ALPINE ONLINE SCHOOL

A Utah school district's move into K–8 online education

AN EDUCATION CASE STUDY

Leland Anderson
Visiting Research Fellow

Michael B. Horn
Executive Director, Education

INNOSIGHT INSTITUTE

August 2009 | E-CS-001
www.innosightinstitute.org

EXECUTIVE SUMMARY

In the winter of the 2005–06 school year, Alpine School District ("Alpine") decided to form an online K–8 school to support home-schooled students in the district. It adopted the idea from a neighboring Utah school district. Available funding from the state of $2,500 per student per year made the online school financially viable as that amount covered the cost of full-time teachers as well as certain online and shipped curriculum. The lead administrator on the project combined his drive with the expertise of K12™ Inc. ("K12™")to set the school up within six months.

How the online school works

1. Alpine's Web site directs parents to K12™'s enrollment Web site where parents can enroll their children.
2. A teacher from the online school contacts the family to discuss expectations and confirm the children's enrollment.
3. Students work online and with shipped curriculum (including books and manipulatives), and the parent or guardian is the primary teacher.
4. Students take frequent online assessments.
5. A certified teacher from the online school uses an online portal to monitor student progress through the curriculum.
6. A certified teacher from the online school contacts the family each week via phone or email to provide support to students and the parent-teacher.
7. Students spend the required 990 hours per year engaged in learning activities.
8. Students take standardized tests at the end of the year. Thus far the students' test scores have roughly equaled those of their age-level peers in brick-and-mortar schools.

Economically viable

Given the services Alpine chose to purchase from K12™ and because it was located in Utah, the cost of the online school was about $2,500 per student—about half the cost of a traditional student. This made the online school a break-even proposition for the district.

Technological advantage

Online or virtual learning allows students to take core and elective subjects at their own pace, preferred time, and from many places.

Moving toward modularity: Choices in curriculum

In response to parent requests, Alpine Online added a Saxon Math option and more than 10 foreign language options through Rosetta Stone. Several students take a "blended" group of classes—that is, some online and at home and some at the local school. Implementing this required case-by-case training of school staff.

Parental perspectives

Some parents found K12™'s curriculum to be too demanding for their children whereas others withdrew their children to avoid having them take standardized tests. Many parents participating in Alpine Online, however, expressed great satisfaction with the program. They reported that they enjoyed having control over their child's learning environment, as well as significant discretion over the presentation of content, place, and pace. Several have reported that such conditions have helped their children and fostered accelerated or enhanced learning.

ALPINE ONLINE SCHOOL

A Utah school district's move into K–8 online education

This case study describes how an online disruption is emerging in one Utah school district,[1] thereby illustrating how similar disruptions may be and are being embraced elsewhere under similar circumstances. In this study, Harvard Business School Professor Clayton M. Christensen's theories of disruptive innovation, as outlined in his 2008 book Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns, s*hed light on how school districts can transform inconvenient and expensive home schooling into that which is characterized by relative simplicity, convenience, accessibility, and affordability.*

Educating home-schooled students: Nonconsumers of public education

In the winter of the 2005–06 school year, Alpine School District ("Alpine") administrators received a phone call from a troubled resident. The resident said that Davis School District ("Davis") in Utah, just 50 miles to the north of Alpine, was offering online curriculum for grades K–8 to support home-schooling families. "Why don't you [offer such an option]?" the caller asked.

Barry Graff, Alpine's Administrator of K–12 Services, investigated the caller's claim and discovered that Davis offered home-schooled students a broad, online curriculum menu through K12™ Inc. ("K12™"), a Virginia-based publicly-traded company that ran virtual elementary and secondary schools and created and offered K–12 curriculum. Davis's program featured K12™ curriculum, materials, scope and sequence, and support through access to a Utah-certified teacher. The teacher provided coaching to parents (who acted as the primary teachers), organized social activities for families, and supervised students' progress through the curriculum.

Davis's program attracted home-schooling families from across the state—including families living in Alpine. Graff thought Alpine should offer these services, too. Home schooling could be difficult for parents—gathering curriculum, planning instruction, and executing it all required disciplined attention, organized time, and money. Graff reasoned, "If we are in public education, our job is to make sure the public is educated, including those members

[1] Although Alpine School District's K–8 online school is the subject of this case study, Davis, Uintah, and Washington County school districts in Utah were simultaneously offering similar programs at the time of this writing.

of the public who have chosen to formally leave the school and educate their kids at home. There's no reason why we shouldn't provide support to [home-schooling] families."

There was a sizeable population of home-schooled students—non-consumers—in Alpine.

Although the precise number of home-schooling families living in Alpine was unknown, home-schooling families had made numerous inquiries of Alpine administrators over the years. This suggested there was a sizable number of home-schooled students in the area. Furthermore, according to the National Center for Education Statistics,[2] home-schooled students often came from rural, white, and religious populations—characteristics that were reflective of many of Alpine's residents.[3]

Graff recognized that there might be an opportunity for Alpine to create a program like Davis's. Although much of Davis's home-schooling curriculum was hosted online and available from any Internet connection, the caller's request indicated a preference for a "local" program. This made sense since Davis's program facilitated field trips and socials with local groups of home-schooling families—a feature that families from outside of Davis had difficulty accessing.

The observation that there was an opportunity to serve a group of families with children who were not attending school is a hallmark of a disruptive innovation. Almost all disruptions begin by serving so-called nonconsumers—people who are not consuming the existing products or services in a market because of such barriers as affordability, convenience, accessibility, or simplicity. Identifying nonconsumers and finding a way to serve them that meets their needs and overcomes these barriers is a crucial initial step in facilitating disruption.

Economically viable

Soon after the troubled resident's phone call, the Alpine leadership contacted the state office of education to ask what financial support the state would provide for such a program. The state said it would pay its standard annual amount per student to Alpine for each home-schooled student enrolled in the online school. This amount—known in Utah as the Weighted Pupil Unit (WPU)—was approximately $2,500 per year, and it constituted more than half of what the district typically

[2] See National Center for Education Statistics, http://nces.ed.gov/pubs2006/homeschool/index.asp (accessed September 1, 2008).

[3] The report classifies rural as cities or towns with populations of less than 50,000.

Figure 1 K12™ material costs breakdown for one student at Alpine Online during the 2006-07 school year

MATERIALS	Intermediate Art: World A Additional	$ 70.00
	Life Science Standard	$ 140.00
	Literary Analysis and Composition Standard	$ 140.00
	Pre-Algebra A Textbook	$ 140.00
MATERIALS Total		$ 490.00
MONTHLY	Intermediate Art: World B	$ 15.00
	Intermediate World History B	$ 15.00
	Life Science 2006	$ 15.00
	Literary Analysis and Composition	$ 15.00
	Pre-Algebra A	$ 15.00
MONTHLY Total		$ 75.00
		(x9)= $ 675.00
UPFRONT	Intermediate Art: World B	$ 75.00
	Intermediate World History B	$ 75.00
	Life Science 2006	$ 75.00
	Literary Analysis and Composition	$ 75.00
	Pre-Algebra A	$ 75.00
UPFRONT Total		$ 375.00
TOTAL MATERIALS, MONTHLY, AND UPFRONT FEES		**$1540.00**

spent per student (Utah's school districts also receive funds from a local property tax, similar to districts in many states).

This was a green light to continue pursuing the opportunity. Costs to run a virtual school would include personnel—experienced, certified teachers in Utah would cost the district upwards of $70,000 each in combined salary and benefits; Internet-based curricula—encompassing materials fees (depicted in Figure 1 are the material costs based on Alpine's selections) and teacher subscription fees (roughly $1,600 per teacher per year in total) to access online curriculum, a student-progress portal, and accountability functions, for example; equipment—providing teachers with laptops, cell phones, and Internet access; and outings—field trips and other social activities. After careful research, Alpine decided to use K12™'s curriculum in the online school.

By being selective in its choices from K12™'s menu of services, Alpine could use the state funds to cover all of these costs.[4] With no capital, transportation, or cafeteria costs and a lean staff[5] as well as an altered student-to-teacher ratio among

[4] Alpine chose not to use some program-related expenses from K12™, including special education services (e.g. special education teachers, assistive technology, related service providers, and evaluations), Study Island test preparation program, Scantron assessments (both benchmark and single strand tests), teacher training on Elluminate, and monthly teacher professional development, among others.

[5] There was a lean staff because there was no need for janitors, cafeteria workers, and librarians, for example. In addition, Graff's salary was covered by other funds.

other inputs, the online school could function on far fewer dollars per student than the current standard program. In Alpine's traditional elementary school classrooms, the student-to-teacher ratio was 20:1. In contrast, in the online school, that ratio could be 75:1. This difference came about by reallocating time spent preparing and presenting (which parents and computers now handled) to tutoring, mentoring, and providing feedback. Online teachers spent far greater portions of their time contacting the students and their parents by phone or email as they contacted 100 percent of home-schooling families at least weekly. In many cases, a family would have two students enrolled in the online school so a teacher could contact about 50 families a week and reach multiple students at a time.

"It [was] just about a break-even proposition… We don't make money; we don't lose money."

— Barry Graff

Graff said, "It [was] just about a break-even proposition since the WPUs just manage[d] to pay for the teachers and the curriculum. We don't make money; we don't lose money." The total cost advantage in Utah therefore was not a compelling driver of disruption in Alpine in part because of the unique demographics of the users (mostly home-schooled students at the time of this writing).

The Alpine leadership framed the financial questions in terms of *efficiency,* not in terms of "profit" or "extra revenue." The question they asked was, "Can we offer the same level of academic instruction and support for less? If you are charging people for a service, you are no longer free public education." An even more important issue to Alpine leaders, however, was serving a niche market and trying to respond to their needs. As Graff said, "Most of them wouldn't be in our buildings anyway, so we are catering to the demand and doing it [in an affordable fashion]."

Given that the answer was yes, Alpine moved forward to build and operate an online school at a low price point—and thus establish a sustainable business model. Doing so is a key enabler of disruption.

Alpine also considered including high school in its online school, but decided that to do so would be redundant because Utah's Electronic High School (EHS) had already created a standards-aligned curriculum that was free to all students in Utah and was teacher-supported in a similar, distance-learning fashion. EHS typically serves students seeking to recover credits or to accelerate their graduation from their local high school as well as students who are home-schooled exclusively.

Building Alpine Online

Having a senior manager create an autonomous unit that can focus on the new innovation and not be distracted or stifled by the core operations of the existing organization is another important step in creating many disruptive innovations. As

a senior-level manager in Alpine with the authority to hire personnel and organize the school, Graff did this. He first assembled a dedicated and autonomous team of people who were not affiliated with the district's existing organizations and schools to focus on the new school.

In addition to his responsibilities as an administrator of K–12 services, Graff also wore the principal's hat for the online school. To make this arrangement work, in addition to the funding resources, the district allocated dedicated human resources to the school—another important step for a disruption to succeed. Graff first hired minimal but focused support staff comprised of a half-time secretary, Michelle Zwick, and two teachers, Heather Neilson and Kathryn Persch. Graff delegated enrollment and significant administrative authority to Neilson to run the program under his supervision and in cooperation with K12™, for which she earned an additional stipend. Neilson and Persch were certified K–8 teachers in the state of Utah. As enrollment increased over the next two years, the number of full-time teachers increased to five.

Students could progress at their own pace after demonstrating 80 percent mastery.

Curriculum and technology

The team investigated several online curricula but ultimately judged K12™'s curriculum to be the most student-friendly because of its belief in "books, digital media, and dirt—because a mix of teaching tools maximizes learning."[6] Of the curricula considered, Alpine Online's team believed K12™'s curriculum could provide the most customized learning experiences—and therefore work for the most students.

Online assessment tools accurately placed and tracked students at their appropriate learning level. These tools allowed parents and teachers to "verify mastery continually through tight, closed feedback loops."[7] Students could progress through the curriculum at their own pace after demonstrating 80 percent mastery through the assessments. Figure 2 shows the feedback and progress bars available to parents, students, and teachers.

En masse, the home-schooled students and their parents enjoyed the curriculum—both the portion hosted online and the materials sent via UPS (e.g.

[6] See http://www.k12.com/about_k12_overview/ (accessed September 15, 2008).

[7] Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns,* (New York: McGraw-Hill, 2008), p. 111.

Figure 2 K12™ feedback and progress bars available to parents, students, and teachers

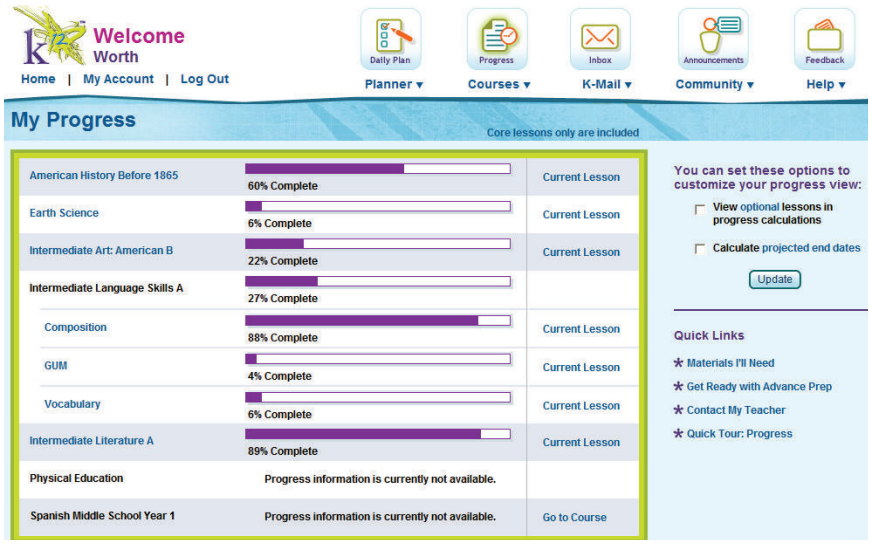


Image courtesy of K12™, Inc.

some textbooks and workbooks, science cylinders, safety glasses, thermometers, lined paper, clay, paints,[8] etc.). They also enjoyed the freedom to work at their own pace, preferred time, and from many places. Most parents also enjoyed the high level of parental involvement required. Parental supervision tended to be especially important in the younger grades before a student became an independent reader as well as in the higher-level math courses for some students.

Moving toward modularity: Choices in curriculum

Alpine Online also started a community council. About 20 parents met monthly to provide the school with feedback. Through these meetings, the team soon encountered students and parents who wanted additional curricular choices. Because of the structure of the online school—which was inherently more modular[9] than a typical school—Alpine Online could accommodate their desires.

---

[8] See http://help.k12.com/messages/1468/1527.html (accessed September 15, 2008).

[9] Modular components can be developed by independent work groups or companies and still fit and work together in well understood and highly defined ways. This allows for customization in the design of a product or service.

Math

Some of the parents preferred Saxon Math to K12™'s math, and they requested that the school provide a Saxon Math option. To accommodate these parents, Alpine Online granted the parents a choice between the two programs. Saxon Math cost approximately $160 per student per year, which was less than K12™'s math, which typically cost $350 per student per year. This cost included textbooks, manipulatives, and online quizzing and assessment resources.

Students had a choice between K12™'s and Rosetta Stone's foreign language offerings.

Foreign language

Parents also requested foreign language options beyond powerspeaK12 (K12™'s offering), so Alpine Online considered additional online foreign language learning software and selected Rosetta Stone as a supplemental program. Using Trust Lands funds,[10] Alpine Online purchased 500 online licenses with 14 language options for families.[11] The licenses cost only $6,300—a remarkable $13 per license. Many students selected the Rosetta Stone language option during the 2007–08 school year.

Utah history

Because K12™ did not provide a social studies curriculum focused specifically on Utah's history,[12] which is part of the Utah Core Curriculum for fourth and seventh graders, the Alpine Online teachers developed and provided such a course via Elluminate, an online platform that allows teachers to share their desktops in real time, provides a "whiteboard," and allows them to post and share PowerPoint presentations, PDFs, spreadsheets, and movies with their students.These state-mandated classes tended to be more teacher-centric than student-centric, although the students were able to participate through both verbal and text chatting as well

[10] Trust Lands funds come from profits made on federal land. The U.S. government owns 68 percent of Utah's acreage and each year deeds back to the state a number of 640-acre sections. The profits the state makes on those lands must be kept in perpetuity, with the interest evenly distributed to public schools on a per student basis. Moreover, these funds must be used by the schools for academic purposes rather than non-academic pursuits (e.g. purchasing new wrestling mats). Trust Lands agreements exist for all states.

[11] Initial language options included English U.S., English U.K., German, Spanish (Latin American), Spanish (Spain), French, Italian, Portugese, Russian, Arabic, Japanese, Hebrew, and Gaelic.

[12] K12™ has since developed Utah history courses for the Utah Virtual Academy (UTVA), a K12™ administered virtual charter school, which launched in August 2008. Some other district partners are using the K12™-developed Utah history courses as well.

Figure 3 Example of a dual-enrollment course schedule

Alpine Online courses	Brick-and-mortar school courses
Saxon Math, Rosetta Stone Spanish, K12™ Language, K12™ Literature, K12™ History	Science, Art, Orchestra

as by activating various icons (e.g. a raised hand, happy face, or frowning face to indicate their desire to participate, agreement or disagreement, etc.). These protocols facilitated various forms of student participation, and Alpine teachers believe it may have reduced social inhibitions. The classes were conducted synchronously and "recorded" so that students could access them (e.g. to review) at a later time.

Blended learning (a.k.a. dual enrollment)

Some students wanted to take art or orchestra at the neighborhood brick-and-mortar school. The school decided to accommodate these requests through a "dual-enrollment" program. To do this, Alpine Online facilitated the enrollment of home-schooled students in both the online school and the brick-and-mortar school. For example, a dual-enrolled student might have chosen the schedule depicted in Figure 3.

As parents and students made requests to blend the online options with electives at the brick-and-mortar school, the Alpine Online staff spoke with principals and their secretaries on a case-by-case basis in order to make sure the options were available and the appropriate paperwork was completed. In the second year of the dual-enrollment option, Alpine Online began requiring students to take at least three courses through Alpine Online in order to participate in the program. If a student took fewer courses, the service was not worth the administrative hassle involved. The state and district had partial WPU accounting codes that could facilitate dual enrollment mixes. In the 2007–08 school year, about 20 students were dual enrolled—a number that remained roughly the same the next year. Most of these students were in 7th or 8th grade.

Enrollment and attrition rates

In its first year, Alpine Online's enrollment started at 223 students. The second year, it started at 259, and the third year, the school capped the maximum enrollment at 450. Although the program could grow by two hundred students given the

demand, Graff felt that 450 students were all he could manage without turning the program over to someone else to run full time.

According to Zwick, there was plenty of demand for programs like Alpine's. In July 2008, Zwick had 450 students signed up with 10 to 20 more on a waiting list. Incidentally, K12™ founded a charter virtual academy in Utah starting in the 2008–09 school year—Utah's Virtual Academy—and it filled quickly to 500 students (per a state-mandated enrollment cap).

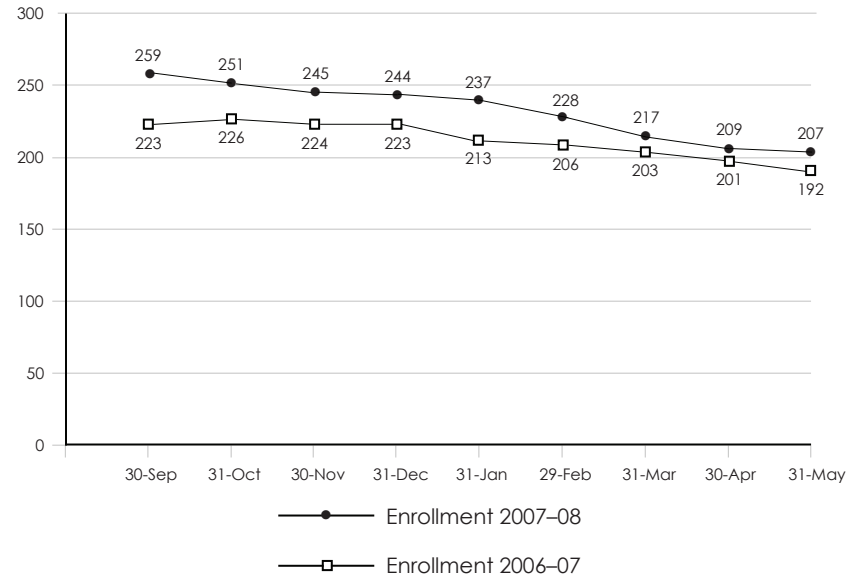
Although the enrollment figures began at a certain number each year, Alpine Online's total enrollment declined through the course of each school year as students left the program midstream (see Figure 4). There were three principal reasons for this.

First, the K12™ curriculum is rigorous and many families saw it as too much work, according to the Alpine Online leadership team. The curriculum was not for everyone. The team, however, did not feel comfortable providing a less rigorous curriculum given that taxpayers were funding the school.

Second, many families dropped out of the program because they did not want to take the state tests. According to Graff, even though all of the families agreed initially to take the tests, when it actually came time to take them, some of the families changed their minds and dropped out of the program.

Lastly, many withdrew from the program because of circumstances unrelated to it, such as their families moving out of the district or parents needing to return to work and no longer being able to serve as the primary teacher for their children.

Figure 4 Alpine Online, Enrollment and Attrition, 2006–2008



In response to the high attrition rate, for the 2008–09 school year, Alpine Online began requiring parents to sign an agreement by August 1 to commit to remain enrolled in the program. If the parents withdrew their children after that date to attend another virtual school, the agreement stated, they would be required to pay a penalty for the nonrefundable materials.

School board members initially expressed concern when they saw the enrollment numbers dropping. Graff reminded them that traditional elementary schools experience attrition, too, but with the difference being that they also add students. "A traditional school might lose 25 students in January and gain 27, showing a net gain of two. Behind that net gain of two, there's an awful lot of moving in and out," he said. In contrast, Alpine Online did not enroll any new students after October 1, "because when students dropout, the WPU money has already been spent providing the curriculum upfront, and that money can't be spent again on another student."

Field trips and socials

One worry surrounding Alpine Online was whether the students would have in-person socialization opportunities. As a result, the school provided opportunities for students to socialize face-to-face with their peers at least once a month. During the school's first two years, the families took trips to a local aquarium, dinosaur museum, and various parks and natural history or historical museums.

Accountability, achievement, areas for additional research

Earning credit

Alpine Online students did not receive grades other than complete or incomplete marks depending on whether they passed a course. In order for Alpine Online students to pass a course, they had to master at least 80 percent of the work. Many home-schooling families appreciated this difference from brick-and-mortar schools.

Like brick-and-mortar schools, Alpine Online was required to collect attendance in order to ensure that students had completed their 180 days and 990 hours of educational activities, which could include reading time, field trips, and other educational activities (e.g. time spent in a ballet class or soccer league could count as physical education time). Students, however, were allowed the freedom to repeat a course if they had not mastered the material sufficiently or to accelerate and take two math courses in a given year, for example, if they were motivated to do so. Graff

described this disparity among Alpine Online students when he said, "We have kids in the online class who are seriously accelerated, such as having a 10-year-old boy who is taking Algebra or Algebra II, but we also have kids [whose moms or dads have] pulled [them] out frustratingly because they're just floundering in school—they're not reading, they're not learning." The structure of the online school enabled the students to learn at their own pace.

> "We have kids in the online class who are seriously accelerated… but we also have kids… [who were] just floundering in school…"
>
> — *Graff*

Standardized testing

As dictated by state law, however, Alpine Online students took the state's criterion-referenced test (CRT) with their age-level peers regardless of their enrollment level. In the first year, the Alpine Online students performed below the district and state levels on most of these tests (see Appendix). Exceptions included Language Arts in grades 3, 4, 7, and 8.

Increasingly, studies have revealed that online learning is "as good as or better than"[13] classroom learning. Although some of the graphs in the Appendix appear to contradict this conclusion, drawing conclusions based on Alpine Online's early data is problematic for several reasons.

First, small sample sizes (n-sizes) bring the data's reliability into question. In several categories reported above, the n-size was between 10 and 30. Larger sample sizes formed by grouping data from various K12™ Online Academies would yield more reliable trend data.

Moreover, a control group and standardized pre-tests were not available at the time of this writing. Thus, "value-added" measures could not be calculated for Alpine Online in comparison with a control group. Examining this further represents an area for additional research as it holds significant ramifications for such schools and education more generally.

Furthermore, disaggregating "value-added" by culling large data samples of students with dyslexia, social/emotional disturbance, or other circumstantial categories constitutes fertile grounds for further research.

This point is reiterated in a 2009 report released by the Ohio Alliance for Public Charter Schools (OAPCS), which found that although "data show[ed] that average e-school achievement test scores rank[ed] in the 4th percentile of all 617 Ohio

[13] "Real Learning Happens in Virtual Schools: Research proves that online learning works. Now attention is turning to evaluating the methods and means for continued growth and success," *Threshold,* Fall 2008, p. 12.

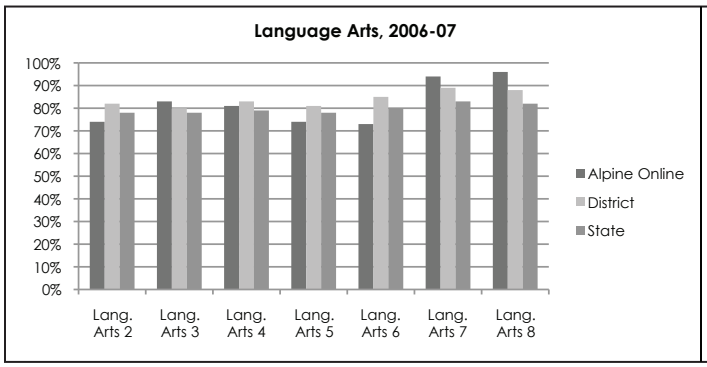
districts and statewide e-schools…when value-added (student growth) scores [were] ranked, e-schools jump[ed] 29 percentile points in the rankings—more than Big 8 urban districts who serve[d] a similar student population."[14] In both cases, test scores fell short in adequately describing overall school effectiveness.

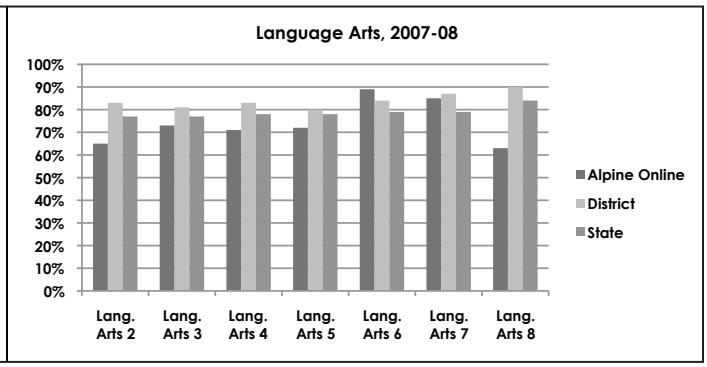
Patient for growth

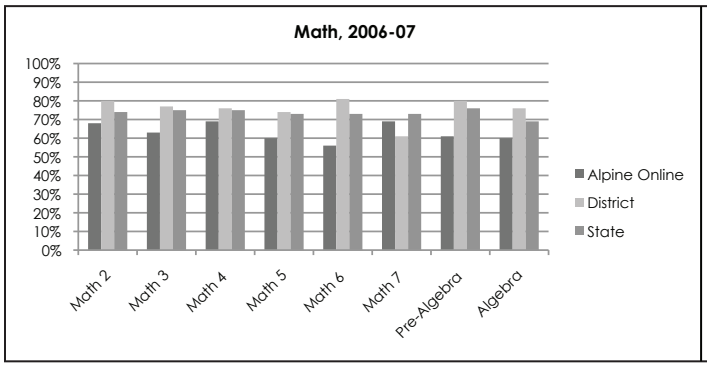
At the start of the 2009–10 school year, Graff and his team had three years of running the school under their belts. Processes had become more established, and the team knew what to expect over the course of the upcoming school year. Alpine Online implemented one significant change that year—students and their families could receive a netbook computer—but the rest of the program stayed mostly the same. With a solid platform established, Graff and his team felt it was important to ensure the school was of reliable and sustainable high quality before addressing the possibility of further expansion. Although this might come at some point, they could be patient for it. They would not sacrifice quality. As custodians of the public interest in charge of such an innovative venture, the Alpine Online team could not imagine any other path.

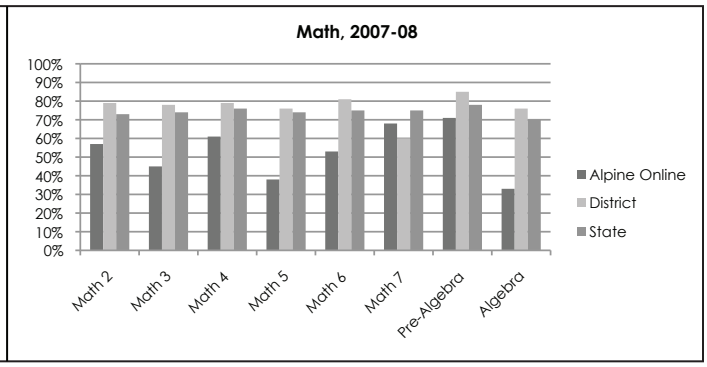
[14] "E-schools Show Superior Results: Analysis of state value-added data confirms e-schools students' progress," *Ohio Alliance for Public Charter Schools,* July 2009, http://www.oapcs.org/files/EschoolStudy_final6-24-09.pdf (accessed August 2009).

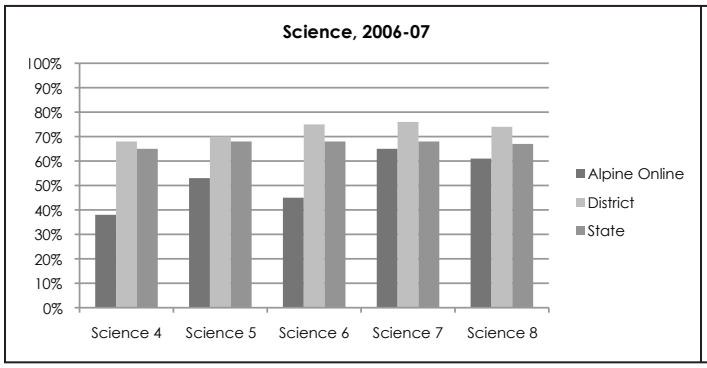
Appendix Utah Criterion Referenced (UCR) test scores for Alpine Online students and all public school students in Alpine School District and the State of Utah

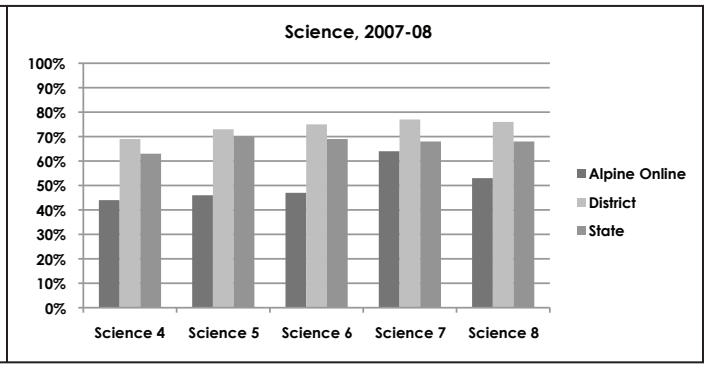












About Innosight Institute

Innosight Institute, founded in May 2007, is a 501(c)(3) not-for-profit think tank whose mission is to apply Harvard Business School Professor Clayton Christensen's theories of disruptive innovation to develop and promote solutions to the most vexing problems in the social sector. Innosight Institute's case studies are for illustrative purposes only and do not represent an endorsement by Innosight Institute.

About the authors

LELAND ANDERSON, visiting research fellow at Innosight Institute, is an assistant principal at American Heritage School in Utah. He has a master's in School Leadership from the Harvard Graduate School of Education.

MICHAEL B. HORN is the co-founder and Executive Director, Education of Innosight Institute. He is the co-author of *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (McGraw-Hill: June 2008) with Harvard Business School Professor and bestselling author Clayton M. Christensen and Curtis W. Johnson, president of the Citistates Group.

www.innosightinstitute.org