

Virtual schooling in Kentucky: Great promise with challenges

By Richard G. Innes

Preface

I admit to some informed bias about the power of technology in instructional environments.

In 1971, I was one of the very first programmers for the initial generation of automated teaching machines used in the United States Air Force's pilot training program.

While the first generation equipment was unsophisticated by today's standards, it was a dramatic step forward from previous methods. The new equipment merged dramatically improved visuals with carefully scripted and reviewed narration in an automated delivery environment where students could proceed at their own pace.

Students took to the new technology like ducks to water. The new instructional tools also offered benefits for the instructor pilots, who became as enthusiastic about the new advance as their pupils. It was a win-win for everyone.

Nearly four decades later, I remain bullish on the promise of technology in education. When skillfully programmed and

intelligently employed, technology based learning has proved itself in the aviation area, and it also holds great promise for Kentucky's public education system.

Executive Summary

Rapid advances in computer-based technology create exciting new possibilities for the delivery of public education, including the opportunity to offer totally virtual, online courses through the Internet.

Kentucky is taking advantage of this potential with several different efforts such as those from Kentucky Tech and Kentucky Educational Television. But the most advanced and extensive program is offered by the Kentucky Department of Education's Kentucky Virtual High School (KVHS) program.

KVHS already offers over 70 different courses ranging from fully virtual delivery of Advanced Placement material to remedial courses that help students meet high school graduation requirements.

The KVHS is augmented in exciting ways by a

complementary program, the Barren Academy of Virtual and Expanded Learning (BAVEL) from the Barren County Public School District.

BAVEL allows a student to transfer to the Barren County Public Schools without making a physical move. Instead, the student participates in high school via a totally virtual environment. Students enrolled in BAVEL can take courses at home, in a hospital or anywhere an Internet-connected computer is available. They can complete all requirements for a regular Kentucky high school diploma awarded by Barren County while physically residing anywhere in the commonwealth.

The KVHS/BAVEL system offers unique opportunities for students of all levels ranging from those at risk of failure and dropping out to those who want to pursue advanced courses on an accelerated schedule. There also is significant potential to help the thousands of students who drop out of high school each year to continue their studies in a different, possibly more attractive environment that leads to high school graduation.

Unfortunately, the KVHS/BAVEL staff universally informed us

during the preparation of this paper that the program has suffered from inadequate marketing and advertising. Thus, enrollment at present appears to be quite low compared to the potential student market.

In addition, these programs currently need better performance metrics and tracking of those metrics.

There also appears to be a downsizing of support at the Kentucky Department of Education (KDE) when the KVHS may actually offer much more cost effective approaches to traditional classroom education delivery.

Thus, the full benefits of virtual schooling have not been entirely realized at this time, although the KVHS system offers outstanding potential for the future.

Kentucky's Virtual School Programs

KVHS currently is the KDE's only major virtual learning system for students. The department's other major program, "e-Learning," is limited to teacher development and will not be discussed further here.

A small set of virtual learning programs also are offered through Kentucky Educational Television (KET). The KET system does not offer nearly as many courses as the KVHS program, but those KET course offerings generally differ from those offered by KVHS. While students can enroll in the KET

courses outside of the KVHS environment (students in at least 20 other states and home-schooled students nationwide do so), the KET courses can also be accessed through KVHS enrollment. Therefore, an involved discussion of KET offerings is not included in this paper.

Another virtual learning program operated by the Kentucky Area Technology Centers in the Kentucky Education and Workforce Development Cabinet involves vocational training-oriented programs and is just starting to serve high school students. However, the vast majority of these technology-based instructional tools remain centered on traditional classroom environments. Kentucky Tech's use of virtual technology for distance learning is in its infancy. Thus, we leave discussion of the Kentucky Tech program to a future paper.

For now, this paper concentrates on the KVHS, the most extensive established distance learning system in the commonwealth.

KVHS: An overview

KVHS started in January 2000 with 50 students statewide, four staff members at the KDE and 18 part-time teachers.¹ By the 2008-09 school year, the KVHS program served more than 1,450 students in full-time online courses and another 3,000 students through significant online supplemental support for "Blended" courses developed at the local school district level.²

At one point, a staff of 10 at the KDE was overseeing efforts by 97 part-time teachers, facilitators and contractors.³

The KVHS system provides a number of different types of course offerings. The 2009-10 "Prerequisite and Course Materials Guide" shows the following:

Table 1⁴
2009-10 KVHS Course Offerings

Course Area (Examples – incomplete listing)	Total Courses Offered
Advanced Placement Courses	23
Career and Technical Education (Health Science)	1
Electives (Business Math, Career Planning, Digital Video Production, Web Design, etc.)	10
English/Language Arts (Levels I to IV plus Creative Writing)	5
Health/Personal Fitness	2
Mathematics (Algebra I & II, Pre-Calculus, Geometry, Calculus, Algebra I Credit Recovery)	7
Science (Biology, Chemistry, Physics, Oceanography)	7
Social Studies (Anthropology, Consumer Economics)	6
World Languages (multiple levels of French, German, Latin, etc.)	15
AP Exam Review (actual exam preparation) ⁵	10

These offerings include advanced, standard and even remedial courses.

The KVHS system does not award the final student grades for any course or diplomas. Instead, the KVHS sends un-weighted, un-curved numeric grades to the local school where the student is registered.

The local school then applies its own grading adjustments and issues the final grade and course credit and grants diplomas to students who successfully complete the full high school course of study.⁶

Unique KVHS benefits

The KDE's Web site lists a number of advantages for the KVHS program, including:

-Access to an expanded curriculum for every student

-Advanced Placement and foreign language courses

-Options for credit recovery

-Increased instructional support for at-risk students

-Expanded choices to meet Gifted and Talented students' needs

-Professional Development to build instructional capacity⁷

Some of the offerings listed in Table 1 are standard high school instructional courses based on the Kentucky Program of Studies, which is the statewide curriculum guidance document. While all local school

districts should have staff available and trained to teach these courses, making the classes available online opens up new possibilities for students and educators.

For example, KVHS allows both standard course support and enriched education options for students who cannot attend a local school because they are incarcerated or undergoing extensive medical care.

The virtual option for students in these or other circumstances that prevent them from physically attending classes may be more cost effective than sending teachers to their locations.

Furthermore, because courses are available online around the clock, KVHS enables students with unusual work requirements to complete high school instead of dropping out.

Credit recovery options also can facilitate graduation for students who otherwise would drop out of school.

KVHS allows students who need to repeat a course to do so more efficiently and quickly. It also offers a very cost-effective method of delivering courses to smaller school districts with a small number of students needing remedial classes. The potential for economical summer-school support also is particularly attractive.

Around-the-clock course availability allows students to proceed at their own pace, which can be advantageous to

students needing more time, including students with special learning challenges.⁸

The flexibility of online learning also creates new options for aggressive students to accelerate their overall learning program by taking standard courses during the summer months.

Also, while courses offered are designed at the high school level, KVHS enrollment is open to students beginning in middle school.⁹

Thus, advanced middle school students can take courses at a higher level than might otherwise be available to them through the local school system, especially in smaller districts.

The KVHS system also gets away from some rigid ideas that hamper traditional education systems such as student/teacher ratios and required seat time.

Mandatory seat time generally does not apply in virtual learning situations. Students can proceed through the material at their own pace.

Also, well-designed virtual programs can allow one educational advisor to serve a larger group of students. However, specific data on this subject is not currently available on the KVHS Web site.

KVHS participation

Table 2 provided by the KDE summarizes recent participation in the various KVHS programs.

Table 2¹⁰
Recent KVHS Enrollment Data

School Year	Enrollment in Fully Virtual Classes	AP Enrollment in Fully Virtual Classes	World Lang. Enroll. in Fully Virtual Classes	Hybrid/ Blended (Not Fully Virtual Delivery)	Districts Participating (Public Only)
2007 - 2008	1,839	561	259	700	113
2008 - 2009	1,453	403	218	3,017	96
2009 - 2010 *	1,401	436	171	1,888	105

* Fall and Spring Enrollment numbers only until Summer Semester begins

This table shows that during the 2007-08 school year, 1,839 students enrolled in KVHS courses that were totally managed as distance learning. Of that group, 561 took AP courses entirely online while another 259 students studied world languages in a fully distance learning environment.

In addition, another 700 students enrolled in the “Hybrid/Blended” courses in which students attend class in a regular setting in their local school for part of their instruction, but a significant portion (at least 40 percent) of their actual work is completed online using KVHS materials.

As of 2008-09, the latest full year of data available, a total of 4,470 students had received some level of KVHS services, including 1,453 students in fully virtual courses plus another 3,017 in the Hybrid/Blended courses.

KVHS funding

KVHS gets \$800,000 in direct funding from the legislature. This money does not flow to/through school districts.

Table 3¹¹
Recent KVHS Funding

Funding Source	Amount
Kentucky Legislature/General Fund	\$800,000
Student Tuition Payments from Districts	\$300,000
Total	\$1,100,000

Also, most KVHS courses are provided on a fee-reimbursement basis to the local school. The total of those reimbursements from the local districts to the KVHS currently amount to around \$300,000 as shown in Table 3. Standard course fees charged by the KVHS to the local school district are shown in Table 4.

Table 4¹²
Reimbursement Fees for KVHS Courses

Credit Hours for Course	Fee
0.5 (Single Semester Course)	\$165
1.0 (Two-Semester Course)	\$330

In some cases, these fees are waived if a student has been awarded a scholarship for an AP course.¹³

In most cases, fees for students taking these courses for credit towards high school graduation

are paid by the local school district.¹⁴

In a few cases, information on KDE’s Web site indicates that schools actually may bill parents for the cost of the program. This occurs if a student elects to take an enrichment course “...above and beyond the required instructional time or if the student elects to take the KVHS course in lieu of a course already available at the high school to gain credits towards graduations (sic).”¹⁵

Another special billing situation can arise if a home-schooled student wants to take a KVHS course.

There is no charge for the AP Online Exam Reviews.¹⁶

KVHS performance

Data provided by the KDE comparing the performance of KVHS students with non-KVHS students on AP exams in 2009 are summarized in Table 5. Note: Only data on those AP courses provided by KVHS in 2009 are shown.

Other AP courses were offered in traditional classroom settings in Kentucky in 2009 but were not offered by KVHS.

The first three columns of figures in the table show the overall number of students in Kentucky that took the listed AP courses along with the total number and percentage that “passed” (obtained an AP score of “3” or higher).

Additional sets of columns show similar information broken down

Table 5¹
2009 AP Exam Comparison Chart

	state total	state passed	% passed state	kvhs total	kvhs passed	% passed KVHS	non KVHS total	non KVHS passed	% passed non KVHS	KVHS Minus Non-KVHS
TOTAL EXAMS	27,340	13,557	49.59%	297	137	46.13%	27,043	13,420	49.62%	-3.49%
ENGLISH LANG-&COMPOSITION	3,035	1,705	56.18%	7	6	85.71%	3,028	1,699	56.11%	29.60%
PHYSICS C: MECHANICS	110	84	76.36%	1	1	100.00%	109	83	76.15%	23.85%
CALCULUS BC	402	311	77.36%	9	9	100.00%	393	302	76.84%	23.16%
HUMAN GEOGRAPHY	498	309	62.05%	5	4	80.00%	493	305	61.87%	18.13%
STATISTICS	877	553	63.06%	14	11	78.57%	863	542	62.80%	15.77%
EUROPEAN HISTORY	994	454	45.67%	20	11	55.00%	974	443	45.48%	9.52%
ENVIRONMENTAL SCIENCE	306	140	45.75%	33	17	51.52%	273	123	45.05%	6.47%
CHEMISTRY	966	358	37.06%	7	3	42.86%	959	355	37.02%	5.84%
BIOLOGY	1,488	519	34.88%	15	6	40.00%	1,473	513	34.83%	5.17%
ECONOMICS: MACRO	113	80	70.80%	11	8	72.73%	102	72	70.59%	2.14%
ECONOMICS: MICRO	89	44	49.44%	24	11	45.83%	65	33	50.77%	-4.94%
GOVERNMENT & POLITICS U.S.	1,222	637	52.13%	19	8	42.11%	1,203	629	52.29%	-10.18%
FRENCH: LANGUAGE	207	50	24.15%	9	1	11.11%	198	49	24.75%	-13.64%
COMPUTER SCIENCE A	168	115	68.45%	2	1	50.00%	166	114	68.67%	-18.67%
PSYCHOLOGY	1,306	779	59.65%	78	31	39.74%	1,228	748	60.91%	-21.17%
US HISTORY	4,705	1,765	37.51%	20	3	15.00%	4,685	1,762	37.61%	-22.61%
ENGLISH LIT-&COMPOSITION	4,069	2,264	55.64%	10	3	30.00%	4,059	2,261	55.70%	-25.70%
ART: HISTORY	243	143	58.85%	10	3	30.00%	233	140	60.09%	-30.09%
SPANISH LANGUAGE	962	291	30.25%	3	0	0.00%	959	291	30.34%	-30.34%

by the total number of KVHS students only and non-KVHS students only.

Finally, the last column shows the difference between the pass rate for KVHS and non-KVHS students. Except for the top row, which is the Total Exams summary, the data is sorted by the difference in pass rates. A positive number indicates that the KVHS pass rate was higher than the non-KVHS students' pass rate. A negative number indicates passing rates for KVHS students were lower than for those students who took AP courses in traditional classroom settings.

Table 5 highlights

- Overall, KVHS AP courses seem to work quite well compared to the classical classroom offering method. The overall difference in passing rates from the KVHS versus non-KVHS

courses is only 3.49 percent and only slightly favors classical AP courses.

However, more becomes apparent when the results are examined by specific subjects:

- KVHS students outperformed their non-KVHS counterparts in 10 of 19 courses.
- KVHS students excelled in critical areas, primarily science and math AP courses.

This differential course performance provides some ideas for improvement covered in the "KVHS Challenges" section below.

Other KVHS courses

Unfortunately, the KVHS office at the KDE informs us they have no data comparable to the

information found in Table 5 for students' performances in non-AP courses – a notable omission.

The department's Web site does offer enthusiastic student and parent testimonials.¹⁷

There also are references to a U.S. Department of Education study concerning the "Blended Learning" approach that indicate "...students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction."¹⁸ However, there is no way to know if these general comments also apply to the specific course offerings in Kentucky.

The Barren Academy of Virtual and Expanded Learning (BAVEL): A Virtual 'School Choice' Option

A unique complimentary program to the KVHS system is offered by the Barren County School District. In essence, this program, known as BAVEL, allows students anywhere in the state to enroll in a virtual high school environment that operates independently from the school district where the student physically resides.¹⁹

In essence, BAVEL offers all Kentucky students a district-to-district transfer option that includes enrollment in a regular Kentucky high school diploma-granting, virtual-school environment.²⁰

How BAVEL operates

- Upon “transferring,” BAVEL students are enrolled in the Barren County system and then start to take all, or virtually all, courses online.
- Most of the courses BAVEL offers come directly from the KVHS.²¹ In a few cases where KVHS does not offer a course required for high school graduation in Kentucky, BAVEL uses other course suppliers. For example, a course in Arts and Humanities is required by Kentucky statutes and regulations for high school graduation, but KVHS does not offer one. BAVEL uses a University of Kentucky independent study course to cover this requirement.
- BAVEL even offers dual high school/college credit courses through a cooperative arrangement with Western Kentucky University.

Funding

- When a student “transfers” to BAVEL, his old school district sends Barren County the student’s state “Average Daily Attendance” funding. However, the district only collects the full daily attendance funding if a student passes all courses.

The district receives only a prorated amount if a student fails to pass one or more courses. This funding process provides strong motivation for BAVEL staff

members to help their students succeed.

- BAVEL also charges each student a \$50 per course refundable fee.²² For a normal six-credit course load, the full student fee is \$300. However, these fees are refunded for each course the student passes. This creates strong incentives for parents and students to stay on task in the virtual environment.

Temporary ‘transition’

BAVEL offers a unique school opportunity to students facing a temporary inability to attend regular public schools. These students can enroll in BAVEL to take advantage of the 24/7 nature of virtual schooling until their temporary problem is resolved. These students then return to their home district and regular class attendance. Transition has proved helpful for students facing serious, but temporary, medical situations, for example.

Unique home school cooperative

A unique service of the BAVEL program is partial schooling support for home-schooled students. Through the BAVEL process, home-schoolers can participate in such things as the KVHS Advanced Placement courses.

Participation

- BAVEL currently enrolls about 80 students during the

regular school term. Around 20 students take courses during the summer.

- According to the BAVEL Web site, eight students graduated from its program with high school diplomas at the end of the 2006-07 school year.²³
- BAVEL does serve a number of students considered “at risk.” Such students may have failed to thrive in classical school settings because of serious behavioral issues resulting in suspensions/expulsions. BAVEL offers a way for these students to be recovered and receive a standard high school education in a different educational setting.

State testing and accountability

Accountability for students’ state testing, graduation and dropout rates also “transfers” to the Barren County School District. Once the student has been enrolled in BAVEL for 100 days, Barren County becomes responsible for that student in the same way as with any physical transfer of students to its district.

Assuming such accountability for these students is a risky venture for Barren County. BAVEL students often come to the school with a variety of challenges, including difficult family situations, medical issues and histories of suspensions/expulsions from previous schools.

With the exception of home-schooled students who use partial BAVEL services, all students are considered regular public school students and are subject to state accountability testing, including the Kentucky Core Content Test, 10th grade PLAN test and 11th grade ACT college entrance test.

BAVEL uses a number of approaches to accomplish this testing. In some cases, BAVEL staff members travel to students' home areas to conduct tests in a public library or local school facility.

In other cases, BAVEL coordinates with the district where the student resides to have tests conducted in one of the local district's schools.

Need to evaluate results properly

Due to the unique nature of the program, which does not fit the definition of a Kentucky "A1" standard high school (for accountability reporting purposes), BAVEL's performance information in most areas, including Kentucky Core Content Tests and ACT scores, is not yet available.

Once such data becomes available, simplistic comparisons between traditional programs and BAVEL must be avoided – especially since the program enrolls a number of at-risk students.

Challenges and recommendations

Staffing

At one time, KDE had 10 KVHS staff members. That staffing has been reduced more recently, however, and a number of the current positions are unfilled, in part due to the current economic situation.

Deemphasizing KVHS may not be the most economical way to expend education dollars. The program offers the potential of significant savings to Kentucky's education system. A re-analysis is warranted to determine if current staff cuts are appropriate.

Participation rates

During the 2008-09 school year, out of the 196,323 high school students statewide, only 4,470 students, or 2.2 percent, participated in KVHS.²⁴ This seems like a rather low participation rate given the KVHS's extensive course offerings, including the potential remedial/summer school offerings, which could be efficiently used in even some of Kentucky's largest school districts.

BAVEL's participation rates are much lower still; only around 80 students are currently enrolled.

These numbers for KVHS and BAVEL could increase

significantly if a concerted effort was made to enroll the thousands of students dropping out of Kentucky's public high schools each year.²⁵

All agencies involved with the issues of education and improving our graduation rates, which include not only BAVEL and the KDE, but also the legislature and Kentucky Cabinet for Workforce Development, should take action to boost participation in virtual high school programs.

Differential AP course performance

The KVHS staff should take action to revise those AP courses with lower performance. Data in Table 5 indicate that while some of the virtual program's AP course offerings perform well, other areas – primarily non-science/math ones – need improvement.

Needed: More performance data

Unfortunately, the type of data shown in Table 5 is not available for other KVHS offerings in the areas of world languages and regular/remedial high school coursework. As our discussion with the AP area demonstrates, analysis of these results is important and can provide valuable information about which courses need further improvement.

The KDE should make similar data available for all KVHS course offerings. The information should be used to constantly analyze the program and improve courses.

BAVEL should also start collecting performance data. However, the program's performance must be carefully considered in light of the fact that BAVEL largely serves at-risk students.

The KDE could aid in this process by treating BAVEL as a

standard high school for test score and nonacademic data reporting purposes, but would have to use the data differently for accountability purposes.

Needed: Better marketing

A constant theme with all of the individuals interviewed for this report is that both KVHS and BAVEL need much better marketing within and without the school community in Kentucky.

To assist in this effort, the KDE, legislature, and Workforce Cabinet should coordinate a media campaign to promote the availability of these programs.

The Bluegrass Institute will aid in this endeavor through mediums like this Policy Point, by adding discussions of KVHS and BAVEL to its Web tools and in its media discussions.

– *Richard G. Innes is an education analyst for the Bluegrass Institute, Kentucky's free-market think tank.*

About the Bluegrass Institute for Public Policy Solutions:

The Bluegrass Institute is an independent, nonpartisan free market think tank committed to advancing freedom, defending liberty and building a more prosperous Kentucky.



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Endnotes

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- ²⁰ Learn more about BAVEL at: <http://local.barren.kyschools.us/administrative/bavel/highlights.htm>.
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