketing approach (using multiple points of contact and messaging the value of distance education and the existing and future programs of the WDE). These and existing staff would work closely with the distance education advocates as envisioned in this report.
- K-12 learners were under-represented in the research for this project, *primarily due to semester break and the timing of the survey deployment*, and similarly, few non-distance education learners were interviewed. Just as no one knows yet how many learners are actually getting degree programs from out of state, no one knows how many learners in K-12 would seek online courses or are finding alternate means of continuing their education. Thus we recommend the state determine a method to conduct more targeted ongoing survey and assessments of these under-counted populations at all levels (K-12, community college, university, professional and lifelong learning), perhaps via an assessment project conducted every two years.

3.4 Technology Matters by Stakeholder

3.4.1 UW

- **Shift UW Outreach Emphasis on Classroom Videoconferencing and Audio Conferencing, Boost Desktop Videoconferencing, Web Conferencing, and Online Programs** -- The Outreach School is searching for ways to evolve from the “brick-and-click” classroom model to an even more robust set of blended offerings, even though it already offers far more credit hours online (10,097 spring 2009) than via videoconferencing (1,205), audio conferencing (1,407), or other purely real-time methods. A few technologies like desktop videoconferencing, web conferencing, and lecture capture can go a long way to extend an instructor’s reach and allowing greater scalability. Instructors do not need full classroom space when delivering via these modalities, and these tools scale well to distributed individual learners. They do not address the need for on demand, anytime learning, however, but our assumption is that the university’s eCollege deployment is sufficiently robust to support its needs. Lecture capture solutions are another approach to taking synchronous content online, and many now provide user friendly indexing, editing, and rich media tools invaluable to online learning. The goal should be to transform UW Outreach so that more courses are offered in online or in hybrid mode, while maintaining the OVN as a robust videoconferencing network used for stand-alone videoconferencing courses as well as blended learning.

- **Combine UW Outreach Technology Services with UW Information Technology** – This recommendation ties into the concept of creating a Technology Center of Excellence at UW, as such a group might be an excellent adjunct to its IT organization. The actual combining of two distinct support organizations might require separate study on the part of the University, as their charters vary widely. The goal as we see it is to standardize technologies at UW for both support reasons and purchasing leverage. We believe that the greatest efficiencies are to be gained from the purchasing leverage, though such gains are likely to be realized primarily via technology refreshes and upgrades.

3.4.2 Community Colleges

- **Single Registration System for Community Colleges** – This is the next logical evolution of the WyCLASS system. We offer this idea with some caution: it may not work if the community colleges do not uniformly agree to it. Currently some community colleges have limited electronic back office operations; LCCC requires full application to the school even for learners seeking to take just one course. The advantages of single-registration would be twofold: 1) learners would benefit from a seamless experience in enrolling in multiple courses delivered through multiple institutions and 2) greater analytical oversight would be available to administrators concerning course demand – and thus greater coordination between various schools would be possible. We note that this is not an attempt to establish a single set of CMS and SIS systems at each school; these would continue to be deployed based on school preference. The MMCVLC consortium discussed earlier is a model worth reviewing.

3.4.3 K-12

- **Deployment of a video on demand service** – Within K-12, a Discovery or Safari Montage style video on demand service would allow the distance education advocates and educators new to distance education to wrap new content into their curricula. We do not believe at this time the state's broadband networks could support such a service, but such a service could be staged over time as broadband gets better deployed. Such an on-demand service overcomes some of the barriers to bell schedules – which typically interfere with real-time technologies – and would provide educators the incentive to attempt to understand external content sources better and how to use external sources for classroom enrichment. A video on demand service does not substitute for the many other platforms and technologies discussed in this report (it differs from the content server contained at the WEN for videoconferencing archival); it simply would enable educators to bring external content clips into the classroom.

3.4.4 Multiple Constituents

- **24 x 7 Help Desk Support** – This concept is a long shot, because to provide 24 x 7 help desk support requires standardized technologies. The concept only works with the idea of a Center of Excellence or state services group. Nonetheless, Wyomingites are like all modern Americans, living busy lives, often unable to plan ahead (for instance to test a technology when they know a class is being held or support is “official.”) Adult learners as well as college-age learners are equally likely to need off-hours support. Should the state settle on supporting a focused set of technologies, such support could be offered primarily on those technologies and perhaps in scaled back fashion on less standard

technologies. The logical place for this organization is at UW or within a state services center. Such support can be outsourced cost-effectively, but again, may depend on agreement concerning a set of standardized technologies.

- **Address the state's bandwidth issues by negotiating with a major telecommunications company, and funding true broadband statewide with robust last mile connectivity** – While not the province of this consultant group to measure bandwidth by availability and network topologies, it is clear from the state's citizenry that bandwidth remains a challenge. One only need drive major interstate and state roads to understand this fact pertains to wireless networks and undoubtedly to wireline networks. Even communities that possess fiber-to-the-curb such as Ten Sleep suffer from the fact that bandwidth out of their communities may hit chokepoints. Though Wyoming can "get by" with implementing some of the recommendations Wainhouse Research and its team offer for improving incrementally, addressing bandwidth is a singular requirement that will do much to take the state to the next level and open up new vistas – while supporting existing needs.

The Wyoming Task Force has done an excellent job at beginning a process of assessing statewide needs through both the videoconferencing project and the distance education project. If the goal of Wyoming is to raise the standard of excellence, serve under-served learners, and accomplish productivity improvements and greater efficiencies, the state will need to initiate a more institutionalized, ongoing set of methods for assessing needs of learners.

The recommendations proposed by Wainhouse Research and its team are best taken in "concert" as a group of inter-connected strategic concepts and tactical methods for elevating the role of distance education in the state of Wyoming. They are based on a single assumption: that the Governor and the Task Force he created to address the topic of distance education are as a team prepared to engage with the Legislature and foster change at all levels of institutions within Wyoming. Some of the recommendations implemented alone will provide incremental change over time; we believe the group of recommendations in totality will help the state achieve substantial, visible change within a very short time.

The consultant-provided needs assessment, inventory, gap analysis, and recommendations are based on extensive time spent in inquiry with the citizens of Wyoming, and their voices are loud and clear that more can be done in the way of distance education. Those voices can be heard in greater detail in the appendices to this report.

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4 Appendix I: Research Methodology

Four major methods were used to gather input from stakeholders. These consisted of:

- ❑ Approximately 50 interviews with individuals or groups of stakeholders
- ❑ 4 local (Cheyenne, Casper, Rock Springs, and Gillette) and 1 virtual (held over videoconferencing with attendees in Riverton, Powell, Jackson, and Lusk) focus groups
- ❑ An online survey that included 929 quantitative responses and verbatim comments from 183 educators or policymakers and 385 learners. A subset of those who provided verbatim comments have not taken distance education courses but were invited to offer opinions.
- ❑ An inventory contained in the primary report to the Task Force, which was completed by more than 30 organizations and which describes their programs and chosen technologies.

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5 Appendix II: Focus Group and Interviews: Findings and Analysis

5.1 Focus Group Findings

Focus groups tend to each have their own “tenor and tone” and the five groups held in Wyoming did indeed differ. A few things the groups did have in common were beliefs about Wyoming, its character, and general conditions for using technology:

- The economy of Wyoming is “better than elsewhere.”
- Wyoming citizens value education and believe it is a means of achieving advancement and quality of life.
- The state is safe, cost of living is reasonable, and education is affordable. “Anyone can go to school here.”
- Yet with limited apparent manufacturing and industry, lots of wealth “leaves the community.”
- Cheyenne and Casper have “the goodies:” bandwidth. Complaints that WEN doesn’t reach enough people...and “15 miles outside of Cheyenne you don’t have fiber—even seven miles out.” Kemmerer “would cost \$1200 a month to get decent bandwidth.”
- Belief that the disparities between the larger cities and the rural areas are not addressed by distance education. Yet those who have completed degree programs and been successful distance learners are virtually unanimous that were distance education opportunities not available, they would have had difficulty getting their education.
- Challenges exist in finding enough qualified educators to deliver using distance education.
- Distance Education helps some learners do better than they might in traditional classrooms – particularly adult learners or learners who indicated they became more engaged through the use of technology – more willing to “speak up,” as it were.
- Technology has not yet helped Wyoming overcome a sense (among some) that “isolationism” exists within the state: one respondent stated that “Wyoming is like a colony within the U.S.” Others call it a “small town with long streets,” and the desire for collaboration with others is great. (This desire is contradicted by a fierce desire for autonomy as well.)
- Distance education has not yet become a powerful enough tool within the state to ensure that learners have access to everything they seek.
- Some subjects are missing, for example, “higher order science and math.”

The general takeaways from the five focus groups are as follow:

Cheyenne Group – Summary: Problems exist in delivery, technology competency standards, and gaps between rural and urban areas.

- Respondent mix: Wyoming Department of Education, Laramie County School District #1, Laramie County Community College, Wyoming Virtual School (VS), UW Outreach, Cheyenne LEADs (economic development), one 3rd-grade student in Wyoming Virtual School .

- Resources are lacking in rural areas and distance education (to some extent) helps overcome what is missing
- The WEN offers high value but struggles to get non-participating schools to participate.
- Teachers don't want to take the time to learn how to teach over distance – though teachers will learn to use new technology when it is made easy to learn.
- Wyoming needs to “join the world” – solutions are not contained just within “our borders.”
- Wyoming (like many states) lacks competency testing for technology and the curriculum overhaul does not discuss technology.
- Parents ask the WEN for summer remedial or AP courses and do not know where to look to find them.
- The Legislature should mandate bandwidth – the WEN alone is not doing the trick.
- Some educators and parents fear Advanced Placement and distance education if there is a chance that such programs might not be counted in the Success Curriculum, and thereby threaten learner chances for Hathaway tuition grants.
- It is sending a signal when no minimal technology standards exist for teachers, learners, and administrators.

Riverton/Powell/Jackson/Lusk Group – Summary: distance education essential, invaluable; WYDEC should solve many problems for community college learners but broader offerings needed, especially for adult learners and economic development. More grants needed to encourage educators to get involved. Regional autonomy important.

- Respondent mix: Northwest Community College administrators, teachers, and students; Riverton Virtual School administration; UW Outreach; Western Wyoming Community College instructor; businessman; Central Wyoming College administrator; Lusk adult learners and community leaders.
- A sense exists that learners are going out of state because having only one four-year institution of Higher Education is insufficient for the state's needs. “People are going to U. of Phoenix, Kaplan, Franklin U – if we had more offerings, kids would stay here (for their educations).” Need exists to speed up delivery of more degrees, perhaps through grants to support developing more collaborative degree programs. While some feel UW is lacking, some others rallied behind UW – stating that though UW Outreach can be improved, it has done a lot for them.
- WEN network not addressing needs around the state; people find that terminating sessions cuts off spontaneity and the ability to complete business. Feel that a bottleneck occurs in the afternoon when the WEN shuts off.
- Many of this group's attendees have degrees via distance education, and some say they did better in a distance education environment due to lack of distractions and the ability to personalize their programs.

- Some concerns the technologies not always up to snuff. Audio-only classes where people talk over one another; technical problems actually affected one learner's grades, and she lost some class time due to weather-related downtime and was told it would not be re-scheduled. The issues with quality of technologies were cited by learners and educators from UW and some community colleges.
- A learning curve exists to knowing how to learn online; many students blossom, some fail because it's the wrong forum for them.
- Workforce lacks access to many of the tools available to younger learners. This has an economic impact. The business community should be more engaged somehow.
- Need more mobility, bandwidth, and hybrid opportunities that combine online asynchronous, in-person, video, web conferencing, etc. One instructor would travel to the five sites in her class once a week, respectively, simply for face-to-face connections.
- Tension exists between the altruism of a virtual high school building its own programs, and a commercial entity like K.12.com, which provides online virtual capabilities to some other districts.
- Fears were expressed that the Governor desires a single delivery system for all distance education in the state, thereby taking away regional autonomy.
- Concerns were expressed that the accreditation processes are outdated, that there are structural roadblocks between the 7 community colleges and the University of Wyoming.

Rock Springs Group – Summary: Several adult learners received degrees while working; could not have done it without distance education while holding full-time jobs. Concerns about K-12 attitudes, principals blocking online learning. State needs to reward people for developing distance education, take leadership role, and recognize online, fully virtual degrees.

- Respondent mix: Western Wyoming Community College instructional designer; distance education advocate; several Western Wyoming Community College instructors and administrators; Western Wyoming Community College and Franklin University student; University of Wyoming Outreach; University of Wyoming Outreach student; Evanston Technical Integration Specialist; Green River principal; Rock Springs principal; community member who serves as an online instructor for sheriff's office.
- Greatest amount of outrage in this group that learners are going out of state due to lack of statewide opportunities. "It's easier to get an MA through Franklin U or Iowa State than through UW." "UW missing out on a lot of opportunities."
- Economic issue: kids make 3x elsewhere, so they leave.
- Similar outrage that cultural perception exists that distance education will take kids from K-12 classrooms – so some high school students not getting enrichment they deserve. Concern that principals don't want to lose their learners early.

- Complaints that many places require one to be in a degree program, when one's professional needs lead one to desire just a course here or there.
- Feeling that distance education in the state is inconsistent and unpredictable. Excellence exists in pockets. But that there is no leadership from the University of Wyoming or virtual schools to blanket the state with distance education. "No coordination." Feeling that could target credit recovery, electives that are felt to be "pitiful" in their area. Also feeling that the University of Wyoming may require learners to take two courses but that will have to wait a year for the second course due to scheduling issues. "The state needs to take a leadership role, build a true statewide network. We need accessibility, training opportunities to teach how to use the technologies."
- Rules exist that are not helpful: "if you don't have a high school, you don't get videoconferencing."
- Feeling that many people are from broken families, help raise their siblings, and need something like distance education to help them survive.
- Feeling that technology is now in place and that traditional teachers need to be retrained, and learn to teach "non face-to-face." Instructors who try to teach online the same way they do in brick-and-mortar classroom are set to fail. Some good experiences detailed concerning instructors using web cams for personalization, online whiteboards for sharing, etc.
- Feeling is that funding model in K-12 is not fair; nothing will work until funding model is fixed.
- Distance education central to mission of WWCC – and that centrality makes it successful.
- Teacher shortages and issue. "I can get videoconferencing equipment, but I can't find enough teachers for it."
- Disconnect exists between federal, state, and local training for homeland security and other criminal justice issues. One respondent figured out how to do an emergency responder class online – and it cost less – but it was difficult to make it happen without additional resources.
- For adult learners, if you change jobs and move, can continue online courses without disruption. One participant flunked out of college first time, joined army, regrouped, later got online degree while working.
- Franklin University graduate spoke highly of the community created with her fellow learners and her instructors, and that the technology fostered this experience.
- Some teachers and learners do not want it to be all online, yet most important to address all learning styles and have something for everyone.
- Distance education removes peer pressure, creates truly heterogeneous groups.
- "Online forces us to participate." "My daughter didn't talk in class, but she did in online classes."
- Many employers offer tuition reimbursement, but often only pay for one course at a time.

Casper Group – Summary: Resources lacking for business and local government to know best sources of training for their workers. No place to go for guidance.

- Respondent mix: University of Wyoming Casper College Center student (Master's degree); University of North Dakota - Casper College staff; Natrona County School District virtual program specialist; City of Casper City Manager; Chamber of Commerce Exec Director; University of Wyoming Outreach School Associate Dean; faculty from the University of Wyoming Casper College Center and Casper College; University of Wyoming computer support.
- Some sense of isolation or disconnection exists from other parts of state. But feeling that UW and Casper College are responsive to business community needs.
- At same time, "we need guidance. Which online programs are credible? Is it worth the investment," as stated by an employer.
- Community colleges all serve their regions appropriately, differ based on regional needs.
- Concern regarding unavailability of more unusual degrees, while recognizing that lack of volume may be factor. Offerings exist for police and fire, but not Information Technology.
- University of Wyoming Casper College Center course rotation driven by enrollment and sustainability.
- Feeling that other states doing more; University of North Dakota "always adding equipment & technologies."
- Concerns about dropout rates for online classes: "It's 40%. We'd have fewer dropouts if they paid. Self-motivation may be an issue...often kids are taking these for credit recovery, but have troubled homes and difficulty completing the work."
- Participants in distance education programs, particularly videoconferencing sessions, feel that often the instructors are not using "best practice" instruction over the videoconferencing modality.

Gillette Group – Summary: Virtual schools can serve those with different styles of learning; belief there is shortage of online instructors statewide and request for a statewide faculty development program.

- Respondent mix: Adult worker-graduate student; Director of Higher Education Services for the Northern Wyoming Community College District; 4th grade student and parents from the Wyoming Virtual School; head of School Wyoming Virtual Academy; principal, Wyoming Virtual School; Associate Vice President for Academics Gillette College; clinical education supervisor, Campbell County Hospital-University of Mary faculty; WEN compressed video coordinator.
- Wyoming's small population and citizen Legislature creates sense of opportunity, involvement, and ability to accomplish things. "Can do state – we make things happen all the time."
- Parents of 4th grader: "our daughter wasn't getting the attention she needed for her learning style in a classroom of 25 kids." Testified to the value of her virtual school experience. (They have older son

still in brick-and-mortar public school.) They have concern that public schools only care about getting through the curriculum, not attending to if individual learners are learning.

- Concerns raised that traditional education “teaches to the test,” and “PAWS is a four-letter word around here.”
- Critical need for more nurses, particularly those with B.A. degrees instead of Associate degrees.
- Principal: online learning (done well) fosters stronger teacher-student and teacher-family relationships. He does tell parents to spend 5-6 hours a day with their home schooled children, and discourages them from home schooling if both parents work.
- Distance education has changed; what once worked (correspondence only) now seems attractive in multiple modes: in-person meetings, online contact.
- Misperception that online is “easier.... (than traditional classroom)...in fact, it’s harder.” The misperception that online learning only occurs on a PC; lots of work offline as well.
- Belief that the Wyoming way to virtual education, limiting class size, doubles the cost but worth it (vs. Utah as example).
- Hospital has 900 people who “complain about their continuing education...all of our staff. When they work on PC they are using a different part of the brain.” Health Stream provides the curricular content and they use Moodle as CMS.
- Online learning done well can create strong sense of community.
- Sense that there is a shortage of online instructors, recommendations for statewide faculty development program. K-12.com described as strong with content for instructors, Professional Development, teaching through Elluminate web conferencing. “K-12.com also good about sending surveys, satisfaction surveys.”
- Important to offer in all modes: online, in person, some videoconferencing. Everyone learns differently.
- Concern expressed about law of unintended consequences: “research says physics should be taught first, but rules say Biology, chemistry, then physics.” Yet others felt that “we’re not tied down to rules as in other states...we’re fortunate a lot of the rules are not retributive.”

5.2 Analysis of Focus Group Findings

5.2.1 Partnerships and Programs

A general sense exists that there may not be enough demand to justify more programs, but at the same time, that there are silos of programs and that if those programs were better partnered and articulated, more could be done. “The isolation is overstated; we know there’s demand.” – Cheyenne participant. Leadership at the community college level expressed concern for the learner and the need to create

seamless partnerships among the colleges designed to meet learner course demands without multiple enrollments.

5.2.2 Wyoming Equality Network (WEN) Video Services

The WEN Video Network is the object of widely varying perspectives. People generally agree that the WEN served a great purpose upon its creation and in its early days. But the perception exists that the WEN is now under-resourced; that placing endpoints at high schools (and limiting placement to high schools) limits its flexibility and availability, and that some principals do not care to take advantage of its capabilities (often resenting the need to share space with what is perceived as an “external” resource). This has led to the perception that WEN Video is not used much in some locations, while used a lot in others. Agreement varies concerning the reliability of the network and its ability to handle future needs as demands on it grow. Some complain of late afternoon “bottlenecks” when the network becomes burdened. Many agree that the WEN’s priority is to support K-12 educational needs; however, there seems to be a perception that the K-12 students are underserved throughout the state. In addition, there seems to be a lack of availability of WEN resources to communities and non-educational users. As one respondent stated, “it is too difficult to schedule and work through process, therefore we go another direction for connectivity.”

5.2.3 Educator Attitudes

While many educators attended the focus groups, the belief was stated that “teachers don’t want to take the time to learn to do distance education; we need to move them first in order to get them to change.” – Cheyenne participant. One state agency manager (who has trainers working for her) indicated that “People are overwhelmed. There’s no time; everything is in a rush, and people only see the value when they need something.” A virtual school instructor pointed out that teachers are “so focused on their limited chunks of time, they cannot fit distance education into their lesson plans.” – Cheyenne participant. A contingent of educators exists who do not believe distance education is an effective instructional modality, digging in and holding to traditional on-site classroom preferences. But it is well understood that not all educators’ styles are suited to distance education.

5.2.4 Learner Attitudes

Those who have participated in online, video, or audio-based distance education are universally appreciative of the opportunities afforded to them, and many group attendees have received associate, undergraduate, and graduate degrees via distance education from community colleges, UW, Franklin University, Capella, University of Phoenix, and Iowa. Virtual school learners also were especially vocal that virtual schools are addressing their unique learning styles and leading them to be more successful students. Learners throughout the state of Wyoming value education. “An associate’s degree is the new high school degree.” Wyoming citizens see that education is the “door to opportunity.” As a result, Wyoming learners feel that distance education is extremely important to the economic viability of the citizens and the communities and should stay both cutting edge and seamless to the learner.

5.2.5 Wyoming Borders

Some believe Wyoming stakeholders need greater connections to the outside world. “We need to join the world.” Others believe the technologies available to residents already allow connections with others outside the state. Those in rural areas are most likely to complain about isolation.

5.2.6 Effecting Change

One teacher, a Cheyenne-based graduate of UW Outreach indicated that students in her school only get to use the PC as a reward, because there are not enough to go around. Another technology consultant to a school district indicated that when teachers are moved into new schools with the technology they will use it. “If we tie into their standards, they can find and use it.” – Cheyenne K-12 IT Director. Many distance education advocates supporting the UW Outreach program believe they are the voice of change for their community, supporting learners, community members and citizens throughout their varied regions. The need exists for more professional development opportunities to foster effective change.

5.3 Interviews

In-person, phone, and videoconferencing interviews were held with a wide variety of stakeholders from city, county, and state government; all seven community colleges; the University of Wyoming; school districts; educators; business; and others.

5.4 Interviewee Demographics

Interviews were held with individuals and groups of individuals from a wide assortment of Wyomingites.

- Governor Dave Freudenthal
- Wyoming Dept of Education (1st of 2 interviews)
- State Office of the Chief Information Officer, Department of Workforce Services, Division of Information Technology (ITD), Administration & Information (A&I), Wyoming Business Council, Department of Health
- University of Wyoming (UW) Outreach School administrators, instructional designers, and professors
- UW Dean of the Outreach School/Associate Provost
- UW administrators and Associate Dean Education
- UW Dean of Education
- UW Associate Director, Cooperative Extension
- UW Coordinator, Outreach School
- Western Wyoming Community College (WWCC) Director of Distance Education
- WWCC Vice President for Student Services
- Wyoming Dept of Education (2nd of 2 interviews)
- State Department of Family Services
- WWCC Outreach Consultant and a Technology Integration Specialist, UINTA #1 School District
- Wyoming Virtual Academy, Wyoming Virtual School, Sheridan Public Schools, WEN Videoconferencing Coordinator, Campbell County School District

- UW student, Adult Learner Coordinator, Gillette College faculty, Associate Vice President Academics, Judge/Educator
- Casper College Deans, Instructors, Technology Coordinators, Vice President Academic Affairs, and Vice President Student Services
- Natrona County Schools Associate Superintendent
- UW Casper College Instructors, Advisors, Technical Support, Associate Dean
- Riverton Central Wyoming College (CWC) Administrators
- State Director Workforce Development (1st of 2 interviews)
- Wyoming Department of Workforce Services (Deputy Director/CTO) (2nd of 2 interviews)
- Cody: Park County Library, Department of Family Services District Manager, Prevention & Wellness Office
- Cody: Park County Commissioner, Wyoming Trial Lawyers Association/Lawyer, UW Outreach Program Director
- Riverton CWC: Director Rural Justice Training Center, Network Support Specialist, Associate Professor, Executive Vice President
- Riverton CWC: Lander Outreach Non Credit Coordinator, Asst. Dean of Student Learning & Curriculum, Asst. Dean Workforce Development, Director Nursing Program
- Fort Washakie Learning Center, Wind River Development Center
- Fremont CSD #21 Technology Facilitator, Principal, Superintendent
- Eastern Shoshone Dept, Higher Education Coordinator, Dept. of Education Director
- Northwest Community College (NWCC) HS teacher, Buffalo Bill Museum Program Director, Powell Economic Development Commission, Park County Chair/Master Gardener
- NWCC Distance Education Director, Vice President Academic Affairs, Computing Services Director
- Sheridan College Director of Distance and Distributed Learning, Technology Coordinator
- Ethete: Wind River Tribal College Registrar Office, Wind River Health Promotion, Sky People High Ed
- UW College of Business, COE Library, UW Center for Rural Health Research, Vice President Instruction Laramie County Community College (LCCC)
- Legislator/Sweetwater BOCES
- Wyoming Community College Commission
- Chief of Police, Wheatland
- State Medicaid Medical Office Director
- Eastern CC Vice President Learning & Instruction, UW Outreach Coordinator at Eastern Wyoming College (EWC), Clinical Director Peak Wellness Center, Real Estate Broker, Sr. Vice President Platte Valley Bank, Instructional Technology EWC.
- Torrington student/adult learner, Mayor Torrington, Business Owner Torrington
- Goshen County State Workforce Development Office
- UW Dean of Nursing
- LCCC Dean of Nursing/Director Distance Education, Distance Learning Instructor
- UW Information Technology (IT) and UW Director of Information Services

- WEN Engineer
- UW Outreach Coordinators Riverton, Casper, 3 others
- Park County School District (via Pine Cove Consulting staff)⁵
- Michigan Community College Virtual Learning Collaborative (MCCVLC)
- Texas Educational Telecommunications Network

5.5 Interview Summary

5.5.1 Leadership Gap

The desire for greater leadership at the state level was expressed throughout Wyoming from almost all respondents. Those desiring greater leadership feel there is no single place to go for information and that everyone is left to their own devices when it comes to distance education; as a result program quality varies from school to school, community college to community college. This gap also affects the quantity of programs offered, as many respondents complained that without coordination at the state level, nothing improves (notwithstanding many proud statements about WYDEC's new WyCLASS website). A handful of programs that think of themselves as leaders and innovators felt somewhat suspicious of state efforts, fearing a mandate for change would lead to negative impacts on their programs.

This gap is clearly visible among community members and businesses, particularly in the more rural areas of the state. Community and business leaders are keenly aware of the economic needs of their constituents and employees. These leaders desire a clearly defined articulation of available opportunities for their communities and workers, including understanding which distance education offerings are credible or accredited, and a means of posting needs or sharing resources related to distance education throughout the state.

5.5.2 Duplication of Efforts

Because of the "balkanized nature of the various groups involved in education," as one respondent put it, there are multiple resources for parents, learners, and educators to access. Many of these are the result of hard work on the part of their stakeholders – including partnerships on information sharing. And many are still at a fledgling state, such as the WDE's Wyoming Education Fusion portal, a means of providing data and support to schools throughout the state, or just getting their legs, such as WyDEC's WyCLASS online course listing system. UW and the telehealth group have their own methods of access. While not all of these efforts are duplicative, there is no seamless means of identifying what is available to the learner.

⁵ Three interviews failed to take place due to interviewee scheduling conflicts. At least three interviews, however, were completed by multiple WR-PCC-CILC team members.

5.5.3 Community College Concerns

Wide disparity exists among distance education enrollments, offerings, programs, and sustainability at the community college level and communications between the seven schools has admittedly “been a challenge.” The disparities are reflected in program inventory and anecdotal discussion:

- WWCC, with 11 outreach sites (13 by 2010) offers seven degree programs and three certificate programs online and 25% of its FTEs are online only; 35% of full-time learners are distance (outreach and online). WWCC has been providing online learning since 2001 and has grown its program slowly and carefully. Yet the school continues to struggle to find enough qualified instructors.
- CWC hosts the WyCLASS portal and has created a broadband network in the area between Teton, Hot Springs, and Fremont counties using a combination of fiber and microwave technologies. CWC has a successful nursing program in Jackson that uses videoconferencing, and has successfully influenced all faculty to use some sort of distance education – even if only a course management system – in all of their teaching strategies. Some 70% of their distance education learners also take some courses on-campus, and the campus credits how it has structured courses to be flexibly offered and easily scheduled by learners.
- Casper College has 15% of its 3300 students classified as distance education learners, and is experiencing about 10% growth organically (without focus or effort on distance education), even while lacking a distance education director. This role reportedly was filled during the preparation of this consultant report.
- LCCC requires a full application from any learner and recently functioned without a full-time distance education director for over a year. The responsibility for distance education activities were placed with the Dean, Health Sciences and Wellness in July 2009, who reportedly intends to hire a full time director someone during the 2009-2010 academic year. Though LCCC has a robust program with the greatest number of distance education learner enrollments 2008-2009 (see Figure 33), the challenge for LCCC is in securing qualified instructors. Gaining support from many of its on-site faculty is also reportedly a challenge. Faculty members take leadership roles in supporting training among their members regarding technology and distance education tools; however, this may not be supported at top administrative levels. The Dean would like to see full-time equivalency (FTE) support time for mentoring and training faculty in distance education by some faculty members.
- Northern Wyoming Community College (Sheridan and Gillette Colleges) lacks any actual online degree programs and is currently working with the Higher Learning Commission to become approved to offer degree programs at a distance. Its distance education director has been in place for a year, and is in the process of ramping up its offerings.
- Northwest College reports that its fastest enrollment increase is coming from distance education learners, but is concerned that lack of time and resources for instructors has limited institutional acceptance of distance education. One respondent said, “instructors do not have the time to create distance education programs with their existing workloads; students complain there are too few degree options online, and state funding decreases have caused problems.” So even a relatively successful program at Northwest College – which claims to be the WEN’s largest user by number of hours – appears to still lack a programmatic structure for solid growth that would meet demand.
- Eastern Wyoming College (EWC) appears to have some outreach taking place but reports needing funding, bandwidth, best practices, and “marketing support.” Eastern has a unique challenge with

connectivity. The residents, businesses and community of its region receive their telecommunications services from Nebraska. Interviews unanimously pointed out the lack of stable connectivity and bandwidth. In addition, capacity and space issues exist between the partnering Eastern Wyoming Community College and The University of Wyoming Outreach program. The mayor, local businesses and The University have joined together to bring programs directly to the community by creating a community center on their main street, a grass roots effort designed to meet the needs of the community.

Wide disparity is shown in how best practices are in play in some locations, but not all. There are business model implications. Some community colleges reduce teaching load, provide instructional designers, compensate instructors for teaching online, and strictly limit class size. Others simply do not have those resources or programs in place, and their programs remain relatively static as a result. Some are strong at building partnerships with K-12 constituents regarding dual credit registrations; others are not.

As one Distance Education Director said, (my) "'pie in the sky' type request for distance education in Wyoming would be a statewide consortium similar to Michigan Virtual Collaborative from the Michigan Community College Association. An organization that provided manpower and organizational support to help the colleges' online courses to better benefit the students (would be ideal)." Another individual said "WyCLASS needed \$15,000 and it took us 18 months. The next step would be to have common course registration. With some funding we could write a common interface, tie the college data together into our respective Student Information Services systems. Yet funding from the Community College Commission is going away."

Because it was discussed by some in Wyoming as an effective role model for governance and programming, the consultant team interviewed the Michigan Community College Virtual Learning Collaborative (MCCVLC). This group is funded through membership dues from all 28 community colleges, based on enrollment numbers. About \$160,000 to \$170,000 is budgeted annually from dues, and enrollment dollars are shared and distributed based on 70% to the host (providing) community college, 20% to the resident community college, and 10% to the MMCVLC. Current governance consists of a President and trustee member from each of the 28 community colleges, with a 7-member elected executive Board of Directors. Distance Learning Directors at each of the community colleges comprise an advisory council.

Some also indicated they would welcome information technology services from the state as a means of driving further collaboration and improving on relatively "thin" technology infrastructure. "We need a segment of quick and dirty training, plus multimedia/instructional designers. Innovation dollars go away with no goals/partnerships to define. We're not identical community colleges, we're all unique." Yet distance education is not easy to deliver, requires its own set of capital expenditures and ongoing expenses, and requires additional support. For this reason at least one community college successful in delivering distance education said, at least referring to videoconferencing-based classes, "We're not comfortable offering our video classes around the state. Point-to-point, ok, maybe two sites, but 6-8 sites just doesn't work." This community college believes there is *not* pent up demand in K-12 for community college classes.

The community colleges provide a tremendous resource to the state. Many of the administrators and educators with whom we spoke value the differences between the schools – feeling that each one serves

its regional constituents well, and fearing that too much control from the state would undermine their autonomy and ability to meet their learner needs. Thus there is a tension in what we heard from them: they want support and incentives, without what they perceive as punitive behavior. For example, they fear control that over-directs them to eliminate what on the outside appear to be redundant courses (e.g., general education courses), but which may not be because they get filled up anyway.

Similarly, the community colleges universally fear that with state services might come state mandates, e.g., a single course management system. Much work has already been put into Moodle, Blackboard, eCollege, ANGEL Learning, and other CMS deployments. The more successful community colleges believe that WyDEC was successful because there was no bureaucracy, and that it was built bottom up instead of top down. These schools fear that the state typically mandates “the cheapest,” solution, not the best, and argues that as a result they would never accept a “common platform” mandated by the state. Though no one expresses the desire for a common course management system and we do not recommend such an effort, several other colleges nonetheless are eager for as much state support as could be made available. Some are concerned that the WyDEC is only as good as the local college’s willingness to populate and update the portal. Some leaders in the community college effort feel that the *ad hoc* approach definitely led to a great process, but that without leadership, efforts will begin to wane, as indicated by reports of lower participation in recent WyDEC conferences.

While it is clear that the community colleges need their autonomy in servicing the various regions, leadership from the Wyoming Community College Commission (WCCC) believes that the community colleges are serving the citizen and learner of Wyoming. “The learner should see a seamless operation when participating in education throughout the state.” The commission is responsible for the equitable distribution of funds for distance education and instruction at the community college levels. This distribution, calculated on a formula for instruction and students is where the WCCC oversight concludes. Each community college may use these funds toward their own ends, thus in some cases the distance education instructors will see the funds and in other cases the funding may go toward technology support. This varied use of the distribution has contributed to some of the discrepancies that exist across the community colleges, in turn impacting the learner as well as the institutions themselves.

5.5.4 Wyoming Department of Education and K-12 Concerns

The Wyoming Department of Education (WDE’s) own concerns reflect the difficult position it faces: distance education is a subset of an agency tasked with serving all Wyoming K-12 schools and learners, and its mission to support distance education is hamstrung by an inability to always gain acceptance from local stakeholders. This results in a cautious, paced approach to introducing virtual schools. In two interviews the agency demonstrated a willingness to tackle tough issues and address distance education more aggressively were it more fully resourced and had greater marketing resources.

The WDE gets high marks from those *already* involved in the virtual school movement, many of whom have been working with the WDE to further online education in K-12 (though they believe more can be done at the WDE level). As one respondent put it, “The WDE staff members working with the distance education program demonstrate a strong commitment to delivering a high-quality online learning program to Wyoming students. While maintaining high standards, they also provide support and direction in meeting those standards. Their work is accurate, consistent and focused.”

At a local level, many school districts and community colleges – which have a vested interest in topics like dual credit, concurrent enrollment, and Advanced Placement courses – expressed concern that the WDE is never left alone by the Legislature to maintain consistent offerings. For instance, one respondent noted that “WDE created dual enrollment but didn't ask what people are doing. In the past the Legislature paid \$500 per dual enrollment student. We have 1-1 contact via outreach sites and conduct online classes in computer labs. We then reimburse. They had to pay for college class. The Legislature took these dollars away and school districts then had to pay it back...though some districts then said they could not pay it.” This respondent is remarking on the fact that the Distance Learning Initiative (DLI) \$500 grants program (which used a simple per-student formula) was replaced by the Legislature in 2008 with a bloc grants program – the Distance Education Grants. These grants result in a lesser per-learner sum going to the community colleges.

One virtual school proponent cites three areas of concern related to distance learning programs, as he describes below:

4. “Funding – Superintendents want to be able to see where the funding generated by students enrolled in online programs is included in the district funding.”
5. “State test accountability – Superintendents are concerned that the PAWS results for students enrolled in online programs are attached to the local district, not the program provider. This relates to both Adequate Yearly Progress (No Child Left Behind requirements) and drop-out rates.” Put differently, PAWS testing impacts the resident district even when they may have minimal contact with the distance learner.
6. “Body of evidence graduation requirement – If the student enrolls with an MOU, the student must still satisfy the local Body of Evidence requirements. Problems meeting the assessment requirements are unique for each district.”

The respondent making the statements above is attached to a virtual school and indicates he is running into these concerns in the course of playing an advocacy role for his school.

Related to these issues are two areas we find in which K-12 educators may misunderstand or suffer from confusion surrounding some of the WDE's policies related to distance education, one relating to the MOU process and the other relating to grants and funding.

The WDE has created a process for Memorandum of Understanding (MOU) agreements between host (virtual school) and resident (where learner resides) districts that relies on partnerships and inter-district negotiation. The intent of the MOU process is to help resident and non-resident districts reach an understanding of responsibilities involving funding and tracking pertinent to each learner's distance education program. The recommended process and minimal guidelines and requirements are outlined in the Wyoming Switchboard Network Resident District Handbook. Yet because the entire virtual school concept is so new and so few examples of MOUs exist, individual resident districts may fear that the process requires more effort than it's worth and thus then attempt to discourage local learners from enrolling in virtual schools. Related to this are concerns that negotiating a percentage split of the state's Average Daily Membership (ADM) per learner funds feels awkward to some districts. The very light hand taken by the WDE is designed to encourage autonomy – but the net result is that resident districts

may be reluctant to promote distance education if they believe they will lose ADM funds and have to work to enable individual learner involvement in distance education.

A \$500 (per learner) Distance Learning Incentive (DLI) – which the 2007 State Distance Education Task Force recommended be increased to \$850 or more – was replaced by the Legislature in 2008 by a pool of funds for Distance Education Grants (DEGs). The DEG is a bloc grant approach providing \$250,000 annually to primary, secondary, and post secondary educators for development and sustainability of distance education. The original DLI stipends were earmarked to encourage host districts to create distance education content that might be delivered to remote learners, and were considered by educators simple to administer, because they related to individual learners. The DEG, however, appears *to educators* to result in potentially relatively smaller sums of support, and some K-12 educators are ignoring the DEG because it appears to them to be far more trouble than applying for U.S. RUS grants. This consultant team had some difficulty interpreting the amounts available through the DEG program and believes the WDE could consider additional marketing and clarification of the specifics of program.

Districts with many small schools reportedly fear partnering with other districts due to a belief that this will lead to a perception that the smaller schools are not valid entities unto themselves and might be closed down. Ironically, distance education might provide a lifeline to small schools were they able to begin to deliver their teacher expertise remotely, but again, without leadership from the state, this will not happen.

Other concerns are that the Wyoming Switchboard Network concept – an offshoot of the 2007 Distance Education Task Force plan – and dual enrollment policies are created to support private industry (e.g., K-12.com) instead of public schools. The WDE faces major communications issues among its stakeholders, notwithstanding valiant efforts via the Fusion Community Pages, WEN Video Network efforts, Wyoming Switchboard Handbook, and the like. At the same time it is challenged to reach all of its stakeholders with the value proposition of distance education, as well as the carrots that could lead schools throughout the state to embrace distance education more willingly. While it has made an excellent first start in these efforts, more can be done from a programmatic fashion were the organization better resourced or current resources reallocated to support distance education.

Many throughout all levels of the educational system expressed the desire to see K-12 learners enter post secondary education or the workplace with greater experience with both technology and distance education. The state strategic plan for technology education is being rewritten currently but may address some aspects of these concerns.

5.5.5 University of Wyoming Concerns

The University of Wyoming (UW) reflects the centrality to the university's mission of outreach through the state, and as much as any organization we interviewed, distance education is embedded in the university's DNA. The university takes a very planning approach to distance education, reflected in its dozens of degree programs and courses available online – with 11 master's degree programs offered at a distance. The university uses eCollege to host online programs and content, and eCompanion for online course shell supplements.

We heard concerns from some learners throughout the state that they believe UW charges more for Outreach classes. In fact, some delivery fees for outreach courses (\$15/credit hour for non-online courses and \$40/credit hour – which goes directly to eCollege – for online courses) are charged, but at the same time the University does not charge Outreach students other standard local UW student fees, e.g., health, athletics, student union, etc. Currently approximately 21% of UW Outreach graduate and undergraduate credit hours are delivered to non-resident, out-of-state learners; 76.4% delivered to resident, in-state learners, and 2.63% to “special residency learners.” The university is considering raising out-of-state tuition by 50%, which would generate an additional sum of approximately \$414,000 annually.

The University is seeking ways to address challenges, e.g., how to adapt to rapidly evolving college-age learners with high expectations for technology, as well as an (often) older learner population reached through the Outreach School. In particular the Outreach School is seeking strategies and methods to evolve from the “brick-and-click” classroom model of technologies to scale to an even more robust set of blended outreach offerings, even though it already offers far more credit hours online (10,097 spring 2009) than via videoconferencing (1205), audio conferencing (1,407), or other purely real-time methods. One administrator said, “educators need to recognize that how people do learn varies, and how do we break out of classroom model...the Internet has changed the role of higher education. We as a university are not keeping up with the technology.” As someone else stated, “Students are living through the internet and handhelds. They sample course content in a smorgasbord fashion, locally, remotely, 24 x 7, in a 365/anywhere, anytime culture.” This presents its challenges to instructors accustomed to focusing on content and their own instructional styles.

Some concerns have been expressed that UW Outreach could take more courses online, and rely less on intensive weekend sessions, which are difficult for adult learners in particular to attend.

5.5.5.1 Credit Programs

Student expectations also present challenges to an organization accustomed to going the extra mile (literally sending instructors out to other sites) to evolve with the times and determine the best ways to grow programs over a distance. Certain successful departments, such as Education or Nursing, struggle to identify new delivery mechanisms, knowing that they cannot grow simply based on local enrollments. And yet planning programs is a challenge: the College of Education spent three years developing an undergraduate elementary education program for learners who could not move to Laramie. Expecting 60 enrollments statewide, but after two years of marketing, the program has only about 20 enrollments as of fall 2009.

Besides grappling with evolving technologies and evolving learner expectations, faculty resources are a challenge. While demand has steadily increased, it has not increased staff. This matters both for degree programs already offered via Outreach (where instructors understand heavy loads) and to departments that do not already have programs – which then do not provide the resources necessary to meet demand. This makes it hard for UWO to keep building a sustainable program – in effect, to scale.

5.5.5.2 Non-Credit Programs

A typical scenario for some departments might be the one faced by Cooperative Extension, which is housed in the College of Agriculture. This organization has field offices throughout the state – and uses some videoconferencing and has a 20-seat license to Adobe Connect. Cooperative Extension sees itself as a complementary method of promoting lifelong learning, focusing on community development, 4-H, and

youth development, among other charters. Yet it is challenged by lower tech “markets” that may not have sophisticated technologies or bandwidth, and competition with environments that may already be dedicated to using WEN videoconferencing resources, not Outreach Video Network resources. Cooperative Extension desires to improve the information it makes available to the public, and enhance the expertise of its field-based staff, but needs help in achieving that goal.

Because 25% of its operations budget comes from the State's Section 1 funding, and 75% from tuition and fees, UW Outreach is somewhat constrained from adding faculty until it knows the need exists for that faculty. A vision for the future – one that includes an understanding of where the state wishes to head economically, culturally, and socially, may be necessary to help it scale, but it may require legislative funding as well. Additional instructional designers that “cut across several technologies, not just on distance delivery” might help.

5.5.6 State Agency Concerns

While some agencies appear to be well-resourced for use of technologies in training (see technology discussion later in this section), many others are at the starting blocks and in dire need of help getting started. Some agencies have trainers accustomed to using nothing more than limited activities with videoconferencing – and are hamstrung by a culture of travel. Even agencies with outreach offices throughout the state appear limited in some circumstances by bandwidth, leadership constraints, training and space. Some agencies that possess videoconferencing use it only for meetings, not for training. Recent budget cuts and hiring freezes have contributed to a sense that new initiatives are not available. Yet some agencies, e.g., Workforce Development, have been working in concert with public and private partners to attempt an “e-Wyoming.com” initiative, a portal for all things related to education, training and development in Wyoming. Workforce's efforts are at an embryonic stage as of summer 2009, are not well resourced yet, and are not expected to be ready until sometime in 2010.

5.5.7 Telehealth Concerns

The Telehealth Network is currently working with the three large hospitals throughout the state to deliver continuing medical education (CME) credits to state nurses and doctors. Much of this programming comes from out of state, but the desire exists to build upon the talent of the state's resources. The state of Wyoming has a critical shortage of both nurses and qualified nursing instructors. Current practices and programs run by The University of Wyoming are showing gains in qualified nurses and an ability to build the instructor pipeline, but it is the hope of both the University and members of the telehealth initiative that this network might also help address the shortages.

The plan is for year two is to provide support for clinical work throughout the state, a well understood need. The Dean of Nursing at UW expressed her desire to utilize clinical opportunities to mentor and work with nurses participating at hospitals on-site. Local University nursing faculty could connect directly to the hospitals and locations of the clinical nurses to discuss progress with their students and the doctors and nurses overseeing their on-site work. “This would save a tremendous amount of money and meet the nurses on the clinical site in action.” Department of Health leadership expressed the need to reach patients in remote sites and to build strong connectivity within the network to allow doctors to treat and diagnose patients beyond the three major hospitals. A local legislator shared her concern that K-12 students and their families are underserved by clinical needs in their communities. “Many schools lack

counselors or adequate family counseling care in some of our remote areas of the state.” Similar concerns were expressed in a small rural area of the state by a mental health director concerned that there are many underserved citizens across all of Wyoming in need of mental health services. A strong, robust telehealth network outfitted not just for today’s needs, but designed for 10 to 15 years out, would well serve the citizens of Wyoming.

A third year for the program is intended to focus on adding emergency care medicine.

Those involved in the telehealth sector are asking for “central scheduling, stable funding, adequate bandwidth – and then get out of our way.” Some concern has been voiced that funding often is inconsistent. Funding initially was earmarked for the telehealth network, then during the implementation it was put on hold. Money is flowing again, but there is a concern that the Legislature might take it away again and that perhaps they just do not clearly understand the goals and vision of telehealth. The emergence and recent approval of a telehealth commission by the Legislature is a step in the right direction, but there is a strong need for continued stability in the funding.

5.5.8 Success Factors

General agreement exists that distance education is especially successful for organizations in which it is central to their mission and which typically dedicate sufficient resources for faculty and learner support. These organizations go out of their way to treat distance learners *the same way they treat their local learners*. Similarly, they frequently compensate instructors for teaching over distance, limit class sizes, provide instructional developers and training, and help promote distance education classes. Those for whom distance education is not part of their mission may be struggling with program delivery. State agencies are especially in need of guidance, with many trainers feeling no resources exist to help them create distance education programs.

5.5.9 Out-of-State Programs

Anecdotally, almost everyone believes they are losing learners to programs out of state. The number of individuals interviewed who indeed are going out of state for graduate programs is sufficient to warrant further study on the part of the state of Wyoming concerning its economic impact. See the survey results for a discussion of specific requests for additional programs.

5.5.10 Culture of Travel

Wyoming – more than many other states – has a strong culture of travel. It’s as if the long winters – and the populace’s general sociability – lead people to desire face-to-face contact whenever it is possible. This does create great opportunities for Distance Education and IP-based communications, however, as many respondents expressed the desire to travel less. “It’s not unusual to drive three hours for a one-hour meeting, and then return the same day.”

5.5.11 Shortage of Qualified Distance Educators

Those responsible for program delivery are fairly unanimous in stating that not enough educators are available to deliver programs and classes via distance education. The successful programs have classes

filling up and find it difficult to add classes without extensive preparation; all programs struggle to find qualified teachers willing to teach online.

This is important to note because even what is considered the flagship for distance education in Wyoming, UW Outreach, is “not scalable” and hitting a “brick wall” when it comes to faculty resources. At the same time, program delivery has its challenges, as in the case of a well-planned degree program that, after three years, has achieved only one third expected enrollment and is running in the red.

This also is behind the WDE's desire for a staged, phased-in approach to promoting the virtual school concept. The WDE faces a number of challenges in working with school districts on this topic, not the least the lack of consistent bell schedules and the over-arching belief in local control. As a result the WDE believes that phasing in a self-selecting set of virtual schools over time and creating the logistical infrastructure for supporting these schools via the Wyoming Switchboard Network will allow for organic, gradual growth in a climate not necessarily receptive to the concept of a “statewide 49th school district.” The WDE admits that it is in the very early stages of delivering on the needs for virtual schools and DE.

5.5.12 Shortage of Qualified Instructional Designers

Some community colleges have instructional designers on staff, as does UW, but a number of community colleges do not. This appears to be affecting the quality of online course programs, where some complaints were lodged that not all instructors are effective at transferring their traditional BAM content to an online or videoconferencing-based class.

5.5.13 Learner Expectations

Learners at K-12 and higher education levels are seeking more than institutions are able to offer in terms of technologies. Most respondents who discussed this topic indicated that they have trouble keeping up with the latest technologies, best practices, or ways they can improve their own teaching. At the same time, many believe there are too few educational alternatives. As one individual in the Big Horn Basin said, “There are no alternatives. We need another four-year institution OR to create a real distance education program.”

Learners today are tuned in to technology, especially if they have been involved in DE, and in turn they feel that the technology needs to stay best of breed in instructional design, delivery, and functionality.

5.5.14 Technology Issues

As one respondent indicated, “we need one or two massively resourced physical networks, with logical or virtual sub networks supported by sufficient bandwidth and tools.” At the same time, some state agencies appear to be properly resourced for technology, while others appear limited in technical prowess/resources. Historically agencies have been “an island unto themselves; access is a barrier and the biggest barrier is we're all doing our own thing....every agency figures out a way to meet a need. Wyoming was built for cowboys and self-reliant people don't want to change.”

Some respondents believe that technologies have not kept up with changing times, and that videoconferencing itself, while useful, is insufficient for many applications (while under-resourced in many regions). Many different Course Management Systems (CMS) are in use throughout the state:

Blackboard, Moodle, Sakai, ANGEL Learning were all referenced in conversations. Elluminate, Wimba, Adobe Connect, and Microsoft Live Meeting were all mentioned as web conferencing platforms.

5.5.15 Partnerships and Challenges

Creating common course numbering was an effective step forward in bringing together the community colleges and UW. Central Wyoming College, with the help of its fellow community colleges and UW as a part of the Wyoming Distance Education Consortium, took the lead in establishing the highly successful WyCLASS online course registration portal. This approach offers a model for delivering program information that could be emulated by the WDE and state agencies.

But partnerships between non-credit or personal enrichment providers have been harder to achieve, and a complementary effort to WyDEC has been established between UW, the Wyoming Community College Commission, UW Cooperative Extension, BOCES, and others. This effort is still in its early stages and could be a further model if properly resourced over time. “We have a lot of in-migration and out-migration, returning veterans with issues and disabilities, increasing ethnic/racial diversity. Wyoming is ahead of many states in dealing with these issues but we need more concrete structures, and concrete support for collaboration.” It was clear from interviews with providers and consumers of *adult-learner* distance education that the same type of resource made available by WyCLASS is highly desirable for adult learners. The impact on communities throughout Wyoming would be profound.

5.5.16 Barriers to Success -- Myths

The interviews (and focus groups) highlight a number of contradictions. Wyomingites are sociable yet self-reliant. They want support from the state but they want it “their way.” They feel that the Legislature giveth and then taketh away with too much frequency. And they feel a number of myths exist that should be dispelled. For those involved deeply with distance education, these include:

- Community colleges are redundant – Each community college does appear to offer unique programmatic content (though they vary in distance education learner credit hours and depth of their programs).
- General education is not as important to distance education as are specialized programs – While this is subject to debate, it is clear that distance education general education courses get filled at some community colleges, if not all.
- Distance education is easier than in-person learning – Many people (administrators, teachers and learners alike) are concerned that distance education is dismissed as easy, less demanding than traditional coursework. They believe in fact that distance education is harder to deliver and requires more attention from the learner. Relatively higher attrition rates ironically may not dispel this myth, with blame instead placed on the learner as disengaged or having less at stake to complete the coursework. This led many respondents to focus on how the state needs greater information concerning how one should learn online, which types of learners are suited to distance education, and so on.

6 Appendix III: Survey Results

6.1 Methodology

The survey was conducted online between May 29 and June 16, 2009. Invitations to take the survey were sent via email to a wide variety of stakeholders by members of the Governor’s Task Force on Distance Education, Videoconferencing, and IP-Based Communications Task Force. Surveys were completed by K-12, community college, and university learners; learners in lifelong learning or professional development classes; educators, administrators, policymakers, and general community members. Additional stakeholders were notified of the survey’s availability via University of Wyoming press communications.

Prizes were offered as incentives in the form of a drawing for one of ten \$50 gift certificates to Amazon.com. A total of 1048 survey submissions were received, of which 976 were deemed valid as follows:

- Of the 361 “educator” responses submitted, 357 were deemed valid and were used for this analysis.
- Of the 687 “learner” responses submitted ...
 - 573 indicated that they (or if a Parent that their children) have taken courses using distance education technologies (Question 2-2AB) and thus were eligible to take the “learner” branch of the survey. One submission did not complete any questions, so 572 were deemed valid and were used for this analysis.
 - The remaining 114 indicated that they have NOT taken courses using distance education technologies and thus were presented with the final two verbatim questions only (Questions 2-7AB, 2-8A). Of these, 47 provided valid verbatim responses and 67 did not provide valid verbatim responses (failed to enter any information).

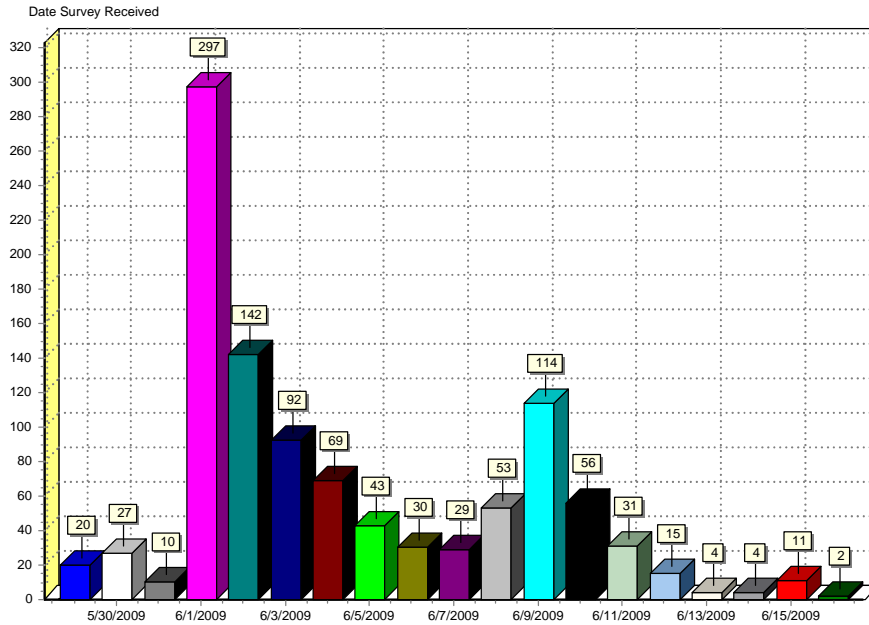


Figure 4 – Survey responses by date

6.2 Survey Questions and Analysis

6.2.1.1 1) Which best describes your involvement or interest in education?

- Teacher/Professor/instructional designer (1A)
- School technology coordinator/IT/Distance Learning Coordinator (1B)
- Educational administration (Director, Dean, Provost, Principal) (1B)
- Policymaker (state/local government) (1B)
- Parent (2B)
- Student (K-12) (2A)
- Student (any age) enrolled in higher education/community college (2A)
- Adult learner (workforce/general business community/professional development) (2A)
- Other (specify below) (2A)

Because of the respondent totals, we grouped together educators as anyone involved in the business of delivering education (teachers, policymakers, administrators). These individuals may have been branched differently based on their self-identification but the answer sets were relatively identical, with one exception: Teachers / Professors / Technology Coordinators were asked one unique question (see Question 9).

We grouped together parents, all learners, and those who self-identified as “other” in the learner group. The parents were asked one set of questions based on the learners for whom they were responding, while the learners were asked the same set of questions. Parent and learner questions and response sets were reworded as appropriate to the audience. Those who were self-identified as “other” were presented with the final two questions only.

For Educators (1A & 1B, n=357):

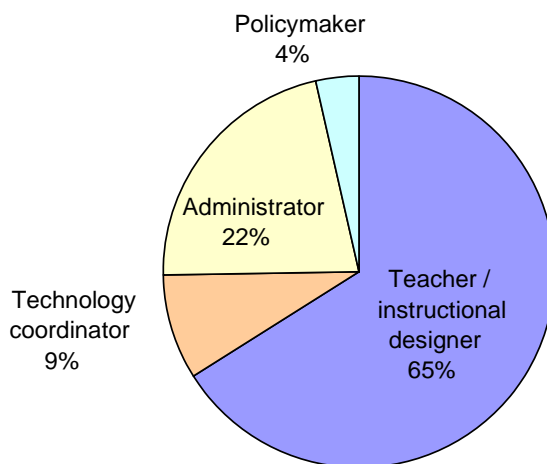


Figure 5 – Role of Educator Involvement in Distance Education

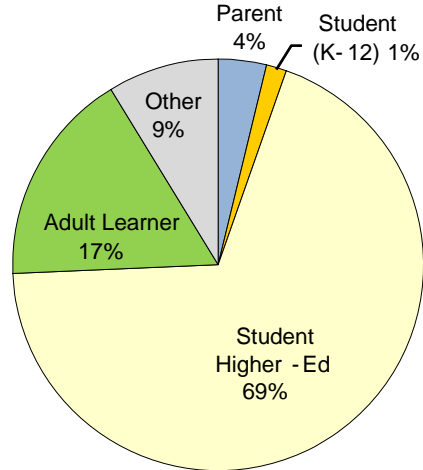
For Learners (2A & 2B, n=686):

Figure 6 – Learner Involvement in Distance Education

Other:

- 5x⁶ learners and also parents
- 2x Nursing
- 2x Parent
- 2x State Agency
- 9-12 Educator and Masters Program Student
- Administrative Assistant to VP
- Adult parent and learner - Nursing degree advisor
- All of the Above!
- also work with Outreach via job and student!
- and Teacher
- Architect
- Board member
- Both a parent and a student
- Both Instructor and Adult Learner
- both student and instructor
- Broadcast Content Manager
- certification in Land Surveying
- College Grad looking for a teaching job
- Community member
- Criminal Justice
- Current Student Completing Associate Degree
- currently a graduate student working full time
- Director, CWC Foundation
- Distance Ed Tech
- Journalist
- Law Enforcement
- Librarian
- Librarian/Student Program Coordinator
- library staff for UW, attending MLIS program online through another institution
- marketer of continuing education courses & conferences
- Masters student
- My interests in education are the students. We owe them the very best we can offer.
- Myself, To be able to take care of my Family better than if I had no College Degree
- network transmission provider
- No direct interest
- no direct involvement or interest in education. support services for WEN
- Nurse Practitioner Program
- Office Assistant
- Office help
- Outreach Academic Advisor
- Outreach office
- Outreach Staff
- parent, former school board member, online student
- Produce educational materials
- Professional Association

⁶ 5x (as an example) means five learners identified themselves as both learners and parents. Note that if respondents chose to self-identify as "Other" they were free to add any comments, and many did so.

- distance ed. student
- distance education advisor
- Distance educator
- Doctoral student
- Education Consultant
- Educational manager
- Educational Marketing for Special Programming
- Electronics Engineer -- LEARNER
- Employee
- Employee training and development
- ex-teacher/ wanting to be re-employed
- Federal Programs Unit; Wyoming Dept. of Ed.
- Graduate
- Graduate program coordinator
- Grant Manager
- help desk/ tech support for WEN
- I am also a learner, getting Masters on line
- I am also a student taking graduate classes through UW
- I am also an adult learner
- I cover education issues
- I obtained a Reading Endorsement while working.
- Interested in overall video requirements/administration in the state
- IT Administrator
- It is my job to be interested and involved. I have worked at the University of Wyoming for over 18 years.
- Professional Licensing Boards
- Professional Staff
- Programs in literacy
- Recent college graduate
- recent UW grad
- reporter
- Research
- Researcher
- Run audio & video equipment, monitor classes, etc.
- Second Bachelor Degree
- Speech Therapy
- Sports administrator
- staff
- Staff University of Wyoming
- State Coordinator for industry programs
- State IT employee
- Student/ enrolled at University
- teacher of early childhood
- Teacher/Grad Student
- University Staff Employee
- UW student
- Video Scheduling & technical support
- wife of UW Professor

BRANCHES:

1A) EDUCATORS, 1B) POLICYMAKERS/ADMINISTRATORS

2A) LEARNERS, 2B) PARENTS

<BRANCHES 1A) EDUCATORS & 1B) POLICYMAKERS/ADMINISTRATORS, n=357 >

6.2.1.2 1-2) At what educational level do you provide instruction?

(Check all that apply)

- K-12
- Community college
- University
- Remedial (GED/ABE/ESL), Adult learners (Continuing Medical/Legal education)
- Workforce development (vocational rehab/vocational education)
- Professional Development/Lifelong Learning (including state agency licensing programs, continuing professional education, or personal development/enrichment)
- Other (specify below)

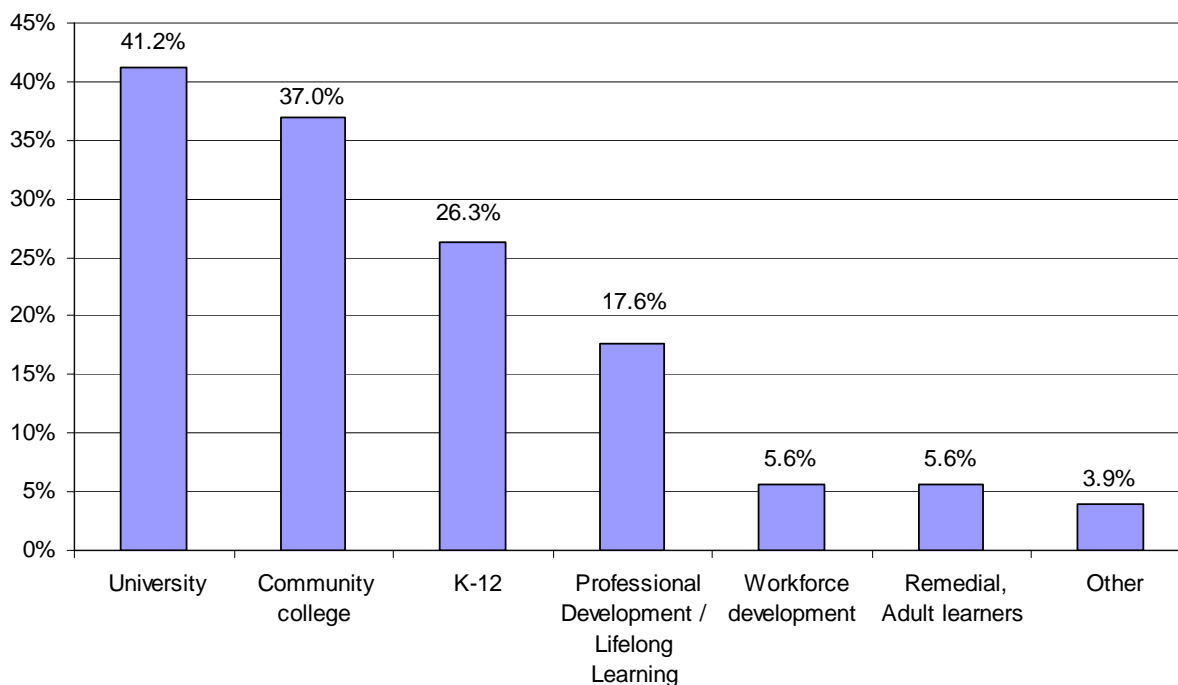


Figure 7 – Educational Level Instructed

Note that those involved in delivering education may deliver to multiple stakeholder groups, and because they could select all that apply, adding the results exceeds 100%. The bulk of respondents deliver to university or community college learners (41.2% and 37.0% respectively). One out of four (26.3%) are involved in K-12 education. Almost one in five (17.6%) are involved in professional development/lifelong learning. Workforce development and remedial or adult learners comprise 5.6% each.

Other:

- 3x Do not provide instruction
- 9-12
- Adult education, professional development
- Birth to Five
- community health
- desire to open educational center for teen parents
- Distance Graduate Program clinical Master's degree
- GED Program Manager-State agency
- I am a guest lecturer from time to time
- I work across K-12 and higher education
- Nicolaysen Art Museum
- Post Graduate Medical Education
- Pre-school (Head Start)
- Pre-Service and In-Service training for state employees
- Program Manager
- University employees

6.2.1.3 1-3) Why did your organization originally decide to get involved in distance learning?

(Check all that apply)

- Meet college course demands/provide a degree or certificate program
- Meet needs of students in small communities
- Meet post graduate continuing education needs
- Offer shared K-12 courses (Advanced Placement, dual credit, district to district)
- Meet scheduling needs of working students
- Provide curriculum enrichment opportunities
- Provide professional development or lifelong learning opportunities
- Administrative purposes (meetings, administrator/educator collaboration)
- Student-to-student interactions
- External factors: cost of gas & energy, environmental & "green" issues, economic slow-down
- Other (specify below)

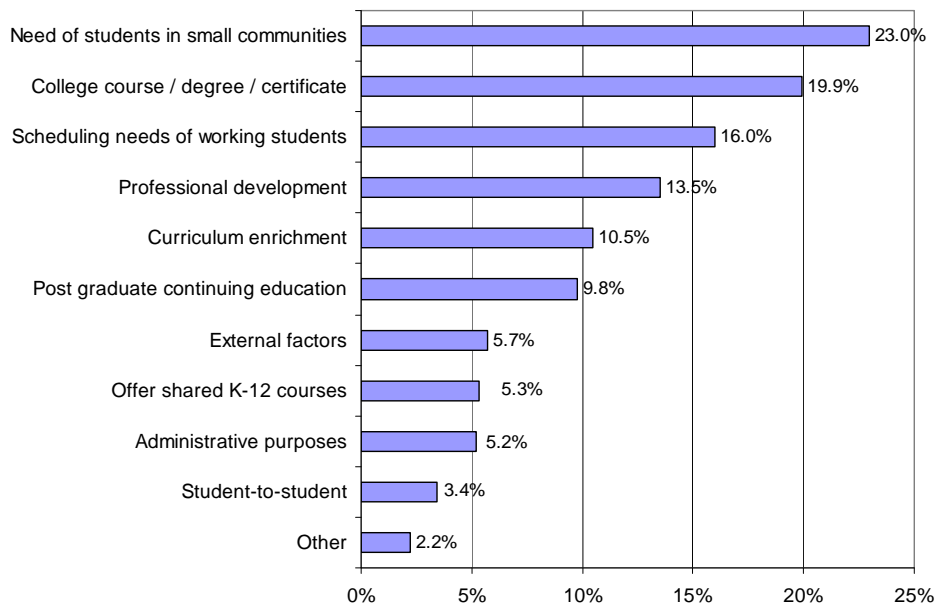


Figure 8 – Original Involvement in Distance Learning

Addressing the needs of learners in small communities (23%) and meeting demands for college degree or certificate programs (19.9%) are the top two reasons educators became involved in distance education. Meeting the scheduling needs of working students outpaces all others, with 16% selecting that reason. Provide professional development/lifelong learning was selected by 13.5%. And about one in ten mention curriculum enrichment opportunities (10.5%) and/or post graduate continuing education needs (9.8%).

If nothing else, this chart demonstrates the many *diverse* drivers for distance education in Wyoming.

Other comments include:

- 4x Don't know
- 2x Credit Recovery
- Meet the needs of the organization as a whole, where 1/4 of our students are distance learners.
- Increase enrollment and stay on the cutting edge
- Develop a Nursing Degree program for local interest in nursing
- unable to find instructors to go to prisons
- Program Design
- some staff pushing for it
- WEN Video is required by mandate
- Western State Universities saw that online fills needs of many distance learners
- Provide courses to a wider group of students
- Needed articulation agreement for Perkins Money
- increase access to higher education
- My district does not I teach independently with various colleges and universities
- Research projects with faculty and students at other universities
- I wanted to try the technology to see if I like teaching that way.
- Personal for me to earn my degree for my career
- good pedagogical approach to the topic
- I was teaching when I was in Laramie, continued when I moved away
- I work on the tech side of things
- Jump on the "novelty" wagon
- Outreach is part of the mission of UW
- To provide better services to our students in a K-8 district who were being transported to another district for High School
- I participate as an adjunct instructor
- Provide opportunity for students who live in far from the college
- Part of Land Grant University mission.
- These are the ones I am aware of
- Meet needs of students in other communities
- I do not believe or have knowledge of my district engaging in distance learning. I believe it is one of our weaknesses.

6.2.1.4 1-4) Please select which application(s) for distance education your organization initially implemented when you first introduced technology/programs, and the most significant application(s) for distance education in your organization today.

(Check all that apply)

	Initial applications	Significant applications today
Credit course delivery	<input type="checkbox"/>	<input type="checkbox"/>
Credit recovery (complete unfinished courses)	<input type="checkbox"/>	<input type="checkbox"/>
Dual credit (Advanced Placement, shared credit) coursework	<input type="checkbox"/>	<input type="checkbox"/>
Degree or certificate delivery to students unable to attend the main campus	<input type="checkbox"/>	<input type="checkbox"/>
Create cohorts of students from the University's Outreach program to complete a program	<input type="checkbox"/>	<input type="checkbox"/>
Curriculum enrichment using material from content providers	<input type="checkbox"/>	<input type="checkbox"/>
Curriculum enrichment using teacher developed collaborative projects (either as originator or participant)	<input type="checkbox"/>	<input type="checkbox"/>
Professional development or lifelong learning opportunities	<input type="checkbox"/>	<input type="checkbox"/>
Administrative purposes and collaboration (meetings, curriculum planning etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Learner content creation / collaboration between learners	<input type="checkbox"/>	<input type="checkbox"/>
Local community use	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify below)	<input type="checkbox"/>	<input type="checkbox"/>

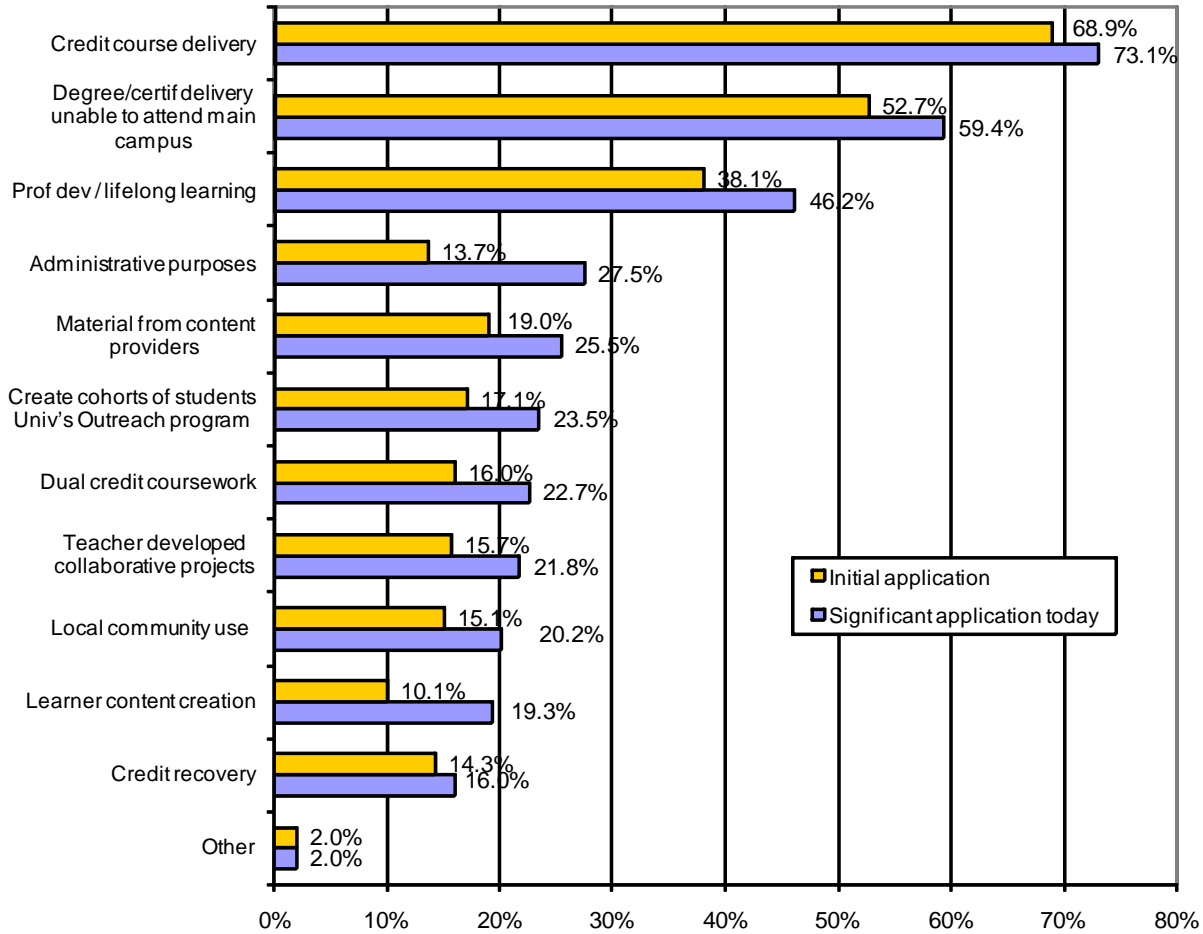


Figure 9 – Initial vs. Significant Application Today

These responses are influenced by the very large numbers of higher education and community college respondents in comparison to K-12 respondents. Course delivery and the inability to attend a main campus for a degree or certificate program are the top initial applications and the most significant applications today for those we surveyed. Almost three in four respondents cite credit course delivery, which maps to the numbers of higher education and community college respondents.

The third top driver is to provide lifelong learning, now important to 46.2% of respondents. Note the growth in administrative applications; only 13.7% saw administration as a valuable application initially, in contrast to 27.5% today.

Note also the rapid growth of some of the less common applications, from accessing material from content providers to teacher developed collaborative projects to learner content creation. The fact that the latter has grown from 10.1% to 19.3% (8.2%) suggests that interest in this activity is growing.

Note: Due to a survey coding oversight, “Other” was NOT captured for the 7 respondents who checked “other” for this question.

The following chart takes a look at the data behind “Significant application today” cross-tabulated with the responses from question 1-2) “At what educational level do you provide instruction?” The data behind each application has been normalized to 100% for better visualization.

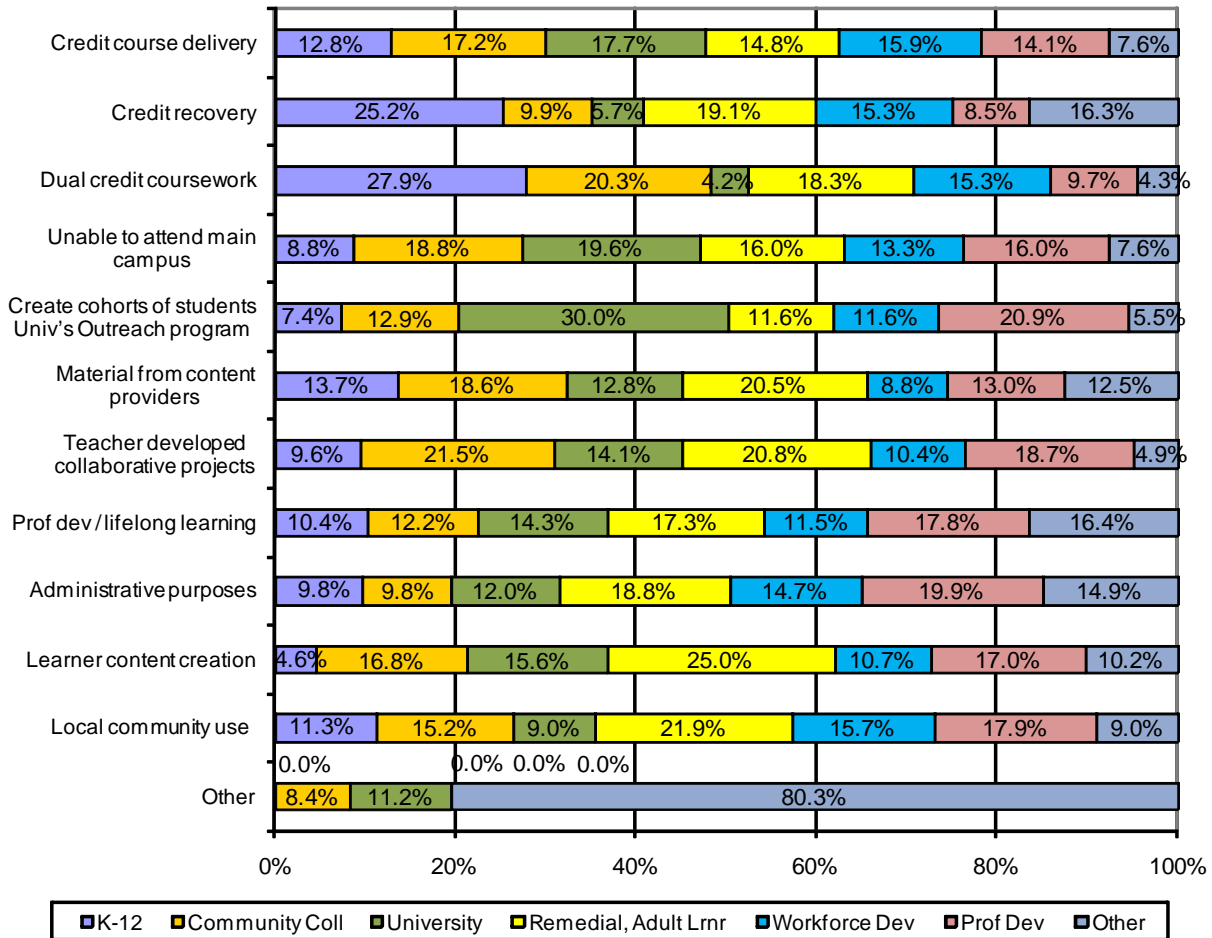


Figure 10 – Significant Application Today by Educational Level

Not surprisingly, the survey respondents emphasize different applications based on their organizational charter and distance education programs. Dual credit coursework is significant to K-12 and community colleges, as well as those involved in remedial work and workforce development, far more than for University educators. Credit recovery is important to similar groups, with a less significant number of community colleges registering this application. Creating cohorts of learners is important to UW educators, while supporting local community use is less important.

K-12 lags when it comes to learner content creation, whereas those involved in delivery of remedial work to adult learners registers the highest amount here, 25%.

6.2.1.5 1-5) Looking forward THREE years, please choose the top three applications for distance education (from the above list) and rank them in the order of importance you think they will be to your organization.

1. (pull-down list selection of 12 applications)
2. (pull-down list selection of 12 applications)
3. (pull-down list selection of 12 applications)

See previous question for list of applications.
 Weighted: 1st choice 3 points, 2nd choice 2 points, 3rd choice 1 point
 Percentage is the % of total points available (sums to 100%)
 Sorted by All Choices (Weighted)

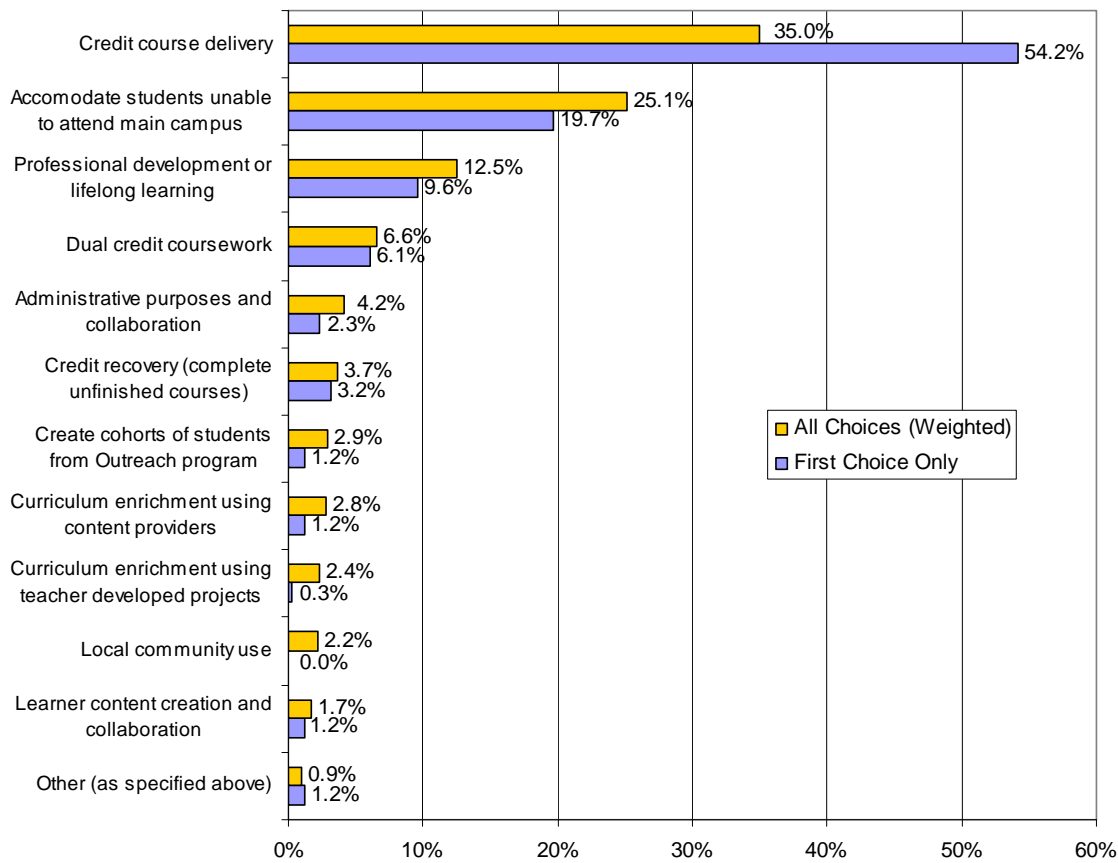


Figure 11 – Top Applications for Distance Education in Three Years

This question forces respondents to identify only their top three applications for distance education by order of importance. Figure 11 highlights credit course delivery as the number one choice for more than half of respondents – especially if they had to choose one single application. Note the large number of those citing professional development/lifelong learning.

6.2.1.6 1-6) How are you conducting or receiving professional development in your organization?

(Check all that apply)

- Audio teleconferencing
- Large "virtual" group videoconferencing in multiple sites/rooms
- Desktop videoconferencing
- Online on demand (streaming video, podcasts, audio threads, wikis)
- Course Management Systems/Learning Management Systems (Blackboard, Moodle, eCollege)
- Web conferencing
- Traditional face to face training
- Other (specify below)

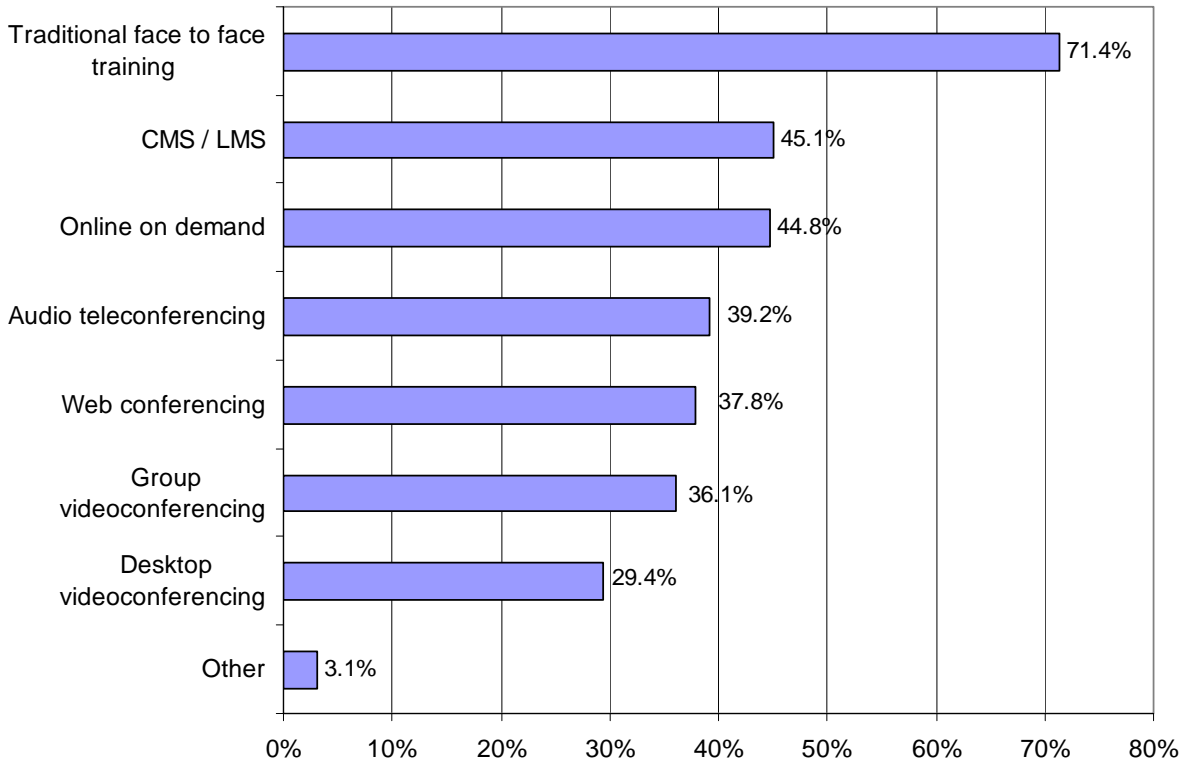


Figure 12 – Vehicle for Professional Development

Traditional face-to-face training is the number 1 method of delivering professional development throughout Wyoming: three out of four respondents still use face-to-face training. This is followed by course management system/learning management system (CMS/LMS) platforms (45.1%), online on demand rich media (44.8%), audio teleconferencing (39.2%), web conferencing (37.8%), group videoconferencing (36.1%), and desktop videoconferencing (29.4%).

This chart demonstrates several things: 1) organizations continue to meet and/or send staff for professional development; 2) organizations use virtually all possible technologies currently in play in the state, even some one might not think are conducive to professional development, e.g., audio conferencing and videoconferencing; and 3) organizations use a mix of real-time and on demand tools.

Other:

- 2x I am not at this time.
- Participation in WyDEC conferences
- I am developing my own medical transcription curriculum.
- Small group videoconferencing
- Conferences and internal training
- travel to conferences, seminars, etc.
- Still some travel involved!
- Conferences when there was money
- combined web based and video conferencing
- Correspondence Study (Flexible Enrollment)
- attending conferences and workshops
- none of the above
- online courses
- My "other" includes going to a convention or conference every year or every other year. Several of the above options have been available here at my workplace, but I've failed to take advantage of them
- I am not in a position to answer these questions for UW in general. I teach one correspondence course.
- WEN
- this doesn't really apply to professors -- we do pd on our own
- Wiki or blog interactions

6.2.1.7 1-7 & 1-8) To what extent are the following distance learning technologies being used in your organization(s) TODAY? IN THREE YEARS?

	High use	Medium use	Some use	Do not use
Audio teleconferencing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Videoconferencing (two-way interactive video)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video streaming (one-way video)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web-based (online) courses or content e.g., audio threads, podcasts, vodcasts, archived segments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web camera applications (Skype, AOL AIM, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web conferencing / virtual classrooms (Elluminate, WebEx, Adobe Connect, Wimba)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter/Facebook/social networking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Second Life/virtual worlds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Course Management Systems/Learning Management Systems (Blackboard, Moodle, Angel Learning, eCollege/eCompanion, and NING)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic whiteboards (SMART, Promethean, mimio)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Simulation software/games	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe) _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Weighted: High use: 3 points, Medium use: 2 points, Some use: 1 point, Do not use: 0 points
 Sorted by “In Three Years”

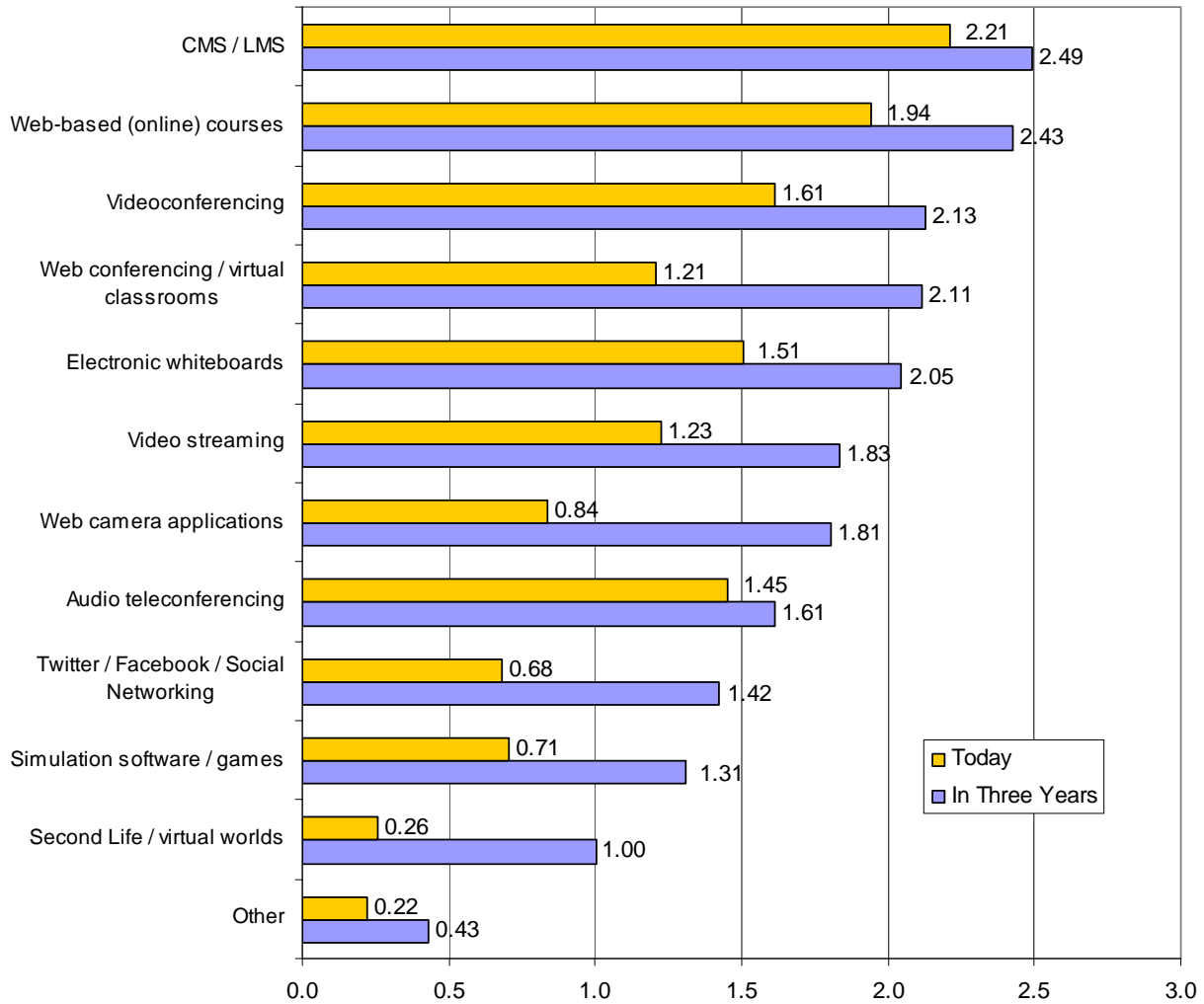


Figure 13 – Use of Distance Education Technologies 2009 and by 2012

This chart shows a very healthy set of distance education technologies in use today, beginning with CMS/LMS’s, online courses, videoconferencing, electronic whiteboards, and audio conferencing (in that rank order). There is no clear winner among these technologies, in some respects, as each serves its purpose. The need or desire for certain – but not all – technologies is likely, even expected, to grow significantly over the next three years. This includes more online courses, videoconferencing, web conferencing/virtual classrooms, electronic whiteboards, web cam applications (including desktop video), and social networking/simulation/virtual world tools.

Comments Today:

- not sure about all of these
- I am not entirely sure, I am new.
- Skype, AOL AIM, etc. do not meet state requirements
- I don't know all my org is doing
- as adjunct instructor don't have complete pix
- Broadcast - lifelong learning
- Hard to comment on whole organization
- Once again, the above are guesses.
- I answered as UW instructor, not employee
- I use many different distance forums
- simulation software/games needed
- clickers, web activities
- I am answering about my own use, not UWO
- help--- I only know how to answer for me
- Illuminate/ecompanion
- Traditional materials supporting online
- Don't know @ Second Life & Sim software
- I am not sure what my district is using.

Comments In 3 years:

- depends on getting the equipment
- Broadcast - lifelong learning
- These responses are based on my use
- faculty rejected an online course in Bio
- UW needs to use all available technology
- I don't know
- Perhaps combinations of technologies
- Obviously, I am not the right person!
- I am answering about my own use, not UWO
- I cannot predict any of these. ?????
- I really don't know the programs.
- Don't know @ Second Life & Sim software

<BRANCH: Question 9 is for 1A) EDUCATORS only, n=236>

6.2.1.8 1-9A) If you have participated in collaborative distance education / instructor-led cohort projects, with whom did you partner?

(Check all that apply)

- Teachers/faculty/instructors in my institution, district, organization or region
- Teachers/faculty/instructors in Wyoming
- Teachers/faculty/instructors in the United States
- Teacher/faculty/instructors in other countries
- Content providers in the United States
- Content providers in other countries
- Other (specify below)

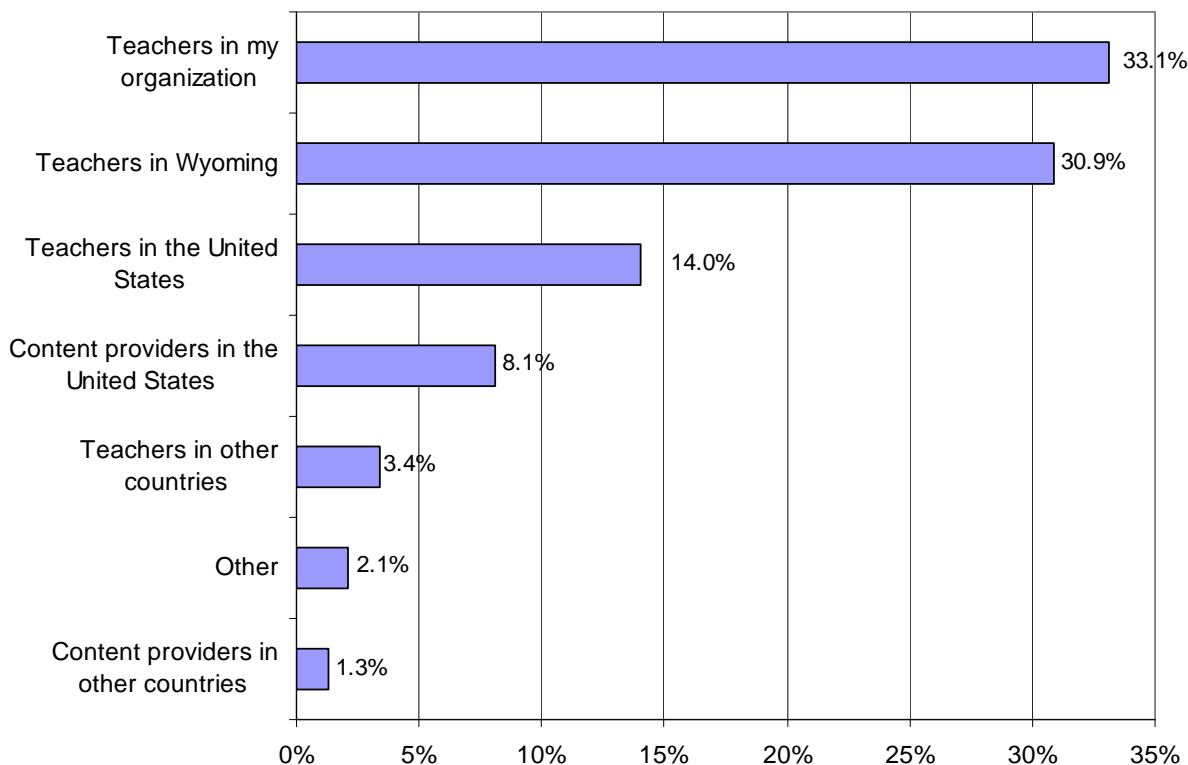


Figure 14 – Partners in Collaborative Projects

This question applies only to classroom educators, not to policymakers or technology coordinators. It shows very little collaboration with educators or content providers outside of Wyoming, reflects some insularity, and highlights an opportunity. Fewer than one in ten draw on content providers in other states, while slightly more than that (14%) work with educators in the rest of the U.S. Were Wyoming to be conducting distance education more actively, much more contact with outside educators and content providers would be taking place.

Other comments:

- 2x None
- 2x N/A
- 2x Have not participated
- I have not personally taught but connected
- did not
- Neither
- Do not know.

<END BRANCH>

6.2.1.9 1-10) Do you monitor any of the following to measure the effectiveness of distance learning instruction?

(Check all that apply)

- Grades and/or academic achievement
- Course completion rates
- Course feedback forms, teaching evaluations, student comments
- Interaction as a vital component vs. "lecture"
- Input from / responsiveness of instructor
- Standard design or Layout for CMS
- Registration rates
- Attendance / attrition rates
- We do not measure or assess the effectiveness of distance learning
- Other (specify below)

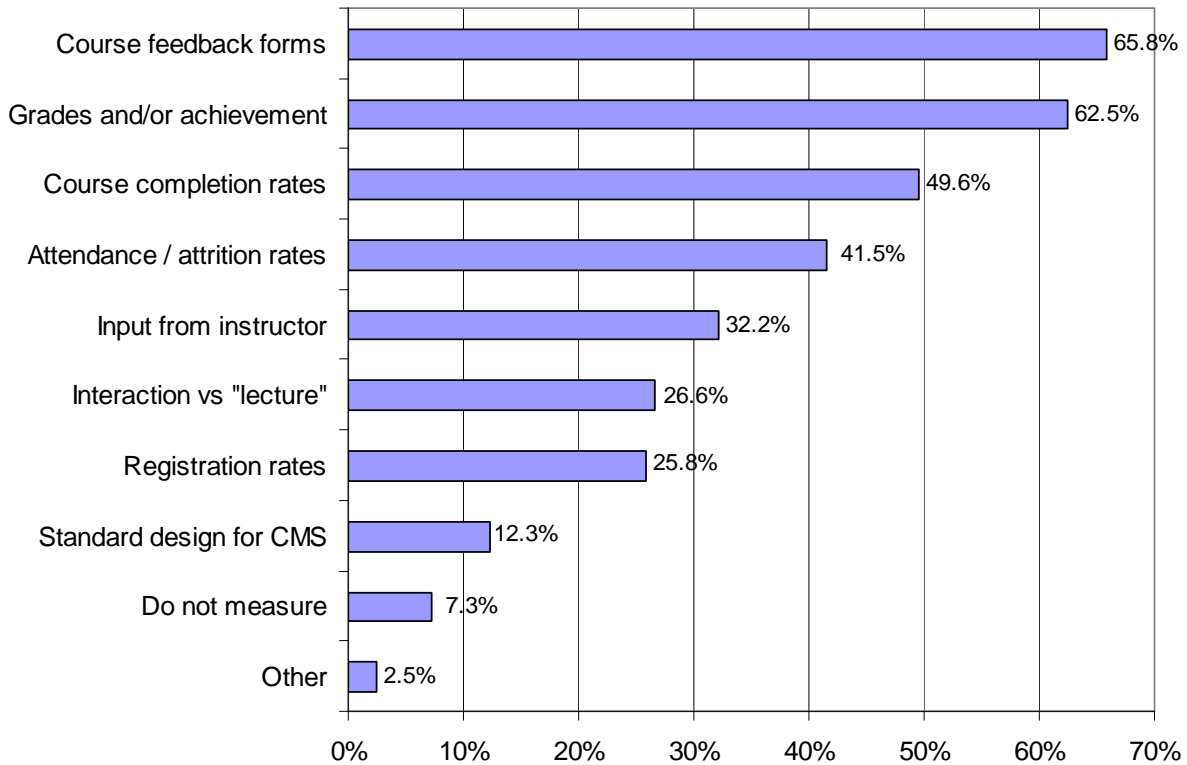


Figure 15 – Methods to Measure DL Effectiveness

Course feedback forms, grades or achievement, and course completion rates are the top methods for assessing effectiveness of distance instruction – which demonstrates that metrics for assessing distance education are taken seriously. With as many CMS platforms now available throughout the state, and the amount of online instruction taking place, it is surprising that CMS standard design templates are not more frequently used (12.3%). But it’s quite possible that educators are relying on other assessment methods available to them, and course feedback forms and other more easily counted outcomes are relied upon because of their ease of deployment.

While 26.6% cite interaction as a vital component of distance education vs. lecture, if three out of four are not monitoring interactivity, it may highlight the need for online instructors to spend more time monitoring learner engagement.

Other:

- | | |
|---|---|
| ➤ Don't know | ➤ I am currently enrolled and will assess in July. |
| ➤ I do not monitor distance learning courses. | ➤ Ethnicity, Gender, Pedagogy/Androgogy, technology effectiveness |
| ➤ I'm not personally responsible for assessing distance learning instruction. | ➤ We should do some actual observation, but we have not implemented that yet. |
| ➤ not systematically assessed, but should be | ➤ I "monitor" the course I offer, only. |
| ➤ Student feedback here in the Lander Center | ➤ I am answering about my own use, not UWO |
| ➤ I do not have authority to measure | ➤ I do none of these. |
| ➤ Surveys | ➤ we will begin assessing distance ed soon |
| ➤ not really | ➤ We have a pacer for the students. |
| ➤ overall grades compared to past grades. | ➤ I am making assumptions on the above. |
| ➤ N/A | ➤ It is different based on whether I am a student or a teacher at the time. |
| ➤ Do not know. | |
| ➤ Anecdotal data only | |

6.2.1.10 1-11) Do you face any of the following network connectivity issues pertaining to your distance education technologies?

(Check all that apply)

- Insufficient network bandwidth due to a limited "last mile" connection
- We have too many other competing applications for the amount of bandwidth we have presently.
- Systems on a closed network - cannot connect to Internet-based content / systems outside your district or state
- The cost of using the network
- Other (specify below)

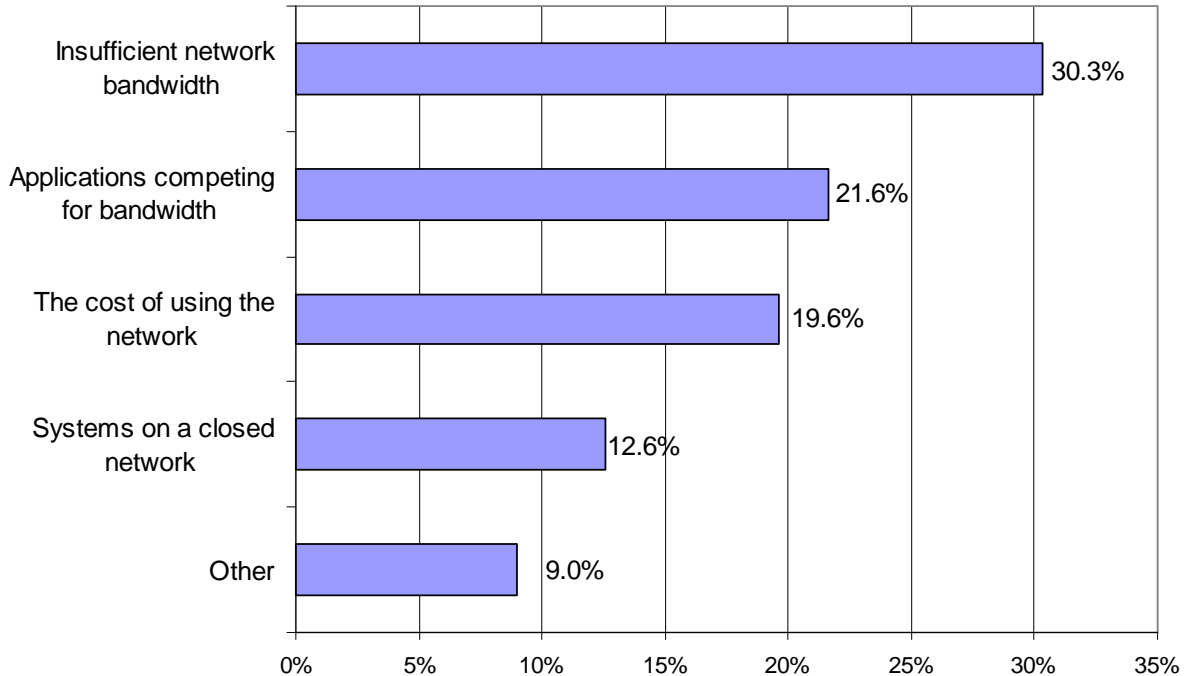


Figure 16 – Network Issues Pertaining to Distance Education

Figure 16 speaks to bandwidth issues throughout the state of Wyoming, and lack of sufficient bandwidth is a significant issue among this group. Almost one third (30.3%) cite insufficient bandwidth due to last mile issues that impact their distance education technologies. One in five (21.6%) indicate they have too many applications competing for limited bandwidth. A similar number, 19.6%, cite network costs as a negative.

Other:

- 7x Don't know
- 6x none
- Distant students may encounter bandwidth and cost
- Sometimes there are problems but we don't know why
- I don't know what all of this means
- Sometimes the system is down for a short time
- High cost for Individual Professional Development
- Technology issues using Blackboard
- I do not have information about these issues.
- Twitter and Facebook are not allowed by the state
- no issues from bandwidth
- Tech costs and staffing at each center
- these text boxes are too short to explain.
- The brick and mortar mentality
- not available in towns--student drive too far
- Ask Lois Davis & Dave Siemens
- no issues...distance education is a priority
- video systems are not in dedicated - classrooms
- Video conferencing capacity is low time wise
- Try to be open, interoperability of networks
- interconnectivity issues with other networks, WEN
- Not qualified to diagnose the problems.
- Students lack fast connection and equip.
- no redundancy-if network goes down it is down
- Once these issues are identified, we CORRECT them!
- NA to my situation
- School District filtering
- hard to communicate without seeing each other
- The WEN rooms are occupied and not available.
- Correspondence always works fine!
- Multiple users unable to videoconference concurrently
- Rural area connectivity and speed issues
- I pay monthly cable bill to teach online
- Lack of Wi-Fi access

- application
- New program - no data yet
- Dependency on state network/little local control
- availability of teleconference class rooms
- "presently" means "in the future"—try "at present"
- No technology issues. Everything has worked well
- We do have issues connecting to the University

<NOTE: The next question is worded differently for these audiences>

<Wording for EDUCATORS and COORDINATORS >

6.2.1.11 1-12A) Does your organization face any of the following obstacles in delivering or receiving distance education courses/activities?

<Wording for POLICYMAKERS and ADMINISTRATORS >

6.2.1.12 1-12B) What do you see as the major obstacles in delivering or receiving distance education coursework/activities in your area of Wyoming?

	Large issue	Minor issue	Not an issue
Insufficient network bandwidth due to a limited "last mile" connection	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding challenges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of equipment/technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inferior equipment/technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of content/programs/educational resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of staffing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of acceptance of and trust in technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of awareness of the possibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of policy/leadership from the state	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please identify) _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sorted by total (“is an issue”):

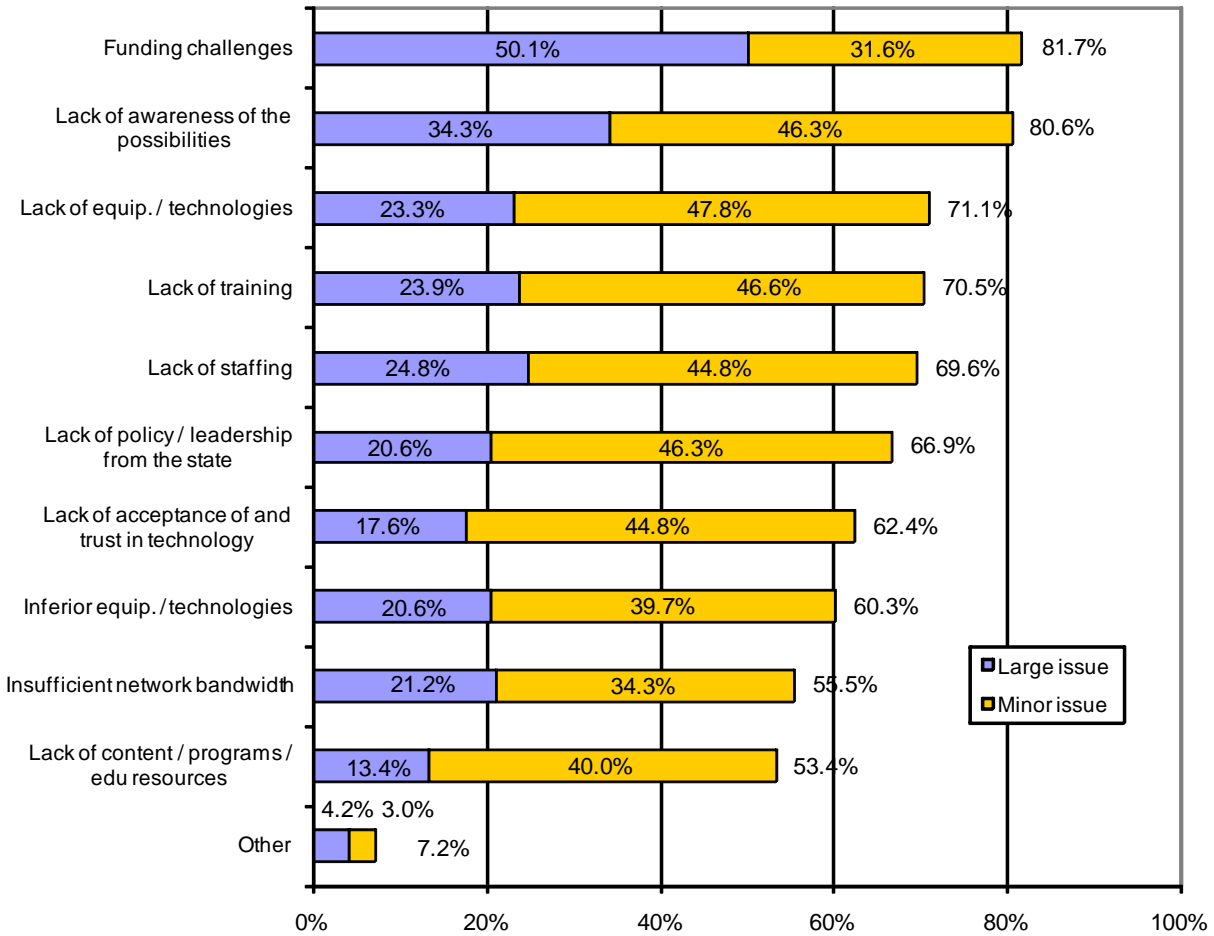


Figure 17 – Obstacles in Delivering Distance Education

Figure 17 consolidates input from educators and policymakers, and shows the challenges they perceive the state of Wyoming faces in delivering distance education. Funding challenges, not surprisingly, are the single biggest obstacle, with four out of five citing funding as a large or minor issue – but 50% believe it is a large issue. Lack of awareness of the possibilities is an equally high number, 80.6%. This points to the need for greater communications, training, program development, and outreach. These are cited individually in responses that follow: lack of equipment/technologies (71.1%), lack of training (70.5%), lack of staffing (69.6%), and lack of policy/leadership from the state (66.8%).

More than half of all educators, policymakers, and administrators believe *the entire list of obstacles is an issue*. This suggests that the timing for major overhaul and improvements could not occur any too soon.

Other comments:**Educators / Coordinators:**

- threat of loss of local control by state
- faculty feel employment threatened
- WDE delivery and involvement has diminished over the last four year
- Always a glitch with videoconferencing
- Bandwidth is always an issue!!!!
- I don't have the knowledge to fill this section out.
- Certain sites in Wyo are challenging for bandwidth
- Once again, I don't feel qualified to fully diagnose.
- Need release time to implement new technol.
- Pay issues--pay inadequate for the amount of work involved to "do it right."
- Not known to me as instructor
- Administrators are territorial with the technology
- two different video link systems in state--bad idea.
- I need instructor health insurance
- lack of effective communication among coordinators of all systems
- Just guessing here. Not my arena.
- Lack of knowledge and "buy-in" on the district level.

Policy / Admins:

- Not in Wyoming; neighboring state
- lack of redundancy
- Software CMS providers restrict instructional flexibility and institutional cont
- The Distance Education rules are already outdated themselves

6.2.1.13 1-13) What distance education-based programs, tools, or technologies would you like to see made available to your institution, organization, community, and learners to enhance educational opportunities?

6.2.1.14 1-14) Do you have any other comments to make concerning distance education in Wyoming?

N = 183

Feature	# of responses
Better technology	90
Better management/use of resources	71
Instruction provided on how to use different distance learning technologies	31
More student/instructor training for how to use	30
Broader range of courses	22
Happy as is	13
Funding/Grants for developing curricula/research/technology	12
More classroom video-based courses	12
Helps address weather/driving distance challenges	12
Make it more affordable	9
Quality of courses needs to be equal to traditional classrooms	8
Better information about available programs / more accessible program guides	8
Better internet access / increased bandwidth	7
More web/online-based courses	5
More degree programs in areas not offered today	5
More professional development online	5
Hybrid classes (blend of distance learning and in-person sessions)	5
More webcam / desktop video courses	4
Virtual capability	3
Better teachers more engaged with me as a remote learner	3
More certification / continuing education courses	2
More remedial ABE/GED online resources	2
Use of medical simulation models	2
Better expectation setting regarding learner / teacher requirements	2
Seamless registration for statewide enrollment system for community colleges	1

The verbatim comments, in which respondents offer additional unprompted opinions, desires and thoughts, are an excellent way to capture the hearts and minds of a survey group in their own words. One

reason for this is that after responding to a quantitative survey, those who care will often provide “unaided” thinking – top of mind thoughts. Taken individually they can provide compelling quotes and contextual information. Taken together, they provide yet another window into Wyomingites’ thinking, wherein we can group them together topically and rank them in order.

Note that 183 educators/policymakers/administrators took the time to provide meaningful verbatim comments – almost half of those who took this branch.⁷ Because people mentioned multiple items, we counted each unique suggestion within a particular verbatim comment.

Better technology and better use of resources were mentioned by the most people, in keeping with what we heard in interviews and focus groups. People feel (true or not) that – even with equipment refreshes and trials of new technologies – they (and the state) have fallen behind others. Notable is that half (91) of those who cared to provide input cite the need for better technology.

The fact that 31 educators, policymakers, and administrators feel that they need better instruction on how to use various technologies for distance education – more or less better matching of technology to educational goals – is telling. Again, we heard repeatedly in focus groups and interviews the desire for more tools from the state to help people navigate the maze of distance education options and tools. This is almost matched by the desire for more actual hands-on training on how to use these technologies for both educators and learners (30 mentions).

We believe any items receiving more than 10 unsolicited mentions from a pool of 183 educators, policymakers, and administrators who offered verbatim comments are relevant. Thus broader range of courses (22 mentions), funding/grants (12), and more classroom-based video courses (12).are all compelling verbatim comments.

⁷ We do not include in this total those who provided no input or who said things like “NA” or “no opinion.”

<BRANCH 2A) LEARNERS, 2B) PARENTS n=686 >

NOTE: Branch 2A and Branch 2B have similar questions that differ in how they are worded. The two branches are reported here with their different wordings (blue and orange text).

6.2.1.15 2-2AB) Have you / your child(ren) taken courses using distance education technologies?

- Yes
- No

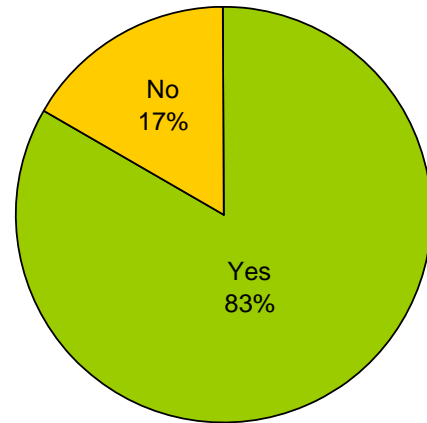


Figure 18 – Taken Distance Education Courses

Note: of the 572 who responded Yes to this question, only 12 (2%) were parents of children that have taken courses.

<IF NO, go to question 2-7; n=572 for questions 2-3 through 2-6>

Figure 19 reveals how the 572 respondents who answered Yes to the above question answered question 1) “Which best describes your involvement or interest in education?” This is the population that took the next set of questions (2-3 through 2-6). Because of the timing – this research was fielded in late May / mid June 2009, K-12 learners are under-represented in the demographic group. Note also that higher education includes both UW and community college learners.

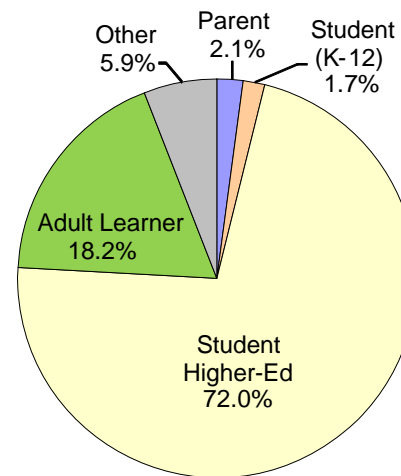


Figure 19 – Interest in Education for Those Who Have Taken Distance Education Courses

6.2.1.16 2-3AB) What was the focus of the distance education courses you / your child(ren) have taken?

(Check all that apply)

- High school
- Community college
- Baccalaureate program
- Graduate school courses
- Personal development classes/courses

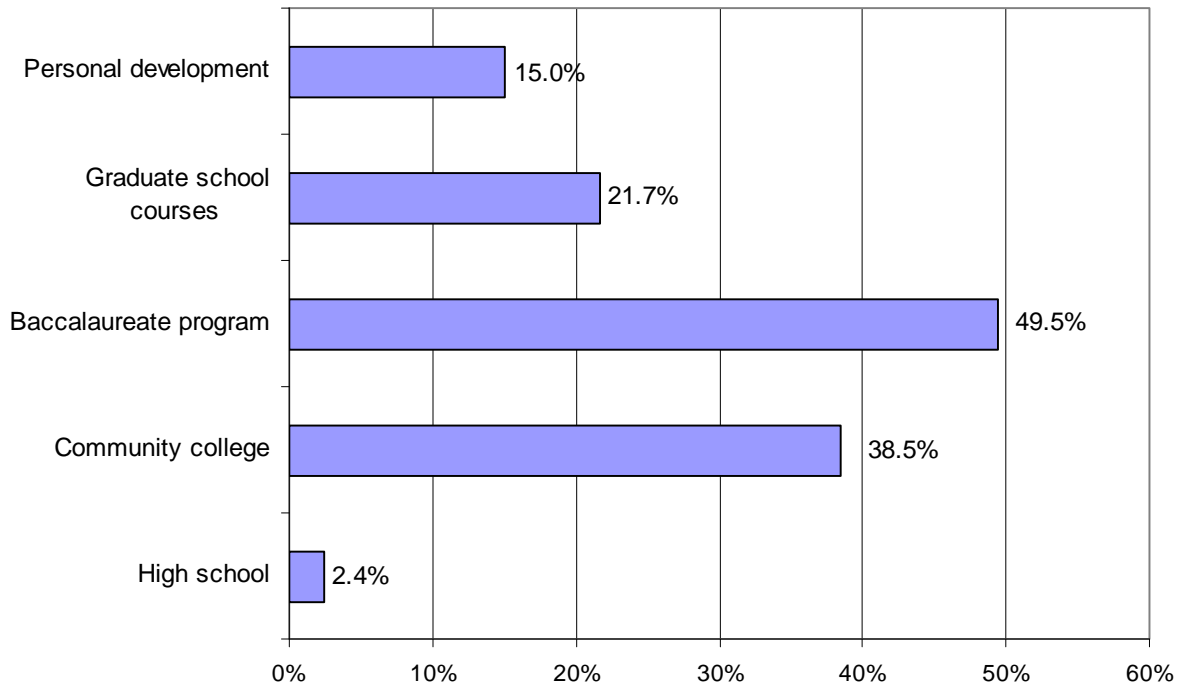


Figure 20 – Focus of DL Courses Taken

Baccalaureate programs and community college programs are the top reasons for taking distance education, in keeping with the mix of learners who took the survey and are within this branch. K-12, as stated earlier, is under-represented in this survey due to the timing of the project.

6.2.1.17 2-4AB) Why did you / your children (or do you now) take courses using distance education technologies?

(Check all that apply)

- Meet college course demands/enter a degree or certificate program
- Receive shared K-12 courses (Advanced placement or dual credit)
- Desired college or university degree programs not locally available to me
- Meet post graduate continuing education needs
- Meet my scheduling needs as a working student
- Access to courses/content not locally available to me
- Access to courses/content I preferred to seek elsewhere
- Access vocational rehab/retraining courses
- K-12 dual credit coursework
- Credit recovery (complete unfinished courses)
- Access desired professional development or lifelong learning opportunities not available to me locally
- Other (specify below)

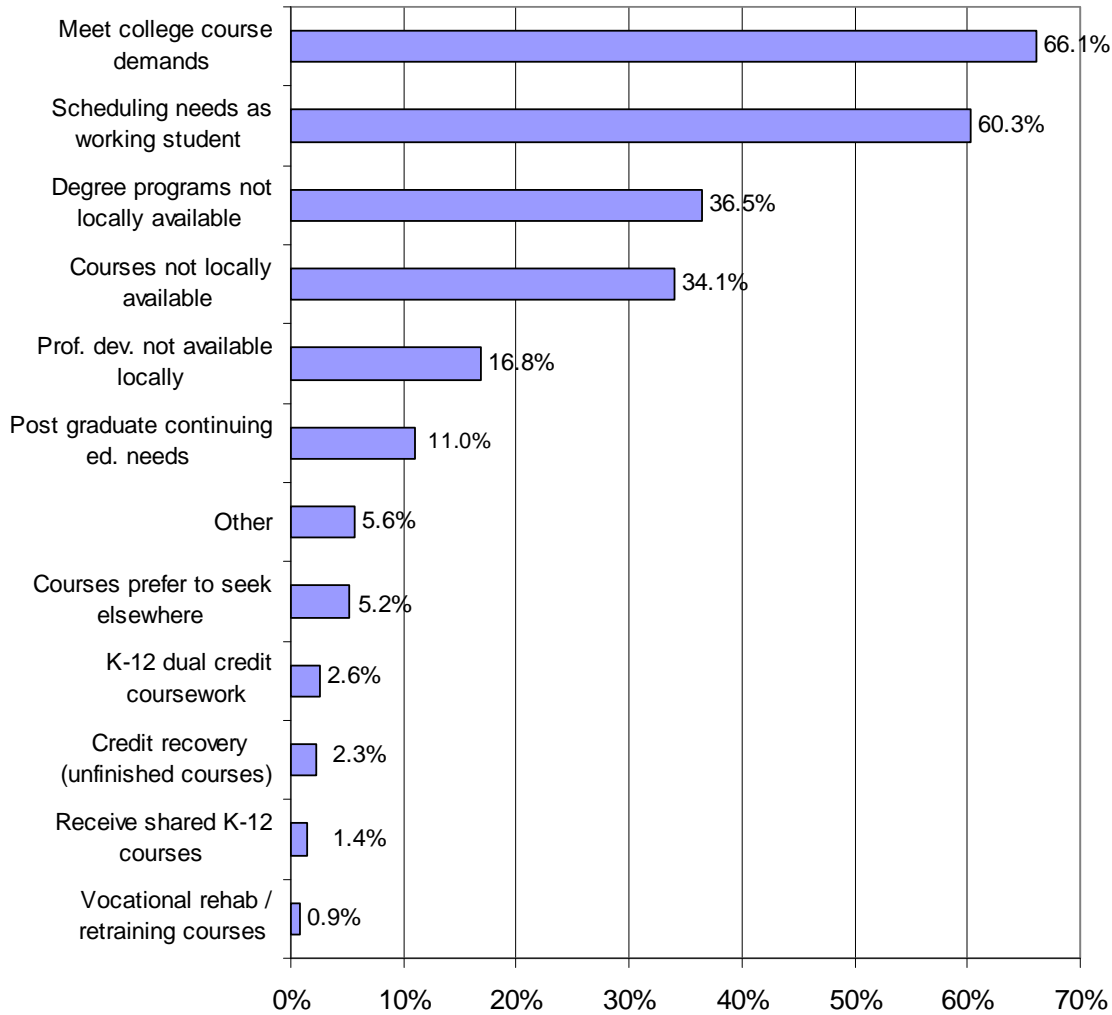


Figure 21 – Why Distance Education Courses Are Taken

Figure 21 should be viewed carefully, because so few K-12 learners and parents responded. Thus the dual credit coursework responses are likely lower than they would be with proper representation. Yet the ability to meet college course demands (66.1%) and scheduling needs as a working student (60.3%) resonate with the interview and focus group responses. In this instance we are hearing from college learners and adult learners.

The ability to achieve degree programs not available locally (36.5%) also maps to the educator responses. Meeting the scheduling needs of working students is higher in importance to this group than to the educators.

Other comments:

- offer out of district placed students ed. option
- Attempting to finish a single parent
- Answers are focused on video conference meeting
- only delivery method offered; access while working
- Classes locally are not given at a time I can take
- Parent of 2 kids < 5, no childcare avail. here
- Flexible Schedule
- Allows me to work FT without missing for class
- Lived in location without a college for a semester
- Meet my scheduling needs as a stay at home mother
- to complete the 3rd grade
- Cannot afford travel costs to/from main campus
- Online classes through UW
- Full-time mom and student/online classes help!
- That's just how the courses were offered
- Excellent learning venue
- Class only offered online
- It's cheaper to take some in-state classes.
- Finishing Associate Degree in Surgical Technology
- Single mom with children
- Access to Courses full classroom courses
- To work and go to school on my own time
- Meets my needs with two small children
- Only available online
- It's easier to do in the summer when I'm a mommy.
- meets scheduling needs as working single parent
- Will need distance ed for UW in the Spring
- Wyoming Air Guard paid for it.
- meet my scheduling needs as a parent & student
- Class based at the University
- Criminal Justice
- Met my scheduling needs as a Full-time student
- I like online learning.
- Traditional classroom setting not offered
- Meets my scheduling needs as a parent
- prefer online due to schedule
- my son taking high school classes not available here
- Convenient with busy Family of which I'm The Mom.

6.2.1.18 2-5AB) What additional reasons led you / your child(ren) to participate in a distance education program or class?

(Check all that apply)

N = 686

- Global learning opportunities / student-to-student interactions
- External factors: cost of gas & energy, environmental & "green" issues, economic slow-down
- Received funding via grant
- Continuing education
- Other (specify below)

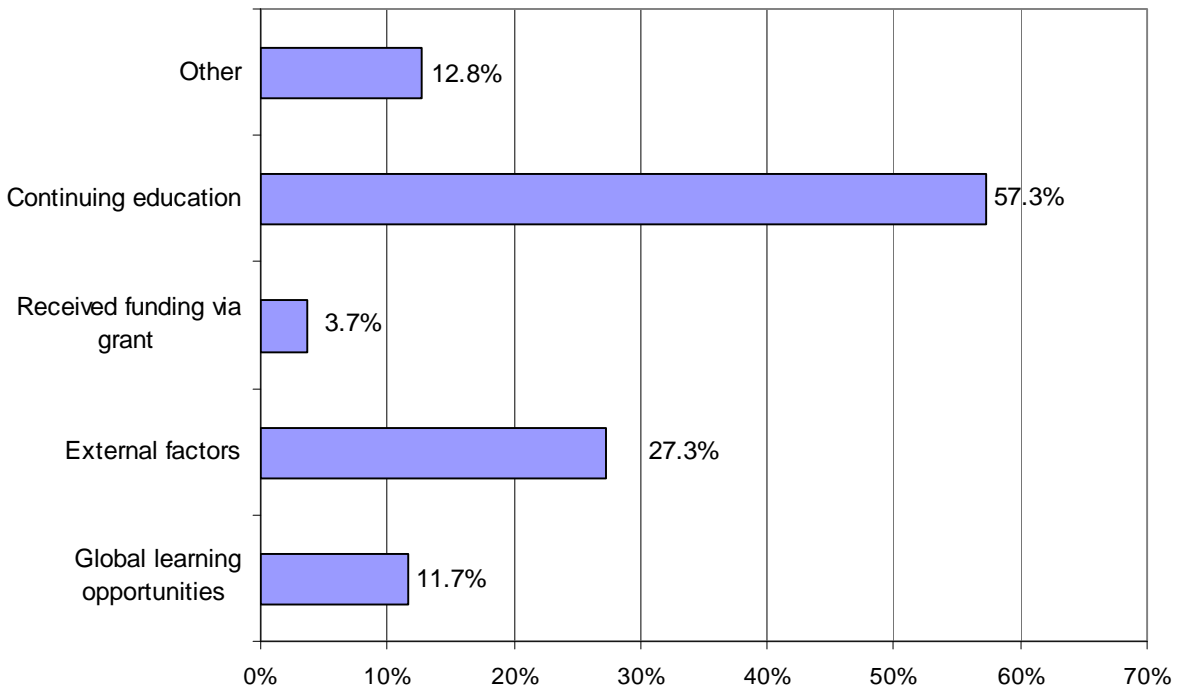


Figure 22 – Reasons for Taking Distance Education Course

This question lets learners/parents identify other driving factors for distance education. Continuing education is the single most mentioned item (57.3%), in keeping with the many adult learners we encountered throughout the state who have received undergraduate and graduate degrees via distance education. External factors (the economy, cost of gas, etc.) were cited by 27.3%, one out of four respondents to this question. And the opportunity for global learning opportunities was cited by 11.7%.

Other (Students):

- Health reasons, going deaf.
- Convenience of doing the work
- Tuition assistance from employer
- Required LCCC course only offered online
- Desire to advance professional status
- only offered as distance education
- distance from facility & time of day available
- Summer Courses - fast tracking degree
- I needed 6 more credits to graduate when I wanted.
- Convenience of working full time and school part time
- gaining college credit for free while in HS
- only offered that way
- Did not want to uproot family to pursue degree.
- was living overseas at the time
- It was not offered physically on campus
- Unfortunately only 1 four year college in Wyoming
- professional development
- A lot of my grad program courses are only online
- class offered online only
- Time Constraints / have new twin girls
- Quality graduate education available online
- Want to graduate soon, courses offered online only
- Was extremely convenient
- tuition reimbursement
- Only one available in Wyoming
- in conjunction w/UW - Allowed for on time degree
- class was graduate program requirement
- I like the pace.
- required by the University of Wyoming for the FNP
- easier
- moved from Laramie, living at home now
- time management
- children at home; I can study without leaving them
- Quality of ECE program at UW
- Graduate High school early.
- International experts, cutting edge information
- accelerated learning
- web classes are more flexible around my schedule
- Times classes are offered; childcare issues
- lower course load during fall to parent my kids
- Scheduling flexibility
- Allowed me to remain in the office for my job
- Lived elsewhere
- Offered only through online not on campus
- easier than traveling to Laramie
- I'm a working mother in addition to a student
- Only way to get credits towards both of my degrees
- I can continue my education while staying at home
- stay home with my family to do school
- course not available locally
- It allowed for a more flexible schedule
- I was living in Casper and wanted to attend UW
- Class was changed to online
- Doctoral program
- bullying problems in public schools
- I take classes when I'm not on campus i.e. summer
- Working during in-class times
- lack of child care and daytime work schedule
- limited choices for UW/CC upper level credits
- Convenience
- same as above
- I really like this learning venue.
- Wasn't offered physically at the University
- Convenience
- Learn at my own pace
- Scheduling as a mom and student
- offered on the job
- employer contribution
- I am able to work on course work on my own schedule
- Time Management
- fit the scheduling of my classes better
- Complete requirements for desired degree.
- offer out of district placed students ed. option
- In a different state for the summer
- Unable to attend regular classes due to 40 hr job
- travel restrictions
- GI Bill and tuition reimbursement availability

Other comments (Parents):

- wanted to try home schooling
- Asperger and Tourette's dx
- virtual schooling was best for child / virtual schooling
- 4th grade elementary education

6.2.1.19 2-6AB) What types of distance education courses have you / your child(ren) taken or are you / they taking today?

(Check all that apply)

- Math
- Science
- Language Arts
- English
- Government / Social Studies / History
- Social Science
- Art
- Business
- Nursing
- Criminal Justice
- Foreign Language
- Education
- Music
- Electives
- Vocational education
- Other (specify below)

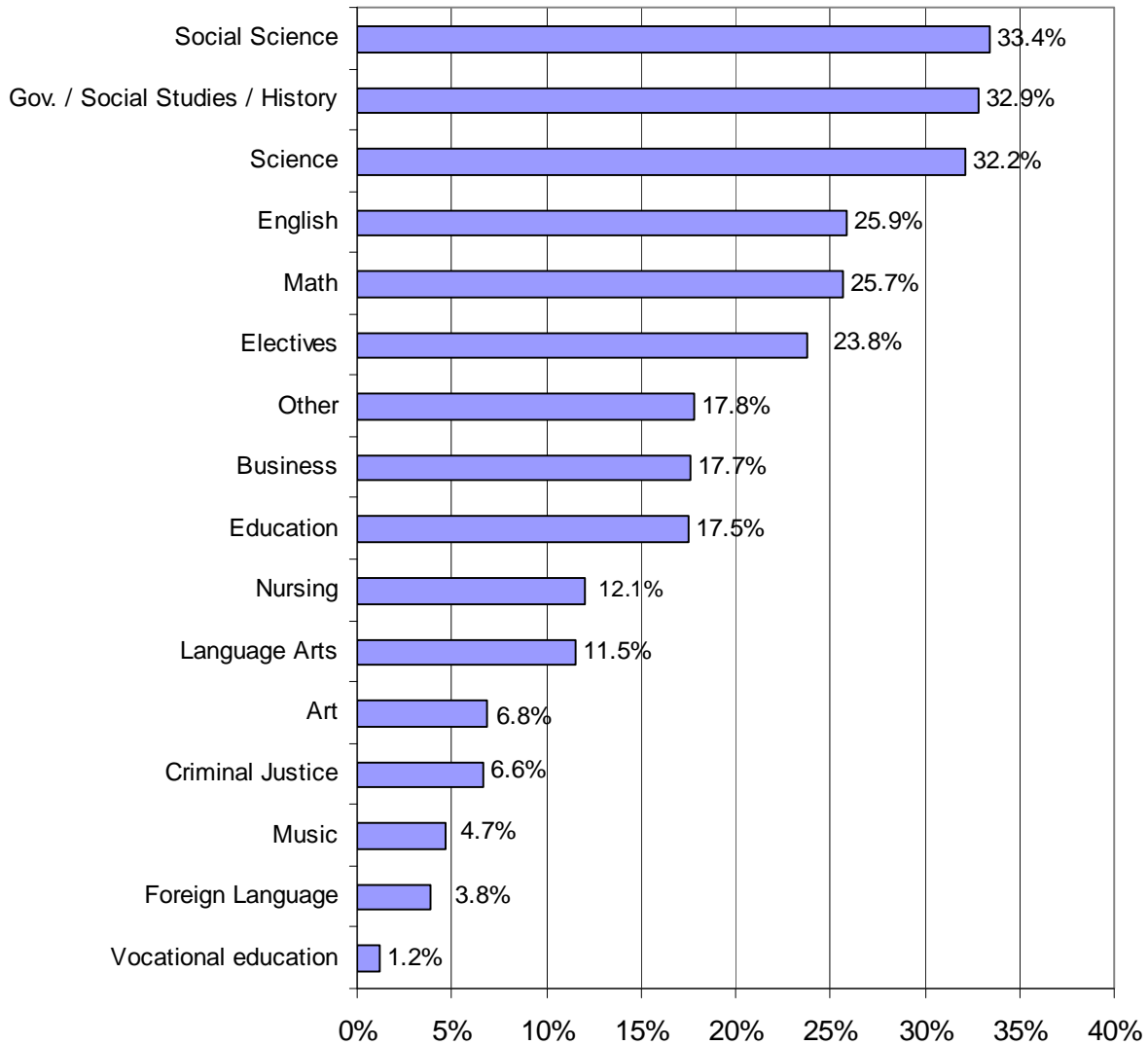


Figure 23 – Types of Distance Education Courses Taken

Social Sciences, Government/Social Studies/History, and Sciences are all consumed at similar rates, by between 32%-33.4% of those involved in distance education, respectively. English and Math classes have been taken by about one in four (25.9% and 25.7%, respectively). And electives are taken by 23.8%. We believe Foreign Languages would be better represented were a larger number of K-12 learners taking the survey.

Other comments (Students):

- 16x Psychology (2.6%)
- 7x Computer / Comp Sci
- 6x Communications
- 5x Information Technology
- 5x Social Work
- 3x Engineering & Surveying
- 3x Homeland Security
- 3x Land Surveying
- 3x Physical Education
- 3x Speech Pathology
- 3x Women's studies
- 2x Economics
- 2x Engineering
- 2x Family & Consumer Sciences
- 2x History
- 2x Library science
- 2x Nutrition
- 2x Personal Health
- 2x Philosophy
- 2x Wellness
- Archaeology, carbon sequestration
- Bachelor's in FCS, emphasis ECE
- Board Meeting
- Certification in Land Surveying
- Chicano Studies (diversity requirement)
- child development/early childhood educ
- classes for BAS-AG
- Counseling
- Counselor Education
- Education Research
- Elementary Education Pilot Program
- Facilitating online courses
- Family and Community Services
- FCSC
- freshman orientation
- geography
- Graphic Design
- Health
- Health Technology
- Humanities
- Instructional Technology/Distance Education
- Internet Technology, Computer Application
- Just received a Reading Endorsement.
- K12 state required courses
- Kinesiology and health
- Library Database Training
- Literature
- Management/Organizational Development
- Map use
- Master of Liberal Studies 2009; U of Denver
- medical terminology. computer class
- MPA
- Political Science
- Reading
- religion
- Research
- research and statistics
- Social Psychology
- Sociology
- speed and accuracy
- substitute teacher
- Technology Courses
- upper division
- Video and web streaming technology
- web design, management

Other (Parents):

- 2x PE courses
- spelling, literature
- Science

6.2.1.20 2-7AB) Which of the following distance education technologies did you your child(ren) use in taking your course(s)? Did you they like using them?

	Used and liked it	Used, it was just OK	Used and didn't like it	Did not use
Audio teleconferencing (primarily phone)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Videoconferencing (two-way interactive video)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video streaming (one-way video)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web-based (online) courses or content e.g., audio threads, podcasts, vodcasts, archived segments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web camera applications (Skype, AOL AIM, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Web conferencing / virtual classrooms (Elluminate, WebEx, Adobe Connect, Wimba)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter/Facebook/social networking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Second Life/virtual worlds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Course Management Systems/Learning Management Systems like Blackboard, Moodle, Angel Learning, eCollege/eCompanion, and NING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic whiteboards (SMART, Promethean, mimio)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Simulation software/games	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please describe) _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

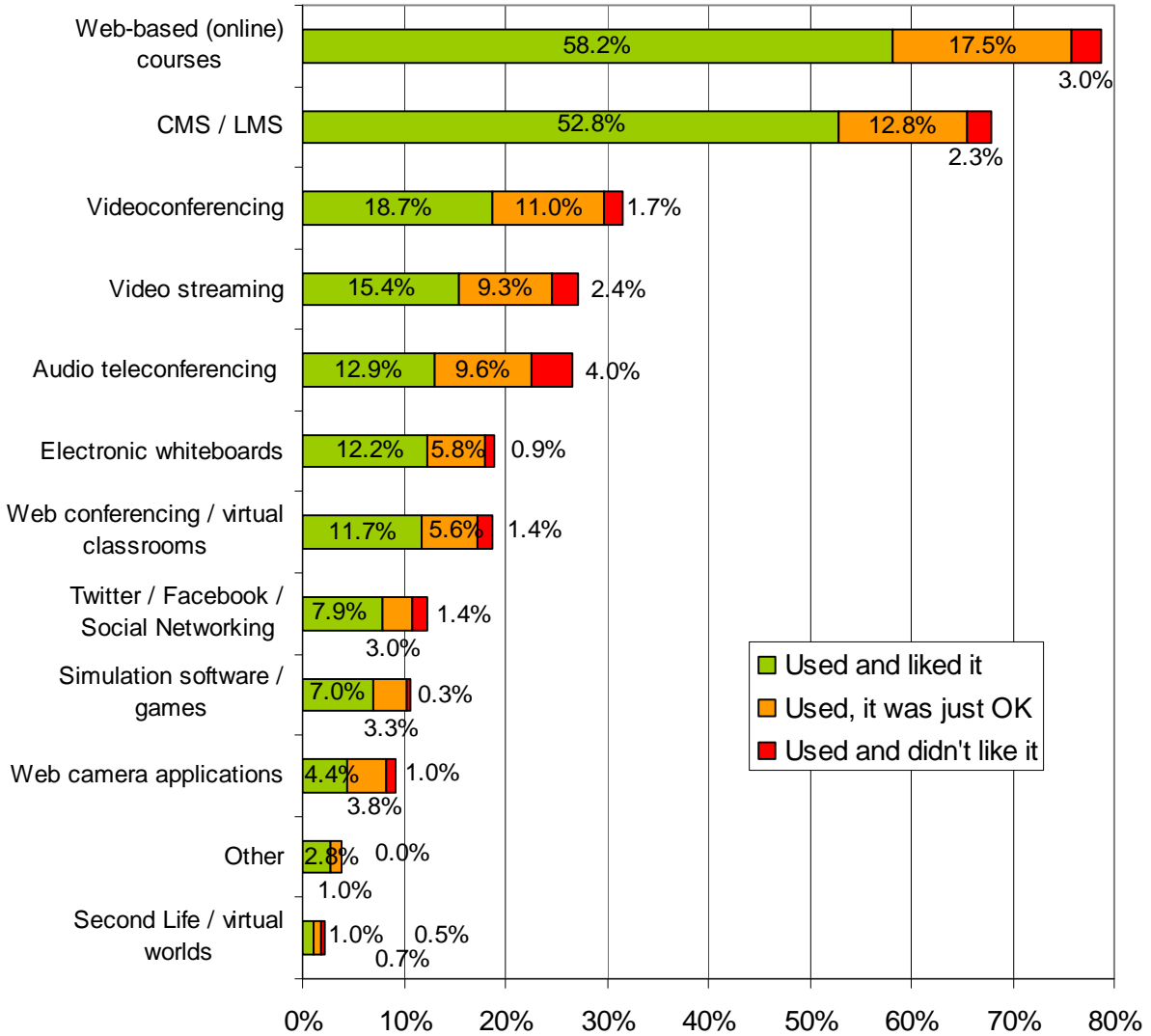


Figure 24 – Distance Education Technology Grouped by Like and Dislike

Almost four out of five (78.7%) of learners have taken web-based online courses; 67.9% or slightly more than two of three have used CMS/LMS technologies. These, not surprisingly, are the most prevalent technologies. Meanwhile, about one in three (31.4%) have taken courses or otherwise used videoconferencing; 27.1% have used streaming video; and 26.5%, or one in four, have used audio teleconferencing.

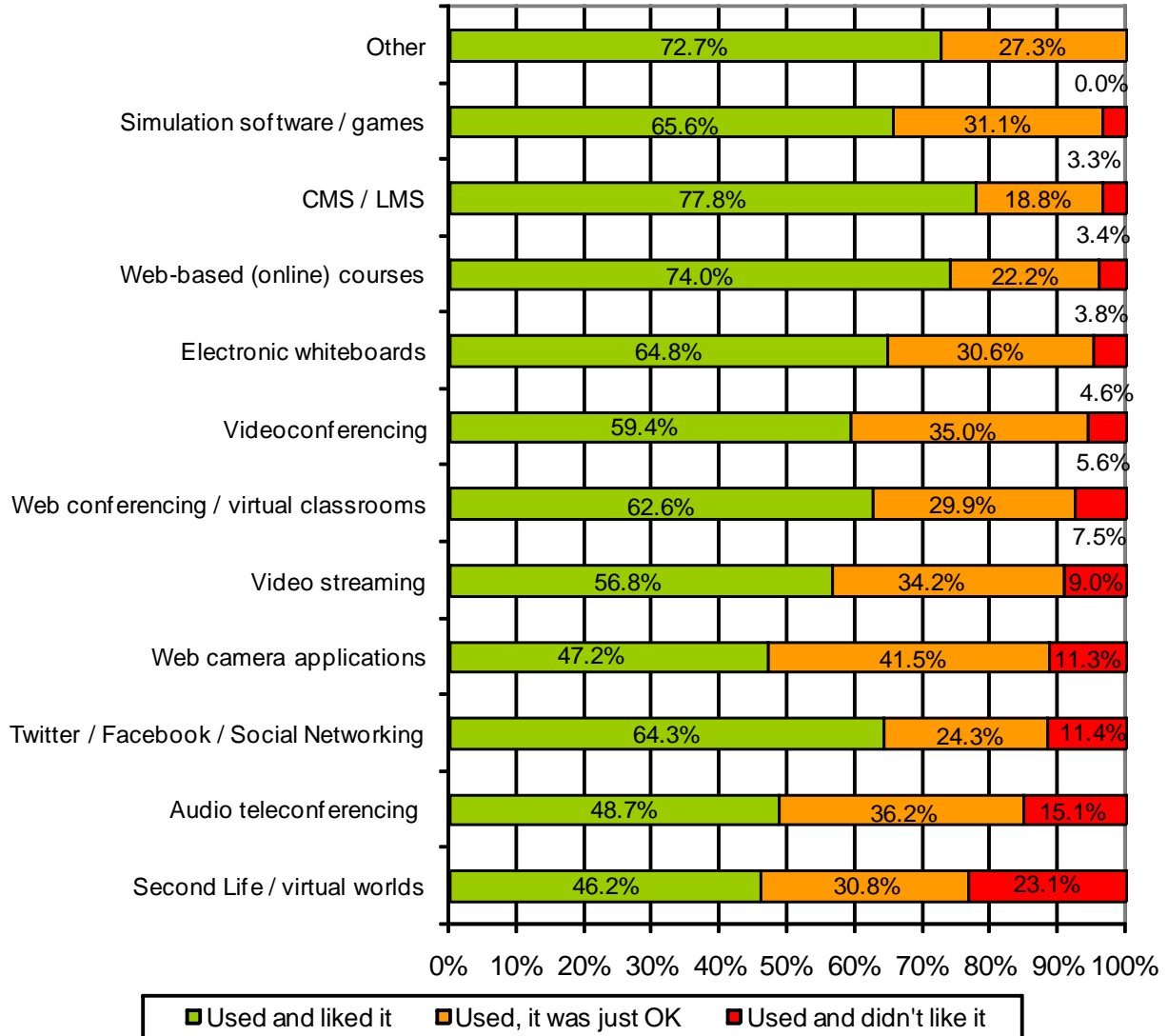


Figure 25 – Distance Education Technology Grouped by Like and Dislike -- Normalized

Figure 25 reveals the order in which distance education technologies are liked. It uses the same data as Figure 24 but normalizes the data to 100% and is sorted by “Used and didn’t like it”.

Note that the greatest dissatisfaction is registered with Second Life and virtual worlds (23.1%), audio teleconferencing (15.1%) and social networking (11.4%). While two of these three might be disliked because the technologies are in their infancy, we surmise the lack of context and interactivity that comes with audio conferencing – a very mature technology - may contribute to its lack of satisfaction.

Other comments (Students):

- 4x email
- 2x discussion boards
- 2x chat
- 2x Broadcast Telecourses
- asynchronous e-mail, electronic library
- Streaming Audio with Online class - like
- discussion-base POLS 1000 class the best
- Correspondence studies
- I-tunes lectures
- My Math Lab
- just online
- videoconferencing the best
- purchasing own DVD
- Used blogging and WIKI
- webwork
- WebCT
- Wyo Web to E Companion and UW Online
- UW doesn't offer most of that technology
- likes/dislikes depends on presentation
- One class was terrible
- I'll be starting an online course today
- I just started my online class
- distance learning takes away from class

Other comments (Parents):

- workbooks, text books, cds ,videos, boards

6.2.1.21 2-6 AB) What do you like most about the distance education courses you / your child(ren) have completed?

(Check all that apply)

- Instructor made it compelling
- I was / they were able to work more independently than in a regular classroom
- I was able to find / they found classmates with whom to collaborate
- I / They could not otherwise have taken these courses
- These courses helped me / them graduate
- These programs helped me get my college/university degree
- These courses will specifically improve my / their quality of life and/or ability to enter the workforce
- The technology was useful and effective for me
- Other (specify below)

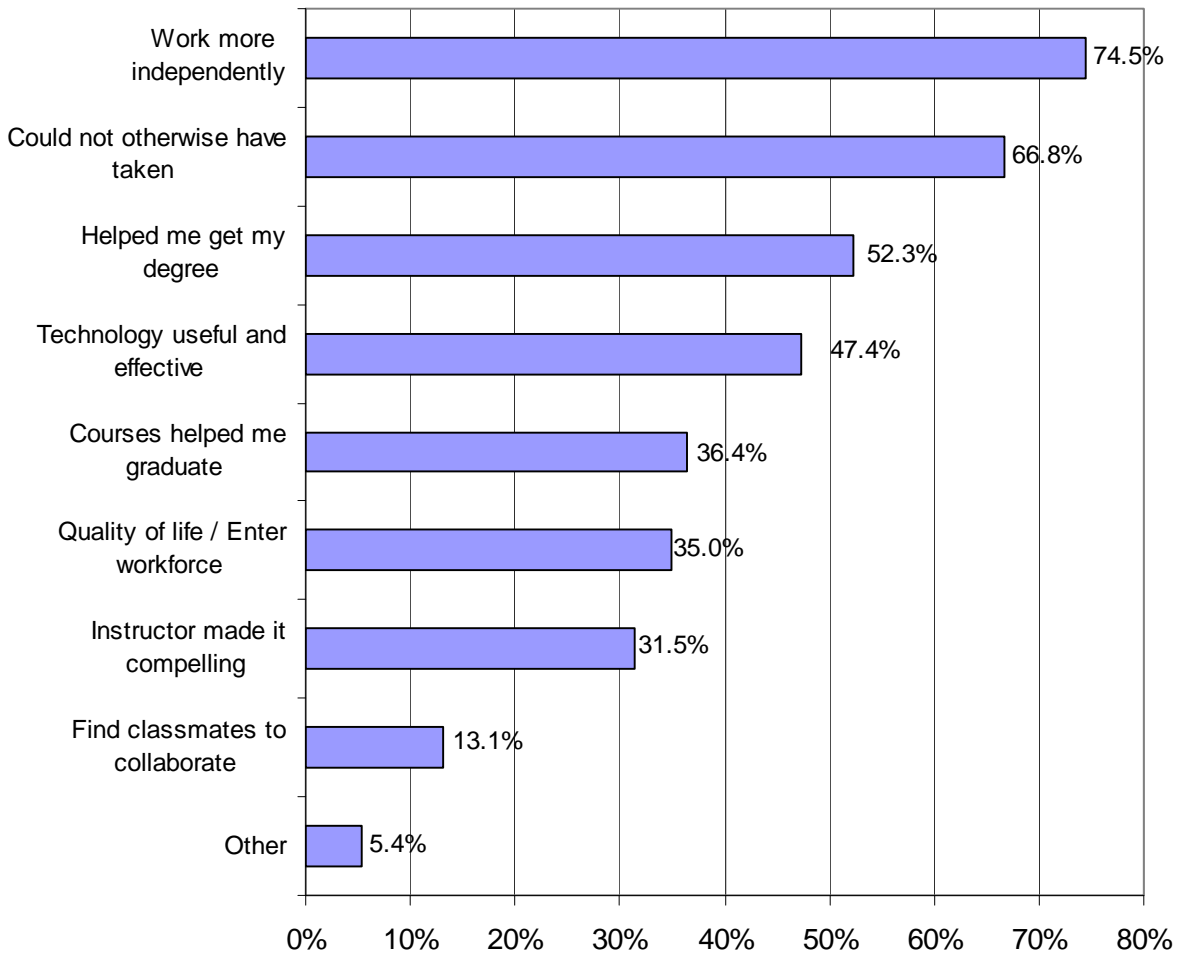


Figure 26 – What Liked About Distance Education Course

The ability to work more independently (74.5%) and taking courses they could not otherwise have taken (66.8%) are what learners have liked most about their distance education classes. About half (52.3%)

indicate distance education helped them get their degrees, and almost half (47.4%) also feel the technology was useful and effective. The reverse of this, however, is telling: more than half do not particularly feel that the technology was useful and effective. This is primarily because some individuals have had negative experiences with out-moded or inadequate technologies.

Other (Students):

- Overcomes the barriers of time and distance
- I could go to College and still work
- I would otherwise not be able to complete my MPA.
- Reduced travel, time away from office, reduced cost
- the flexibility of working online
- Fit my schedule which can be difficult!
- Great instructors; need these courses for grad school
- I could do well as a student AND a parent
- Using the technology allowed me more freedom
- it was nice to fit it in when I had time
- ability to make my own study schedule
- ability to make my own study schedule
- I could work at odd-ball times that I was available
- It is convenient and fits within schedule
- Helps improve skills and knowledge I need for job
- have not completed it
- All of the above - opened educational doors
- They are helping me work towards a degree
- Will help me graduate.
- rather go to school in person if possible
- allows me to work the hours I need to pay bills
- Scheduling fit with work/family obligations.
- Scheduling
- actually, I did not like it
- Online courses let me be at home w/ my family
- I do not like it at all
- little or no transportation/gas cost
- The time of the class offered was more effective
- Courses "will" help me obtain a University Degree
- I absolutely hated the entire set-up
- worked well with holding summer job
- I think the format allowed more open & useful talk
- Freedom, use any time of day, great!
- Convenience-I can work at any time
- perfect combination with other students at home
- This technology allows me pursue graduate degree.

Other comments (Parents):

- we could move as fast/slow as needed for my child
- K-12 classes without being in the classroom
- Able to work quickly not waiting for slower students

6.2.1.22 2-7 AB) What distance education-based programs, tools, or technologies would you like to see made available to you / your child(ren) as a learner / learners to enhance your educational opportunities?

6.2.1.23

6.2.1.24 2-8A) Do you have any other comments to make concerning distance education in Wyoming?

N = 385

Feature	# of responses
Broader range of courses	129
Better technology	124
Happy as is	73
More degree programs in areas not offered today	48
Better teachers more engaged with me as a remote learner	38
Varied/extended hours of course availability	35
More classroom video-based courses	35
Better management/use of resources	35
More student/instructor training for how to use	32
Better expectation setting regarding learner / teacher requirements	29
Address weather/driving distance-related challenges	27
More web/online-based courses	25
Instruction provided on how to use different distance learning technologies	14
Hybrid classes (blend of distance learning and in-person sessions)	12
Better internet access / increased bandwidth	12
Make it more affordable	9
More certification / continuing education courses	8
More webcam / desktop video courses	7
More professional development online	6
Better information about available programs / more accessible program guides	6
Allow for online testing	5
More self-paced learning opportunities	4
Virtual capability	4
More remedial ABE/GED online resources	3

A total of 385 learners and parents took the time to provide meaningful verbatim comments – more than half of those who took the learner branch.⁸ Because people mentioned multiple items, we counted each unique suggestion within a particular verbatim comment.

A broader range of courses (129) and better technology (124) were offered most often (in keeping with the educator comments, which related to better technology and better use of resources). At least 73 individuals stated they are happy with what is available – which speaks to the successful numbers of programs and offerings that have at least a subset of learners completely satisfied. Yet just as 128 seek a broader range of courses, the fourth item most mentioned is to see more degree programs in areas not offered today (48).

Learners – at the receiving end of distance education courses – seek better teachers who are more engaged with them as remote learners (38 mentions). This also speaks to what we heard throughout the state, that there are varying levels of teacher training and a greater need for expectation setting of both learners and teachers (how to best take advantage of the distance education course).

The ability to get more varied/extended hours of availability was mentioned by 35 learners, and the same number cited more classroom video-based courses and better management/use of resources. Following close behind are two items: more student/instructor training for how to use, and better expectation setting regarding learner and teacher requirements (29).

<end of *BRANCHES 2A) LEARNERS, 2B) PARENTS* >

<end of survey>

⁸ Not included in this total are those who provided no input or who said things like “NA” or “no opinion.”

7 Appendix IV: Distance Education Program Inventory

Participation in the distance education program inventory conducted for the Task Force was mixed, with primarily UW, community colleges, and a handful of virtual schools and one district completing the inventory data collection document. A total of 82 programs are documented in the inventory results. Additional insight into programs and technology deployments was gained from interviews and focus groups. No state agencies completed the inventory, with several stating that they do not conduct distance education using their supporting technologies.

The vast amount of activities taking place on the WEN video component did not lend themselves to the inventory capture document, so the WEN programs are discussed separately from the data contained here. *Because the inventory was fielded at the beginning of summer break, we were unable to obtain significant school data from individual schools and districts.* Thus they are under-represented in this inventory and any *independent* practices not shared by schools with the WDE are not counted.

The very fact we had trouble gathering this data, particularly from state agencies, reflects a need for the state to create processes for capturing this information on an ongoing annual or biennial basis. Similarly, a final revision of this document included an additional step of having all community colleges revise their provided data to ensure consistency in comparative analysis. Placing some research and analysis capabilities within the Distance Education Technology Center of Excellence might be a good way to begin the process of improve Wyoming's methods of benchmarking behaviors.

7.1.1 Type of Technology Used

The use of web-based tools primarily in an asynchronous delivery method is used over twice as often as real-time tools like videoconferencing and web conferencing. Video is the next largest. In addition, over 50% of the programs in the inventory use more than one type of technology. The use of web-based programs is affected by the high percentage of the respondents in post-secondary education, where asynchronous programs are more common – and the fact that WEN video data is not included here. Web-based courses allow for complete flexibility for the students and instructors, where synchronous classes take more structure and are not as flexible for the students or instructors. Web-based courses are also easier to deploy, making it more inviting for an instructor to begin a distance education course.

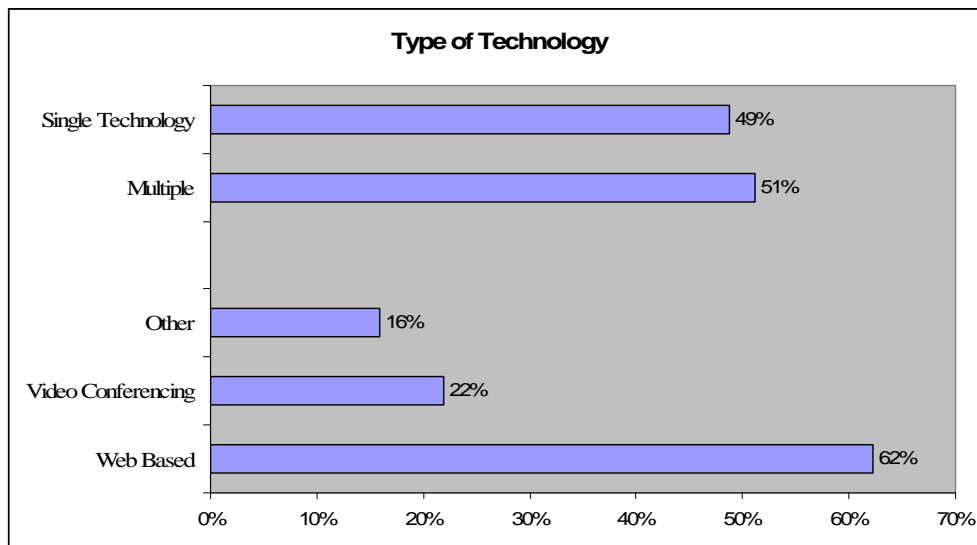


Figure 27 Inventory -- Types of Technology Deployed

The inventory was designed to capture programmatic information and which technologies are used to deliver those programs. The fact that multiple technologies are in use reflects the needs of many programs; we know from the interviews and focus groups that hybrid approaches are common. Some of the “other” technologies cited include virtual classes (which may mean web conferencing), simulation software, pre-recorded video broadcasts, electronic whiteboards, and Course Management Software (though several of these were available as options to those completing the inventory document).

We also know from the interviews that deployments and trials exist of:

- eCollege, Blackboard, Moodle, Sakai, Angel Learning, and other CMS/LMS platforms.
- Adobe Connect, Elluminate, Microsoft Live Meeting, and Wimba web conferencing.

7.1.2 Programs

A large percentage of the programs are based on the delivery of credit hours and/or degree completion. This again is most likely influenced by the large percentage of post secondary institutions in the survey. A minimal amount of professional development is cited, but this is *only* because the inventory is “program” based and organizations do not tend to document professional development as formal programs. There could also be a lack of course enrichment going on. Instructors may be using the technologies “all or nothing,” meaning that it is either a full fledged course delivery class using distance education tools, or no distance education at all.

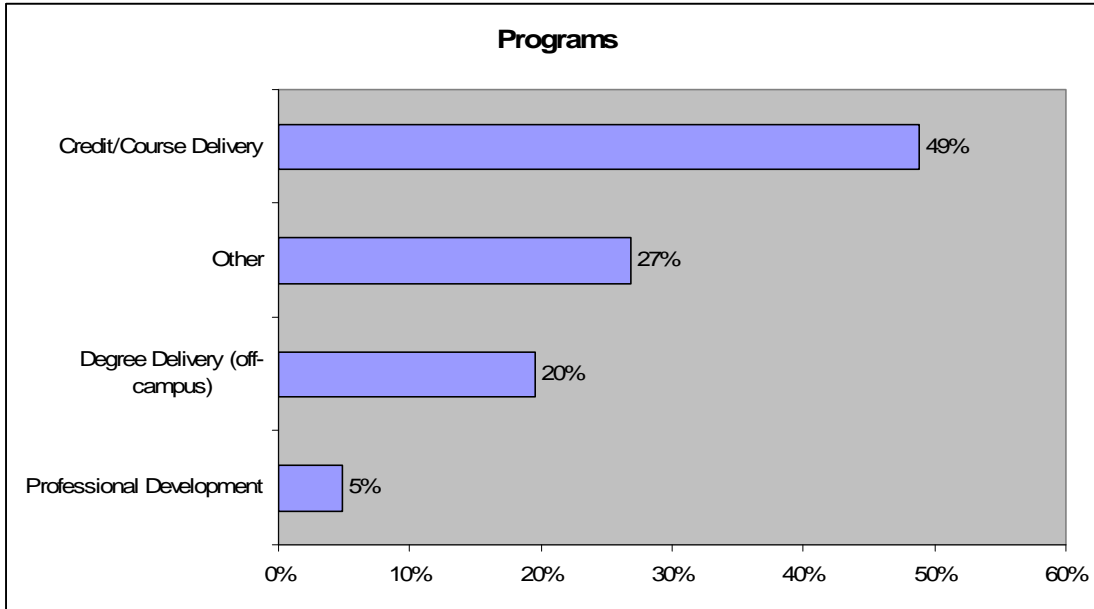


Figure 28 Inventory -- Programs

7.1.3 Learners

The inventory results showed that the largest portion of learners is involved in programs that have fewer than 25 participants. Those programs with 1,000 or more learners appear to be driven by the post secondary institutions. The large number of programs with 1-25 learners also implies the existence of a large number of silos of distance education programs – small deployments, situations where only one or two champions are delivering distance education and it is not embedded in the organization.

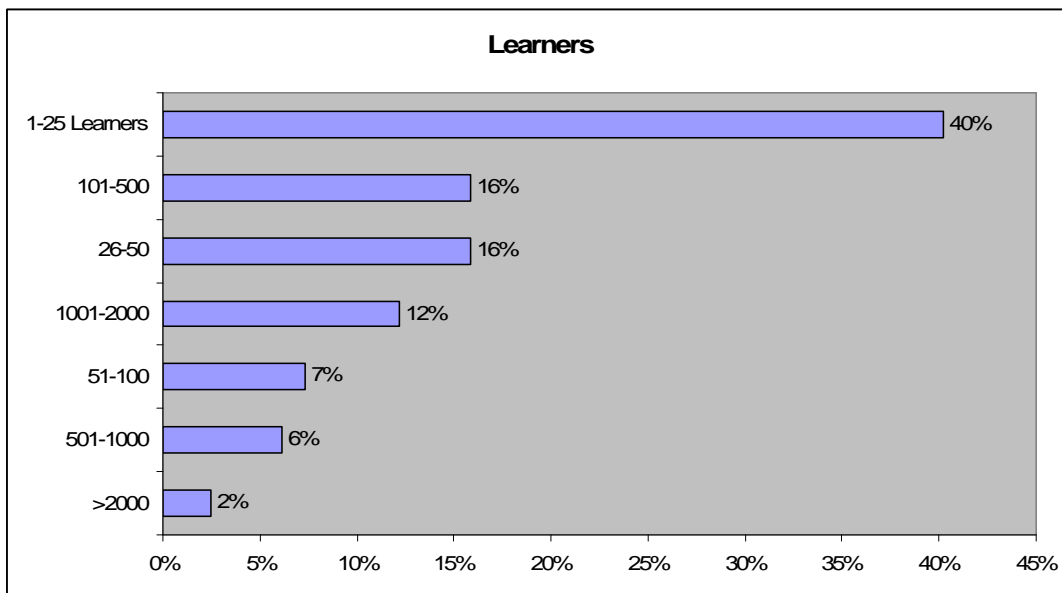


Figure 29 Inventory -- Learners per Program

7.1.4 Instructors

This part of the inventory provides insight into the number of instructors per program. The overwhelming majority of programs – which includes state agencies and hospitals – have five or fewer instructors. This again shows that distance education tends to be a sub-segment of a larger organization. The community colleges, virtual schools, and UW tend to have more than five instructors.

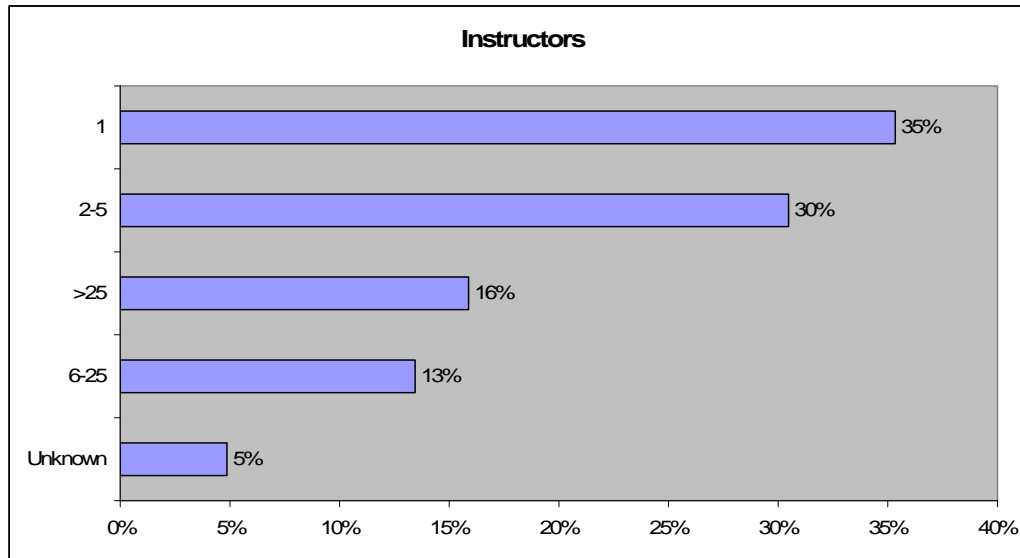


Figure 30 Inventory -- Instructors per Program

7.1.5 Funding

Most of the funding for the programs surveyed comes from tuition and/or state and local government. The numbers listed in tuition may not present a true funding picture, as these organizations may also be subsidized by state or local government. Tuition-based funding appears to be the most popular source of funding, but could be a little misleading due to hidden expenditures for distance education programs (equipment, etc.). Grant-based funding represents the least utilized approach, primarily because grants typically offer little opportunity for sustainability.

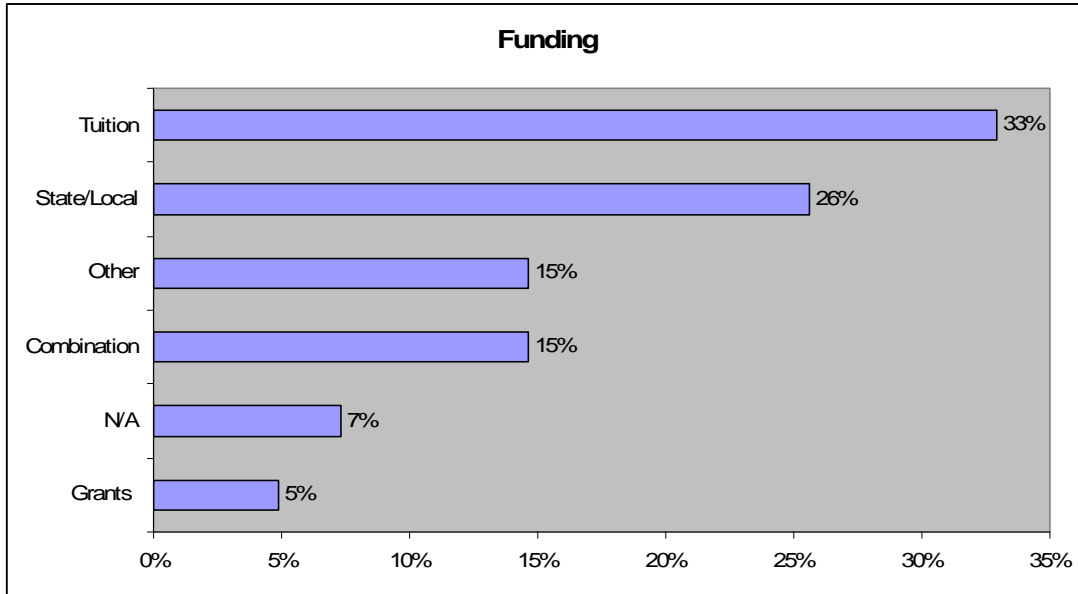


Figure 31 Inventory -- Funding Types per Program

7.1.6 Budget

The funding of most programs (39%) is largely <\$5,000, which leads us to believe that the funding is primarily for online programs (videoconferencing likely would lead to greater budget lines). Some programs may be using smaller budgets to provide video conferencing, but these would not be sustainable without some alternative funding sources. Budgets also may include cost of instructors, travel, and so on.

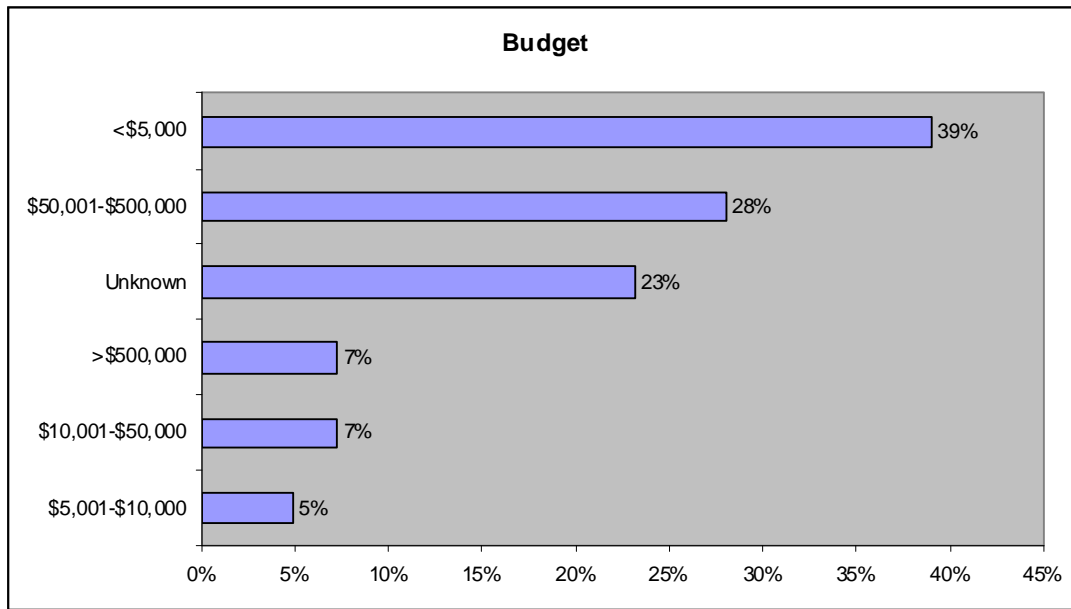


Figure 32 Inventory -- Average Budget per Program

7.1.7 Community Colleges Comparisons

There appears to be tiers of schools based on delivery of distance education programs in the community colleges. Greatest numbers of learner enrollments (duplicated student) can be seen at LCCC, WWCC, Casper College, and CWC. Greatest numbers of teachers involved in distance education (unduplicated) 2008-2009 can be seen at WWCC, CWC, LCCC, and Casper College. These numbers seem to confirm the results from the survey and interviews. Note that the numbers of learners served is only one way to measure programmatic “health” and does not represent actual program quality.

The staff-per-student ratios vary greatly in several of the community colleges. Most of the community college programs primarily use web-based asynchronous methods, more so than other groups in the survey – with videoconferencing used in some instances. While web-based is the most common, several other technologies typically are used in conjunction with web-based learning.

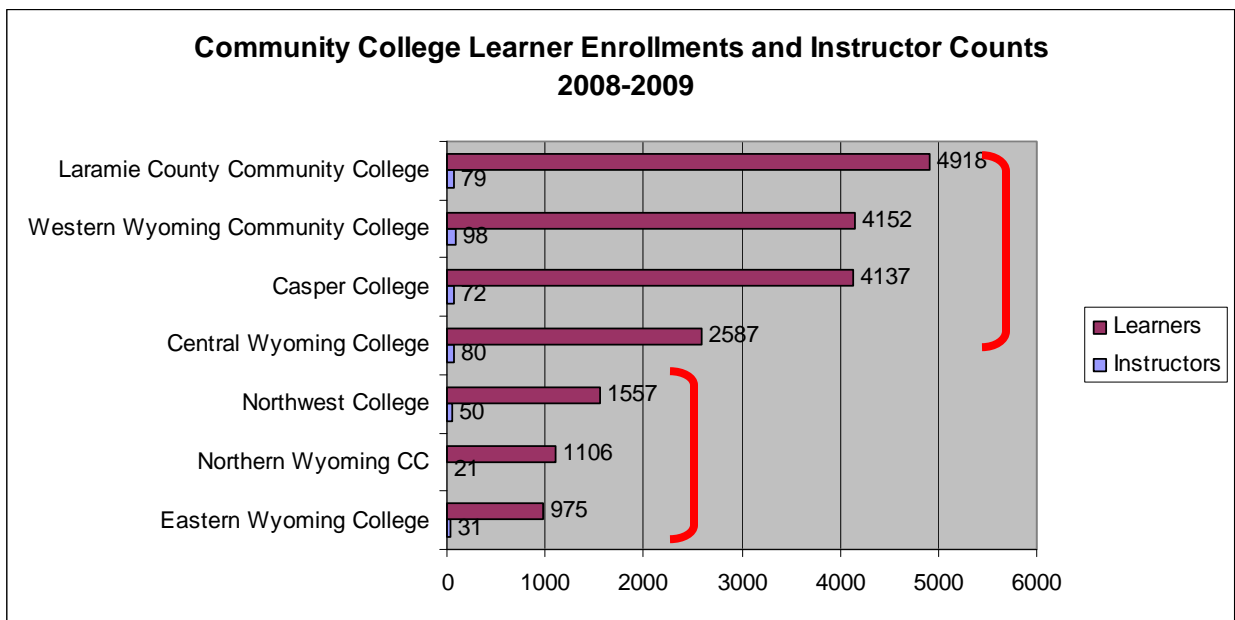


Figure 33 Inventory -- Community College Relative Distance Education Instructor/Learner Numbers

7.1.8 UW Outreach Inventory

The UW Outreach programs appear to follow a model similar to that found at many of the community colleges. Figure 34 and Figure 35 display delivery methods and types of programs offered summer 2008 – spring 2009. We see the largest offerings coming from web-based, asynchronous delivery methods. Substantially more audio conferencing programs are offered than videoconferencing programs, which may reflect some of the frustrations we heard in interviews and focus groups concerning the use of outdated technologies. Figure 35 shows the depth of bachelor degree offerings. Professional development offerings are a small percentage of overall offerings.

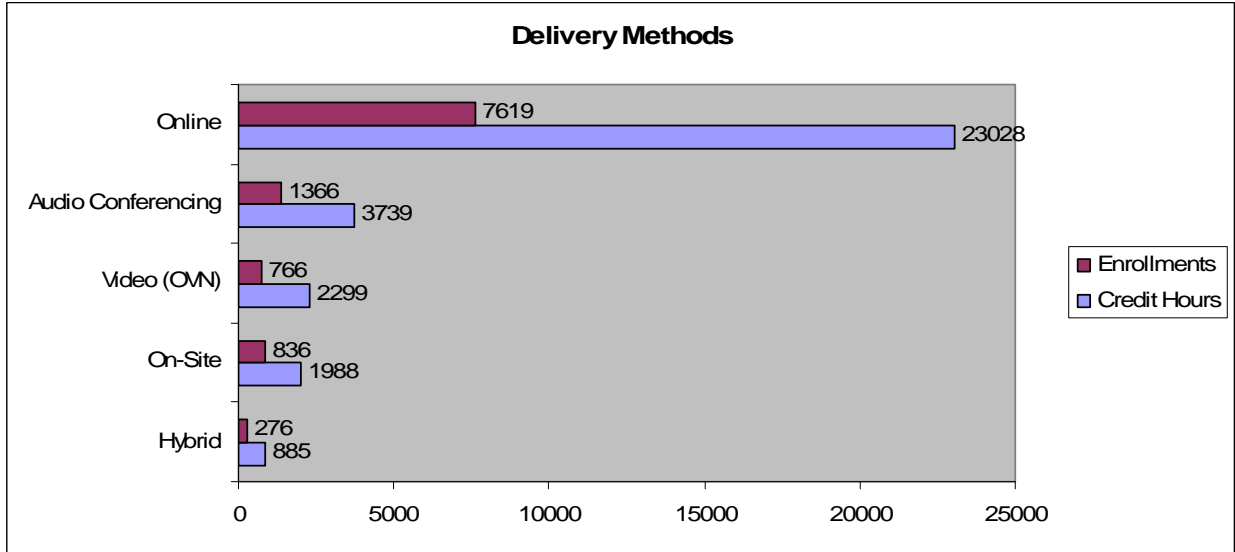


Figure 34 Inventory -- UW Delivery Methods

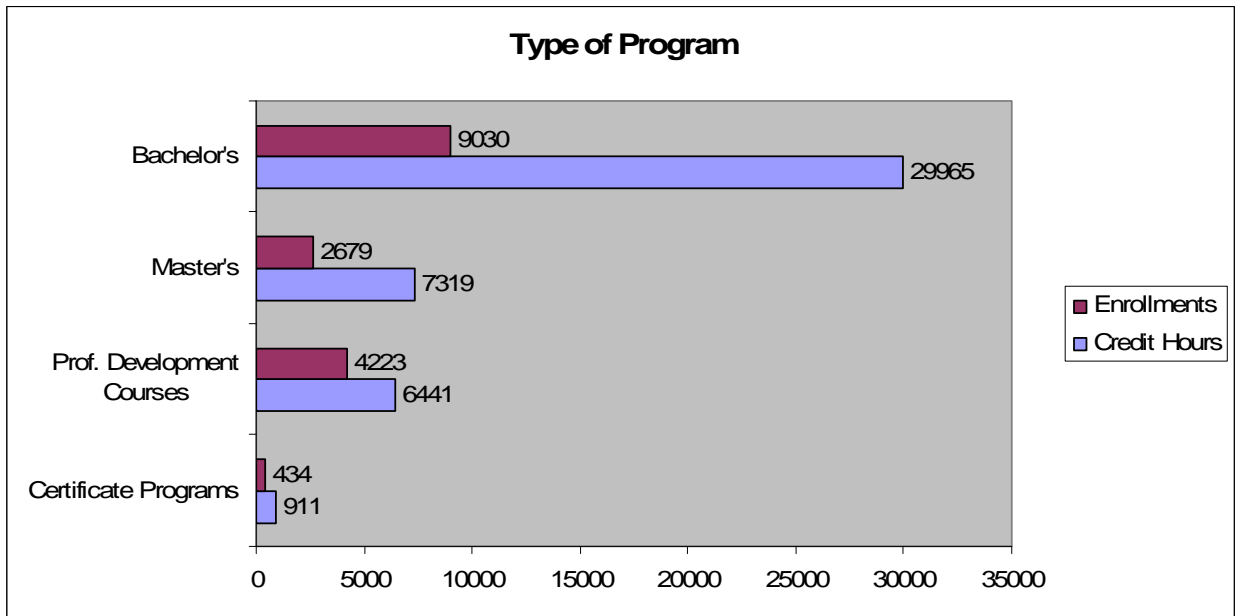


Figure 35 UW Type of Programs

7.1.9 WDE Inventory

The Wyoming Department of Education has a very large offering for distance education using multiple methods of delivery. Its information was garnered through investigation of materials provided by the WDE. The WDE information was gathered through existing documents and information, rather than using the inventory tool.

7.1.9.1 WEN Video Usage

The documentation of WEN video usage is contained online at http://www.k12.wy.us/wenvideo/documents/usage_hours.PDF. This documentation indicates that the highest usage of the WEN network for videoconferencing is by Northwest College in Powell, followed by four K-12 institutions, all of which are located in the Big Horn Basin. As a whole, smaller K-12 districts are the larger users of the WEN system. This is the result of their distance from the Wyoming hubs of Casper, Cheyenne, and Laramie. Lack of local instructors and curriculum in these smaller districts would also contribute to their greater use of distance education.

Note, however, that this only represents documented usage of the WEN and does not include use of other networks or undocumented use of the WEN network by K-12 organizations. We believe that some schools may now be or moving towards using equipment not counted by the WEN and may be beginning to buy broadband network services outside of those offered by the WEN.

7.1.9.2 Wyoming Switchboard Network

These are the documented providers of distance learning to the state of Wyoming in the K-12 arena. Most of the content is provided through asynchronous methods. The "Big two" are the Wyoming Virtual School (Campbell County SD#1), and WEAVE (Fort Washakie Charter High School). Wyoming Virtual Academy (Niobrara County) will be offering a full K-12 virtual school 2009-2010, as will Jackson Hole Connections Academy. Uinta SD#1 is building a virtual school program. To date, however, the bulk of the offerings are from the Wyoming Virtual School and the WEAVE program. The website below has a more descriptive listing of the inventory of program offerings: <http://www.k12.wy.us/TCD/WSN/index.asp>. Their online courses appear to cover all courses that a traditional student would be able to take. If there is any limited amount of curriculum, it would be for the K-8 environment.

7.1.9.3 Content Server Offerings

Currently, the amount of stored video content for education purposes at the WEN Video Network is quite limited. Inventoried at the WEN website are only 13 offerings contained on a content server. Most of them last under a minute. It appears that school districts may not understand that this content server can be a resource for them, both as providers and as receivers of content. We are not aware of any other content servers, other than the TANDBERG Content Server located at the WDE.

7.1.9.4 WEN Video Course List

The following link is to an inventory of all available courses offered via the WEN including High School Courses, Dual Enrollment, and College credit courses:

<http://www.k12.wy.us/wenvideo/documents/2009%20Fall%20Catalog.pdf>

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8 Appendix V: Budgetary Considerations

The following budgetary considerations are provided as guidelines only to the State of Wyoming for assessing and planning for potential costs associated with the consultant team's top ten recommendations. Actual costs may diverge from these estimates based on deployment specifications and decisions made at a future date. Refer to the PlanNet Videoconferencing Report submitted to the Governor's Task Force for more detailed videoconferencing recommendations. FTE calculations assume overhead plus salaries.

Recommendation	Budgetary Reqs	Assumptions/Rationale
Governor's Advisor, Distance Education	\$150K annually	
Centers for Distance Education Excellence	\$750K to \$1.2M annually per center.	Sample positions: Director, Asst Director, Production Mgr (videography/podcasting/training), Assessment Systems Administrator, Graduate Assistants (w/ stipends/tuition waivers), Administrative Asst, Instructional Designers, Tech Support (IT), Programmer/Web developer, Online Systems Administrator. \$ includes FTE's but does not assume rents/buildings. Corporate sponsorship may be available; federal stimulus funding available.
Technology Competency Targets	\$80K annually + \$100K upfront for tech/assessment	One FTE at WDE; might be able to drop back to one FTE. Marketing costs and assessment support costs.
Travel Budget Reductions / Intro Meeting and Distance Education Technologies for State Agencies	Group videoconferencing: \$4.5 to \$5 Million. Desktop video: \$300,000 - \$1.5M. Web conferencing: \$90,000-\$500,000 annually. Plus \$200,000 annually two FTE's OCIO.	These numbers reflect large possible ranges based on the need to upgrade network equipment and the wide possible numbers of supported end users and methods of deploying (premise-based or hosted services). All expenses provided here can be fully or partially offset through travel savings. Assume 50 agencies, 16K employees. To add group videoconferencing to 25 agencies, averaging 3 rooms per agency, might cost \$60K apiece up front (\$4.5M total) and another fixed annual cost of \$150K or more maintenance, service, and software. To provide desktop video to 10% of state employees, 1,600 individuals, could cost between \$300K and \$1.5M, depending on types of cameras, network equipment upgrades, etc. Some video vendors are pricing aggressively, to as little as \$50 per user (total) for massive rollouts. To provide web conferencing licenses from a service provider for 16,000 seats could range from \$90,000 to \$1M annually. (Cost samples provided by Elluminate, TANDBERG, and other vendors.) Could draw upon Center of Excellence staff, but likely would require two FTE's for IT and training.

Recommendation	Budgetary Reqs	Assumptions/Rationale
WDE Distance Education Outreach Advocates	\$900K annually	7 outreach staff, 1 marketing person at WDE.
Adult Learner Hathaway Grants	\$100,000 annually FTE + \$500,000 per year from Hathaway fund	Add one FTE to the existing 3 staff who manage Hathaway grants at WDE PLUS \$500K, assuming 100 learners annually @ \$5K apiece
Improve incentives for distance educators	\$350,000 annually	Target: lagging community colleges. Ten instructors per community college (7) = \$5K per instructor, or \$350K total.
Additional funding WCCC	\$50,000 annually	These dollars are to ensure the WyCLASS portal remains funded and viable. Overall community college funding formula currently being revised so we cannot comment on other funding options. We simply believe that funding needs to be additive and view previous item (incentives for educators) as means of addressing additional funding needs for community colleges.
e-Wyoming.org Portal	\$150,000 annually	Based on statements from Workforce Commission; might require additional full or partial FTE in IT
Bandwidth Advocacy/Directives to Telcos	See PlanNet report	Must be coordinated in conjunction with PlanNet report.

< End of Consultant Report >