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VIRTUAL SCHOOLS IN THE U.S. 2017

Section II Still No Evidence, Increased Call for Regulation: Research to Guide Virtual School Policy

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Executive Summary

Section II reviews research relevant to K-12 online and blended learning. Studies related to both supplemental and full-time virtual schooling continue to appear, often with a focus on effectiveness of the format. The research has shown that success in the supplemental environment has more to do with who is enrolled than with the nature or quality of virtual instruction provided. The research has also consistently found that students enrolled in full-time virtual schools have performed at levels well below their face-to-face counterparts. Finally, recent research has indicated that even schools identified as blended schools also perform at lower levels than traditional brick-and-mortar schools.

Despite the lack of evidence supporting virtual schooling, however, it continues to grow largely unregulated. Indeed, one of the more interesting developments over the past two years has been an increase in literature focused on increased regulation of virtual schooling,

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particularly the full-time format. Policy organizations and advocacy groups historically supportive of full-time virtual schooling and other market-driven educational reform initiatives have begun producing research and other literature questioning its effectiveness and calling for additional measures to regulate the field.

Recommendations arising from Section II include that:

1. Policymakers regulate the growth and geographic reach of full-time, taxpayer-funded virtual schools. At present there are serious questions about the effectiveness of many models of virtual schooling. Until these questions can be adequately addressed, policymakers should focus their efforts on promoting virtual school models shown to be successful while limiting those that have had questionable student performance.
2. State and federal policymakers create long-term programs to support independent research on and evaluation of virtual schooling, particularly full-time virtual schooling. More than twenty years after the first virtual schools began, there continues to be a dearth of empirical, longitudinal research to guide the practice and policy of virtual schooling.

In terms of the specific research that is needed, the following topics continue to be recommended as critical areas to help guide policy.

- Research is needed to determine the actual costs for providing a quality K-12 online and blended learning experience. To date the vast majority of literature related to the cost of K-12 online and blended learning has focused on funding in relation to brick-and-mortar schooling.
- Research is needed to determine the appropriate criteria for making initial judgments about the potential of K-12 online and blended learning schools, as well as identifying appropriate means of regular evaluation. At present there is a wide range of policies and procedures relating to approval and ongoing monitoring.
- Research is needed to determine what constitutes good online teaching, how to effectively prepare teachers for the K-12 online and blended learning environment, and what mechanisms are required to properly evaluate teachers in K-12 online and blended learning environments. It is widely believed that teachers play a fundamental role in the success of students regardless of the setting.
- Finally, additional research is needed to determine whether the business model of for-profit K-12 online and blended learning affects the factors that lead to a high-quality online learning experience. It is unclear, but essential to know, whether alternative management arrangements for K-12 online and blended learning schools affect the quality of education provided.

It is important to underscore that these are the same two policy recommendations and the same four research foci as were presented in the *Virtual Schools in the U.S. 2015: Politics, Performance, Policy, and Research Evidence* report. As described in the research literature, as well as being evidenced in this report's sections, "the current climate of K-12 school reform [continues to] promote...acceptance of any and all [online and blended] education innovations, despite lack of a sound research base supporting claims that technology in and of itself will improve teaching and learning."¹

Section II

Still No Evidence, Increased Call for Regulation: Research to Guide Virtual School Policy

The research and other literature in the field of K-12 online and blended learning is steadily increasing. However, it is important to note that the expansion of these formats continues to outpace the availability of useful research. In fact, it is common for online learning researchers to begin scholarly articles by commenting on the lack of research supporting its practice. They might cite Rice, who has noted that “a paucity of research exists when examining high school students enrolled in virtual schools, and the research base is smaller still when the population of students is further narrowed to the elementary grades,”² or Barbour and Reeves, who have lamented the absence of rigorous reviews of K-12 online learning programs.³ Further, some researchers point to Barbour’s 2011 review of hundreds of articles from distance education journals in Australia, Canada, New Zealand and the United States and found that fewer than 10% of the published research articles related to K-12 online learning.⁴ There continues to be a dearth of evidence to guide both the practice of and research into K-12 online learning.

A similar lack of research exists to support the more recent practice of K-12 blended learning. For example, in their analysis of trends in blended learning research in dissertations and theses, Drysdale, Graham, Halverson, and Spring found that only 8% of theses and dissertations focused on blended learning in K-12 environments.⁵ In fact, when these authors examined the existing body of research, they found that “research in K-12 contexts was not consistently present until 2008.” Some have argued that “in many ways, [these trends are] indicative of the foundational descriptive work that often precedes experimentation in any scientific field.”⁶ However, given that the practice of K-12 online learning is two and a half decades old and the practice of K-12 blended learning is almost a decade old, some have begun to ask “how long must we wait?”⁷

In the research literature and more general literature related to virtual and blended learning that does exist, the most common topics relate to student performance and student achievement. A body of literature related to policy and governance is also growing. However, to appreciate trends in any of this literature, it is important to have a firm understanding of the different types of virtual and blended learning programs and schools.

Defining and Classifying K-12 Online Learning

There are many different ways to describe K-12 online learning. For example, Clark was one of the first to offer a set of categories to describe K-12 online learning programs, based primarily on the entity responsible for administering the program (see Table 2.1).⁸

Table 2.1. Clark’s seven categories of K-12 online learning programs

Type	Description
State-sanctioned, state-level	Those virtual schools that operate on a statewide level, such as the Florida Virtual School (FLVS) or the Illinois Virtual School (IVHS).
College and university-based	Those independent university high schools or university-sponsored delivery of courses to K-12 students, such as the University of Nebraska-Lincoln Independent Study High School or the University of California College Prep Online.
Consortium and regionally-based	Those virtual schools operated by a group of schools or school districts that pool their resources to participate, such as the Virtual High School (VHS).
Local education agency-based	Those virtual schools operated by a single school or school district, such as the Gwinnett County Online Campus or the Cobb County eSchool.
Virtual charter schools	Those virtual schools created under the charter school legislation that has been passed in many states, such as Connections Academy, also commonly known as cyberschools.
Private virtual schools	Those virtual schools that are operated the same as a brick and mortar private school, such as the Christa McAuliffe Academy in Washington state.
For-profit providers of curricula, content, tool and infrastructure	Those commercial companies that act as vendors for the delivery of courses or the use of course materials, such as APEX Learning or Aventa Learning.

However, even within the United States, it is becoming more difficult to place K-12 online learning programs into specific categories. For example, the St. Clair County Regional Educational Services Agency (RESA) operated a Virtual Learning Academy in Port Huron, Michigan.⁹ As a “regional educational service agency” the St. Clair County RESA is responsible for providing “unique, cost-efficient support services to the county’s seven K–12 public school districts.” Under Clark’s classifications this could make the organization either a “consortium and regionally-based” because it is regionally-based and responsible for multiple school districts, *or* a “local education agency-based” because the 57 Michigan RESAs are actual local education agencies. Moreover, the Virtual Learning Academy is actually a public charter school, making it a “virtual charter school” under Clark’s classifications, compounding categorical confusion.

More recently, as a part of their annual *Keeping Pace with K-12 Digital Learning* reports, Watson, Gemin, Ryan, and Wicks introduced a matrix as a more robust means to describe K-12 online learning programs (see Table 2.2).¹⁰

Table 2.2. Dimensions for describing K-12 online and blended learning programs

Dimension	Variables
Comprehensiveness Reach	District; multi-district; state; multi-state; national; global
Type	District; magnet; contract; charter; private; home
Location	School; home; other
Delivery	Asynchronous; synchronous
Operational control	Local board; consortium; regional authority; university, state; independent vendor
Type of instruction	Fully online; blending online and face-to-face; fully face-to-face
Grade level	Elementary; middle school; high school
Teacher-student interaction	High; moderate; low
Student-student interaction	High; moderate; low

These dimensions provide a more comprehensive means of untangling the overlapping illustrated above. For example, a full-time K-12 online learning school operated by K12, Inc.—the Michigan Virtual Academy, for example—would be described along the following dimensions: state; charter; home; independent vendor; fully online; and elementary, middle school, and high school.

Beyond the dimensions in Watson et al.’s matrix, some other general distinctions have developed within the academic literature.¹¹ For the most part, academic authors have used the term K-12 online learning to refer to the general field. Similarly, within the academic literature the term virtual school is generally used when referring to supplemental forms of K-12 online learning (i.e., where students are enrolled in a brick-and-mortar school, but take one or more courses online to supplement their studies). The term cyber school is generally used when referring to full-time forms of K-12 online learning (i.e., where students are engaged in full-time online instruction and do not attend a brick-and-mortar school at all). However, these general conventions are not used consistently in the academic literature. For example, much of the early literature in the field used the term virtual school as a way to describe the general field of K-12 online learning.¹² Further, many scholars adopt the term in the legislation or policy in the jurisdiction where they are conducting the research. For example, policy in Pennsylvania uses the term cyber charter school and much of the research published on that state also uses that term.¹³ In many states full-time online schools are referred to as virtual charter schools in legislation, and researchers working in those states will often use that term to describe a full-time cyber school.¹⁴ Finally, as much of what is known about the K-12 online learning has come from non-academic organizations, various government agencies, and even the popular media, it is important to note that authors are also inconsistent in how they use the terms online learning, virtual schooling, cyber schooling, or derivatives thereof—often using them interchangeably as synonyms. As a result, the usefulness of existing literature is limited not only by its modest size but by a confusion of terms that creates the problem of sorting out the oranges from the apples.

When the *Virtual Schools in the U.S.: Politics, Performance, Policy, and Research Evidence* report was first released in 2013, many of these academic distinctions had not been fully developed. Therefore, the term “virtual school” was used to describe online learning programs. However, the performance and policy sections of these annual reports have always focused

exclusively on full-time virtual schools. The research section has been the only exception to this pattern, as it has included research into both full-time and supplemental virtual schools. In this section, the term “virtual schools” will continue to be used as a general term to describe online learning programs—with careful attention to including detail on whether the research is focused on full-time or supplemental virtual schools.

Research into the Effectiveness of Virtual Schooling

When examining the research into the effectiveness of virtual schooling, it is important to note the specific nature of the program or school itself. For example, those students who are engaged in full-time programs (that is, students are not registered in a brick-and-mortar school, but take all of their instruction online) are generally registered directly and only in their virtual school. Because the virtual school is the school of record, it administers all statewide testing requirements and the results are associated only with that virtual school. In such cases, researchers can determine how students in a full-time K-12 virtual school perform in comparison to students in brick-and-mortar schools or to a statewide average. However, there is now a substantial body of research examining the effectiveness of supplemental virtual schooling (that is, students take one or more online courses, but are registered in a brick-and-mortar school). In these cases, students are formally registered in the brick-and-mortar school and are not—for state reporting purposes—part of the K-12 supplemental virtual school cohort. This context is important because it means that for the vast majority of supplemental virtual schools, the state has no formal reporting requirement and researchers aren’t able to access independent or state-generated data on those programs. As a result, in many instances the research conducted on these programs has focused on non-mandatory assessments given to both school-based and online students, or it has used Advanced Placement (AP) exam scores.

Effectiveness of Full-Time Virtual Schools

While much of the earlier research literature focused on examining the effectiveness of supplemental virtual schooling, the past five years have seen a dramatic increase in research focus on the effectiveness of full-time virtual schooling. It is interesting that much of this research has come from legislative audit divisions, which have greater access to data than academic researchers or investigative journalists. As part of government systems, legislative audit divisions can often access student data completely linked to all of a student’s characteristics. In contrast, an academic researcher or investigative journalist has access only to de-identified data to ensure students’ privacy. This means that legislative audit divisions can make comparisons that academic researchers or investigative journalists cannot. For example, the following section of this report provides data for full-time online schools and compares their performance or their students’ characteristics against averages for the state. However: these comparisons were made only made at the school level because privacy issues preclude access to individual student data.

Table 2.3 presents a summary of the results for students in the full-time K-12 online learning environment, which are quite disheartening.

Table 2.3. Summary of research related to the effectiveness of full-time K-12 online learning

Study	Finding
Colorado (2006)	“Online student scores in math, reading, and writing have been lower than scores for students statewide over the last three years.” ¹⁵
Kansas (2007)	Full-time K-12 online students in Kansas scored lower on state assessments than traditional students, particularly in mathematics. ¹⁶
Ohio (2009)	Online charter school students experienced significantly lower achievement gains compared to brick-and-mortar charter schools in the state. ¹⁷
Wisconsin (2010)	“Virtual charter school pupils’ median scores on the mathematics section of the Wisconsin Knowledge and Concepts Examination were almost always lower than statewide medians during the 2005-06 and 2006-07 school years.” ¹⁸
Idaho (2010)	“Students in virtual charter schools generally achieve proficiency in reading and language arts at lower rates than students in non-charter public schools. Students in virtual charter schools consistently achieve proficiency in mathematics at lower rates than students in non-charter public schools. Students in charter schools generally achieve proficiency at higher rates in all subjects than students in virtual charter schools and non-charter public schools.” ¹⁹
Colorado (2011)	“Half of the online students wind up leaving within a year. When they do, they’re often further behind academically than when they started.” ²⁰
Minnesota (2011)	“Compared with all students statewide, full-time online students had significantly lower proficiency rates on the math MCA-II but similar proficiency rates in reading.” ²¹
Arizona (2011)	“Nearly nine of every 10 students enrolled in at least one statewide online course, all had graduation rates and AIMS math passing rates below the state average” ²²
Ohio (2011)	“Nearly 97 percent of Ohio’s traditional school districts have a higher score than the average score of the seven statewide” online charter schools. Those schools in Ohio also underperformed brick-and-mortar schools in graduation rates. ²³
Pennsylvania (2011)	100% of these online charter schools performed significantly worse than feeder schools in both reading and math. ²⁴
National (2012)	“Students at K12 Inc., the nation’s largest virtual school company, are falling further behind in reading and math scores than students in brick-and-mortar schools.” ²⁵
Ohio (2014)	Cyber charter “schools experienced lower student performance than their traditional counterparts.” ²⁶
Kansas (2015)	Online students (which included a combination of full-time and supplemental students) performed at similar levels in reading, but that online students performed at lower levels in mathematics compared to their face-to-face counterparts. ²⁷
National (2015)	“Across all tested students in online charters, the typical academic gains for math are -0.25 standard deviations (equivalent to 180 fewer days of learning) and -0.10 (equivalent to 72 fewer days) for reading.” ²⁸

Georgia (2015)	“In 2012-13, none of Georgia’s three statewide fully online schools: 1) met all of the standardized assessment goals included in their respective charter contracts; 2) outperformed the state average score on the state accountability metric; or 3) outperformed the state on the value-added performance analysis, which evaluates a school’s impact while controlling for student characteristics.” ²⁹
Tennessee (2016)	“The scores are generally lower [for the full-time cyber schools] than the scores of the districts that established the schools” ³⁰
Ohio (2016)	“Across all grades and subjects, students who attend e-schools perform worse on state tests than otherwise-similar students who attend brick-and-mortar district schools, even accounting for prior achievement” ³¹
North Carolina (2017)	“Both virtual charter schools received an overall School Performance Grade of D... Both virtual charter schools received a School Performance Grade of C in Reading and an F School Performance Grade in Mathematics.” ³²

Whether the format of the research was academic, independent state audit, or investigative journalist’s report, the main theme from this body of work is that in a full-time virtual school setting student performance is considerably poorer than the performance of students in a face-to-face learning environment. In fact, the only groups that have found positive results for full-time virtual schooling have been advocacy organizations supporting charter schools and school choice—and the for-profit corporations operating many virtual schools.³³

These results are consistent with the performance of full-time virtual schools depicted in the previous section of this report. For example, it was reported there that less than one-third of virtual schools were rated as acceptable based on state accountability measures. Virtual schools operated by for-profit educational management organizations (EMOs) had the lowest percentage of acceptable ratings (23%); virtual schools operated by nonprofit EMOs or that were independent performed somewhat better (33% and 38% acceptable, respectively). District-operated virtual schools were rated as acceptable more than twice as often as virtual charter schools (i.e., ~55% compared to 26%).

Studies finding that full-time virtual schools, particularly those operated as charter schools and/or by for-profit EMOs, perform poorly have become so routine that even the

National Alliance for Public Charter Schools issued a 2016 report concluding:

- compared to traditional public school students, full-time virtual charter school students have much weaker academic growth overall;
- full-time virtual charter schools perform worse than traditional public schools in most states;
- all subgroups of students have weaker academic growth in full-time virtual charter schools than in traditional public schools; and
- the vast majority of full-time virtual charter schools perform worse than traditional public schools.³⁴

Because many of the full-time virtual schools are operated as virtual charter schools, the fact that “the leading national nonprofit organization committed to advancing the public charter school movement” has reached these conclusions is telling.³⁵

The operators of full-time virtual schools—often from the for-profit sector—will argue that these results are due to the fact that their programs cater to a weaker class of students, students at-risk, perhaps already multiple grade levels behind and so on. However, research into the characteristics of students enrolled in full-time virtual schools tells a different story. In considering all of the normal markers or demographic predictors as to whether a student is at risk, full-time online learning programs enroll:

- approximately the same percentages of Black students but substantially more White students and fewer Hispanic students relative to public schools in the states in which the company operates,
- fewer full-time online learning students who qualify for free or reduced lunch compared to the same-state comparison groups,
- a slightly smaller proportion of students with disabilities than schools in their states and in the nation as a whole, and
- significantly fewer students classified as English language learners.³⁶

Even more interesting was that the same study reported that full-time online learning programs tended to enroll four times the proportion of gifted students than the same-state comparison group.

This is consistent with the demographic data provided in the previous section of this report regarding students attending full-time virtual schools.

- The proportion of Black and Hispanic students was noticeably lower in full-time virtual schools,
- Considerably fewer low-income students enrolled in full-time virtual schools.
- The number of special education students in virtual schools was close to the national average for that population of students.
- Strikingly fewer students classified as English language learners enrolled in full-time virtual schools.

Beyond the findings from the annual the *Virtual Schools in the U.S.: Politics, Performance, Policy, and Research Evidence* reports, the limited literature available on the topic of student demographics is somewhat mixed. For example, in their examination of student enrollment from 2010-11 in Ohio's full-time virtual schools, Wang and Decker similarly found that the virtual schools had a disproportionately lower proportion of minority and limited English proficiency students.³⁷ However, they also found that virtual schools had higher proportions of economically disadvantaged students and students with disabilities. Another of the independent academic studies to examine the nature of full-time virtual school students focused on special education students in Pennsylvania from 2005 to 2009; it found that the population of full-time special education students in virtual schools mirrored the population of brick-and-mortar special education students.³⁸ A similar study that examined full-time virtual school enrollments from 2008-09 to 2011-12 reported that the population of full-time students with an individual education plan was higher, but that students of color were under represented.³⁹

Unlike the independent literature that clearly indicates full-time virtual school students are

performing poorly, the research into the characteristics of students enrolled in full-time virtual schools is less uniform. Still, the available data allows for the assertion that the uniformly poor student performance in virtual schools comes from—at best, students similar to their counterparts in face-to-face schools or—at worst, from a group of students stronger than their classroom counterparts.

Effectiveness of Supplemental Virtual Schools

While the focus of this report is full-time virtual schools, research into the effectiveness of supplemental virtual schooling merits discussion because considerable thematic consistency appears in its findings. This is not surprising, since the supplemental format is one of the earliest forms of virtual schooling, offered primarily through statewide programs. The table below outlines a selection of research over the past 15 years that compares student performance in supplemental virtual schooling and in face-to-face environments.

Table 2.4. Summary of research related to the effectiveness of supplemental virtual schooling

Study	Finding
Bigbie & McCarroll (2000)	Over half of the students who completed FLVS courses scored an A in their course and only 7% received a failing grade. ⁴⁰
Cavanaugh (2001)	“Effect size slightly in favor of K-12 distance education.” ⁴¹
Cavanaugh et al. (2004)	“Small negative effect size for K-12 distance education.” ⁴²
Cavanaugh et al. (2005)	FLVS students performed better on a non-mandatory assessment tool than students from the traditional classroom. ⁴³
McLeod et al. (2005)	FLVS students performed better on an assessment of algebraic understanding than their classroom counterparts. ⁴⁴
Means et al. (2009)	“Small effect size favoring online cohorts over face-to-face cohorts based on limited K-12 studies.” ⁵
Chingos & Schwerdt (2014)	FLVS students perform about the same or somewhat better on state tests once their pre-high-school characteristics are taken into account.” ⁴⁶

While there are a few exceptions, the main trend from these studies is that students enrolled in supplemental virtual schooling perform as well as or a little better than their classroom-based counterparts. However, it is important to examine this superficial trend in greater depth.

There are potential methodological limitations in these studies. For example, in the classroom setting, all students who are present complete formal assessments. However, in a virtual school setting—where often no physical proctor is present—the percentage of students who complete what is often a non-mandatory assessment is somewhat lower than in classrooms. Further, there is often a fairly high attrition rate in virtual schools, indicating that weaker students may have already been removed from the virtual learning sample. The table below provides a selection of examples of such methodological issues in the studies listed above in Table 2.4.

Table 2.5. Methodological issues with the supplemental K-12 online learning samples in comparative studies

Study	Sample
Bigbie & McCarroll (2000)	“Between 25% and 50% of students had dropped out of their FLVS courses over the previous two-year period.” ⁴⁷
Cavanaugh et al. (2005)	“Speculated that the virtual school students who did take the assessment may have been more academically motivated and naturally higher achieving students.” ⁴⁸
McLeod et al. (2005)	“Results of the student performance were due to the high drop-out rate in virtual school courses.” ⁴⁹

In addition, a well-documented retention issue⁵⁰ affects the methodological validity of this research. In fact, studies’ descriptions of students indicate a highly selective population in supplemental programs—or at least in those programs represented in the research literature (see Table 2.6).

Table 2.6. Description of students enrolled in supplemental virtual schooling based on the research

Study	Sample
Kozma et al. (1998)	“Vast majority of VHS students in their courses were planning to attend a four-year college.” ⁵¹
Espinoza et al., 1999	“VHS courses are predominantly designated as ‘honors,’ and students enrolled are mostly college bound.” ⁵²
Roblyer & Elbaum (2000)	“Only students with a high need to control and structure their own learning may choose distance formats freely.” ⁵³
Clark et al. (2002)	“IVHS students were highly motivated, high achieving, self-directed and/or who liked to work independently.” ⁵⁴
Mills (2003)	“Typical online student was an A or B student.” ⁵⁵
Watkins (2005)	“45% of the students who participated in e-learning opportunities in Michigan were either advanced placement or academically advanced students.” ⁵⁶

One of the best summaries of this situation was provided by Rice (2006), who described research on the effectiveness of supplemental virtual schooling as being “challenged with issues of small sample size, *dissimilar comparison groups*, and differences in instructor experience and training” (emphasis in original).⁵⁷ She finished by stating that “the effectiveness of distance education appears to have more to do with who is teaching, *who is learning*, and how that learning is accomplished, and less to do with the medium” (emphasis in original).

In her assessment, Cavanaugh (2013) indicated that research into the effectiveness of supplemental virtual schooling “suggests that as distance education is currently practiced, student learning on average in well-designed online elementary and secondary environments appears to be equivalent to learning in a well-designed classroom environment.”⁵⁸ Yet to date, the selective group of students that have been enrolled in supplemental virtual school environments have largely underperformed—regardless of how well-designed the virtual learning opportunity was. Over the past decade, there has been a dramatic increase in the number of students engaged in supplemental virtual schooling that are not reflective of this

highly engaged, highly capable student.

Interestingly, much of the growth in supplemental virtual schooling during this period has been with students often described as at-risk.⁵⁹ Many of these at-risk students are engaged in supplemental K-12 virtual schooling in the form of online credit recovery. Recently, several studies have examined the performance of students enrolled in online credit recovery situations (see Table 2.7).

Table 2.7. Research into student performance in online credit recovery

Study	Finding
Hughes, Zhou, & Petscher (2015)	<ul style="list-style-type: none"> Likelihood of a student earning a grade of C or better was higher when a course was taken online than when taken face-to-face, both for general courses and credit recovery courses.⁶⁰
Heppen, Allensworth, Sorensen, Rickles, Walters, Taylor, Michelman, & Clements (2016)	<ul style="list-style-type: none"> Students found the online course more difficult and had more negative attitudes about mathematics than students in the face-to-face course. Online course students had lower algebra assessment scores, grades, and credit recovery rates than face-to-face course students. Longer-term academic outcomes were not significantly different for students in the online and face-to-face credit recovery courses.⁶¹
Stevens, Frazelle, Bisht, & Hamilton (2016)	<ul style="list-style-type: none"> Slightly less than 60% of online credit recovery students receive a passing grade, with passing rates lowest in math and English language arts. Students who take one online credit recovery course per semester have lower passing rates than those who take multiple courses in a semester.⁶²
Stallings, Weiss, Maser, Stanhope, Starcke, & Li (2016)	<ul style="list-style-type: none"> Little difference between the short-term success rates of students who completed state-supported online credit recovery and students who completed other credit recovery options. On measures of longer-term success, students who completed state-provided online credit recovery courses and did not subsequently drop out were more likely than other credit recovery students to graduate on time.⁶³

As the range of students taking supplemental virtual schooling broadens, so does variability in results. All four of these studies found that online credit recovery was an effective way for at-risk students to make up courses that they had initially failed. However, only two of the studies examined the impact on long-term student learning and success. Both found that online credit recovery actually hindered long-term knowledge retention and/or future success in the subject area of recovered credits.⁶⁴

Overall, the evidence seems to indicate that whether virtual schooling is full-time or supplemental, its implementation in the United States has been largely ineffective. Further, it appears that success in the virtual school environment often has more to do with the individual students being served than it does with the conditions of a virtual learning experience.

It is interesting to note that one of the few direct comparisons of the different modalities has been provided by research conducted by the Michigan Virtual Learning Research Institute. Over the past three years, researchers there have consistently found that students in that state who have enrolled in the Michigan Virtual School have had a higher completion/passing rate than students enrolled in online courses offered by local school districts, both of which had higher completion/passing rates than the state's full-time cyber schools.⁶⁵ Such findings should prompt practitioners, policymakers, and researchers to examine the ways that more successful virtual schools are designed, delivered and supported in order to identify promising practices and policies that can be implemented to foster successful forms of virtual schooling.

Defining Blended Learning

Unlike K-12 online learning, which is easily distinguished by the geographic separation of the teacher and student, K-12 blended learning is a little harder to define. At its broadest level, blended learning simply refers to:

any time a student learns at least in part at a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path, and/or pace; often used synonymously with hybrid learning.⁶⁶

Basically, if students are engaged in both face-to-face and online learning as a part of their formal studies, then they are engaged in some form of blended learning. This description is consistent with Graham's definition that "blended learning systems combine face-to-face instruction with computer-mediated instruction" (such as online learning).⁶⁷

Regardless of the specific definition adopted, K-12 blended learning—like K-12 online learning—may take several different formats. The Christensen Institute has completed the majority of descriptive work related to the K-12 blended learning models. At present, there are four main models: rotation, flex, self-blend, and enriched-virtual.⁶⁸ In the rotation model, a program is organized around different learning formats—one of which is online learning. Students can rotate among four different instructional modalities: individually, based on their personal needs (individual rotation); or through each of the stations provided in a single classroom (station rotation); or through different classrooms or labs within the school (lab rotation); or as a group through flipped classrooms (flipped classroom).⁶⁹ In the flex model, students complete most of their instruction online, but may interact with their teacher and/or other students for tutoring, small group instruction or group projects. The self-blend model is described in a way that aligns with common descriptions of supplemental K-12 online learning (that is, student takes some courses online and some courses in the classroom). Finally, in the enriched-virtual model, all courses include both online and classroom-based instruction.

One of the difficulties with both defining and classifying blended learning is the distinction between blended learning and technology integration. In fact, Barbour has argued that outside of the United States, blended learning is seen as a form of technology integration.⁷⁰ For example, as a part of the *State of the Nation: K-12 Online Learning in Canada* report, Barbour reported that:

while blended learning is occurring across Canada, practitioners do not always

consider it part of the distance education or online learning movement. Within the Canadian context blended learning is largely considered an extension of effective ICT, or effective technology integration—to use more of an American phraseology. Many teachers not directly involved with K-12 distance education may not realize they are practicing blended learning according to the iNACOL definition.⁷¹

This perspective is consistent with the national policies of several Asian and Oceanic nations.⁷² For example, the New Zealand Ministry of Education defines e-learning as “learning and teaching that is facilitated by or supported through the smart use of information and communication technologies.”⁷³ Essentially, the use of e-learning in the classroom can be placed on a spectrum with a traditional classroom with no technology on one end and a completely online classroom on the opposite end. Any type of technology usage by the teacher and/or the students could be placed at some point on this e-learning spectrum, and many examples of that technology integration could be described as blended learning using US-based definitions.

Another factor that complicates the understanding of blended learning is the fact that in some instances it is applied to a complete school while in other instances it simply refers to the actions of one or more teachers. For example, the models of blended learning provided by Horn and Staker above can be applied to both complete schools or to individual programs within a school. In fact, if you consider the ways in which blended learning has been defined (that is, blending some form of face-to-face and online instruction), the vast majority of blended learning occurring in the United States is likely not happening at the school level. This means that researchers are limited in their ability to examine the effectiveness of blended learning—beyond instances where a full school is organized as one of the blended learning models. However, even within those complete school environments researchers are still largely unable to discern the level of blending that is occurring (that is, how much online instruction is required for a school to be considered a blended learning school). In many cases, then, scholars are forced to rely upon schools to self-identify as blended learning schools or to have proponents of blended learning identify schools based on their knowledge of the programming. However, many schools identified by proponents are identified specifically for ideological reasons or advocacy purposes.

A final confounding factor is that because blended learning is often viewed as growing out of online learning in the United States, many earlier K-12 blended learning programs are actually referred to as K-12 online learning programs. One example is the Odyssey Charter School in Las Vegas, Nevada.⁷⁴ As Barbour and Plough described, at the high school level students are required to physically attend the school for one four hour session per week (one morning or afternoon). During this session, the students take one face-to-face class for two of the four hours. The remaining two hours they can work on their online courses or meet with their online teachers. With the exception of this weekly four-hour block, students are expected to work on their online courses outside of the school on their own time. Based on the Christensen Institute’s models of blended learning, Odyssey Charter School follows a flex model of blended learning. However, the school self-identifies as a cyber or online charter school. These issues outline some of the challenges that make examining the research into K-12 blended learning, including student success in this environment, problematic.

Research into the Effectiveness of K-12 Blended Learning

There is much less empirical literature examining the effectiveness of K-12 blended learning and blended schools than there is for virtual schooling. For example, the Christensen Institute and the Evergreen Education Group produced 12 specific case studies focused on how traditional brick-and-mortar schools improved student performance by incorporating blended learning.⁷⁵ One of these briefs focused on the District of Columbia Public Schools, where the authors say the district made significant investments in the redesign of 17 schools to incorporate blended learning; according to the district, student performance improved as a result—as indicated by higher increases in scores on standardized math and reading test scores. Another brief focused on a high school in Salt Lake City that was specifically designed to cater to students who were assigned to alternative schools or who had dropped out of the district’s three high schools. In this instance, the blended learning school reported a higher graduation rate than the district and the state. In considering such examples, it is worth noting that both of the authoring organizations promote online learning. The Evergreen Education Group describes its work as “helping to lay the groundwork for growth of digital learning and inform legislators and other policymakers about the latest developments in the field,”⁷⁶ while the education focus of the Christensen Institute is on increasing access to and use of personalized and blended learning, as well as on promoting competency-based education.⁷⁷ Given those missions, it is not surprising that organizational researchers didn’t explore whether blended learning itself or the fact that an entire school had been created to address the needs of a specific student population caused the high graduation rate in the Salt Lake City school. Similarly, researchers didn’t consider whether the increased investment in resources and teacher training to use those resources had caused the improved student performance in the DC schools. In both instances, blended learning was the only variable considered.

Similarly, the Hybrid Learning Institute studied the performance of students in 31 different hybrid or blended learning programs and found that students in blended environments outperformed their counterparts in traditional classroom settings. Interestingly, in reporting these results the Hybrid Learning Institute indicated that:

each month, program analysts track the fidelity of program implementation and help identify areas that require more training or resources. Periodically, program managers review the intended outcomes with key teachers and administrators to make adjustments. The idea is to improve the program while it is still going on, not just after it is over.⁷⁸

This model of continuous monitoring and improvement is consistent with the model of design-based research advocated by Barbour and Reeves as:

a methodology which is conducted in cycles to allow for results from the intervention to be included in improving the intervention before the next cycle, while developing design principles and theories to explain those results and guide further refinements in the intervention.⁷⁹

In this case, then, it is unclear whether the results touted by the Hybrid Learning Institute resulted from the blended learning programs...or from the design-based research model of continuous monitoring and improvement. These kinds of problematic studies have led Murphy, Snow, Mislavy, Gallagher, Krumm, and Wei to conclude after examining student performance in a series of blended learning schools that “claims are made about the relative effectiveness of various blended learning models relative to more traditional forms of

instruction, but thus far little evidence has been collected to back these [actual] claims.”⁸⁰ Essentially, these studies have resulted in little evidence focused specifically on the effectiveness of blended learning; what they have shown instead is that when blended learning creates systematic change within a school or a district, student performance can be impacted.

In fact, beyond those organizations are that are proponents of educational reform—and have a natural affinity for online and blended learning initiatives (the Christensen Institute, Evergreen Education Group, Hybrid Learning Institute, and others)—as Murphy and colleagues indicated, there is little evidence to support the use of blended learning in the K-12 environment.

As one example, in a study of the effectiveness of online and blended learning in both the K-12 and higher education environments, Means, Toyama, Murphy, and Baki found in their meta-analysis that student performance in face-to-face courses was higher than in blended learning environments.⁸¹

Beginning with the *Virtual Schools in the U.S. 2016: Directory and Performance Review* report, the annual National Education Policy Center study began reporting on student performance in blended schools. In the 2016 report, Miron and Gulosino found that students attending full-time online schools did worse than students in traditional brick-and-mortar settings, and that students attending blended learning schools did even worse than students in full-time online settings.⁸² In this year’s “Full-Time Virtual and Blended Schools” section, Miron and his colleagues again reported that while blended schools performed better in comparison to their virtual school counterparts, the blended school student performance and on-time graduation rate was still less than their traditional brick-and mortar counterparts.

It is important to remember that much of the research described above has focused on schools that have adopted a particular blended learning model for the whole school. However, it is assumed that much of the blended learning that is occurring is by individual teachers in individual classrooms, rather than in whole school models. At this time, there is little research on such blended learning—because typically it is difficult to identify the performance of a single class or group of students taught by a single teacher within a larger school. For example, Davis reported on seven initial studies that found modest gains in favor of specific classes of individual teachers using blended learning techniques and tools.⁸³ As these kinds of studies are small, and often use non-standardized and non-validated instruments, they provide little guidance for the field in general. But studies like this do highlight the potential of blended learning under certain circumstances. As Enyedy reminds us:

it may be that we need to turn to new ways of conceptualizing the role of technology in the classroom—conceptualizations that do not assume the computer will provide direct instruction to students, but instead will serve to create new opportunities for both learning and teaching.⁸⁴

The whole school models of blended learning are based on the belief that the computer can, at least some of the time or for certain topics, provide direct instruction to students. However, the instances of blended learning often happening at the classroom level and led by individual teachers frequently focus instead on how technology can change the learning and teaching process for those students and that teacher.

Research on Key Policy Issues Related to Virtual and Blended Learning

Given the poor student performance consistently found in full-time virtual schools and the questionable student performance reported in supplemental virtual schools, as well as the more general lack of research to support the use of blended learning, one would expect that K-12 policymakers would be interested in enacting regulation to more effectively monitor and govern virtual and blended schools. However, as has been highlighted in the National Education Policy Center's *Virtual Schools in the U.S.: Politics, Performance, Policy, and Research Evidence* reports in 2014 and 2015,⁸⁵ as well as in the following "Key Policy Issues in Virtual Schools" section, this expectation has generally not been the case. Similarly, as highlighted in previous editions of this report, the research focused on the key policy issues has remained relatively consistent.

Accountability and Funding

The *Virtual Schools in the U.S. 2014: Politics, Performance, Policy, and Research Evidence* report indicated that the primary way states had attempted to hold virtual and blended schools accountable has been through the performance of students on statewide standardized assessments. Researchers and the corporate EMOs have both argued that standardized testing, and the subsequent mechanism to determine annual yearly progress based on that single session testing (among other items) are not reliable measures of student performance.⁸⁶ However, even in jurisdictions where performance growth is factored into the measure of school performance (as in Colorado), full-time virtual schools still perform poorly.⁸⁷ As was detailed in the 2015 *Virtual Schools* report, calls for both improved accountability systems specific to virtual and blended schools date back more than a decade.⁸⁸ Yet, the Michigan Virtual Learning Research Institute reported that very few states have any accountability system beyond the initial front-end approval of virtual and blended schools.⁸⁹

In the months following the National Education Policy Center's 2015 report, the Center for Reinventing Public Education released its portion of a larger three-part study of full-time online charter schools.⁹⁰ The findings in that report mirrored many of the results from the earlier Michigan Virtual Learning Research Institute examination:

- many states have initial approval requirements, but very few have any form of on-going review or accountability,
- only nine states have regulations requiring online and blended schools to provide technology to low-income students,
- a small, but growing number of states have additional reporting requirements for online charter schools (beyond the requirements of brick-and-mortar schools), and
- some states have begun to question the actual independence of nonprofit charter boards from their for-profit EMOs.

One of the important aspects to remember is that in their concluding thoughts, the authors of the Center for Reinventing Public Education report wrote "many states have unique legal requirements related to online charter authorizing, reporting, and operating, but no single state has a complete and robust legal framework for online charter schools." The same is also true for K-12 blended schools.

Similarly, in the introduction to the 2016 report *A Call to Action to Improve the Quality of Full-Time Virtual Charter Public Schools* from the National Alliance for Public Charter Schools, the 50-State Campaign for Achievement Now, and the National Association of Charter School Authorizers, the authors stated:

The well-documented, disturbingly low performance by too many full-time [online and blended learning] schools should serve as a call to action to state leaders and authorizers across the country. It is time for state leaders to make the tough policy changes necessary to ensure that this model works more effectively than it currently does for the students it serves. It is also time for authorizers to close chronically low-performing virtual charter public schools.⁹¹

Further, the authors of the *Call to Action* report included a number of policy recommendations designed to address the deficiencies of virtual charter schooling, without impacting the ability for traditional brick-and-mortar charter schools to continue to proliferate. However, there was an overall recommendation that is worth repeating: “states may need to consider governing full-time virtual charter schools outside of the state’s charter school law, simply as full-time virtual charter schools.” This is an important acknowledgement—particularly from organizations whose sole purpose is to advocate for increased opportunities for charter schools (as many of the virtual and blended schools discussed in this report are), in that it recognizes that educating a child in a largely independent, often home-based environment is critically different from, and should be regulated differently than, educating a child in a traditional face-to-face, brick-and-mortar school.

In terms of virtual and blended school funding, it is important to underscore that both the 2014 and 2015 versions of the *Virtual Schools in the U.S.: Politics, Performance, Policy, and Research Evidence* report emphasized that except for reports from the providers of virtual and blended schools themselves and their main advocacy organization (the International Association for K-12 Online Learning), all of the literature has indicated that virtual and blended learning costs less to provide than face-to-face instruction.⁹² However, virtual charter schools still tend to be funded at the same or similar levels as brick-and-mortar charter schools—in 11 out of 16 states examined by International Association for K-12 Online Learning); where virtual charter schools received less funding, the reduction was only 5% or 8% in three of the five remaining states.⁹³ It is also worth noting that an analysis of full-time virtual charter schools in Pennsylvania found that all but one reported “significant surpluses of revenue over expenses and [were] amassing significant net assets.”⁹⁴

A few jurisdictions have made changes have to the funding regime for virtual and blended learning. At present four states fund virtual schools using a competency-based system (Florida, Minnesota, New Hampshire, and Utah).⁹⁵ In each of these, the model is somewhat different. For example, two states allow for the virtual school to receive partial payment for the full time equivalent funding (New Hampshire and Utah). The state determines completion of a competency in three of these jurisdictions (Florida, Minnesota, and Utah), while the teacher is the determiner in New Hampshire. Each state has a different standard to measure competency. No research has yet been published on how these funding models have impacted student performance. However, the Consortium for Policy Research in Education report did indicate that the “completion-based funding system reduced the total amount of funding received by online charter schools in New Hampshire and Florida,”⁹⁶ although they also suggested that in the case of New Hampshire the online charter school would “eventually earn all of the funding that [was] available to them” (that is, the student would eventually complete the entire course; it just might take longer than a single semester or school year).

The research in this area is consistent with the analysis of proposed and enacted legislation described in the following “Key Policy Issues in Virtual Schools” section of this report, where Huerta and his colleagues outline an increase in legislative interest in addressing the accountability and funding challenges of virtual schools. Yet, to date these efforts have generally failed to result in concrete mechanisms to provide oversight and/or accountability.

Virtual Course and Program Quality

Like this year’s report, previous versions of this annual report have focused the issue of virtual course and program quality based on certain student performance measures, as described in Section 1 (primarily comparisons of student test scores and completion rates in virtual and blended environments with those in face-to-face environments). However, there is a larger issue of virtual course and program quality. For example, the Michigan Virtual Learning Research Institute outlined a series of virtual and blended course and program quality variables that should be considered when considering regulation (see Table 2.8).⁹⁷

Table 2.8. Variables related to the evaluation and approval process for virtual schools

Level of Evaluation and Approval		
Provider level		Course level
Approval Requirement		
Optional approval		Required approval
Geographic Reach		
Multi-district	Multi-district & single district	Single district
Delivery Model		
Fully online		Blended
Evaluation and Approval Procedures		
Front-end approval	Front-end approval & ongoing monitoring	Annual monitoring / audits

In their analysis of approval and evaluation processes across the fifty states, the authors identified isolated examples of effective regime for many of these variables individually. However, as the Center for Reinventing Public Education report stated, “few state laws provide...guidance to ensure robust performance outcomes or instructional quality in the online environment.”⁹⁸

One reason for the lack of robust regime to determine virtual course and program quality may be the lack of specific measures available to legislators and policymakers. For example, Barbour, Clark, DeBruler, and Bruno noted that the International Association for K-12 Online Learning has produced several guide to assist policymakers in determining how to measure virtual course and program quality.⁹⁹ However, none of the guides was based on any independent research; instead, they were largely the creation of stakeholders from the virtual and blended learning community. In fact, Adelstein and Barbour have been examining the validity of the International Association for K-12 Online Learning *National Standards for Online Courses* as a part of a longitudinal, three-part study (content validity using existing research, expert panel review, and application of the revised rubric to determine inter-rater reliability).¹⁰⁰ At each stage of the process, the authors found that there were certain stan-

dards that simply were not supported. In the end, the authors concluded that the rubric based on these standards could not meet a reliability threshold as currently constructed.

In fact, to date there have only been two research initiatives designed to create standards to measure K-12 online course and program quality—both of which have focused on the online course design. The first was the NetCourse Evaluation Board, created by the Virtual High School in 1998 to provide instructors with standards and support for designing online courses.¹⁰¹ While somewhat dated, the design principles developed as a part of this design-based research model still represent some of the most comprehensive research in the field to date.¹⁰² The second was the Quality Matters standards,¹⁰³ which were originally focused on higher education; but, in 2010, Quality Matters partnered with the Florida Virtual School to develop a K-12 version of its standards and rubric.¹⁰⁴ Unfortunately, Quality Matters' annual subscription fee puts the use of these standards beyond the reach of many K-12 online and blended learning programs. The age of the Virtual High School standards and the proprietary nature of the QM standards are likely some of the reasons why states like California, Michigan and Texas have selected the non-research-based International Association for K-12 Online Learning standards as a means to evaluate online courses in those states. This is unfortunate, given that the “digital tools available to virtual schools allow them to gather large amounts of student data relative to traditional schools and open the door to frequent formative assessments rather than just point-in-time assessments such as end-of-grade tests” or the initial K-12 online and blended learning program approval.¹⁰⁵ However, as Huerta and his colleagues conclude in the following section, there has been “little continued progress over the past year in proactively addressing issues related to instructional program quality.”

Preparing Teachers for Online and Blended Environments

The 2014 and 2015 versions of the *Virtual Schools in the U.S.: Politics, Performance, Policy, and Research Evidence* report noted that while a growing number of universities have begun to offer graduate certificates in online teaching,¹⁰⁶ a 2007 study found that fewer than 40% of K-12 online teachers received any form of professional development before they began teaching online¹⁰⁷; a 2012 study of teacher education programs found that less than 2% provided any content related to online and blended learning.¹⁰⁸ Like many other policy issues, teacher preparation or development is muddled by the lack of available research into best practice or promising practices related to the design, delivery and support of virtual learning. And yet, a growing number of states have introduced online teaching standards or certifications.¹⁰⁹

Interestingly, a 2016 replication of an earlier study of teacher education programs found a small expansion in the number of programs that included content related to K-12 online and blended learning (3.5% of responding teacher education programs, compared to 1.3% in 2012).¹¹⁰ In a similar study of nine states that offered some form of online teaching endorsement or certification, McAllister and Graham found that 37 of the 248 possible higher education institutions (or approximately 15%) offered a specific online teaching program.¹¹¹ It is such limited progress that led Archambault, Kennedy, Shelton, Dalal, McAllister, and Huyett to conclude that “while signs of progress are evident, significant work to move the field forward with respect to K-12 online teacher preparation remains.”¹¹² Archambault et al.'s conclusion is also consistent with what Huerta and his colleagues will report in the following section.

Summary

In the NEPC's *Virtual Schools in the U.S. 2015: Politics, Performance, Policy, and Research Evidence* report, we described the situation in Michigan where legislators lifted a ban on virtual charter schools, allowing two to be operated by the major for-profit EMOs.¹¹³ The legislation limited the growth of the two new virtual schools during the first two years, and then the Department of Education was tasked with determining future enrollment limits based on the student performance in those programs. However, following two years of sub-par student performance, and only months before the review from the Department of Education would have occurred, legislation was passed in 2012 to remove all meaningful restrictions on the number and enrollment levels of virtual schooling in the state.

Some have suggested that a profit motive for the corporate EMOs that manage so many of virtual and blended charter schools works against quality in many schools

That same year the Michigan legislature also directed the Michigan Virtual University to create a Michigan Virtual Learning Research Institute and assigned as one of its duties to “analyze the effectiveness of online learning delivery models... [by] highlighting enrollment totals, completion rates, & the overall impact on pupils.”¹¹⁴ From an external perspective, it would seem that the purpose of such a report would be to provide specific data that would help guide legislators and policymakers in Michigan in making decisions about governance and regulation of supplemental and full-time virtual schools, as well as those schools that self-identified as blended schools. However, this has not been the case. In *Michigan's K-12 Virtual Learning Effectiveness Report*, which covered the 2012-13 school year, the authors indicated that the enrollment in virtual learning had doubled over the prior two years. However, the authors also reported that the virtual charter schools had significantly higher rates of students withdrawing from full-time virtual schools, as well as a slightly higher failure rate.¹¹⁵ The following year, the author of the report indicated that there was still an approximate 25% difference in the completion rate of virtual students compared to that of face-to-face students. Interestingly, while full-time virtual charters and district-based supplemental programs performed poorly, students attending the state-funded Michigan Virtual School performed much better.¹¹⁶ Similarly, *Michigan's K-12 Virtual Learning Effectiveness Report 2014-15* also reported an approximate 30% difference in the completion rate of virtual students compared to that of their face-to-face counterparts. There also continued to be more than a 20% difference between the completion rate of students in full-time virtual charter schools and the state-funded Michigan Virtual School.¹¹⁷

Since this consistently negative data was reported by an independent body specifically tasked with providing the information, one would expect that legislators and policymakers would have moved to enact measures to improve the quality of education provided by the full-time virtual charter schools and/or to foster the success experienced by state's own supplemental virtual program. However, as highlighted in the NEPC's *Virtual Schools in the U.S.: Politics, Performance, Policy, and Research Evidence* reports in 2014 and 2015,¹¹⁸ as well as in the following section, this has not been the case.

The lack of action, at least in the case of Michigan, is not due to a lack of data to guide legislators and policymakers. In fact, since the creation of the Michigan Virtual Learning Research Institute, Michigan has been among the leading states when it comes to the availability of research. Some have suggested that a profit motive for the corporate EMOs that manage so many of virtual and blended charter schools works against quality in many schools.¹¹⁹ The

The lack of action, at least in the case of Michigan, is not due to a lack of data to guide legislators and policymakers. In fact, since the creation of the Michigan Virtual Learning Research Institute, Michigan has been among the leading states when it comes to the availability of research. Some have suggested that a profit motive for the corporate EMOs that manage so many of virtual and blended charter schools works against quality in many schools.¹¹⁹ The

profit motive was highlighted in a recent series entitled “Rewarding Failure: An *Education Week* Investigation of the Cyber Charter Industry,” where reporters found “exclusive data on how rarely students use the learning software at Colorado’s largest cyber charter, the questionable management practices in online charters, and how lobbying in scores of states helps keep the sector growing.”¹²⁰ In fact, Prothero reported that the two major corporate EMOs spent more than \$14.5 million on lobbying since 2000 (and stated “that dollar amount is likely an underestimate”).¹²¹ A combination of poor student performance and negative media around these lobbying activities recently led to shareholders calling on K12, Inc.—the largest of the two main corporate EMOs for full-time virtual schools—to “disclose its multimillion-dollar state lobbying activities and spending to investors.”¹²² While the measure was ultimately defeated, “nearly 30 percent of shareholders voted for the proposal.”¹²³ In addition to lobbying efforts, it is also worth noting that K12, Inc. was found to have spent over \$21 million dollars on advertising in just an eight-month period in 2012 (the most recent public data available).¹²⁴ Given the amounts of money being spent on lobbying and advertising by corporate EMOs, it is understandable that they oppose any legislative effort to regulate their activities. What is clear from such actions is that those providing many of the full-time virtual and blended learning opportunities are less interested in providing a quality education based upon promising practices from research than on generating profit. As described in detail in the following “Key Policy Issues in Virtual Schools” section, the result is best summarized by *Education Week* reporter Arianna Prothero—“a mix of weak state regulations, the millions of dollars spent on lobbying, and the support of well connected allies.”¹²⁵

Recommendations

Beyond the earlier general recommendation from the National Alliance for Public Charter Schools, the 50-State Campaign for Achievement Now, and the National Association of Charter School Authorizers that virtual and blended schools should be regulated in a manner that is consistent with the kind of learning they provide, based on the research in the field it is again recommended that:

1. Policymakers regulate the growth and geographic reach of full-time, taxpayer-funded virtual schools. At present there are serious questions about the effectiveness of many models of virtual schooling. Until these questions can be adequately addressed, policymakers should focus their efforts on promoting virtual school models shown to be successful while limiting those that have had questionable student performance.
2. State and federal policymakers create long-term programs to support independent research on and evaluation of virtual schooling, particularly full-time virtual schooling. More than twenty years after the first virtual schools began, there continues to be a dearth of empirical, longitudinal research to guide the practice and policy of virtual schooling.

In terms of the specific research that is needed, the following topics continue to be recommended as critical areas to help guide policy.

- Research is needed to determine the actual costs for providing a quality K-12 online and blended learning experience. To date the vast majority of literature related to the cost of K-12 online and blended learning has focused on funding in relation to brick-and-mortar schooling.

- Research is needed to determine the appropriate criteria for making initial judgments about the potential of K-12 online and blended learning schools, as well as identifying appropriate means of regular evaluation. At present there is a wide range of policies and procedures relating to approval and ongoing monitoring.
- Research is needed to determine what constitutes good online teaching, how to effectively prepare teachers for the K-12 online and blended learning environment, and what mechanisms are required to properly evaluate teachers in K-12 online and blended learning environments. It is widely believed that teachers play a fundamental role in the success of students regardless of the setting.
- Finally, additional research is needed to determine whether the business model of for-profit K-12 online and blended learning affects the factors that lead to a high-quality online learning experience. It is unclear, but essential to know, whether alternative management arrangements for K-12 online and blended learning schools affect the quality of education provided.

It is important to underscore that these are the same two policy recommendations and the same four research foci as were presented in the *Virtual Schools in the U.S. 2015: Politics, Performance, Policy, and Research Evidence* report. As described in the research literature, as well as being evidenced in the proceeding and following sections, “the current climate of K-12 school reform [continues to] promote...acceptance of any and all [online and blended] education innovations, despite lack of a sound research base supporting claims that technology in and of itself will improve teaching and learning.”¹²⁶

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