

Policy and Planning Series #102

December 2001

WHO SHOULD FUND VIRTUAL SCHOOLS?

Linda Cavalluzzo · Michael Higgins

*Produced by The CNA Corporation
A partner of the Appalachian Technology in Education Consortium*

The ATEC at CNAC, 4825 Mark Center Drive, Alexandria, VA 22311



The Appalachian Technology in Education Consortium (ATEC) is one of ten regional consortia funded by the U.S. Department of Education to promote effective use of technology in K-12 education. For more information go to www.The-ATEC.org, or contact the authors at CavalluL@CNA.org, or HigginsM@CNA.org.

Executive Summary

One of the key issues arising from the spread of state-offered online courses, or “virtual schools,” is “Who should pay?” This question has important ramifications, not only for virtual schools, but also for traditional schools and the communities they serve. That’s because “who pays” will affect experimentation, acceptance, and level of use. If states heavily subsidize online courses, schools are more likely to experiment with them to help meet their instructional needs. Positive experiences with online delivery will lead, in turn, to acceptance of virtual courses as a way to widen the breadth of learning opportunities for students. As virtual courses become accepted and used by the learning community, further experimentation and innovation are likely to follow. However, heavy subsidies also encourage inefficiencies and may distort the mix of instructional resources selected by local administrators. For example, if online courses are free or heavily subsidized, an administrator may choose to furnish instruction through online courses that cost the district little or nothing, rather than hire teachers to replace ones who are retiring, even if enrollments are ample to justify the teaching positions.

Because of the tradeoff between use and efficiency, we recommend that states adopt a two-stage implementation strategy. In the first stage, states would heavily subsidize

We recommend that states adopt a two-stage implementation strategy.

the cost of online courses used by public schools as a way to encourage growth and innovation in the program. In the second stage, states would phase in course charges. Eventually, these charges would cover the entire cost of the courses. Once a state starts passing the cost on to local districts, other issues arise, including whether local schools should pass the cost on to their students and whether the state should provide targeted subsidies to high-need schools.

Based on an economic analysis of incentives, their implications for equitable access to K-12 education, and the overall efficient operation of the public school system, we conclude that:

- In the near term, states should use a broad-based grant system to subsidize experimentation and innovation in online instruction in public schools. States should seek federal technology funds to help support their efforts.

- Data should be collected from schools that use the grants and analyzed to help determine the characteristics of schools and students who are using them, their level of success, and the course characteristics and implementation practices that are most effective.
- In the long term, costs for public school students should shift to local schools.
- Public school students should not be charged for virtual courses that help fill a normal academic load.
- Public school students could be asked to pay for virtual courses that would create a course overload.
- In the case of high school dropouts, or students who are incarcerated in public institutions within the state, the state should pay for virtual courses that lead to a high school diploma or GED.
- Private schools and home schools should have access to courses offered through the public virtual school. Whether these schools or their students pay for them could have far-reaching implications for the cost and shape of public school systems.

To ease access to the full range of online learning opportunities and to minimize disruption to budgets and planning at local public and state-run virtual schools:

- States should consider designating an education agency for registering non-public-school students, rather than using local public schools for this purpose.
- Traditional schools should be encouraged to plan for some student enrollments in online courses and enter into agreements with the state virtual school for specific numbers of course seats at predetermined prices.

Introduction

Americans today are witnessing the spread of new educational delivery methods based on Internet technology. At least 13 states and scores of counties now offer some web-based courses to K-12 students. In the heart of the Appalachian region two states, Kentucky and West Virginia, furnished 60 courses to nearly 750 students between January 2000 and May 2001.

The emergence of online schools raises an array of important questions for policy-makers. This paper explores one of them: Who should pay for use of online courses furnished under the auspices of state government? We consider three possibilities: State government, local schools, and students (or their parents), and we explore the implications of each on the equity and efficiency of the state's public education system.

The impetus for this study was a discussion with the director of the Kentucky Virtual High School (KVHS). Kentucky charges user fees for access to its web-based courses: \$275 per half-credit (i.e., one semester) course and \$500 per full-credit course. The fees are intended to cover the average operating costs of providing course seats to Kentucky students. Operating expenses include salaries for Kentucky-certified teachers for online courses and a small administrative staff, as well as user fees paid to platform and course providers for delivery of online resources.

KVHS expressed concern that anecdotal evidence was accumulating, indicating that local school administrators (the gatekeepers for KVHS courses) could be impeding access to web-based courses and that costs

Costs seemed to play an important role in denial of access to courses.

seemed to play an important role in denial of access to courses. This concern was corroborated by study team members who, in two separate visits to KVHS, observed evidence of the problem.

In the first incident, a recent high school dropout, who was working full time to support a new family, needed one credit in 12th grade English to earn his high school diploma. The student asked his former principal for permission to take the course online through KVHS. Permission was denied. Instead, the former student was told that he should rearrange his schedule and sit in a traditional classroom.¹ In a second incident, a homebound student was denied access to KVHS courses and was told to wait months until he was able to return to school. Petitioning by the boy's father was fruitless. The wait ended up in multiple course failures that left the boy a year behind in school.

The fact that the high school principals were being asked to dip into their instructional budgets to serve these students appeared to play an important role in their denial of access. Yet, KVHS opined, asking the state to pay for the costs of instruction (which is normally a district responsibility) didn't seem right either. As an outgrowth of that discussion, the director of KVHS asked economists at The CNA Corporation to prepare an independent think-piece on the issue, "Who Should Pay," under its regional technology integration grant, The Appalachian Technology in Education Consortium, funded by the U.S. Department of Education. This paper responds to her request.

¹ Pressed by KVHS administrators, the principal explained that registering this student in an online course might open the door to more such enrollments. The principal's concern was that new program costs could jeopardize existing programs.

Background

In this section, we first describe virtual schools for readers who may be unfamiliar with them. We then discuss potential benefits and some of the barriers to adoption of online instruction.

Common Attributes of State-Sponsored Virtual Schools

Although each state-sponsored virtual school operates somewhat differently from its counterparts, many share similar features. In this section, we describe some of the typical attributes of state-sponsored virtual schools.

Online classes can be smaller than traditional classes

Contrary to widely held presumptions, Internet-based K-12 classes are typically no larger in size, and frequently smaller, than traditional classes. For example, Kentucky Virtual High School

Internet-based K-12 classes are typically no larger in size, and frequently smaller than, traditional classes.

(KVHS) limits enrollments to 25 students per course section. In addition, KVHS recently implemented an incremental salary schedule that gives teachers the flexibility to cap enrollments at as few as 15 students per section.

Concord Consortia's Virtual High School limits enrollments to 20 students per section. Florida Virtual School limits full-time teacher loads to 125 students, or the equivalent of 25 students per class. These schools have concluded that small classes are necessary to keep workloads manageable for their online teachers.

Online courses encourage communications with teacher and students

A second misperception about virtual courses is that students work in an isolated environment with little or no interaction between student and teacher, or among students. Chat rooms and threaded discussions, however, allow students to engage in web-based discussions. In addition, students can ask questions and discuss work with their teachers in an open virtual classroom, or in private electronic correspondence. In fact, students from Kentucky's virtual school reported in end-of-course surveys that their online teachers know them better than do their teachers in traditional classrooms (KVHS student surveys, Spring 2000). This is not a surprise to teachers of virtual courses who have become accustomed to frequent communications with their students. In contrast, students in traditional classes may leave questions unasked, rather than raise their hands in class or attempt to get individual questions answered in the brief moments available between classes.

Online teachers spend their time differently

The way teachers spend their time in a virtual environment differs from that of teachers in a traditional environment. Schools buy content directly from a content provider or develop their own content before the course begins. Although virtual school administrators ensure that teachers of online courses are well qualified in their subject area, the online teacher's primary role has less to do with initial content delivery and more to do with communication, assessment, and feedback. These tasks take considerable effort for the online teacher because they must compensate for the lack of face-to-face interaction. Students in virtual courses typically get more frequent assignments, as well as more opportunities to revise and resubmit their work than do students in traditional classes.

Communication, assessment, and feedback take considerable effort for the online teacher.

Online courses accommodate requirements and expand student opportunities

Students are taking a wide range of courses online. Some of these courses are required, but many others widen learning opportunities for students. In West Virginia, for example, the virtual school furnished 33 courses to nearly 350 public school students in its first year of operation. Ten of these were Advanced Placement courses in mathematics, natural and social sciences and English. Nine more were elective courses, four of which were foreign languages. In most cases, students took these courses online because they weren't otherwise available in their traditional school.

Where and when students go online varies

Where and when course delivery takes place within each school is often a local decision, and several delivery models have emerged. Students who take their web-based course as part of their normal course load may go online from the school's media center, or from a computer lab before or after school, or during the regular school day. Students who go to a computer lab during a regularly assigned class period may be taking the same course as other students in the lab. Alternatively, each student in the lab could be enrolled in a different web-based course. In either case, a course facilitator would monitor students during the lab period. Highly motivated students may be permitted to take a virtual course as an overload and to access the course solely from a home computer, public library, or elsewhere, outside school hours.

School contacts and course facilitators provide on-site assistance

Local schools may designate a school contact and a course facilitator in addition to the online teacher, who is the subject-area expert. School contacts can answer questions about virtual courses for prospective students, handle local administrative tasks, identify a course facilitator, and get nec-

essary administrative information to students and their parents. The course facilitator acts as a local point of contact for the online teacher and student. The point of contact may facilitate solutions to technology problems, proctor exams, or help online teachers keep their students on task.² Finally, in state-run virtual schools, administrators within the state’s education department help shape policy, hire teachers, ensure that virtual courses meet quality and content standards, register students, and generally work long and hard to solve day-to-day and longer term problems.

Time frames or course completion vary

Time frames for completion of virtual courses vary. KVHS courses follow a traditional academic schedule. Florida Virtual School allows students to choose a fast, traditional, or slower paced schedule. Most commercial providers require course completion within one calendar year, but students may self-impose shorter time frames to meet their educational objectives, such as grade advancement, graduation, or AP exam dates, which are set nationally and are normally given in the spring.

Benefits of Online Courses

Proponents of online courses point to a range of potential benefits, including:

- Access to more courses
- More scheduling flexibility
- Greater efficiency
- Expanded and better-matched instructional resources
- Improved content
- More opportunity for homebound students.

Many small schools, particularly in rural areas, have limited course offerings. If only a handful of students are interested in high school physics, for example, the school might not be able to offer the course. Even if a course is offered, web-based courses provide more scheduling flexibility because many courses are largely “asynchronous,” meaning that students and teachers do not have to be online at the same time. One no longer has to worry that the only sections of “Band” and “Algebra 1” both meet during second period, or that geometry is offered only every other year.

² Private course providers who furnish both content and instructor also may require that the facilitator have background in the subject matter of the virtual course so that onsite assistance with course content is available. These providers commonly have larger student-teacher ratios than described previously.

Some traditional schools may be able to offer courses even if the course is under-enrolled, but per-student costs for such courses are high. Virtual courses can bundle students from different locations to create more efficient class sizes.

Teacher shortages in foreign languages, sciences, and mathematics are widespread and are particularly acute in rural areas, making it difficult to serve even basic curricular needs. Virtual courses can be used to expand and better match instructional resources to needs. Because online teachers can work from home on their own schedule, the delivery method can tap into part-time labor pools that otherwise might not be available. These sources include retired teachers and other teachers who are out of the system, possibly because they have young children, are pregnant, or because they live in locations that do not have job openings in their subject area.

Virtual courses can be used to expand and better match instructional resources to needs.

The approval process for web-based courses, offered by state-run virtual schools, helps ensure high quality content and instruction. State-sponsored virtual schools carefully evaluate online courses to ensure that their content meets state standards of learning. In addition, online teachers are selected carefully to ensure subject-matter expertise and the ability to communicate online. Common selection considerations include in-subject certification and classroom experience. Distance interviews provide a good way to assess teacher ability to communicate well online. Training in online course instruction also may be furnished. Finally, student evaluations are commonly used to gauge course success and to identify weaknesses. Taken together, these management strategies may translate to improved student learning and improved outcomes on state-sponsored exams. In addition, virtual courses can reach homebound students, enabling these students to keep up with their work until they can return to their traditional school.

Barriers to Adoption of Online Courses

Legitimate concerns create barriers to experimentation and acceptance of online courses by local schools. These include:

- Cost of course seats
- Uncertain total costs
- Unclear or restrictive education policies
- Lack of information on learning effectiveness

- Risk of student failure, or failure to complete coursework
- Loss of control.

Cash-strapped districts may view online learning as an expansion of services whose costs they are unable to afford or to control. One course seat might be paid from discretionary funds, but what if online courses grow in popularity? Where would the money come from to pay for them? Moreover, if schools that allow their own students to use online courses must enroll and pay for virtual courses taken by students from outside the public school system—kids who had dropped out or who normally attend home schools—it could drain resources from traditional programs and the students they serve.

State policies may also be vague or too inflexible to meet the needs of online education. For example, many schools are concerned that seat-time requirements to qualify for state aid are problematic for students that access their courses off-site or during non-school hours.³ In addition, little is known about the learning effectiveness of online courses, or the likelihood that students will successfully complete them. This lack of information makes use of online courses a high-risk proposition for students and their school administrators. Finally, principals may feel a loss of control because the online teacher doesn't work for them. These concerns are legitimate and likely will cause some districts to wait to experiment with online learning until more is known about learning effectiveness, policy, and the costs of provision.

Funding Options and Their Implications

The state's choice between funding the virtual courses it offers out of state revenues or seeking reimbursement for their costs from districts that use its courses has important ramifications, not only for the virtual school, but also for traditional schools and the communities they serve. That's because "who pays" will create strong incentives that can affect experimentation, acceptance, and level of use. In this section, we examine the implications of alternative funding schemes.

Who could pay to cover the costs of operating a virtual school? Clearly, the state could choose to cover the costs and charge nothing to districts or schools. Alternatively, the state could provide the courses, and seek reimbursement for their costs from local schools through user fees. In that case, a school or district might pay the state, or pass costs on to its own students. How states choose to handle funding for students who are not part of the public school system (students who normally

³ Kentucky has eliminated seat-time requirements for web-based courses.

attend private schools or home schools, high school dropouts and the incarcerated) also has important implications that should be weighed carefully before determining who should pay instructional costs for these students.

States should subsidize virtual schools to encourage experimentation with online learning

States that wish to encourage experimentation and acceptance of online learning should take steps to reduce barriers to its use. One way to do this is by eliminating out-of-pocket costs to local schools. Eliminating costs will encourage schools to experiment with online learning. This experimentation will create firsthand experiences that will serve to reduce uncertainty about the quality and effectiveness of online courses, and will increase understanding of the role that virtual courses can play in traditional schools. If the state's primary goal is to overcome barriers to experimentation and acceptance of online learning, the state should provide courses at little or no cost to local schools.

Eliminating costs will encourage schools to experiment with online learning.

Grants are preferable to setting artificially low prices

Subsidies could be administered through a grant program, as is done in West Virginia, or by setting user fees (prices for use) below cost. A grant program makes it clear that funding is normally a local responsibility. In addition, a grant program provides states with more flexibility to target subsidies to particular users, or to adjust them over time. Grants also convey information to local schools about the true cost of online courses, lowering uncertainty about possible future costs. Either strategy (below-cost pricing or grants), however, would decrease barriers to use and speed growth in virtual programs.

Use broad-based subsidies to gather information about what works, for whom, and under what conditions

In the first stage of implementation of a state-run virtual school, subsidies should be broad based. In this way, data from a wide range of settings can be gathered and analyzed to help determine what works, for whom, and under what circumstances. Encouraging use will also promote innovation, raising the capability of online instruction to contribute to learning. As a general rule, subsidies should be used to encourage experimentation and use of online courses. In order to learn from their experiences, policy makers should tie grants to requirements for data on the characteristics of schools and students who use online education, the characteristics of courses (e.g., subject, class size, frequency of assignments), implementation method (e.g., use of a regular assigned class period). These data should be analyzed to learn what works, for whom, and under what conditions.

Shift costs to local schools over time

If there were no negative ramifications of fully funding online courses through the state, there would be no need to consider alternatives to this policy. In the long term, however, state funding has an important drawback. In almost all states, the state collects taxes and redistributes funds back to local districts according to legislated funding formulas.⁴ It is local administrators who decide (within legal guidelines) how to spend those funds to get the most from their education dollars. If the state gives online courses to districts along with funding, or provides those courses well below cost, districts are likely to use virtual courses much more than they would otherwise. Of course, that's the idea behind the subsidies in the first place. Once school districts become familiar with online schools, and the capability they can contribute to the traditional school, districts ought to factor that information along with costs into their own budget-allocation decisions. This strategy would give administrators the right incentives to make the most efficient use of instructional resources.

States should consider whether subsidies should be targeted to high-need schools

As responsibility for the costs of online courses shifts to local schools, states should consider whether an across-the-board shift is appropriate, or if some schools should continue to receive subsidies. Most state funding formulas are designed to help equalize resources across districts with widely varying abilities to pay. Other states attempt to achieve educational adequacy. (In contrast to equity formulas, adequacy formulas consider that students from disadvantaged areas may need more resources than others to obtain an adequate education.) These funding formulas reduce (and may eliminate) the need for targeted subsidies. If targeted subsidies were used, they would encourage use of online over traditional education in targeted schools and would alter the allocation of educational resources prescribed by state funding formulas.

Public schools shouldn't shift costs to public school students for courses that help fill a normal academic load

Once schools become responsible for the costs associated with virtual courses, should they pass those costs on to their students? No, at least not for public school students who use them to fill a normal academic load. To do otherwise would be inconsistent with the tenet of "free public education." Course overloads, in contrast, are a clear expansion of services. Schools that are facing highly constrained budgets may not be able to absorb the additional expenses that these overloads would

⁴ On average, 48 percent of district funding in the United States came from state government in 1997-1998, according to *Digest of Education Statistics, 2000*.

create. Whether schools choose to fund those courses or to pass the cost along to their parents ought to be a local decision.

Federal technology funds can help support state and local initiatives

In fiscal year 2001, all states will receive an ESEA "block grant" for funding educational technology projects. Congress is expected to authorize approximately one-half of these funds for competitive grants that will be administered by the states; the remaining half will go to local school districts directly. [1] In both funding strategies, the state ed/

tech grants (formally known as TLECF grants) will support the development, adaptation, or expansion of ex-

State Ed /Tech grants will support new applications of technology.

isting and new applications of technology that support school reform. In addition, the Secretary of Education is expected to have a discretionary ed/tech fund to support research, development, and demonstration grants under a "national programs for technology in education" program. [2] States and schools participating in these programs could designate virtual high school courses and e-learning services as funding priorities as part of a competitive grant application or by entering into consortia, partnerships, and collaborative arrangements, whereby one or more LEAs could direct its federal funds to a third party that develops online course materials.

Course use and effectiveness should be monitored

How districts handle funding of courses and who uses them will be worth watching. If an educational divide develops between advantaged and disadvantaged schools, or between advantaged and disadvantaged students, the virtual school or state departments of education should analyze the cause for these differences and consider policies (including targeted grants) to narrow the gap in access. Course effectiveness should also be evaluated to identify targeted or broad-based adjustments in implementation practices that will lead to improvements in student outcomes.

Plan ahead to widen education opportunities and use funds efficiently

Bringing a wide array of electives to traditional schools through online education doesn't have to be costly. Once the effectiveness of online education is accepted, local schools could provide students with online course choices during the normal course selection and assignment process. Students could be assigned to virtual courses taking into consideration the same kinds of factors (student preferences, class size) that administrators use today to make course assignments. Unlike traditional courses, however, virtual courses are more easily tailored to meet school scheduling and cost considerations because courses are paid on a per-seat basis. Advance planning would also enable administrators at the virtual school to better meet the needs of traditional schools.

Non-Public-School Students

If online education proves to be effective, public school students are not the only ones who could benefit. Students who fall outside the public school system, including students who attend private or home schools, could also benefit from courses offered through the state's virtual school. In addition, high school dropouts and the incarcerated could benefit from this alternative to traditional classrooms. Whether public education systems choose to fund online learning for non-public school students is likely to have important implications for the cost and shape of public K-12 education.

States should pay for online education of high school dropouts and the incarcerated and consider designating a single Agency to register non-public-school students.

It is widely recognized that improving the level of education of high school dropouts and the incarcerated yields important benefits for society. Local public schools, however, may not have appropriate incentives to enroll them. For example, if local schools gain state aid when they register these new students for virtual courses (as is the case in Kentucky), but they must pay the fee for the online course (a local decision in Kentucky), some schools may find it profitable, whereas others conclude that it is a drain on their resources. This apparent anomaly arises because in many states the state funding formulas create differences in the amount of aid schools receive based on local ability to pay and other considerations. To avoid creating implementation issues like these, states should consider designating a single education agency for registration of non-public-school students. In the case of the incarcerated, or the high school dropout, the state should pay the agency directly for virtual courses that can lead to a high school diploma or GED.

Private and home schooled students should have access to state-run virtual schools. Charging students for courses is broadly consistent with public/private funding policies in education.

Both home schools and private schools have shown interest in web-based education as a way to expand or improve educational opportunities for their students. Students in these schools could

Clearly, non-public-school students should have access to online courses through the state's virtual school.

benefit from online courses that have been carefully reviewed by the state's virtual school. Clearly, non-public-school students should have access to online courses through the state's virtual school.

Should these schools (or their students) pay for the courses they take? Private and home schools are normally funded from outside the public education system. Avoiding public support gives these

schools more flexibility to choose what will be taught, by whom, and with what instructional materials. Like private schools, many home schools are motivated by a desire to include prayer and religious studies in the school day. Charging private or home-schooled students or their schools would appear to be broadly consistent with public policies on private/public school funding. Yet whether non-public-school students pay for courses provided by public virtual schools varies across states and can vary among localities within states. In Illinois and Michigan, for example, non-public-school students pay for those courses. [3, 4] Kentucky and West Virginia leave the decision to local districts. [5, 6] The State of Florida pays costs for all high school students who are state residents, whether or not they are public school students. [7] This range of approaches is possible because some states treat registration for an online course as a registration in public school, others do not.

Public funding of online courses for private or homeschools could have far-reaching implications for the costs and shape of public K-12 education.

Public funding for online courses taken by students who attend private schools or home schools blurs the traditional sharp distinction between public and private education and could change the education choices of many students. For example, free selective access to online courses could draw away full-time public school students whose parents are attracted to some aspects of non-public schools but who have stayed in the public school system out of concern about the quality or breadth of academic courses in the non-public setting. Similarly, many students who have been outside the public school system may register for online courses furnished through the public education system. This second effect could outweigh the first, raising overall demand for public school resources. If this occurs, policy makers may confront a difficult choice: shifting spending (or raising taxes) to cover the costs of a share of high school students who traditionally had been educated outside the public school system, or lowering per-student spending in traditional public schools to compensate for the new expense.

Three States, Three Models

Different states have taken vastly different approaches to the funding of their virtual schools. In this section we look at the approaches taken by three of them: Florida, Kentucky and West Virginia.

Florida Virtual School (FVS)

Florida Virtual School traces its beginnings to pilot programs launched in two districts. By 1997, courses were being offered throughout the state. Any student in grades 9-12 who is a resident of the State of Florida may go online to enroll in courses offered through FVS at no cost. This includes all public, private and home-schooled students. In 1999-2000, FVS furnished over 2,500 courses to 1,464 students. Many of the home-schoolers signed up for multiple courses. Overall, 42 percent of course enrollments came from home-schooled students, even though home-schoolers made up only 1 percent of Florida's school-aged population in 1998-99.⁵ [8] Presently, FVS has 8,000 course enrollments and the school has reached its budgeted capacity. [9]

Florida's legislature has invested substantial funds in its virtual school. In August 1997, \$1.3 million was appropriated for the school. In 1998, \$4.3 million was appropriated. In the 2000 legislative session, \$6.1 million was appropriated to the school. These funds support more than operating costs. Florida has developed a robust enterprise that markets seats in high-quality courses that it develops, data management systems, and consulting advice to other virtual schools. Providing courses at zero cost to its own state residents is consistent with Florida's short-term goal of rapid growth. In the long term, revenues from the services and products it sells outside the state will be used to help fund the school.

Kentucky Virtual School (KVHS)

Kentucky Virtual High School (KVHS) offered its first courses in the Spring of 2000. KVHS purchases course seats from a variety of high-quality content providers and hires Kentucky-certified teachers to support web-based delivery. Each course is carefully screened for alignment of content with Kentucky state standards, before it is made available to students. KVHS may supplement course content with additional materials or assignments in order to ensure that courses meet all Kentucky state standards for learning. KVHS also authors its own courses when appropriate content cannot be found elsewhere.

A key interest of the Kentucky legislature and KVHS administrators is to use the power of Internet technology to provide more learning opportunities for students, particularly in rural and disadvan-

⁵ Pennsylvania, which set up seven charter cyber schools for online courses, had a similar experience. Two-thirds of enrollments came from outside the public school system. *Cyber Charter Schools Review*, PA Department of Education and KPMG Consulting, October 2001.

taged areas. Kentucky's technological infrastructure, which provides Internet access in every school, helps to meet that objective.

KVHS charges fees for courses to cover its operating costs: \$275 per half-credit (i.e., one semester) course and \$500 per full-credit course. Operating costs cover salaries for Kentucky-certified teachers for online courses, as well as user fees paid to platform and course providers. Fees may be paid by the school, or passed on to students, based on local school council policies guiding KVHS participation. Public, private and home-schooled students may enroll in KVHS courses through Kentucky public high schools. However school participation, and individual enrollment decisions, are made locally. In 2000-2001 KVHS had enrollments of 400. Anecdotal evidence reveals some local resistance to enrolling students in online courses. Lack of systematically collected data makes it difficult to gauge whether resistance is widespread.

West Virginia Virtual School (WVVS)

West Virginia Virtual School is an umbrella organization for all types of distance learning courses offered through the state. In its first year of operation (Fall 2000-Spring 2001), WVVS recorded 344 enrollments in state-approved web-based courses. WVVS operates as a broker for virtual courses, in that it identifies appropriate courses for delivery to students, and negotiates statewide rates for course delivery with providers. In addition to furnishing content, providers supply the teachers for the courses they offer to West Virginia. WVVS employs experienced WV teachers to evaluate web-based courses for alignment of content with West Virginia's Instructional Goals and Objectives. In addition, the reviewers use the *Essential Principals of Quality*, developed by the Southern Regional Education Board, to assess the quality of the course and its provider. [10]

State policy specifically provides access to WVVS courses for both public school and non-public-school (home-schooled) students and emphasizes a "justified need" criterion for public funding. Although responsibility for the payment of course fees does not reside at the state level, a generous state-sponsored grant program covers 75 percent of course costs (including any costs for supporting materials). Parents are expected to pay course fees, "if the selected course is currently being offered by the [traditional] school and there is no justifiable reason to duplicate the course." [6]

References

- [1] Dennis Pierce (ed.). "Legislators Approve Technology Block Grant." *eSchool News*, November 1, 2001 (www.eschoolnews.com/news/showStory.cfm?ArticleID=3186)
- [2] Participation in the ESEA Title III Education Technology Programs, National Catholic Education Association (www.ncea.org/PubPol/technology.shtml)
- [3] "Illinois Virtual High School, An Initiative of Governor George H. Ryan," Information Packet, January 2001 (<http://ivhs.org/index.learn?action=Info>)
- [4] "Learning at the Michigan Virtual High School" (http://www.mivhs.org/Orientation/orientation_students.htm)
- [5] Interview with Linda Pittenger, July 20, 2001
- [6] West Virginia Board of Education, Legislative Rule, Title 126, Series 48: Distance Learning and the West Virginia Virtual School (2450) (<http://wvde.state.wv.us/policies/p2450.html>)
- [7] "Why Florida Virtual School?" (http://flvs.net/learn_more/home-final.htm)
- [8] Cindy Bigbie and Walter McCarroll. "The Florida High School Evaluation, 1999-2000 Report." Florida State University College of Education Center for the Study of Teaching and Learning, October 2000
- [9] FVS presentation, CiTE Conference on Virtual Education, October 2001
- [10] "Essential Principles of Quality Checklist," Guidelines for Web-based Middle and High School Students (http://www.sreb.org/programs/EdTech/pubs/PDF/Principals_of_Quality_Checklist.pdf)

Authors

Dr. Linda Cavalluzzo, The CNA Corporation

Dr. Cavalluzzo is a senior economist with extensive experience in empirically based, policy-oriented research. In addition to her position as Project Direct for Virtual Schools Research under the Appalachian Regional Technology in Education Consortium, Linda is the principal investigator (PI) for a study sponsored by the National Science Foundation (NSF) of the impact of systemic reform on student outcomes in science and mathematics. Linda is also co-PI of a second NSF study on effective practices for hiring and retaining a high-quality math and science teacher workforce. As a member of the research design team for New Collaborative Schools, Linda is helping to identify, collect, and analyze data from several high school-college collaborations that have been organized to help disengaged and at-risk high school students complete high school and go on to college. This research is sponsored by the U.S. Department of Education through its contract with the Appalachian Education Lab.

Dr. Cavalluzzo's previous research spans a variety of areas, including discrimination in lending practices to small businesses, productivity differences at union versus non-union construction sites, and non-monetary workplace incentives. Her journal articles can be found in *The Review of Economics and Statistics*, *The Industrial and Labor Relations Review*, *The Journal of Money Credit and Banking*, and *The Journal of Business*. In addition, she has made significant contributions to research in support of policy problems facing the Department of the Navy, the Office of the Secretary of Defense, and the Joint Chiefs of Staff. Her paper, *A Bottom-Up Assessment of Navy Flagship Schools*, led to a task force to rethink the shape of the Navy's higher education system.

Mr. Michael Higgins, The CNA Corporation

Michael Higgins is an economist with specialties in mathematical methods, public finance and labor economics. Michael received his graduate training at the University of Minnesota. Michael joined CNAC in 1999.

