The Realities of K-12 Virtual Education

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Executive Summary

In a decade, virtual education in its contemporary form of asynchronous, computer-mediated interaction between a teacher and students over the Internet has grown from a novelty to an established mode of education that may provide all or part of formal schooling for nearly one in every 50 students in the US. In a non-random 2007 survey of school districts, as many as three out of every four public K-12 school districts responding reported offering full or partial online courses.

There can be little question that virtual courses in certain areas (e.g., math, English, social studies) produce tested achievement results on a par with those of their conventionally taught counterparts. Nor is it debatable that more complex areas of the curriculum (e.g., the arts) are beyond the reach of these new arrangements. Nevertheless, the rapid growth of this new form of schooling raises questions of cost, funding, and variable quality that require the immediate attention of policymakers.

Virtual education presents policy challenges to governments at all levels, from local school boards to the federal government. Therefore, it is recommended that legislatures, state-level education officials, and school boards:

- **Adopt new regulations governing the provision of online K-12 schooling.** The regulation of K-12 virtual education is a complex issue that governs not just the revenues of private providers and the costs of public schools offering this alternative but the quality of this mode of schooling itself. Legislators will have to grapple with a host of issues that bear on the costs and effectiveness of online instruction. Among these issues are the following: the level and extent of teacher involvement; the certification status of cyber-teachers; the role of tests and grades in the awarding of online credits; reciprocity of teacher certification across state lines; and traditional accounting practices, such as 100-day enrollments or average daily membership, used to fund conventional schools. The substantial variation in how states currently regulate virtual education speaks less to the differing circumstances across the country than it does to the alacrity with which some states have confronted the problems posed.

- **Call for audits of providers of virtual education.** States should conduct audits to determine actual costs incurred by private firms providing courses and programs that receive state funds, and by public school districts claiming membership by students earning credits online. Pegging reimbursements at

some arbitrary level, say, 75% of the state's average contribution, ignores the reality of actual cost savings afforded by online instruction. Virtual education costs will obviously depend on the subject being taught, whether it is an isolated course as opposed to a complete academic program, and how many students are being taught.

- **Recognize legitimate accrediting agencies.** Government at some level or some other credible public body should create a list of legitimate accrediting agencies involved in the accrediting of providers of K-12 online courses and programs. To avoid abuses such as those encountered with proprietary schools (truck driving, cosmetology, and the like) and online diploma mills, the traditional high school accrediting agencies or some state or federal governmental agencies must address more vigorously the accreditation of commercial online providers of both courses and entire programs leading to a high school diploma.

- **Require credible assessment and evaluation.** The legitimacy of the credits earned via virtual schooling will depend in large part on the legitimacy of the process by which assignments and tests are known to be the work of the individual receiving the credit or diploma. This issue is so important that it has found its way into the enabling legislation for the South Carolina Virtual School Program: "Students enrolled in an online course for a unit of credit must be administered final exams and appropriate state assessments in a proctored environment."

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Introduction

Understanding Virtual Education

Before the advent of the cyberworld, "virtual" meant "in essence if not in reality," or "almost but not quite," as in, "He was a virtual Houdini in his ability to escape tight situations." In the microprocessor-saturated world of personal computers, "virtual" as often means "simulated, imitated, as real things are represented on a computer screen." So "virtual schooling" can be taken to mean "acts, affordances, and relationships that simulate real schooling," where "real schooling" is taken to be teachers and students interacting in the same place and at the same time for the purpose of learning things.

In fact, real schooling has never been as simple as this definition implies. Correspondence courses using postal mail have around a century-long history, and teaching via radio or television has been an established feature of the education landscape for decades. Nonetheless, the remarkable affordances of personal computers networked throughout the entire world have created opportunities undreamed of 50 years ago. Two-way communication and the instant transmission of text, sound, and static and moving images have created amazing possibilities for rich and authentic relationships between instructors and students. Thus the notion of a "virtual school"—a school almost as effective as real teachers and students in the same place at the same time—arises at the beginning of the 21st century as an urgent issue worth interrogating.

Virtual education encompasses a variety of online courses and programs. Researchers at the North Central Regional Education Laboratory categorized K-12 public virtual education into five basic types: statewide supplemental programs, district-level supplemental programs, single-district cyberschools, multidistrict cyberschools, and cyber charter schools.[1] By far the most prevalent form of virtual education involves what has come to be known as "credit recovery"—the earning of credit at the secondary school level by students who have failed a conventional course or for whom scheduling conflicts made enrollment in the conventional course impossible or inconvenient. In recent years, entire online programs leading to a diploma existed only in some remote rural areas or enrolled disabled students who could not attend conventional schools. However, the contemporary trend attracting attention and concern is the cyberschool being marketed to home schoolers and charter schools.

Each type of virtual education raises its own policy issues, but by far the most difficult questions surround the rapid expansion of virtual education provided by private companies.[2] Virtual schools (encompassing multi-district

cyberschools and charter cyberschools) require special attention because they represent new administrative organizations and generally evidence new relationships between commercial entities and government and public agencies.

Review of Research

Prevalence of Virtual Education

Representative data on the prevalence of virtual education are not available because the practice is so new. The National Center for Education Statistics has laid the groundwork for nationwide surveys that will soon provide a clear picture of the extent of adoption of this new form of teaching and learning in the nation's K-12 education system. However, data currently available come from piecemeal surveys and reports. The available data do not permit accurate estimates of the prevalence of virtual schooling, but they do give an approximate accounting of the speed at which this innovation is being adopted.

Smith, Clark & Blomeyer[3] estimated in 2005 that only about 1% of the U.S. K-12 public school population had taken at least one online course. In a survey of charter schools in 2001-2002, Carpenter and Finn identified more than 70 virtual charter schools operating in Arizona, California, Florida, Michigan, or Texas.[4] In the 2002–03 academic year, more than a third of all public school districts enrolled some 330,000 students in distance education courses.[5] By the 2004-2005 academic year, nearly two dozen states had established virtual schools. In 2004, Wisconsin had 1,000 students enrolled in six schools as full-time online students with five other districts contemplating virtual charter schools for the 2004-2005 academic year.[6] In 2005, a single company (K^{12} Inc., a private company located in McLean, Virginia, discussed below in this brief) reported having sold curriculum and distance-learning products to school districts, charter schools, and home schoolers in 13 states serving 50,000 students, up from 12,000 students in 11 states in 2004.[7] The Florida Virtual School reported exceeding 120,000 course registrations in the 2007-2008 academic year, the bulk of these course credits being earned as supplements to conventional full-time schooling.[8] The Arizona Virtual Academy, a charter school offering full-time instruction, had more than 4,000 students enrolled in 2008.[9]

These data on participation are mirrored in the rapid evolution of state-level policy governing online schooling. By fall 2008, 44 states were offering some form of virtual education to students. Nearly two dozen states (e.g., Michigan, Illinois, Virginia) allowed virtual education to *supplement* traditional schooling for the purpose of credit recovery or to serve home-bound or rural students, but they prohibited full-time virtual schooling. Seventeen states permitted virtual schooling both for credit recovery or convenience (in the case of rural or home-schooled students), or through charter schools. In the fall of 2008, 21 states had students studying in full-time virtual schools, usually charter schools.

One of the largest providers of virtual courses for credit recovery entered the market as a provider of services to home-schooling families. By 2008, it had

enrolled more than 100,000 students for one or more courses. These were primarily students enrolled full-time in conventional high schools seeking credits in a course or two not offered at their school or not offered on a convenient schedule. In many cases, states instituting added course requirements (e.g., four years of math or science) created the need for this company's services since the students' schools could not provide the instruction. [10]

In 2007, the Sloan Consortium conducted a two-year follow-up survey of school district administrators to gauge the prevalence and rate of growth of virtual schooling.[11] A volunteer sample of 867 out of a population of 16,000 school districts responded to this survey. The school districts responding represented more than 6,000 schools, 3 million students, and 150,000 teachers; each of the 50 states and Washington DC were represented among the respondents. Although it did not obtain a perfectly random representative sample of the nation's school districts, the survey produced informative findings all the same. Among their findings were these:

Three out of every four public K-12 school districts were offering online or "hybrid" (part online, part face-to-face) courses. Seventy percent of the districts had one or more students enrolled in a course that was completely online. About 40% had students enrolled in at least one "hybrid" course. Each of these percentages was approximately 10% higher than the comparable percentage obtained in the 2005-2006 Sloan Consortium survey of the same population.[12]

Two-thirds of the administrators in the Sloan survey reported that they expected the size of their virtual education efforts to grow in future years.

The Sloan Consortium researchers estimated that more than 1,000,000 K-12 students in the U.S. were engaged in some form of virtual schooling, nearly a 50% increase over 2005-2006. One million K-12 students represents 2% of the elementary and secondary students in the US, a doubling in just two years of the prevalence of virtual schooling from the Smith, Clark, and Blomeyer estimate of 1% in 2005.[13]

The data on the prevalence and growth of virtual education presented here are merely illustrative. Although nationally representative surveys have yet to be conducted—but are likely at the federal level soon—a detailed listing of programs at state and local levels is available in the annual Keeping Pace reports produced by Evergreen Consulting Associates.[14]

Achievement Outcomes of Virtual Education

Volumes of research on "distance education" attest to the outcomes of computer mediated teaching and learning.[15] The three most prominent recent publications include meta-analyses of studies that investigated the achievement outcomes of K-12 online teaching and learning. The primary question addressed in most studies is whether computer-mediated, asynchronous teaching and learning over a network produces the same achievement on paper-and-pencil tests as the same material taught in a traditional synchronous, face-to-face setting involving a teacher and students.

Cavanaugh, Gillan, Kromrey, Hess, and Blomeyer[16] published the first meta-analysis of online education outcomes focused entirely on K-12 teaching and learning. The authors identified 14 studies published in the 15-year period prior to 2004 that met strict inclusion criteria for internal experimental validity in comparing online courses with conventionally taught courses. Outcomes were measured by paper-and-pencil tests of achievement of course objectives. The authors concluded that there were no statistically significant differences in achievement between online courses and courses taught in conventional face-to-face arrangements.

Smith, Clark, and Blomeyer[17] undertook a meta-analysis to update the work of Cavanaugh and her colleagues with eight experimental and quasi-experimental studies that similarly met high standards for experimental validity. All eight experiments focused on student achievement in K-12 instruction. The findings of this analysis were seen as supporting the conclusions of the 2004 Cavanaugh et al. meta-analysis in which virtual instruction produced measured achievement equivalent to that of conventional face-to-face instruction.

Tallent-Runnels and her colleagues[18] reviewed achievement in online course across a wide span of ages and subjects and concluded that "… learning outcomes appeared to be the same as in traditional courses" (p. 93). Essentially this same conclusion had been reached in the earlier meta-analyses published in 2004 and 2005 by Blomeyer and his colleagues at Learning Point Associates.

One measure of the effectiveness of virtual schooling is whether it has won acceptance broadly among, say, parents of K-12 students whose children might be exposed to online teaching. In the annual Phi Delta Kappa/Gallup survey[19] of opinions regarding education, parents of public school children were asked the same two questions, once in 2001 and again in 2007: Do you approve of high school students earning credits online? And would you be willing to have your child earn most high school credits online? The results showed an increasing acceptance of online teaching-learning in small amounts but an increased skepticism of virtual schooling constituting the bulk of a student's high school education (see Tables 1 and 2).

Table 1: There are increasing opportunities for students to earn high school credits online over the Internet without attending a regular school. Generally speaking, do you approve or disapprove of this practice?

Response	2001	2007	Change
Approve	35%	44%	+9%
Disapprove	63%	55%	-8%
Don't Know	2%	1%	-1%

Source: Rose, Lowell C. & Gallup, Alec M. (2007) p. 39, Table 24.

Table 2: Would you be willing or not willing to have a child of yours go through high school taking most courses online over the Internet at home instead of attending a regular school?

Response	2001	2007	Change
Willing	49%	27%	-12%
Not Willing	49%	73%	+24%
Don't Know	2%	<1%	

Source: Rose, Lowell C. & Gallup, Alec M. (2007) p. 39, Table 25.

The vast majority of studies that examined student achievement as an outcome of virtual education focused on highly structured curricula such as science, math, and reading. Missing from the body of extant research are studies that investigate the learning that can take place in virtual courses that cover material less easily codified in the form of collections of propositions; these less readily codified subjects include, for example, art, music, interpretation of literature, and the like. The question whether virtual education, in the broad sense, can "work" is entirely separate from the question whether a person can learn something from another person over a computer network. No reasonable person doubts that learning can take place "over a computer network." A generation of computer technicians learned most of what they know about computer networking via computer networks. Perhaps no reasonable person likewise believes that *everything* can be learned in a teacher-student computer mediated relationship. Surely there are things to be learned at a deeper emotional level that can not survive the translation to cable, processor, and LCD screen. But can that same person become educated in some more meaningful sense of the word if that person's entire school is "virtual"? Time will tell, but to many parents, an entirely "virtual" school experience is an unwelcome possibility.

Cost of K-12 Virtual Schooling

As one might expect, the cost of providing virtual education at the K-12 level differs substantially from place to place. In some instances, virtual schools that have taken advantage of the charter school legislation in a state are funded exactly as if they were "brick-and-mortar" charter schools. In other places, state support to virtual schools is reduced from that of other types of school (conventional schools or charter schools). Public agencies (state education agencies, legislatures, governing boards of various types) have had great difficulty in assessing the cost of virtual education for purposes of reimbursing providers. Legislatures often embarked on virtual school creation with the expectation that it would substantially reduce costs. However, virtual education providers insist that costs remain at levels near that of expenditures for conventional schools, and they lobby legislators vigorously for what they regard as adequate funding. [20]

Regulation and financial support of virtual schools differ greatly from state to state even though many of the providers of online courses are national

corporations. In 2003, Florida funded two pilot virtual school—one operated by Connections Academy, a private company headquartered in Baltimore, Maryland, and the other by K[12] Inc., the McLean, Virginia company mentioned above—at $4,800 per student, only about $700 less than the standard per-pupil expenditure in the state at that time. In 2004, the Pennsylvania Auditor General conducted an audit of each of the state's virtual charter schools; as a result, virtual schools' reimbursement was lowered to $7,200 for each full-time student, approximately 75% of the conventional per pupil expenditure.

Wisconsin reimburses virtual charter schools at approximately half the rate of conventional brick-and-mortar schools. Recent legislation ensuring the existence of virtual schools in Wisconsin requires an audit of such schools to be completed by December 2009. In 2004, the Idaho Legislature funded the Idaho Virtual Academy, a public virtual school run by K12 Inc., at approximately half the per-pupil expenditure of conventional public schools in the state. However, principals for the K[12] Inc. corporation have accused the Idaho legislature of deliberately under funding the Academy due to "…opposition from the establishment."[21]

California specifically guards against providers taking state money in the form of profits from charter and virtual schools. There, a statute requires that online charter schools be audited to insure that no funds are taken as profits by the providers. The state has the discretion to adjust the allocation based on the results of such audits.[22]

One of the largest providers of virtual courses hires certified teachers, most of whom hold full-time positions in conventional schools and are making extra money. A load of 30 students for a single course for a semester earns the teachers approximately $1,500.[23]

Establishing a fair price for virtual schooling will be crucial as the nation attempts to close the slowly shrinking "digital divide." If virtual education is unfairly priced to the benefit of private, corporate providers, the gap in access between rich and poor schools will only be exacerbated.[24]

Quality of Virtual Schooling

Concerns with the quality of virtual K-12 schooling are many: accreditation status, teacher certification, course quality, and assessment of student work are among the concerns.

Several existing private groups have conferred their accreditation on cyberschools: the Commission on International and Trans-Regional Accreditation, the Northwest Association of Accredited Schools, the Southern Association of Colleges and Schools Council on Accreditation and School Improvement, and the Western Association of Schools and Colleges, to name only a few. These agencies, by merit of their rapid proliferation, have yet to acquire the legitimacy of the more established accrediting agencies such as the Middle States Association of Colleges and Schools, the New England Association of Schools and Colleges, North Central Association of Colleges and Schools, the Southern Association of Colleges, and the Western Association of Schools and Colleges,

which are approved by the U.S. Department of Education. These traditional accrediting agencies have sought to bring virtual schools under their purview, but with few exceptions most such schools have not requested their services. Higher education has long struggled with the problem of dubious accrediting agencies. The Council for Higher Education Accreditation, a private organization of 3,000 colleges and universities, lists more than two dozen accrediting agencies that it identifies as fake or dubious. Some of these accredit several online colleges and schools.[25] A National Commission of Accredited Schools has proved to be nothing but a diploma mill selling high school diplomas for two weeks' "work."[26]

Given the money flowing to virtual schooling, the need for reliable accrediting bodies to ensure school quality seems obvious, and the potential for abuse is enormous. Consider two examples—one from Arizona and one from Colorado. The Arizona Virtual Academy, a large charter school, enrolled more than 3,000 full-time online students in 2008. The state paid the school approximately $7,000 per student, the typical rate for a charter school student, even though the Academy maintained an office in downtown Phoenix and no other physical site. Consequently, the Academy collected approximately $21 million in state funding, approximately 90% of the total state funding for virtual schools. The Director of the Arizona Virtual Academy was formerly an employee of the Goldwater Institute in Phoenix—a conservative think-tank championing vouchers, charter schools, and other privatization proposals—and once served as Chairperson of the Arizona Charter School Board. This person, with no experience as a school administrator and no such credentials, was paid a salary of approximately $100,000 in 2008, about average for principals of large high schools in the metropolitan region. Moreover, most of the state money going to the Arizona Virtual Academy was then passed through to K^{12} Inc. In 2008, the Academy was discovered to be outsourcing the grading of some papers to readers in India.[27]

One of the more unusual cases of a virtual school concerns a tiny school district on the semi-arid plains of southern Colorado, a third of a mile north of the New Mexico border. Branson, Colorado, had no grocery store, no gas station, and a population of fewer than 100 persons in the 2000 Census. Hardly visible in Google Earth, Branson is a most unlikely place to have received over $15,000,000 in state support for its 1,000 "virtual students" from around the state in the first four years (2001-2005) of its online school. "'Cyberschools are the 800-pound gorilla of the choice movement, although vouchers and charter schools get a lot more attention,' said William Moloney, education commissioner in Colorado, where state financing for online schools has increased almost 20-fold in five years – to $20.2 million for 3,585 students today from $1.1 million for 166 full-time students in 2000."[28] In the fall of 2006, the State of Colorado was paying for the schooling of 8,236 online students.[29]

The threat of abuse of the public trust by unregulated private or public entities has caused many to approach the subject of virtual schooling with caution. Increased regulation and oversight seem necessary and likely. The substantial variation in how states currently regulate virtual education speaks less to the

differing circumstances across the country than it does to the alacrity with which some states have confronted the problems posed.[30]

In a development closely related to K-12 education of students, a non-profit, private company calling itself the American Board of Certification of Teacher Excellence (ABCTE) is offering completely online certification of K-12 teachers. A vigorous lobbying effort by the Washington, D.C.,-based company has succeeded in gaining authorization of its program in eight states. The program costs $850. Since the company was founded in 2001, it has certified more than 1,400 teachers, approximately 1,000 of whom have obtained teaching positions.[31] In the spring of 2009, ABCTE won approval by a committee of the Arizona Legislature of its proposal to license its "graduates" without additional testing or course work.[32]

The issue of "virtual teacher" certification is complex. In addition to questions about the quality of online teacher certification programs, and subsequently about what it might mean for a virtual school to say it employs only "certified" teachers, questions have arisen about who functions practically—rather than nominally—as the teacher in a virtual school. In Wisconsin, teachers unions have litigated this issue in the case of home schooling. In 2007, it was successfully argued before the District 2 Courts of Appeals by the Wisconsin Education Association Council that parents of students in the Wisconsin Virtual Academy are in fact the individuals actually providing instruction, in violation of state law. The court's ruling threatened to shut down the Academy.[33]

Whenever teacher and learner are not in a face-to-face relationship, suspicions run high that all or much of the work being assessed may not be that of the learners themselves. The issue is simple: How does one—the teacher, the superintendent, the college admissions officer, the employer—know that the student who signed up for the course actually did the assignments and took the tests? Here is where reality and "virtuality" can potentially clash. The solution that confers legitimacy on the work is relatively simple. A trusted organization must administer the examinations in person to the individual receiving credit. This arrangement does in fact prevail in some cyberschools. Pearson VUE, a private company that administers tests in testing centers around the country, and Kaplan K12 Learning Services are both frequently used as proctors for various online courses and schools.

Recent Developments

The technology underlying virtual education has remained largely unchanged for more than a decade. Adoption of the technology is spreading rapidly among conventional school districts, which are increasingly exploiting the affordances of the Internet to create hybrid courses or for credit recovery.[34] What is new, however, are the political and policy issues that have arisen as various commercial interests have taken on a more central role in the K-12 virtual education movement.[35]

Some legislatures have been successfully lobbied to institute requirements for online courses or programs in conventional school districts. In 2007, Florida

passed a law requiring all school districts to make virtual courses "…available to full-time virtual students in grades kindergarten through grade 8 by 2009-2010."[36] Alabama joined Michigan in requiring at least one online course in core subjects (science, math, English, or social studies) of each high school graduate.

In December 2007, an appeals court ruled that the Wisconsin Virtual Academy—a virtual charter school—violated state laws by allowing parents to function as state-licensed teachers and should not receive state funding. The Wisconsin Legislature quickly responded by enacting a new law that Gov. Jim Doyle signed in April 2008 legalizing state funding of virtual charter schools as well as made changes to open enrollment and teacher licensing.[37]

Both Wyoming and Hawaii passed legislation in 2008 that enabled full-time online schools to operate within the state. Also in 2008, South Carolina saw three full-time virtual charter schools open. A state-level online supplemental virtual school, the South Carolina Virtual School Program, had been in operation since 2007 but was not allowed to issue diplomas. Delaware and Connecticut established online K-12 programs aimed primarily at credit recovery in 2008; budget problems prevented any significant growth of virtual schooling in these states.

These examples of state initiatives could be multiplied many times as politicians and state agencies across the nation tentatively approach virtual education in its various forms to address the needs of K-12 schooling.

Discussion and Analysis

Online teaching and learning for credit recovery is rapidly becoming an established feature of conventional public education in America. A couple of states (e.g., Alabama, Michigan) have even required experience with at least one such course of high school graduates. The situation with full-time virtual schooling is somewhat different, however. Although spreading widely as a few large private companies lobby legislatures across the nation, the virtual school—often chartered by a state agency and supported wholly or in large part by state funds—has not been completely embraced by politicians or the general public, to say nothing of education professionals. One detects little concern in the policy debates surrounding virtual education for issues like curriculum or the ability of online education to reach beyond training in the most basic content of a complete education. Instead, the commercial interests of large, private providers of courses and programs dominate many policy initiatives.

Virtual Education and Commercial Interests

Private commercial interests, whether non-profit or profit-making, have recognized a huge potential market in virtual schooling. One of the largest of these, K^{12} Inc., mentioned repeatedly above, was co-founded in 1999 by William J. Bennett, former Secretary of Education in the Reagan Administration. Bennett resigned his position on the board of K^{12} Inc. in 2005 after having made some controversial remarks about abortion and African-Americans on his radio

program. He continues to hold stock in the company, which became publicly traded on the New York Stock Exchange in December 2007 (symbol = LRN).[38] Ronald Packard, CEO of K[12] Inc., receives an annual salary approaching a half million dollars. [39]

Private virtual education providers are vigorously lobbying state legislatures to gain entry into the business of public education. This relationship between state and federal governments and private corporations is only mentioned to illustrate the close connections that are beginning to have significant effects on public education policy. For example, one year prior to Bennett's resignation from the board of K[12] Inc., the state of Arkansas was awarded a $4 Million grant from the U.S. Department of Education to establish a virtual charter school, the Arkansas Virtual Academy. The curriculum for the Academy was supplied by K[12] Inc., and some public-school backers alleged that Bennett's political influence helped bring the grant about.[40] Sixty percent of the students attending the Arkansas Virtual Academy had previously been home schooled. The Arkansas proposal did not receive the highest ranking in the Department of Education's review. Although Department officials denied that politics played any role in their decision, one DOE employee offered the opinion that anything with Bennett's name on it was going to be funded. [41]

Nor are private companies the only entities attempting to profit from the spread of virtual schooling; some public school districts and universities have entered the K-12 market.[42] Little is known in particular about the prevalence and quality of the universities' involvement in virtual schooling; it appears to be limited for the most part to credit recovery.

Recommendations

Virtual education presents policy challenges to governments at all levels, from local school boards to the federal government. Therefore, it is recommended that legislatures, state-level education officials, and school boards:

- **Adopt new regulations governing the provision of online K-12 schooling.** The regulation of K-12 virtual education is a complex issue that governs not just the revenues of private providers and the costs of public schools offering this alternative but the quality of this mode of schooling itself. Legislators will have to grapple with a host of issues that bear on the costs and effectiveness of online instruction. Among these issues are the following: the level and extent of teacher involvement; the certification status of cyber-teachers; the role of tests and grades in the awarding of online credits; reciprocity of teacher certification across state lines; and traditional accounting practices, such as 100-day enrollments or average daily membership, used to fund conventional schools. The substantial variation in how states currently regulate virtual education speaks less to the differing circumstances across the country than it does to the alacrity with which some states have confronted the problems posed. [43]

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