analysis

Transforming Education in Nevada Through High-Quality Digital Learning

by Dan Lips and Steven B. Miller

Executive Summary

Nevada policymakers need to consider new strategies for improving education. According to the U.S. Department of Education's National Center for Education Statistics, Nevada taxpayers spend approximately $10,400 annually for each child enrolled in public school. Yet according to the National Assessment of Educational Progress, only 24 percent of Nevada fourth graders and 22 percent of eighth graders were scoring "proficient or better" in reading as of 2009.

Given that average per-pupil spending now tops $10,000, this means that taxpayers will have invested more than $80,000 in the typical student's education by the end of eighth grade. Yet by that time less than a quarter of Nevada students have mastered reading sufficiently to be considered on grade-level. This status quo should be unacceptable to parents and taxpayers alike, and Nevada policymakers should appreciate the urgent need for solutions to improve educational opportunities for the state's students.

Across the country, elected officials, school leaders and concerned citizens from across the political spectrum are recognizing the exciting potential for using technology and digital learning to transform public education for the better. From virtual-school programs that allow students to learn at home to computer-based instruction within traditional classrooms, digital learning offers improved access to high-quality instruction and better and individually customized learning experiences for students and can boost students' academic achievement. It offers a real prospect of superior results, coupled with lower costs.

According to the International Association for K-12 Online Learning (iNACOL), during the 2009-10 school year, roughly 1.5 million students participated in online or blended-learning programs in the United States. Multiple forms of digital learning, including supplemental online programs and full-time virtual schools, were available to at least some students in 48 states and the District of Columbia.

Nevada, however, was one of only 11 states that did not have a statewide virtual school. And in terms of the K-12 digital-learning options offered students, Nevada is only in the middle of the pack — ranked 20th in the nation in 2009 by the Center for Digital Education in favorable policies to support digital and online learning programs.

This paper examines the landscape of online or digital learning in the United States, reviews the available research about the effectiveness of digital-learning programs, and presents recommendations as to how Nevada policymakers can expand access to high-quality digital-learning programs for all Silver State students.

The Coming Future of Learning

In 2011, there is a large gap between the way that most American students experience the world inside and outside of school. At home, the typical American youngster lives in a "powered-on" world, where technology and information are essential and ubiquitous. Children today will come of age in a world where the answer to most questions they have can be found on the Internet, where they are likely to make "friends" via social networking in other states and countries, and where at some point they will carry a device in their pocket that will make most of the collective knowledge of the world accessible at the touch of their fingers. They will become accustomed to receiving information on their own terms and by their own choice. And they will expect information and their technological experiences to be personalized to their unique interests and preferences.

Yet in most schools, American students live in a "powered-off" world — where their schooling experience is not unlike their parents', grandparents', and great-grandparents' generations. They sit in a classroom with 15 to 20 desks arranged in rows. A teacher stands at the front of the room presenting a lecture that is aimed to instruct the mass of students. Computers may be present in the classroom, but the majority of the learning happens the old-fashioned way.

In this "powered-off" world, students' ability to and opportunity to learn are largely dependent on factors outside of his or her control. Is the teacher who stands at the front of the classroom knowledgeable and effective at delivering instruction? How quickly or slowly do the child's classmates learn, and are they contributing to or detracting from the lesson? Is the teacher's lesson structured to the child's level and learning style or is it primarily aimed to reach other students in the class? Does the child's school offer the kinds of classes that will interest him or her and provide the opportunities that the child needs if he or she is to advance to higher-level courses in college and beyond?

But the day when the gap is erased between the "powered-on" and "powered-off" worlds inside and outside is fast approaching. And it will fundamentally reorient schooling and learning in a manner that centers the experiences on the child, providing customized or personalized learning programs for each individual student. This will be made

example, a high school student who wants to take a class unavailable at his or her school could enroll in an online-learning program in that subject. Some online-learning programs are called hybrid or "blended-learning" programs because they use technology to provide instruction within the traditional school setting. In a blended-learning program, a student typically spends several hours a day learning by sitting at a computer (with a teacher supervising the children and providing instruction when needed). The rest of the school day is spent in a traditional classroom with traditional teacher instruction.

How do children interact with live teachers? There are a variety of arrangements that can be used in online or virtual-learning programs that occur over the Internet. Students can participate in online learning through either synchronous or asynchronous instruction. In the former, students receive instruction and interact with their teacher in real time. In asynchronous instruction, students learn at their own pace and on their own schedule, while teachers provide regular feedback by grading their assignments and answering questions. In both settings, online-learning

possible by the arrival of digital learning — online or virtual schools and courses and the application of computer-based instruction in blended classrooms — that allows technology to support or replace traditional instruction.

Digital or online learning has the potential to powerfully transform, for the better, the way that Silver State children learn. It also offers a wide range of benefits for teachers and the Nevada education system as a whole. The following are some of the main benefits we can expect:

• **Improving access to high-quality teachers**: Researchers have identified teacher quality as a key factor affecting students' academic achievement.[1] Digital or online learning has the potential to resolve a key discrepancy in Nevada public education — the disparate access to talented and highly effective teachers due to geographic and socioeconomic differences. Today, a student's chance of attending a school with high-quality teachers largely depends on the student's location, which is often determined by the socioeconomic status of the child's family. Online learning could give all Nevada students, regardless of where they live, access to the best instructors. It could also address key teacher shortages. In some subjects, such as science and mathematics, some schools have difficulty employing skilled teachers. With online learning, a student attending a school without a physics teacher, for example, could learn physics from a teacher in another school district or even in another state.

• **Personalizing and customizing the learning process:** Traditionally, American schools have treated students in a standardized manner — teaching students lessons based on their age, rather than on their achievement levels or learning styles. Digital-learning programs can personalize and customize the learning process, providing lessons that are specifically tailored to a child's learning style and achievement level. Customizing lessons can make the learning process more enjoyable and productive. In addition, digital learning can provide for better tracking to determine how well students are progressing, enabling teachers and parents to use feedback about student performance to ensure that youngsters stay on track. This is particularly important for the large proportion of Nevada students who, today, are at constant risk of falling behind. By providing immediate feedback, digital-learning programs

programs generally require consistent communication between students and teachers via e-mail, phone, instant messaging, and video conferencing. In blended-learning, students learn using a computer while a teacher serves as a coach or advisor, physically present and monitoring the children's progress.

Where do children go for digital-learning programs? Online-learning programs can be based entirely at home, partially at home, or take place in a traditional brick-and-mortar school, as in the case of a blended-learning school setting. Similarly, online-learning programs vary in their geographic reach — ranging from school-based programs that are unique to an individual school to statewide (or even national or global learning programs) that allow students from many different locations to learn in the same setting.

Can children of all ages participate? Online-learning programs can serve students of all ages and backgrounds. However, most full-time online-learning programs focus on serving older students and high schoolers. A 2008 survey of school district administrators reported that an estimated 64 percent of

can allow teachers and parents to give immediate remediation for these students.

- **Ending the focus on "seat-time" and creating a flexible learning process:** By personalizing and customizing learning, digital-learning programs can break the traditional focus on seat-time as the measure of a student's progress. Traditionally, Nevada students have progressed to more advanced lessons and grades based on the turning of the calendar, rather than the student's actual progress. Similarly, learning has generally been presumed to occur during school hours and during the school year. Online-learning programs, however, can provide a much more flexible approach to schooling — allowing Silver State students to learn at their own pace and outside of the traditional school day and year.

- **Improving student motivation and satisfaction**: Harvard Professor Clayton M. Christensen and Michael Horn, the authors of *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*, argue that digital learning can significantly improve students' motivation and satisfaction by making the learning process more fulfilling and enjoyable. While adults may view the mission of schooling as teaching students, they note, children are motivated by different objectives — primarily, having fun with their friends and feeling successful.[2] Christensen and Horn view digital learning as a promising model for accomplishing the latter goal: "[B]y the very nature of software, achievement can be integrated with the delivery of content in ways that help students feel successful while they learn, every day. Often this comes in the form of reviews or exams that are built into the software, which require students to demonstrate mastery before they can move to the next body of material. Feedback can be delivered frequently and in bite-sized pieces, as necessary, to help each student feel successful."[3]

- **Providing new opportunities for teachers:** Digital learning can also provide Nevada teachers with new career options and more freedom to instruct students more productively. It can allow Nevada's most highly effective teachers to reach more students. Online-learning programs also have the potential to expand the talent pool of the teacher workforce and improve teacher quality overall — allowing teachers who are parents, for example, the

students participating in fulltime online-learning programs were in high school, compared to 21 percent in elementary school and 15 percent in middle school (grades 6-8).[1] But online-learning programs can be tailored to serve specific student populations of all ages.

Why do schools offer digital or online-learning programs? Online-learning programs can be tailored to students of all levels, from students seeking coursework more advanced than is provided at the local school to students who are at-risk of dropping out and need online-learning programs to catch up and recover missed credits. This diversity was evident in a 2008 survey of school district administrators, which found that each of the following reasons for offering online learning was important for their school system:

- Offering courses not otherwise available at the school;
- Meeting the needs of specific groups of students;
- Offering Advanced Placement or college-level courses; and permitting students who failed a course to take it again."[7]

flexibility of teaching from home and more easily balancing career and parental responsibilities.

- **Improving productivity and efficiency.** Online learning can also improve productivity and lower the cost of education, thereby reducing the burden on Nevada governments and taxpayers — an important consideration in today's increasingly challenging economy. Terry M. Moe and John E. Chubb highlight this point in their 2009 book, *Liberating Learning*: "Schools can be operated at lower cost, relying more on technology (which is relatively cheap) and less on labor (which is relatively expensive)."[4] They estimate that a school could reduce its teaching staff by approximately one-sixth, if elementary school students spent just one hour per day learning electronically.

- **Innovation.** The increasing use of online learning around the world is providing instructors and online-learning operators with powerful incentives to innovate and develop new learning tools. These could improve Nevada students' learning options in ways unimaginable today.

Digital learning: Where we are today

While the above discussions have focused on digital learning as a largely theoretical concept, Silver State policymakers can look to the growing experience of American educators with digital learning for assistance in shaping future policies and education reforms:

- The International Association for K-12 Online Learning reported in October 2010 that students in 48 states and Washington, D.C., can take advantage of supplemental or full-time online-learning programs.[5] Thirty-eight states have virtual schools or state online-learning initiatives.[6] Twenty-seven states, including Nevada and the District of Columbia, offer full-time online schools serving students statewide, while 20 states provide both supplemental and full-time virtual-learning options to students statewide.[8] In addition to these statewide programs, a majority of school districts now have one or more students participating in some form of online learning.[9]

- The population of students being served by digital- or online-learning programs continues to grow

quickly. During the 2009-10 school year, 1.5 million American students were participating in some form of digital (including online or virtual) learning programs. This number is expected to grow dramatically in the years ahead. Christensen and Horn predict that *50 percent of all courses for students in grades nine through 12 will be taken online by the end of the decade.*[10]

This may seem like a bold and aggressive prediction. But the experience of other countries that have been aggressive in implementing digital-learning policies shows that widespread online or virtual learning can occur. The International Association for K-12 Online Learning reports that many other countries are also implementing online-learning programs, and in some cases far surpassing the options that are currently available in the United States.[11] In Singapore, for example, 100 percent of all secondary schools use online learning and all teachers are trained to teach online. Turkey recently created an online-learning initiative that aimed to serve 15 million children within three years. India is planning a national online-learning system to help ensure universal access to education to all children by the end of the decade. China is similarly creating a national online-learning curriculum that aims to dramatically increase the number of children who are educated.[12]

Empirical evidence about digital learning

While digital learning remains a relatively new phenomenon in American education, the proliferation of new virtual- and online-learning programs provides empirical evidence and practical experience about how these programs work in practice. The initial evidence is encouraging, suggesting that digital learning can be an effective and efficient learning tool:

- **Improving academic achievement:** The U.S. Department of Education published a meta-analysis of evidence-based studies of online-learning programs in 2009. It reviewed 44 studies evaluating post-secondary students and seven studies of K-12 students. The Department of Education report concluded that, "students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction."[13] While these findings should be interpreted with some caution, particularly since the majority of the studies evaluated post-secondary programs, policymakers can have confidence in new online-learning options — given the initial empirical evidence that these programs can benefit students academically.

- **Lowering government costs:** Online- or digital-learning programs are also proving to be effective in lowering government costs and reducing the burden on taxpayers. A fiscal analysis of the Florida Virtual School, a model statewide virtual-school program (discussed in detail below) found that a student enrolled in the Florida Virtual School receives $1,048 less in government funding than a student attending a traditional school. These savings are a very conservative estimate of how the Florida Virtual School is improving efficiency, since it does not include the savings that are occurring due to the absence of additional costs for school facilities and school maintenance that would have occurred had the child enrolled in a brick-and-mortar public

school.[14] In addition, "blended learning" schools that use computer-based instruction to provide a significant portion of instruction are proving to operate at lower costs than traditional schools, since they require fewer teachers and rely on cost-effective technologies. [15]

Examples of innovative digital-learning programs

In addition to such encouraging empirical evidence, Nevada policymakers can look to other examples of digital-learning programs that are successfully providing students with high-quality learning experiences. The following are examples.

- **Blended-learning schools (Carpe Diem Academy, Yuma, Arizona)**: Carpe Diem Academy is a blended-learning public charter school that serves approximately 280 students in grades six through 12. The Academy uses computer-based instruction to provide half of all course instruction.[16] Through a rotating class system, students switch from spending an hour learning at a computer (with a teacher in the classroom to provide supplemental instruction) to spending an hour in a traditional classroom. Carpe Diem hires only one master teacher for each subject and relies on computer programs and teaching assistants to support the main instructor. The school serves a primarily low-income student population, *yet the school earned the highest math and science test scores* on a recent state examination.[17] In 2011, *US News and World Report* listed Carpe Diem Academy in Yuma Arizona as one of the best high schools in the nation.[18] To learn more, visit: www.cdayuma.com.

- **Cyber charter schools (PA Cyber, Pennsylvania)**: Across the Keystone State, more than 10,000 students now attend the Pennsylvania Cyber Charter School, a full-time academy serving students from grades kindergarten through 12.[19] As a public charter school, its students pay no fees to attend and receive free technology supplies (including a computer and high-speed Internet connection). Students can take both synchronous and asynchronous classes, learning from a teacher in real-time or at their own pace. The teacher-to-student ratio at PA Cyber is 1-to-30. However, students are required to maintain regular communication with not only teachers but also an assigned academic advisor. By reducing the traditional labor costs that most schools face, PA Cyber has been able to invest more resources in developing its technology-based curriculum. The school now offers more than 250 courses. Each is audited for instructional quality by an affiliate of the University of Pittsburgh.[20] PA Cyber students are achieving positive results in terms of academic achievement. Its students who took the SAT and ACT tests scored higher than their peers in Pennsylvania and across the nation. [21] The school also has achieved federal and state benchmarks on the Pennsylvania state exam. [22] To learn more, visit PA Cyber.org.

- **Statewide virtual schools (The Florida Virtual School)**: Launched in 1997, the Florida Virtual School (FLVS) is the nation's largest statewide virtual school. FLVS' motto is "any time, any place, any path, any pace."[23] During the 2009-10 school year, 97,000 students took courses from FLVS.[24] The school's mission is to supplement a student's traditional education through expanded curriculum options. The school

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currently offers more than 100 courses with 1,200 staff members located in Florida and beyond. All Florida students, including homeschoolers and private-school students, are eligible to attend. FLVS is designed to provide students with a flexible and customized learning experience, while maintaining regular interaction with teachers.[25] Though instruction occurs online (and students have little to no face-to-face interaction with teachers), teachers are required to engage students regularly and facilitate interactions. Teachers are also required to be on-call from 8 a.m. to 8 p.m. on weekdays and weekends to provide feedback to students working at their own pace. While no control-group study has been conducted evaluating the Florida Virtual School, a comparison of average test scores on advanced placement exams found that FLVS students outperformed the Florida average.[26] To learn more, visit FLVS.net.

- **Online self-learning programs, (Khan Academy, *KhanAcademy.org):*** Khan Academy does not have a playground, a cafeteria, or any of the traditional things one probably associates with a school. But it is quickly becoming one of the most popular learning sites in the world. It claims to have delivered more than 62 million lessons to date. The Khan Academy website was created by Salman Khan, a Harvard MBA and former hedge-fund manager, who, as a hobby, began uploading video tutorials onto YouTube to tutor his cousins. Khan's tutorials were soon being watched by thousands of people. He created the Khan Academy site that now offers 1,600 tutorials and, on average, attracts roughly 70,000 viewers per day. Khan Academy attracted worldwide media attention after Bill Gates announced that Khan was his "favorite teacher" and that he encouraged his children to watch Khan's mini-lectures when they were stumped on a lesson. The Academy is now partnering with schools that are using his lectures to "flip" the traditional instructional process. That is, the schools assign his lectures as homework and, when students return to school, they complete practice lessons based on what they learned watching the videos — while receiving individualized instruction and coaching from their on-site teacher. To learn more, visit KhanAcademy.org.

Where Nevada is today

According to the Center for Digital Education, in 2009, Nevada ranked 20th in the nation in offering families the opportunity to access high-quality digital-learning options for their children.[27] However, the Center ranked Nevada's Clark County School District number one in October 2010 among the nation's 10 largest school districts for "exemplary … use of technology to govern the district, communicate with students, parents and the community and to improve district operations."[28]

As of December 2010, Nevada was one of 27 states that offered multi-district, full-time online schools.[29] But the Silver State was also one of only 11 states that did not have a statewide, state-run virtual school. Nevertheless, for the approximately 70 percent of the state's public high school students — those living in Clark County — online-learning options are available through the CCSD's Virtual High. Virtual charter schools throughout the state during the 2009-10 school year had a combined enrollment of 5,950 students in total — a 76 percent increase from the 3,377 students of 2008-09, which itself was a 40 percent increase over the previous fiscal year.

Currently, the state has four virtual charter schools — Nevada Connections Academy, Nevada Virtual Academy, Odyssey Charter School and Silver State Charter High School.

- **Nevada Connections Academy** (http://www.connectionsacademy.com/nevada-school/home.aspx): An online virtual charter school, the Nevada Connections Academy reported 1,563 students enrolled during the 2010-11 school year[30] for its free online virtual instruction. The school is a part of the national Connections Academy network, currently with schools in 25 states. That program is accredited by AdvancED, which includes the North Central Association Commission on Accreditation and School Improvement and the Southern Association of Colleges and Schools Council on Accreditation and School Improvement. NCA itself, with its teaching center and administrative office in Sparks, is also provisionally accredited by the Northwest Accreditation Commission.

- **Nevada Virtual Academy** (http://www.k12.com/nvva): Nevada Virtual Academy is a virtual charter school that offers the K12.com curriculum, which like Connections Academy is one of the leading national online-learning programs. The program is mastery-based, meaning students master concepts and lessons before moving on to the next lesson. As of spring 2011, 3,174 students were reported as enrolled in Nevada Virtual Academy[31] — the largest attendance of any privately owned virtual charter in the state. The Nevada Virtual Academy has been accredited by the Northwest Association of Accredited Schools.

- **Odyssey Charter Schools** (Clark County School District), www.odysseyk12.org: A charter-school system serving students in grades K through 12, Odyssey Charter Schools provide online instruction and provide opportunities for individual interaction and extracurricular activities for its students. Odyssey High School boasts that it offers "a unique hybrid approach to education that provides the best of two modalities: in-person instruction and online learning." Any school-aged child who resides in Clark County is eligible to enroll. During the 2010-11 school year, enrollment was 513, K-8, and 893, high school.[32] Odyssey, accredited as a distance-education program by the Northwest Association of Accredited Schools, is sponsored by the Clark County School District.

- **Silver State Charter School** (Carson City), http://www.sshs.org/: Silver State Charter School accepts full-time middle and high school students from across the northern counties of the state. It provides real-time instruction to 500 students each day[33] and requires students to physically attend an in-class session once a week. Like the University of Colorado, Denver, DeVry University and Kaplan University, Silver State Charter uses the eCollege software applications and support services for colleges, universities and virtual schools. Students also have access to the Florida Virtual School and Aventa curricula. Silver State Charter is accredited by the Northwest Accreditation Commission.

For the 2010-11 school year, the four schools' self-reported enrollment numbers would total 6,669, almost double the figure from two years' previous. However, that number

still makes up merely some 1.5 percent of the total in a state that reported 436,000 public-school students at the end of the 2009-10 school year.[34]

In addition to these four virtual charter schools, the Clark County School District Virtual High School offers a full-time, online-school option for the district's students. CCSD Virtual High, which can be visited at www.ccsdde.net, offers both full-time and part-time enrollment for high school students. The school offers a full curriculum and an advanced honors diploma. It also provides summer school courses.

Policy reforms in Nevada

As just noted, the level of student access to digital learning in the Silver State is growing rapidly. Nevertheless, in terms of its potential for boosting student achievement across the state and doing so cost-effectively, it still has far to go.

Part of the reason, no doubt, has been establishment resistance. Before 2008, for example, the State Board of Education blocked two statewide distance-education charter schools from serving grades K-3, even though toddlers do quite well with digital learning. Although the board reversed that policy in August 2008, it and the state legislature — frequently harkening more to Nevada's powerful teacher union than to parents — still set numerous bureaucratic program and reporting requirements that tend to negate the benefits of the charter-school model, according to numerous charter teachers and administrators. The state seeks to maintain an acceptable list of courses and programs, to review or audit distance programs, and of course revoke approval of any distance-education program that runs afoul of the state's historically niggling requirements.

One fundamental issue is the extent to which funding in Nevada is tied to the individual student — necessarily impacting all schools' capacity to fully individualize instruction. Nevada still uses its "Nevada Plan for School Finance," initially passed by the state legislature in 1967. While seeking to at least roughly equalize school funding throughout the state, the plan largely ignored the differences between individual students. Its formula, as most recently updated, is:

> State financial aid to school districts equals the difference between school district basic support guarantee and local available funds produced by mandatory taxes minus all the local funds attributable to pupils who reside in the county but attend a charter school or a university school for profoundly gifted pupils. (NRS 387.121)

However, a positive development occurred on this front during the 2011 Legislature. Nevada's largest school district, Clark County, successfully sponsored Senate Bill 11, which recognizes the superiority of funding that follows the individual student, taking account of his or her varying needs. The legislation requires a study, prior to the 2013 Legislature, focused on development of a new, individual-centric method for funding Nevada public schools. The powerful majority leader of the Nevada Senate, Steven Horsford, D-Clark, noted that "states like Florida, Texas and Georgia," where "there has been a great deal of focus on education reform," all "have weighted formulas factored

into their basic education support."[35] So prospects are improving that during the next biennial legislature, in 2013, Nevada will move to a funding method where dollars follow the individual student and reflect his or her particular needs.

Another significant education reform passed by the 2011 Nevada Legislature was the strengthening of the state's alternative teacher-certification program. Two bills were passed into law and signed by the governor — AB 230 and SB 315 — requiring the state's Commission on Professional Standards in Education to adopt new regulations providing alternative routes to licensure. After setting requirements that "the required education and training may be provided by any qualified provider which has been approved by the Commission, including institutions of higher education and other providers that operate independently of an institution of higher education" the legislation mandates that anyone who meets all the requirements "must" be issued a regular license.

The 2011 Legislature also relaxed the rigidity of previous digital-learning seat-time restrictions. Under the state's previous law, pupils could be granted credit for courses of study without attending the classes for the course if they passed an exam prescribed by the State Board of Education. AB 233 introduces much more flexibility by providing that a pupil may also be granted credit in lieu of course attendance if the pupil: (1) demonstrates proficiency on an examination developed by the principal and the pupil's teacher who provides instruction in the course; or (2) passes an exam that the principal determines is as rigorous or more rigorous than the examination prescribed by the State Board. Thus competency, rather than mere seat-time, increasingly is to determine academic credit in Nevada schools.

Nevada also made modest progress during the 2011 Legislature on important issues of accountability for student performance and quality of educational content. Until this legislative session, educational authority at the state level was so diffuse that little accountability existed. A state board of education made up of regionally elected members — frequently creatures of the state teacher union and largely unknown to the public — hired the state superintendent of education, who in turn ran the state's department of education, with no required communication with, or input from, the governor of the state, or the Legislature. Furthermore, over the years the Nevada Legislature, to reclaim some measure of authority, created various commissions and councils independent of the state board, further diffusing accountability.

The graphic on the following page, showing the resulting lines of purported authority and produced by the state superintendent, illustrates clearly the institutionalized confusion:

Direct relationship ⟷
Indirect relationship ⟷⋯
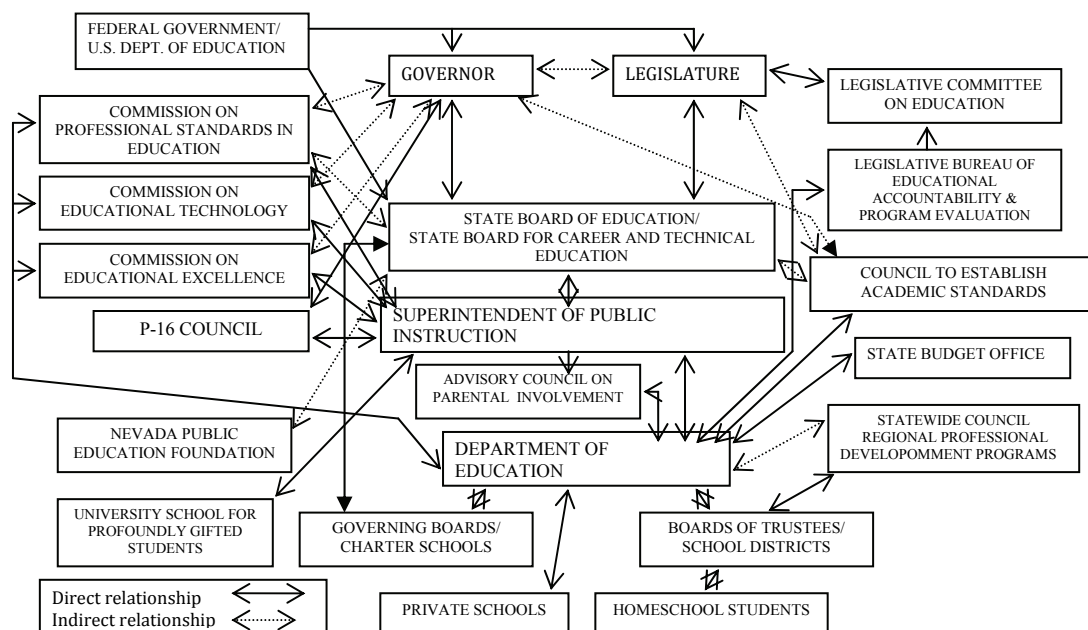
However, this legislative session Senate Bill 197 finally accomplished changes sought unsuccessfully by three previous Nevada governors. The legislation gave the governor the power to appoint the superintendent (from a list of three candidates submitted by the state board).[36] The superintendent also now serves at the pleasure of the governor, and is part of the executive branch, charged with enforcing Nevada education law and evaluating the work of various hitherto independent educational councils and commissions — including the Commission on Educational Excellence, the Council to Establish Academic Standards for Public Schools and the Commission on Professional Standards in Education. Additionally, the governor, the Senate majority leader and the Assembly speaker now each appoint a voting board member, while four other voting members are still elected. Four more members are advisory and do not vote.

The policy changes effected by Nevada's 2011 Legislature — responding, finally, to a growing public outcry — appear to be at last opening the Silver State to more possibilities of genuine education reform. The intelligent harnessing of the immense capabilities available through digital-learning technologies should, therefore, accelerate in Nevada.

Capturing digital learning's benefits for Nevada youth

Of course, the immense magnitude of those possibilities can, in itself, be intimidating. Fortunately, however, Nevada policymakers can draw upon a growing body of well-thought-out policy recommendations that address the issue of how to optimally expand students' access to digital learning.

Most prominent are those from a bipartisan coalition of education reformers, led by former Florida governor Jeb Bush and former West Virginia governor Bob Wise. In 2010, they formed the Digital Learning Council — an advocacy organization with the mission of promoting high-quality digital-learning programs across the country. Their white paper, "Digital Learning Now," offers these policy guidelines:

The 10 Elements of Digital Learning

1. Student Eligibility: All students are digital learners.

2. Student Access: All students have access to high quality digital content and online courses.

3. Personalized Learning: All students can customize their education using digital content through an approved provider.

4. Advancement: Students progress based on demonstrated competency.

5. Content: Digital content, instructional materials, and online and blended learning courses are high quality.

6. Instruction: Digital instruction and teachers are high quality.

7. Providers: All students have access to multiple high quality providers.

8. Assessment and Accountability: Student learning is the metric for evaluating the quality of content and instruction.

9. Funding: Funding creates incentives for performance, options and innovation.

10. Delivery: Infrastructure supports digital learning.

Source: Digital Learning Now, at:
   http://www.digitallearningnow.com/?page_id=20

To expand access to high-quality digital learning in Nevada, policy reforms should focus on two core objectives: first, expanding the supply of high-quality digital learning; second, creating demand for digital learning by giving parents the power to choose the best education for their children — a learning program customized to suit the specific needs of each child.

Expanding the supply of high-quality digital-learning options

- **Create a statewide virtual school available to all students**: While the Clark County School District Virtual High School provides virtual-school options to roughly 70 percent of the state's students, thousands of students who live outside of Clark County would benefit from the opportunity to take digital courses. This is particularly true for students attending schools in rural communities, which may have limited course offerings and could benefit from new opportunities to learn from talented teachers. State policymakers should create a new Nevada Virtual School, similar to the Florida Virtual School, that allows all children across the state to enroll and take courses on a part-time or full-time basis.

- **Create blended-learning school options**: School leaders, and potential new charter-school operators, should draw from the experience of successful blended-learning schools like Carpe Diem Academy in Yuma, Ariz., and implement similar blended-learning options. This could include new schools or the transformation of existing schools. Blended-learning programs are proving to be effective and efficient in providing a high-quality learning experience. Entrepreneurial school leaders, from the public-, charter- and private-school sectors, should work to introduce these models into Nevada.

- **Incorporate digital learning into traditional school programs:** Traditional public schools should similarly work to incorporate aspects of digital learning into their curricula. For example, a growing number of public schools are now using Khan Academy's free lessons and tutorials to supplement traditional instruction. School leaders across Nevada should look to introduce these innovative programs to incorporate digital learning into the traditional public-school setting.

Speeding the embrace of digital learning by empowering Nevada parents

While supply-side reforms are important to expanding access to high-quality digital learning, Nevada policymakers should give parents greater power to choose the best learning environment for their children, including digital programs. Only by giving parents real power to choose how their children are educated will Nevada truly ensure that all students have the opportunity to benefit from customized and personalized learning programs.

Creating demand for digital learning by empowering parents with the power to choose can be done in various ways. First, public-school funding formulas should be reformed to enable parents to enroll their children in the state's virtual-school options without seeking consent from the school district or any other agency. According to *Keeping Pace with K-12 Online Learning*, Nevada parents who wish to enroll their child in an online-learning program offered by another school district must seek consent from their home school district, and the school districts must reach an agreement regarding how funding should be shared for the student's time in the online program.[37] This policy should be changed and formalized to let students access online-learning courses offered by other school districts.

In addition, Nevada policymakers could move toward education-funding systems that transfer greater control to parents — such as offering scholarships or tax credits with which parents can choose the learning environment for their children that they think best, including digital-learning programs.

Toward this latter objective, the state of Arizona implemented an innovative education funding system in 2011 — the nation's first state-funded education savings account system for special-education students. Gov. Jan Brewer signed into law SB1553, legislation that will require the state to deposit 90 percent of the state aid that would be spent on a child's education in an "Arizona Empowerment Account."[38] Essentially, this state-funded education savings account approach aims to provide families with real control over how each child's share of education dollars is spent. Families can use these dollars to purchase enrollment in a school or purchase other educational services, such as tutoring or online instruction. Extra funds saved can be used in later years or saved for college expenses.

Given the low-cost and efficiency of digital-learning programs, a system of state-funded education savings accounts could be particularly effective in allowing families to customize high-quality digital-learning programs for their children while spurring innovation and new efficiencies. Since Nevada currently spends approximately $10,000 per pupil each year, a program giving families control over a significant portion of those funds could mean virtually every child would have access to high-quality digital-learning programs that suit his or her specific needs and learning styles.

Conclusion

Digital learning is going to transform and improve American education. In a growing number of states and communities, it already is providing better learning options for many American students. Since Nevada currently spends more than $10,000 per pupil, and since less than a quarter of its students are reading on grade-level by fourth and eighth grade, Silver State policymakers should consider new strategies for improving K-12 education. While the state is beginning to offer high-quality digital-learning opportunities through its virtual charter schools and the Clark County virtual school, many more students could benefit from the opportunity to learn using innovative technologies and from the best possible teachers. Nevada policymakers should work to expand the supply of high-quality digital-learning programs and give parents real power to choose the best learning environment for their children, including online- or digital-learning programs.

Endnotes

[1] For example, see: Sanders, William L. and Sandra P. Horn. "Research Findings from the Tennessee Value-Added Assessment System (TVASS) Database: Implications for Educational Evaluation and Research." Journal of Personnel Evaluation in Education, Vol. 12, No. 3, p. 1 (reprint), http://www.sas.com/govedu/edu/ed_eval.pdf; Sanders, William L. and June C. Rivers. "Cumulative and Residual Effects of Teachers on Future Student Academic Achievement." University of Tennessee Value-Added Research and Assessment Center. November 1996, http://www. mccsc.edu/~curriculum/cumulative%20and%20residual%20effects%20of%20teachers.pdf.
[2] Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson, " Rethinking Student Motivation: Why understanding the 'job' is crucial for improving education," Innosight Institute, September 2010.

[3] Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson, "Rethinking Student Motivation: Why understanding the 'job' is crucial for improving education," Innosight Institute, September 2010.

[4] Terry M. Moe and John E. Chubb, *Liberating Learning: Technology, Politics, and the Future of American Education* (San Francisco: Jossey-Bass, 2009). P.7.

[5] Matthew Wicks, "A National Primer on K-12 Online Learning, Version 2," International Association for K-12 Online Learning, October 2010.

[6] Ibid.

[7] Anthony G. Piccianno and Jeff Seaman, "K-12 Online Learning: A 2008 Follow-Up of the Survey of US School District Administrators," Sloan Consortium, Hunter College, and Babson Survey Research Group, January 2009, at *http://www.sloanconsortium.org/publications/survey/pdf/k-12_online_learning_2008.pdf*.

[8] Ibid.

[9] The total participation in district-led online-learning programs is unknown since school districts are not required to report this information. However, the available evidence indicates that at least a majority of districts offer some online-learning option. In 2009, the Sloan Consortium reported that 75 percent of districts had one or more students participating in some form of online learning. John Watson, Butch Gemin, Jennifer Ryan, and Matthew Weeks, Keeping Pace with K-12 Online Learning: An Annual Review of State-Level Policy and Practice, Evergreen Education Group, November 2009.

[10] Clayton M . Christensen and Michael B. Horn, "How Do We Transform Our Schools?," *Education Next*,Vol. 8, No. 3, Summer 2008, at: http://educationnext.org/how-do-we-transform- our-schools/.

[11] Susan Patrick, "How Online Learning Can Increase Opportunities for Students," iNACOL, Presentation at the American Legislative Exchange Conference, 2009, at: http://www.inacol.org/research/docs/ALEC_2009_Task_Force_Meeting_7_Minutes_Susan_Patrick.pdf.

[12] Ibid.

[13] Barbara Means, Yukie Toyama, Robert Murphy, Marianne Bakia, and Karla Jones, "Evaluation of Evidence-Based Practice in Online Learning: A Meta-Analysis and Review of Online Learning Studies," U.S. Department of Education, May 2009, at *http://www.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf*.

[14] Florida Tax Watch, Center for Educational Performance and Accountability, "Final Report: A Comprehensive Assessment of Florida Virtual School," November 5, 2007.

[15] See this report for an in-depth profile of Carpe Diem Collegiate High School: Michael Horn and Heather Staker, "The Rise of K-12 Blended Learning," Innosight Institute, January 2011, at: http://www.innosightinstitute.org/innosight/wp-content/uploads/2011/01/The-Rise-of-K-12-Blended-Learning.pdf.

[16] For more information, see Carpe Diem Academy at: www.cdayuma.com/.

[17] Ibid.

[18] US News and World Report, "Best High Schools," at: http://education.usnews.rankingsandreviews.com/best-high-schools/listings/arizona/carpe-diem-academy (June 14, 2011).

[19] PACyber, "PA Cyber enrollment hits 10,000," November 29, 2010, at: http://www.pacyber.org/newsroom/article_results.aspx?ArtID=226.

[20] Moe and Chubb, Liberating Learning, p.60-66.

[21] PACyber, "PA Cyber enrollment hits 10,000," November 29, 2010, at: http://www.pacyber.org/newsroom/article_results.aspx?ArtID=226.

[22] PACyber, "PA Cyber enrollment hits 10,000," November 29, 2010, at: http://www.pacyber.org/newsroom/article_results.aspx?ArtID=226.

[23] Florida Virtual School, www.flvs.net (December 26, 2010).

[24] Florida Virtual School, "Quick Facts," at: http://www.flvs.net/areas/aboutus/Pages/QuickFactsaboutFLVS.aspx (December 26, 2010).

[25] For more information on FLVS, see: Katherine Mackey and Michael B. Horn, "Florida Virtual School: Building the first statewide, Internet-based public high school," Innosight Institute, October 2009; Bill Tucker, "Florida's Online Option," Education Next, Summer 2009.

[26] Bill Tucker, "Florida's Online Option," Education Next, Summer 2009.

[27] Center for Digital Education, "Online Learning Policy Survey: A Survey of the States," CenterDigitalEd.com, 2009.

[28] Center for Digital Education, "Top 10 U.S. School Districts in Digital Technology Named," August 11, 2011 at: http://www.convergemag.com/awards/digital-districts/2010-Digital-School-Districts-Survey.html.

[29] John Watson, et al, "Keeping Pace with K-12 Online Learning: An Annual Review of Policy and Practice," Evergreen Education Group, 2010.

[30] E-mail from Secondary Assistant Principal Maureen Cotner, August 11, 2011.

[31] E-mail from Head of School Mike Kazek, August 16, 2011. Enrollment by school year's end had increased 569 over the "count-day" number of 2,605.

[32] Telephone communication with Odyssey Charter School Superintendent Dr. Michelle Robinson, August 11, 2011.

[33] Interview with Silver State High School Superintendent Steve Knight, August 11, 2011.

[34] Number of students calculated from data on the State of Nevada's www.nevadareportcard.com website, August 12, 2011.

[35] Nevada Senate Finance Committee hearing, March 14, 2011, at http://www.leg.state.nv.us/Session/76th2011/Minutes/Senate/FIN/Final/476.pdf.

[36] If the governor finds none of the recommended nominees worthy, he can request a new list.

[37] Ibid.

[38] Arizona State Legislature, SB1553, "education; Arizona empowerment accounts," at: http://www.azleg.gov/DocumentsForBill.asp?Bill_Number=SB1553&Session_ID=102 (April 18, 2011).

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