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Virtual Schools in the U.S. 2021

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May 2021

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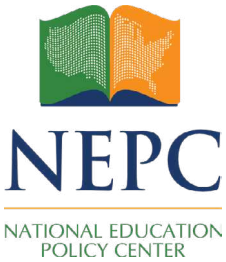
Suggested Citation: Molnar, A. (Ed.), Miron, G., Barbour, M.K., Huerta, L., Shafer, S.R., Rice, J.K., Glover, A., Browning, N., Hagle, S., & Boninger, F. (2021). *Virtual schools in the U.S. 2021*. Boulder, CO: National Education Policy Center. Retrieved [date] from http://nepc.colorado.edu/publication/virtual-schools-annual-2021

Funding: This research brief was made possible in part by funding from the Great Lakes Center for Educational Research and Practice.

GREAT LAKES CENTER
For Education Research & Practice

Peer Review: *Virtual Schools in the U.S. 2021* was double-blind peer-reviewed.



Virtual Schools in the U.S. 2021

Alex Molnar, Series Editor

Executive Summary

Alex Molnar and Faith Boninger
University of Colorado Boulder

May 2021

The COVID-19 pandemic has pushed virtual schooling to the forefront of the national educational landscape. Vendor corporations, tech industry trade associations, philanthropists, and venture capitalists—all of whom have been promoting virtual education for over a decade[1]—quickly positioned digital programs and platforms as the obvious solution for schools that had to close buildings to avoid transmitting the virus.[2]

Some of these technologies did, in fact, help educators connect with their students. But the nation's experience with virtual technologies during the pandemic also revealed fundamental limitations of these approaches and spotlighted serious problems with the rosy vision of a bright new virtual future. Hackers disrupted district connections,[3] held student personal data for ransom,[4] and "zoom bombed" classes.[5] Teachers, students, and parents struggled—with mixed success—to adjust to the virtual education technologies. Parents, when turned to for needed supports, found that they often lacked the time, resources, and knowledge required to meaningfully engage in the technological programming offered.[6] Many students and parents were sidelined altogether because they lack access to broadband, computers, and other digital necessities.[7]

For some students and schools, the pandemic-era turn to new technologies included substantial positives that they plan to build upon in the future.[8] But for the long-standing advocates of these technologies, such isolated movement is not sufficient. Despite the nation's widespread dissatisfaction with the shortcomings of digital technologies, proponents have continued to frame digital options not only as schools' go-to response to the pandemic, but also as a leap forward into a post-crisis "new normal" for the core education infrastructure in a radically altered school environment.[9]

Promoted by an array of financial incentives and well-funded and aggressive advocacy, full-time virtual schools (also sometimes referred to as virtual charter schools, virtual acade-

mies, online schools or cyber schools) have attracted a great deal of attention. Their proponents continue to make the case that virtual schools can beneficially expand student choices while improving the efficiency of public education.[10] They claim, for example, that online curriculum can be tailored to individual students more effectively than curriculum in traditional classrooms, giving it the potential to promote greater student achievement than can be realized in traditional brick and mortar schools.[11] The research evidence, however, tells a different story. Most importantly, it does not support claims that virtual education produces better student outcomes, as compared to conventional face-to-face approaches to teaching and learning in brick-and-mortar schools. In fact, full-time virtual schools, in particular, have yielded very poor outcomes.[12] Moreover, the use of digital platforms and learning programs is tied to significant threats to the integrity of schools' curriculum and instruction programs, their student assessments, and their data collection and record-keeping practices.[13] Compared to the surface transparency of traditional textbooks, tests, and record books, there is much hidden behind the proprietary curtain of virtual technologies.[14]

Purpose of This Report

Virtual Schools in the U.S. 2021 provides scholarly analyses of the characteristics and performance of full-time, publicly funded K-12 virtual schools; reviews the relevant available research related to virtual school practices; provides an overview of recent state legislative efforts to craft virtual school policy; and offers policy recommendations based on the available evidence. This report is organized into three sections:

- Section I, *Full-Time Virtual and Blended Schools: Enrollment, Student Characteristics, and Performance*, documents the number of virtual and blended-learning schools, their student characteristics, and their performance.
- Section II, *Research into Virtual and Blended Schools: A Lasting Legacy of Little Impact*, reviews the relevant available research literature.
- Section III, *Key Policy Issues in Virtual Schools: Finance and Governance, Instructional Quality, and Teacher Quality*, provides a review of recent policymaking related to virtual schools.

The number of students enrolled in virtual schools in the U.S. continues to grow. In 2019-20, 477 full-time virtual schools enrolled 332,379 students, and 306 blended schools enrolled 152,530. Enrollments in virtual schools increased by approximately 34,600 students between 2017-18 and 2019-20, and enrollments in blended learning schools increased by approximately 19,500 during this same time period. Virtual schools enrolled fewer minority students and substantially fewer low-income students compared to national public school enrollment.

Virtual schools operated by for-profit EMOs were more than 3.5 times as large as other virtual schools, enrolling an average of 1,384 students. In contrast, those operated by nonprofit EMOs enrolled an average of 395 students, and independent virtual schools (not affiliated with an EMO) enrolled an average of 407 students. With high student-teacher ratios and little or no need to pay for facilities, transportation, breakfast and lunch programs, and other

operating costs, these for-profit virtual schools realize substantial cost savings compared to brick and mortar schools, and therefore are able to profit from current school funding formulas.

Among virtual schools, far more district-operated schools achieved acceptable state school performance ratings (50.7% acceptable) than did charter-operated schools (35.2% acceptable). Relatively more schools operated by nonprofit EMOs performed acceptably: 64.3% of these schools received acceptable ratings, compared with 44.1% acceptable ratings for "independent" schools operated with minimal EMO involvement and 37.2% acceptable ratings for schools operated by for-profit EMOs. Among blended learning schools, the highest performance was seen by charter schools (50.7% acceptable) and lowest performance by the subgroup of schools operated by for-profit EMOs (19.4% acceptable). In the middle were district-operated blended-learning schools (37.8% acceptable). The graduation rates of 54.6% in virtual schools and 64.3% in blended schools fell far short of the overall average national graduation rate of 85%. District-operated schools reported higher graduation rates than charter schools for both virtual (+9.6 percentage points) and blended (+3.5 percentage points).

Very little research on K-12 virtual school practices is available to credibly guide policymakers in their work. A small number of prolific authors conducted much of the published research.[15] Authors with little to no experience with the field conducted the rest, publishing in outlets that also have little experience with the field.[16] Additionally, most of the research focuses on the United States, despite the international proliferation of K-12 virtual schooling.[17]

It is unsurprising, therefore, that NEPC researchers found little evidence of research informing state legislative action on virtual schools in 2019-20. Policymaking was only rarely carried out in the crucial areas of virtual school finance and governance, instructional quality, and teacher quality. In 2019, of the 58 bills considered in 23 states; 17 were enacted while 41 failed. In 2020, of the 59 bills considered in 23 states, 9 were enacted, 42 failed and 8 are pending. In total, fewer than 25% of proposed bills were enacted in 2019 and 2020. Fifty-one bills in 2020 responded to the COVID-19 pandemic (18 were enacted, 18 failed, and 15 are still pending). These pandemic-related bills rarely offered state-level guidance to school districts. Instead, they mandated, in broad strokes, the use of virtual schooling in the 2020-21 school year.

The pandemic exacerbated a trend that NEPC virtual schools' reports have documented since 2013. While it is clear that virtual schools—particularly for-profit virtual schools—are expanding rapidly, there remains little research evidence to support or justify the expansion. Moreover, there is little policymaking at the state level adequate to the task of ensuring the quality of education that virtual school students receive.

Select Recommendations Arising from Section I

It is recommended that policymakers:

- Require federal and state education agencies to accurately identify and monitor full-

time virtual and blended schools, remedying gaps in information on their performance;

- Use performance data to inform funding decisions; and
- Sponsor research on virtual and blended learning programs and classroom innovations within traditional public schools and districts.

Select Recommendations Arising from Section II

It is recommended that policymakers:

- Create goals for a comprehensive research program designed to help develop policy for, and improve practice in, virtual and blended schools; and
- Either create new independent entities, or support existing ones, charged with undertaking long-term research programs to evaluate virtual and blended schools.

Select Recommendations Arising from Section III

It is recommended that policymakers:

- Develop new funding formulas based on the actual costs of operating virtual schools;
- Develop guidelines and governance mechanisms to ensure that virtual schools do not prioritize profit over student performance;
- Require high-quality curricula, aligned with applicable state and district standards, and monitor changes to digital content;
- Define certification training and relevant teacher licensure requirements specific to teaching responsibilities in virtual schools, and require research-based professional development to promote effective online teaching; and
- Identify and maintain data on teachers and instructional staff that will allow education leaders and policymakers to monitor staffing patterns and assess the quality and professional development needs of teachers in virtual schools.

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Section I
Full-Time Virtual and Blended Schools: Enrollment, Student Characteristics, and Performance

Gary Miron, Nathan Browning, and Shelby Hagle[i]
Western Michigan University

May 2021

Executive Summary

This is NEPC's eighth national report on virtual and blended learning schools over the past decade. Full-time virtual schools deliver all curriculum and instruction via the Internet and electronic communication, usually asynchronously with students at home and teachers at a remote location. Full-time blended schools combine virtual instruction with traditional face-to-face instruction in classrooms. Evidence indicates that student and school characteristics differ considerably from characteristics of traditional public schools. School performance outcomes are also very different from outcomes in traditional public schools.

A detailed overview and inventory[1] of full-time virtual and blended learning (hybrid) schools are included in this section. Also included are key findings related to student demographics, school characteristics, and state-specific school performance measures. Data for both virtual and blended schools indicate that they are performing poorly, a finding that has not changed in these reports or other national studies. Even while outcomes are often abysmal, enrollment growth has continued. Dominating this sector are for-profit education management organizations (EMOs) that operate exceedingly large virtual schools. School districts are becoming more active in opening virtual schools, but district-run schools have typically been small, with limited enrollment.

[i] Jessica R. Polling and Qi Jing, both graduate students in the Evaluation, Measurement, and Research program at Western Michigan University, contributed to the data collection phase of this project.

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Current Scope and Growth of Full-Time Virtual Schools and Blended Learning Schools

- In 2019-20, 40 states had virtual or blended learning schools. There were 477 full-time virtual schools that enrolled 332,379 students, and 306 blended schools that enrolled 152,530. Enrollments in virtual schools increased by nearly 30,000 students between 2017-18 and 2019-20 and enrollments in blended learning schools increased by just under 20,000 during this same time period.
- Virtual schools operated by for-profit EMOs were close to 3.5 times as large as other virtual schools. They enrolled an average of 1,384 students. In contrast, those operated by nonprofit EMOs enrolled an average of 395 students, and independent virtual schools enrolled an average of 407 students.
- Although profit and nonprofit EMOs operated only 38.4% of full-time virtual schools, those schools enrolled 64% of all virtual school students.
- About half of all virtual schools (49.9%) were charter schools, but together they accounted for 75.8% of enrollment. While districts have been increasingly creating their own virtual schools, those tended to enroll far fewer students.
- In the blended sector, nonprofit EMOs operated 30.1% of schools, and for-profit EMOs operated 14.4%. Over half (55.6%) of blended schools were independent. Blended schools operated by for-profit EMOs had largest average enrollments (876 students per school). There were more charter schools (58.8%) than district schools (41.2%), and the charters had substantially larger average enrollments (623) than districts (321).

Student Demographics

- Virtual schools enrolled fewer minority students and substantially fewer low-income students compared to national public school enrollment.
- The overall proportion of low-income students in blended schools was slightly higher than the national average; however, those operated by nonprofit EMOs enrolled a substantially higher proportion of low-income students than their for-profit counterparts. Blended schools had a higher proportion of Hispanic students relative to national enrollments.
- Although special education data was available for relatively few virtual and blended schools, the proportion of special education students in virtual schools with data was half the national average, while blended schools with data enrolled only a slightly lower proportion than the national average.
- Virtual schools enrolled relatively few English language learners (ELLs) compared to the national average. Blended schools enrolled slightly higher proportion of ELL students.

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- While the population in the nation's public schools as well as in blended schools split nearly evenly between females and males, virtual schools enrolled more females (53.4%).

Student-Teacher Ratio

- The average student-teacher ratio in the nation's public schools was 16 students per teacher. Virtual schools reported having 1.7 times as many students per teacher (27), and blended schools reported some 1.5 times as many (24).
- Higher numbers of students per teacher at virtual and blended schools was associated with lower graduation rates and school performance ratings.

School Performance Findings

- Because many states continue to have frozen accountability systems or to have implemented new systems excluding overall school ratings, only 28 of 40 states with virtual and/or blended schools had data on school performance available. Still, compared to prior reports, much more data was available overall. In states with ratings, only 17.8% (formerly 56%) of virtual schools and 8.9% (formerly 50%) of blended schools were unrated. In terms of total schools in this inventory, 29.9% of virtual schools and 48.7% of blended schools were in states not providing overall performance ratings.
- Overall, many virtual and blended schools continued to receive low performance ratings, with the proportion of acceptable ratings for virtual schools dropping this year to 42.8%. Blended schools did slightly better, with 44.1% rated acceptable.
- Among virtual schools, far more district-operated schools achieved acceptable performance ratings (50.7%) than charter-operated schools (35.2%). More schools operated by nonprofit EMOs performed acceptably (64.3%) compared to independent schools (44.1%) and to for-profit EMOs (37.2%). The pattern among blended learning schools was similar in regard to EMOs, but the charter school acceptable rate (50.7%) was higher than the district school rate (37.8%). For-profit EMO schools had the worst ratings, with only 19.4% found acceptable.
- Although the overall performance of virtual and blended schools was poor, the report highlights some exceptions as well as a few examples of especially poorly performing states.
- On-time graduation data were available for 310 full-time virtual schools and 176 blended schools. The graduation rates of 54.6% in virtual schools and 64.3% in blended schools fell far short of the overall average national graduation rate of 85%, but this is an improvement since 2017-18.
- District-operated schools reported higher graduation rates than charter schools for both virtual (+9.6 percentage points) and blended (+3.5 percentage points).

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Recommendations

In light of current evidence that full-time virtual and blended learning schools continue performing poorly, it is recommended that policymakers:

- Require federal and state education agencies to accurately identify and monitor full-time virtual and blended schools, remedying gaps in information on their performance.
- Ensure and enforce sanctions for virtual and blended schools performing inadequately.
- Use performance data to inform funding decisions.
- Establish requirements for reduced student-to-teacher ratios.
- Slow or stop the growth in these sectors until all reasons for their relatively poor performance have been identified and addressed.
- Sponsor research on virtual and blended learning programs and classroom innovations within traditional public schools and districts.
- Sponsor evaluations of promising models for virtual and blended learning schools, including district efforts born of the pandemic.
- Convene events with scholars, practitioners, representatives from state and federal education agencies, and other policymakers to more carefully design a model for full-time virtual schools. Such a model should include finance and oversight mechanisms ensuring that virtual schools focus on the interests of taxpayers and students, not of corporations.

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Section I

Full-Time Virtual and Blended Schools: Enrollment, Student Characteristics, and Performance

Gary Miron, Nathan Browning, and Shelby Hagle
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May 2021

Introduction

Over the past decade, the National Education Policy Center has issued research reports on full-time virtual schooling at the primary and secondary levels;[2] full-time blended learning schools were added to the reports in 2015. In addition to a wide range of related policy issues, topics have included who is enrolling in virtual schools and how those schools are performing. As an annual inventory, the reports are intended as a key research-based effort to track developments nationwide.

This edition contains detailed descriptions of full-time virtual and full-time blended schools operating during the 2019-20 school year. Findings suggest that the launching of new schools in those sectors has slowed, and fewer new schools are meeting criteria for inclusion in our reports. Although the number of schools has changed little, the average size of schools continues to increase, producing net enrollment increases. Growth continues despite predominantly negative evidence about virtual and blended school outcomes.

That said, as researchers and educators we note that we remain optimistic that virtual innovations can yet succeed and, despite limited research, may already be improving as school or district programs rather than as stand-alone schools. We recognize that many individual teachers across various school types are innovating and implementing blended learning models that may be having better outcomes than their stand-alone counterparts. Such innovations, however, are beyond the scope of this report and its focus on full-time virtual and blended schools.

This edition for the 2019-20 school year details student demographics, key school character-

istics, school performance, and sector growth. Research questions thus include:

- How many full-time virtual and blended schools operate in the U.S.? How many students do they enroll?
- What are the key organizational characteristics of these schools and who operates them?
- What are the demographic characteristics of students enrolled? How do students enrolled in virtual and blended schools differ from those enrolled in brick-and-mortar schools?
- How do virtual and blended schools perform in terms of such measures as school performance ratings and graduation rates?

Student demographics reported include grade level, race-ethnicity, sex, socioeconomic status, special education status, and English language learner status. Data on school performance includes a comparison of aggregate performance ratings and, when available, national norms. Also included are data on student-teacher ratios.

Data Sources, Selection Criteria, and Aggregate Calculations

The findings presented here are based on publicly available data for the 2019-20 school year, collected, audited, and warehoused by public authorities. Data came primarily from state education agencies, sometimes supplemented by information from school and district websites. Data for missing student demographics and school characteristics came from the National Center for Education Statistics (NCES), although in some cases the most recent was for 2018-19.

The first research phase research involved verifying that previously identified schools continue operating and identifying new schools. To foster comprehensiveness and accuracy, many calls and emails requested information from schools and districts, and those schools with available and functioning email addresses received invitations to review and verify or correct our data.

As noted above, the scope of this inventory is limited to full-time, public elementary and secondary virtual and blended schools in the U.S. These include schools operated by for-profit and nonprofit Education Management Organizations (EMOs) as well as independent schools (those not privately managed). Among schools included are charters and state- or district-managed schools. Private schools—those funded in whole or part by tuition and fees, with no public funds)—are excluded because no relevant data is available from state or federal agencies. Also excluded are schools offering a combination of programs, including traditional face-to-face programs as well as virtual or blended options, unless it was possible to separate data for the full-time virtual or blended school components.

Schools were identified by their unique NCES ID code or, for relatively new schools, by unique building or state-assigned school ID codes. These criteria helped identify and ex-

clude smaller district programs and schools not intended to be full-time, but to simply offer some virtual learning experience for a subset of students.[3] All schools included had evidence of enrollment during the 2019-20 school year, although schools enrolling fewer than 10 students were excluded. Such restrictions allow for more confidence in attributing various outcomes to specific types of schools.

The primary sources for data on total enrollment, student demographics, school characteristics and school performance were state-level datasets and school report cards for the 2019-20 school year. The most recent data available (2018-19) for grade level enrollment, race-ethnicity, and sex came from NCES (the Common Core of Data).

In many instances, aggregated data for virtual and blended schools reflect weighted means that have been calculated so that the influence of any given school is proportional to its enrollment. Where possible, comparisons were made to norms for all public schools in the United States.

Exclusions and Additions Between 2017-18 and 2019-20 School Years

The current study includes 477 virtual schools and 306 blended learning schools. The process to identify potential schools, review them, and make decisions to include or exclude them was complex.

We initially identified nearly 400 additional schools since our report for 2017-18 school year, and we revisited close to 200 schools identified earlier but excluded from the prior inventory. After closely vetting these schools, we found 215 schools that had closed or been reconfigured. Eleven percent (64) had closed in either 2018 or 2019. We found that another 64 were programs or other entities not meeting our definition of a school. Close to 60 schools we considered make use of extensive technology, but they did not meet our definition as either full-time virtual or blended. A total of 57 schools under consideration simply had too little information available to determine whether to include them; many of these were approved in 2019-20 but were planned to open for the 2020-21 school year. Interestingly, a quarter of all schools we initially identified were eventually excluded because they either had no or fewer than 10 students in 2019-20, they had just closed, or they proved to be a program within a school or district. Most schools excluded for these reasons were district-operated virtual schools.

In general, after vetting hundreds of schools, we found the net number of virtual schools had decreased slightly and the number of blended learning schools increased slightly over the past two years. Although there were large fluctuations in the numbers of schools that were screened and eventually added or excluded from the inventory, the overall numbers of schools remained similar to the last few years. Interestingly, while the number of schools has not changed dramatically in recent years, overall enrollments in the virtual and blended schools continues to grow. This can be explained by increased enrollments in existing schools, and also the the fact that schools that closed or were excluded from the inventory tended to have very low enrollments so that the removal of scores of small schools had little impact on overall enrollment trends.

Limitations

Readers should keep several general limitations in mind; such limitations are common to research in this area, although reports do not always acknowledge them.

Incomplete demographic, class size, and performance data. The tables and records in this inventory have several gaps that reflect missing data. Some states combine virtual school data with local district data in ways that make disaggregation impossible. For example, while data on student ethnic background and free and reduced-price lunch status is relatively complete, data reported at the district level (including, for example, special education enrollment) is often unavailable. This was particularly problematic in states where charter schools are not considered Local Education Authorities or districts.[4]

Comparison groups. National aggregate results for all public schools provided the base for several comparisons in this report, which profiles 40 states having virtual and/or blended options.[5] While comparisons of two inherently different forms of schooling, each representing different geographic datasets, have some obvious weaknesses, national aggregate data is what state and federal agencies typically use in their reports and comparisons. Following the agencies' lead is intended to allow reasonable comparison of this report with others. An additional consideration is that, because the 40 states represented are among the largest and most densely populated, the national comparison is informative, if not perfect. It is perhaps also worth noting that the national data include data for full-time virtual and blended schools, although it constitutes a relatively small subset of the data used for this study.

Instability in virtual and blended schools. Full-time virtual and blended schools are rapidly evolving; the number of such schools, their demographic composition, and their current performance data may vary from year to year. When the fluidity of the terrain is layered onto the scope of this attempt to compose a national portrait, some errors of inclusion and exclusion seem likely. Documented corrections to the data are welcome and can be submitted to the authors through the National Education Policy Center. The pandemic and the large enrollment increases in virtual schools during the 2020-21 school year may result in large changes in this sector that have not yet been studied.

Growth and Current Scope of Full-Time Virtual and Blended Schools

Virtual Schools

An array of education services is delivered online. On one end of the continuum, individual courses are delivered to students who are otherwise enrolled in brick-and-mortar schools. The middle terrain includes a wide array of blended programs and schools serving students with a combination of face-to-face and online activities. On the other end of the continuum, full-time virtual schools provide all instruction online.

For the purposes of this report, blended schools are defined as schools in which all students experience the same curriculum and blended instruction, although they vary in how they

combine virtual and face-to-face activities. Full-time virtual and blended schools are especially important to track because they receive full funding for delivering what is supposed to be a full school experience.

Although these schools still account for a relatively small portion of the overall school choice options in the U.S., they constitute a fast-growing enrollment option. As initial evidence suggests, the pandemic that struck in spring, 2020 has resulted in very large growth in this sector. Unfortunately, it is still too early to study the nature and scope of expansion of virtual instruction during the pandemic, and it is still too early to determine to what extent schooling will revert to earlier practices post-pandemic.

Virtual schools overlap with two other choice options: homeschooling and charter schools. For some students, virtual school experience supplements the homeschool experience. In addition, 76% of virtual school students are enrolled in virtual charter schools, making them both virtual school students and charter school students. Appendix I-A contains charts that depict the number of virtual and blended schools and students by state. During the 2019-20 school year, 29 states had full-time virtual schools and full-time blended learning schools. While legislation for virtual schools usually precedes legislation for blended learning schools, five states allowed full-time blended schools to operate not full-time virtual schools: Hawaii, Illinois, New Jersey, Rhode Island and the District of Columbia. Five states have full-time virtual schools although they still do not have full-time blended learning schools.[6, 7]

A total of 477 full-time virtual schools met selection criteria for the 2019-20 school year, 24 fewer schools than the 2017-18 report. Enrollments totaled 332,379 students, indicating an increase of nearly 30,000 students and a growth rate of some 11% since 2017-19 (see Figure 1).

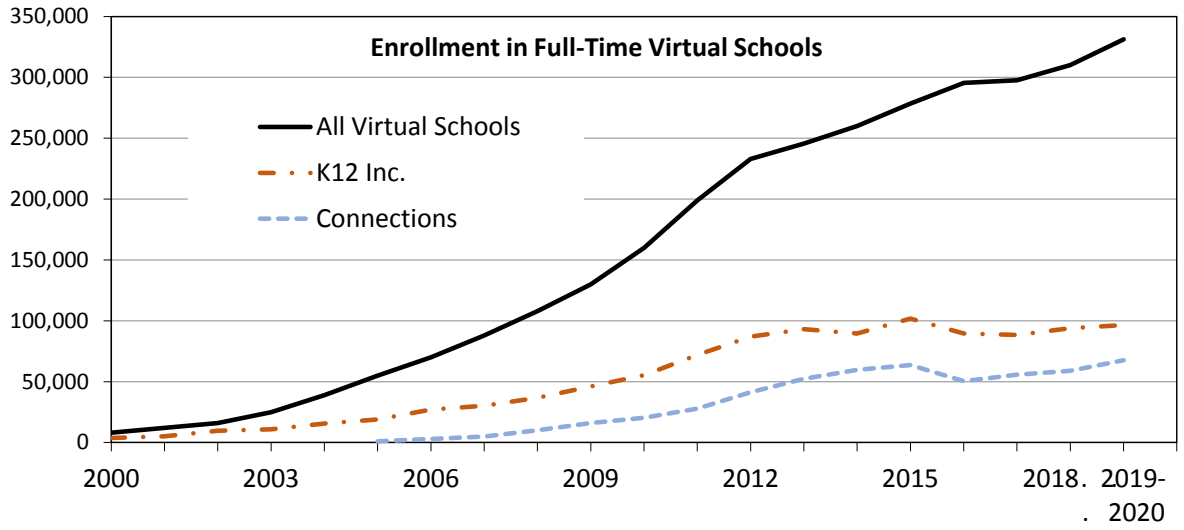
A total of 306 blended schools are included, enrolling 152,530 students. Although the number of blended schools increased by only five, net enrollment increased by just under 20,000 students.

Figure 1 illustrates the estimated enrollment growth in full-time virtual schools over the last two decades.[8] Figure 1 also illustrates the proportion of students in schools operated by the two largest for-profit Education Management Organizations (EMOs), K12 Inc. and Connections Education. K12 Inc. schools accounted for 29.1% of all virtual school enrollments, less than a one percentage point decrease from 2017-18. Connections Education schools accounted for 20.5% of all enrollments, indicating a small increase. Overall, the market share of these two large companies increased slightly since 2017-18, although it is still noticeably lower than 2015-16, when it was 59.5%. Nevertheless, these two key corporate, for-profit players appear to be consistently growing both in the number of schools they operate or work with and the number of students they enroll.

Figure 1 fluctuations for these two for-profit EMOs likely reflect shifts in their relationships with schools, changing from operators of schools to managers of schools or, in some cases, masking relationships entirely by using intermediary nonprofit organizations. For example, these corporations as well as others sometimes shift their relationship with schools from "operators" (EMOs) to "vendors." In these cases, the EMOs are considered outside orga-

nizations providing specific services or products, primarily access to the EMO's learning platform and curriculum.

Figure 1. Enrollment Trends in Full-Time Virtual Schools



New district-operated schools continue to add to the pool of full-time virtual schools, although they still tend to be small relative to virtual charter schools (see Table 1). As noted above, many were excluded from this inventory because they enrolled fewer than 10 students.

In 2019-20, 239 district virtual schools and 238 charter virtual schools were operating. While the number of district schools decreased by 29 schools since 2017-18, net enrollment increased by just over 18,000 students. The number of charter schools increased by five during the same period, and net enrollment increased by 16,400 students.

District schools now account for just over half of all virtual schools, but their share of enrollments is only 24.2%; charters account for 75.8%. Both continue to increase average school size. District average enrollment per school is 337, while charters average 1,059. A possible explanation is that district schools typically serve smaller targeted populations within district boundaries, while charter virtual schools are more likely to target statewide markets. Another possible explanation is that for-profit companies, which prioritize larger school size to maximize profit, rarely operate district virtual schools.

Table 1. Distribution of Virtual Schools and Students Across District and Charter Sectors, 2019-20

	Total Number of Schools in 2019-20	Percent of All Schools	Students	Percent of All Enrollment	Average Enrollment Per School
District	239	50.1%	80,424	24.2%	337
Charter	238	49.9%	251,955	75.8%	1,059
Total for All Virtual Schools	477	100.0%	332,379	100.0%	697

Private EMOs operated 29.8% of all full-time virtual schools, accounting for 59.1% of enrollment (see Table 2). Both nonprofit-EMOs and independent schools gained about a half percentage point in market share over the past two years.

Although charter schools were much more likely than district schools to be operated by a for-profit EMO, 58 district schools were operated by for-profits, primarily K12 Inc.

K12 Inc. remains the largest EMO in this sector; in 2019-20, it operated 71 full-time virtual schools enrolling 96,771 students, an increase of 8,000 students since 2017-18. Connections Education, the second largest for-profit EMO, operated 44 virtual schools enrolling 68,277 students, an increase of some 12,500 students since 2017-18. With six full-time virtual schools, Epic Charter Schools, largely concentrated in Oklahoma, is growing and in 2019-20 enrolled close to 22,000 students.

It is important to note that this report's data on private operators likely under-represents the role of for-profit EMOs. In addition to operating some schools as EMOs, K12 Inc. and Connections also had a vendor relationship with scores of others. When an EMO operates a school, it has executive control of the school, including curriculum and programs, as well as hiring of administrators and teachers. In vendor relationships, the private company typically leases its learning platform and curriculum to the school, which retains management all other aspects, including hiring teachers and administrators. In 2018, California did implement legislation that restricted for-profit EMO management of public schools. However, close examination reveals that minor changes in the language of management agreements and, in many cases, the use of nonprofit intermediary organizations have allowed for-profit EMOs to continue doing business as they did prior to the legislation.

Aside from K12 Inc. and Connections Education, a number of other for-profit EMOs have entered the marketplace, although they still remain relatively small. Given the relatively lucrative circumstances[9] under which full-time virtual schools can operate, however, it is likely that still more for-profit EMOs will expand their business models to include full-time virtual schools.

Variance in the for-profit sector's enrollments is great, with some for-profit EMOs operating schools with more than 10,000 students—and one enrolling more than 14,000 students in a single school unit.

Nonprofit EMOs operated only 41 virtual schools in 2019-20 and increased enrollments by 3,436 students since 2017-18. None are very large or control more a handful of schools. The largest are Learning Matters Educational Group (seven schools), Idaho Virtual Academy (four schools), Compass Charter schools (three schools), and Virtual Education Services Association (three schools).

Independent virtual schools also grew in the last two years, with an addition of 56 schools, although enrollments experienced a net decrease of some 7,000 students. Independent virtual schools averaged 407 students, nonprofit EMO-operated schools averaged 395 students, and—in stark contrast—for-profit EMO-operated schools averaged 1,384 students.

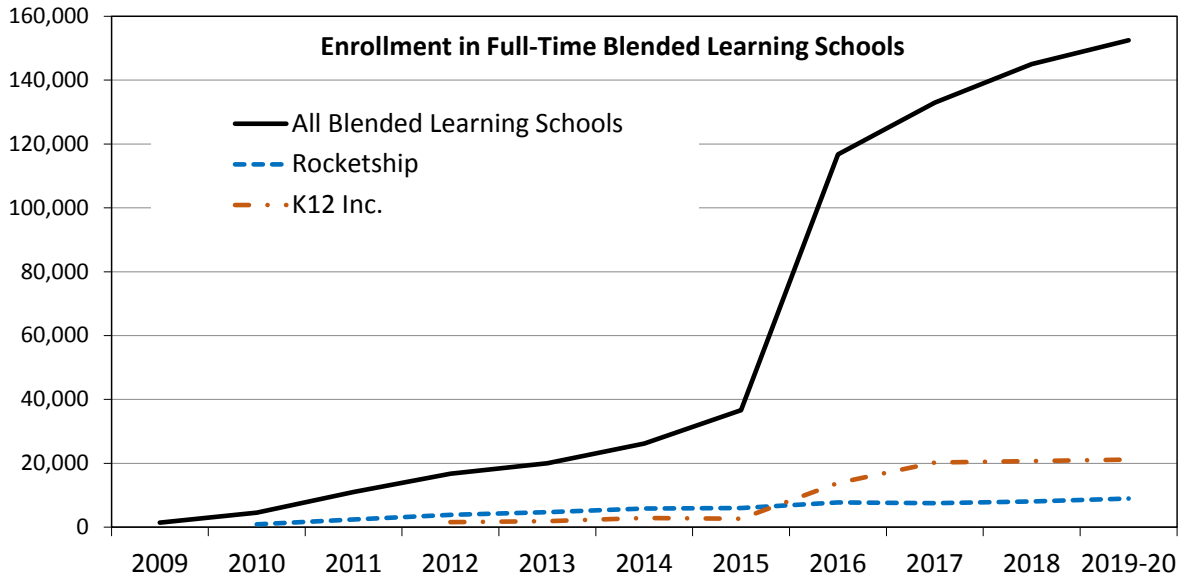
Table 2. Distribution of Virtual Schools and Students by Operator Status, 2019-20

	Total Number of Schools in 2019-20	Percent of All Schools	Students	Percent of All Enrollment	Average Enrollment Per School
Independent	294	61.6%	119,679	36.0%	407
Nonprofit EMO	41	8.6%	16,181	4.9%	395
For-profit EMO	142	29.8%	196,519	59.1%	1,384
K12 Inc.	*(71)*	*(14.9%)*	*(96,771)*	*(29.1%)*	*(1,363)*
Connections	*(44)*	*(9.2%)*	*(68,277)*	*(20.5%)*	*(1,552)*
Total for All Virtual Schools	477	100.0%	332,379	100%	697

Blended Schools

We found 306 blended learning schools enrolling 152,530 students in 2019-20. As Figure 2 shows, blended school enrollments have continued to grow over the past few years, although at a slower rate than was evident between 2015 and 2016. The growth is due both to new schools and to EMO-operated schools increasing average size. The pronounced jump in the number of blended learning schools between 2015-16 and 2016-17 was due to a large number of new schools opening as well as to changes in our data collection methods, which helped identify more schools than previously. Among larger EMOs in this sector, K12 Inc. is the largest for-profit and Rocketship Education the largest nonprofit operator.

Figure 2. Enrollment Trends in Full-Time Blended Schools



Between 2017-18 and 2019-20, the number of blended charter schools increased by only six—but net enrollments increased by nearly 20,000 students. Average enrollments in both district and charter-operated blended learning schools increased. Across all, average enrollment per school grew from 443 in 2017-18 to 498 in 2019-20 (see Table 3).

Table 3. Distribution of Blended Schools and Students Across District and Charter Sectors, 2019-20

	Total Number of Schools	Percent of All Blended Schools	Students	Percent of All Enrollment	Average Enrollment Per School
District	126	41.2%	40,439	26.5%	321
Charter	180	58.8%	112,091	73.5%	623
Total	306	100.0%	152,530	100.0%	498

In 2019-20, 126 blended schools were district-operated and 180 were charter-operated. Enrollments in the charters were substantially larger (623 students per school) than those in district schools (321 students per school). While the charters accounted for 59% of all blended schools, their much larger size accounts for their enrollment of 73.5% of all blended learning students.

Most blended learning schools are district-operated schools with smaller enrollments than those managed by private EMOs (see Table 4). Independents had an average of 397 students per school, nonprofit EMOs an average of 506 students, and for-profit EMOs an average 876 students.

Table 4. Distribution of Blended Schools and Students by Operator Status, 2019-20

	Total Number of Schools	Percent of All Blended Schools	Students	Percent of All Enrollment	Average Enrollment Per School
Independent	170	55.6%	67,410	44.2%	397
Nonprofit EMO	92	30.1%	46,580	30.5%	506
For-profit EMO	44	14.4%	38,540	25.3%	876
Total	306	100.0%	152,530	100%	498

EMOs are largely responsible for enrollment growth in full-time blended learning. As in the virtual school sector, the most involved for-profit EMO is K12 Inc. Its 11 schools enroll just over 21,000 students. Connections Education has also been extensively engaged with blended learning schools (these were earlier called Nexus Schools). Over the last several years, however, Connections has reconfigured its work to allow most schools to select more limited services and supports. For this reason, most of the blended schools affiliated with Connections now have a vendor relationship rather than an EMO relationship. Connections is a subsidiary of Pearson Education, and its reorganized school services now fall within the subsidiary Pearson Online and Blended Learning Services.

Other for-profits operating in this sector include Success VLC (12 schools), Opportunities for Learning Public Charter Schools (four schools), Epic Charter Schools (four schools), and Edtec Central LLC (three schools).

Nonprofit EMOs, however, are much more prevalent in the blended sector than their for-profit counterparts. In total, we identified 30 different nonprofit EMOs operating blended learning schools. The two biggest were Rocketship Education (17 schools) and Alliance College-Ready Public Schools (15). Other nonprofits in this sector include Summit Public Schools (11 schools), SIATech (four), FirstLine Schools Inc. (four), Roads Education Organization (four), Pathways Management Group (three), Cornerstone Charter Schools (three), Education for Change Public Schools (three), and Widening Advancement for Youth (three).

Student Demographics

Data on demographics came primarily from state education agencies for the 2019-20 school year. For a small number of schools lacking readily available data, we used the most recent data from the National Center for Education Statistics, that for 2018-19.

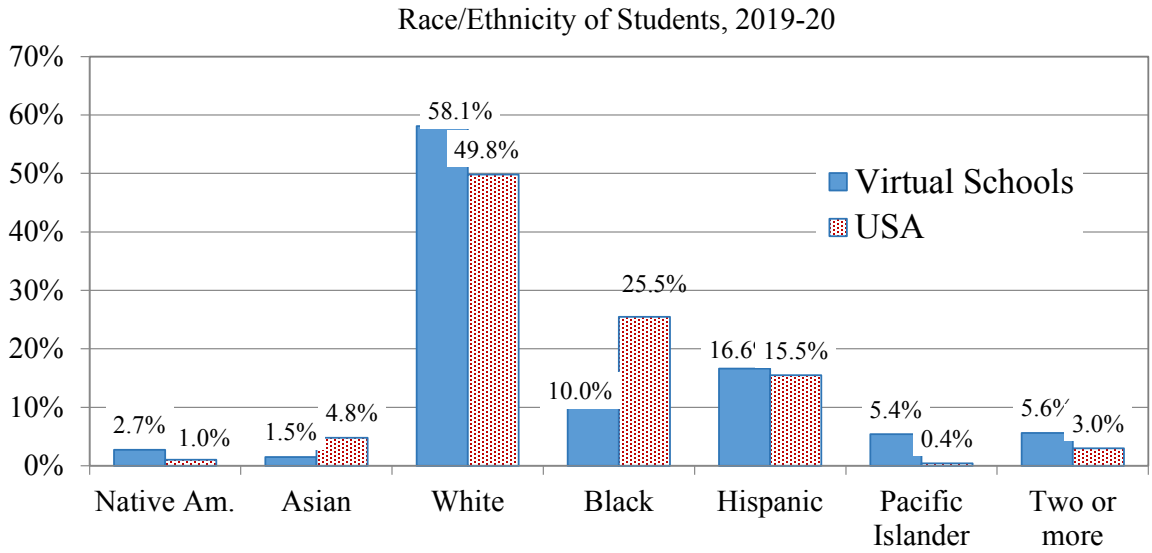
Race-Ethnicity

Data on race/ethnicity was drawn for 386 virtual schools and 263 blended learning schools.

In prior years, the proportion of minority students in virtual schools had slowly increased a few percentage points. Over the last two years, however, the numbers remained largely

unchanged except for a 2% drop in the proportion of Black students and a 5% increase in Native Hawaiian/Pacific Islander students. Aggregate data on student ethnicity from virtual schools continues to differ substantially from national averages.[10] Just over 58% of the students in virtual schools were White-Non-Hispanic while the national mean was 49.8% (see Figure 3). Black and Asian American children were underrepresented relative to the national public school population, while other race/ethnicity groups are relatively similar. The most striking disparity is that only 10% of students in virtual schools were Black while the national average was 25.5%.[11]

Figure 3. Race/Ethnicity of Students in Virtual Schools Compared with National Averages, 2019-20



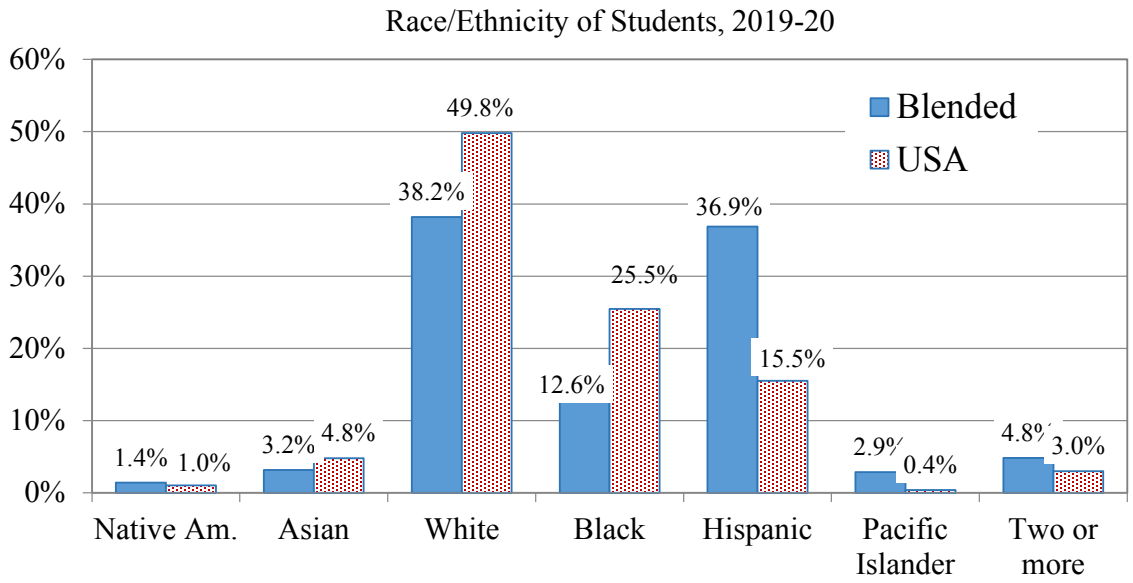
The fact that minority low-income families may have less access to technology may help explain underrepresentation of the Black and Asian American groups, even though some virtual schools lend their students computers and/or pay for internet access. Possible explanations for the over-representation of White students include White flight from urban areas or virtual schools constituting the only viable form of school choice in rural areas with fewer minority students. Also, a 2017 study in Ohio found that students and families appear to self-segregate with low-income, lower achieving White students more likely to choose e-schools and with low-income, lower achieving minority students more likely to choose brick-and-mortar charter schools.[12] These possible explanations warrant further exploration to determine whether they can explain underrepresentation of some ethnic groups.

Figure 4 displays demographics of students enrolled in blended schools. Relative to the student population of virtual schools, the blended school student population better matched national averages. One noteworthy difference is that Hispanic enrollment in blended schools is substantially higher than in traditional public schools. This finding may be explained by the fact that blended learning schools are concentrated in California and Colorado—states with larger concentrations of Hispanic students. As blended schools expand in other states,

it is likely that the overall proportion of Hispanic enrollments will more closely resemble the national average.

As was true for full-time virtual schools, Black students are substantially underrepresented in blended learning; Blacks comprise only 12.6% of enrollment in blended learning schools compared to 25.5% of national public school enrollment.

Figure 4. Race/Ethnicity of Students in Blended Schools Compared with National Averages, 2019-20



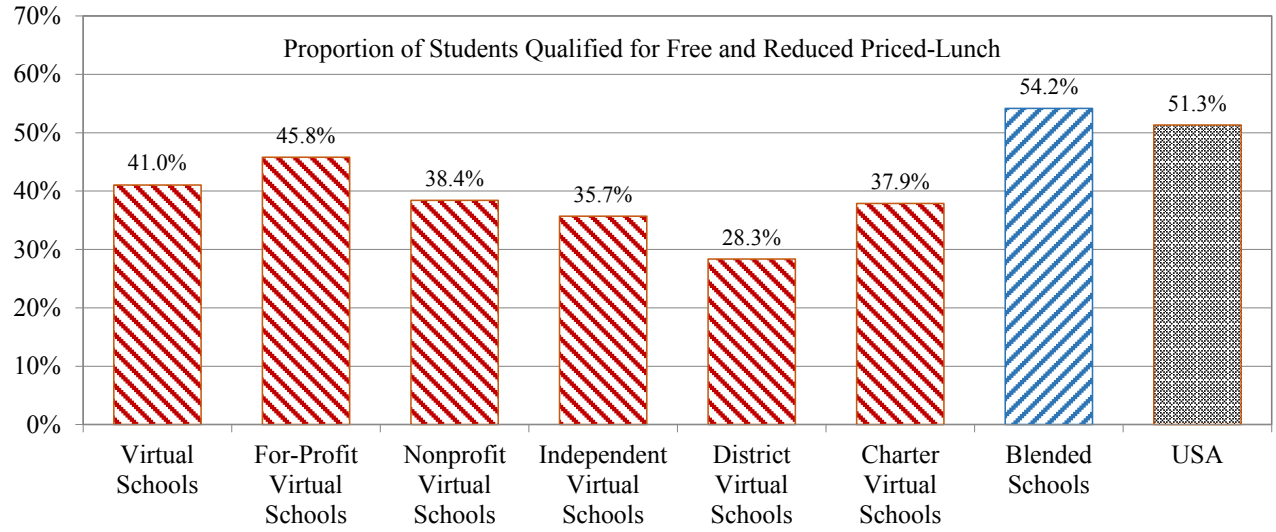
Charter virtual and blended schools had slightly more minority students than their district counterparts. Those operated by nonprofit EMOs served slightly more minority students than those that were independent or operated by for-profit EMOs.

Free and Reduced-Price Lunch

As illustrated in Figure 5, data on students qualifying for free or reduced-price lunch (FRL) was available for 386 virtual schools. Among students in those schools, 41% met FRL requirements—10 percentage points lower than the national average of 51.3%. District schools had a slightly lower percentage (28.3%) than charters (37.9%); for-profits had a higher percentage (45.8%) than nonprofits (38.4%).

Blended schools with available data (263) enrolled a much higher proportion of FRL students than virtual schools. In 2019-20, 54.2% of the students enrolled qualified for free or reduced-priced lunch, more than the national average. For-profit blended schools enrolled 51.7%, independents enrolled 41.8%, and nonprofits enrolled a substantially larger 63.8%. The difference in this area is noticeable, and it may point to a genuine desire on the part of nonprofit schools to provide better learning opportunities for economically disadvantaged students.

Figure 5. Students Qualifying for Free and Reduced-Priced Lunch, 2019-20



Special Education and English Language Learner Status

As illustrated in Figure 6, the proportion of special education students attending full-time virtual schools, 6.7%, was far below the national average of 13.1%. Students in this population have an identified disability and an Individualized Education Plan (IEP). A much higher proportion of students with special education needs were in blended learning, (12.4%), a slight increase from the past two years.

Special education data comes from state education agencies and, in some cases, from NCES. It is important to note that data was available for only 124 virtual schools and 33 blended learning schools. Many schools were excluded because there was no data or because the data reported for the schools was actually for the larger district housing the school. Given data limitations, the actual proportion of students with disabilities in virtual and blended schools may be lower than it appears. That proportion is unlikely to be higher, because there is a strong financial incentive to report this data: Categorical funding designated for special education students would noticeably increase revenues.

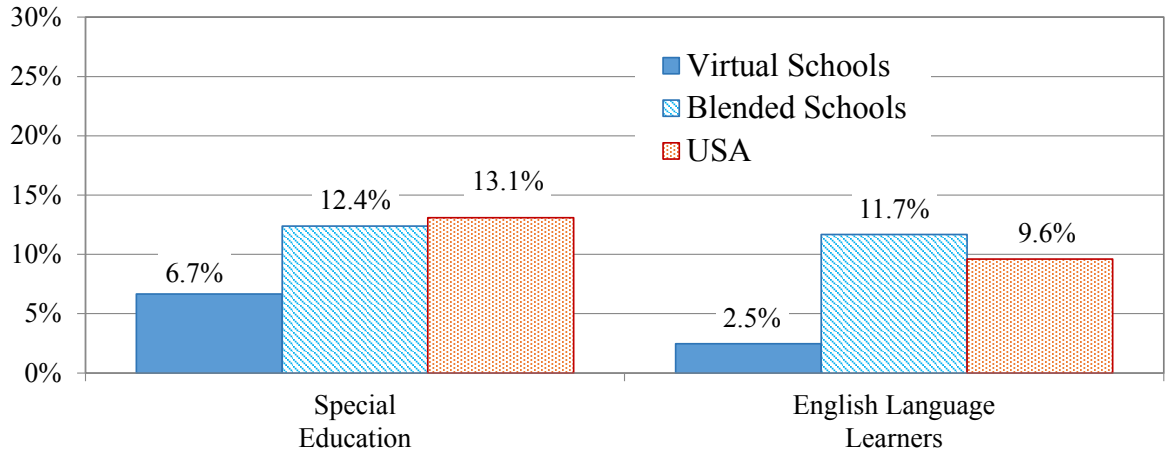
Although blended schools and—to a lesser extent—virtual schools appear to be enrolling a significant proportion of students with disabilities, it is not possible to determine the relative proportions of students with mild, moderate, and severe disabilities, making a comparison with traditional public schools impossible. However, there is reason to believe that the populations likely differ substantially: Past research has established that traditional public schools typically have a higher proportion of students with moderate or severe disabilities, while charter schools are more likely to have students with mild disabilities that are less costly to remediate or accommodate.[13]

The overall proportion of students with IEPs in virtual and blended learning schools indicates that these schools may be becoming more attractive for children with disabilities relative to brick-and-mortar charter schools. It is also possible that these schools are labeling

children at a higher rate after they arrive. Another possibility is that the private companies operating many of these virtual schools are marketing to the special needs population because of the additional federal and state funding that follows them.[14]

Aside from anecdotal evidence from special education teachers who have contacted us, little is known about how virtual schools deliver special education services online. A study from 2012[15] did indicate that while K12 Inc. had a higher proportion of children with disabilities relative to brick-and-mortar charter schools at that time, they were spending a fraction of what charter schools spend for special education teachers' salaries and benefits. This suggests that additional revenues for students with disabilities were not translating into increased spending on special education.[16]

Figure 6. Proportion of Students Classified as Special Education, or Classified as English Language Learners, 2019-20

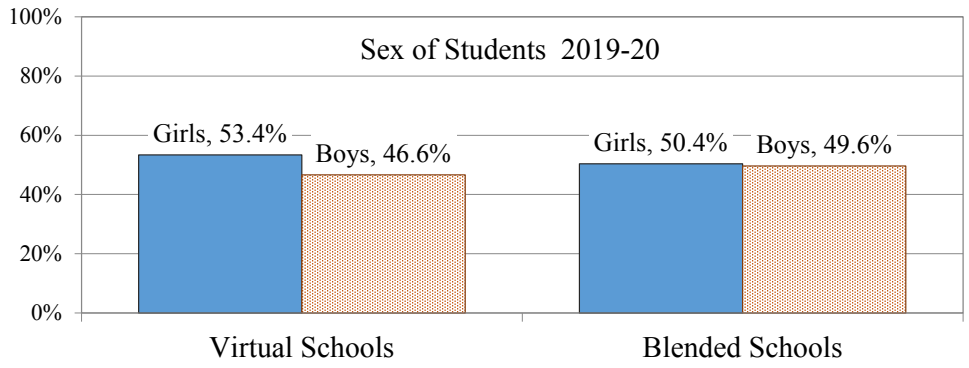


English language learners (ELLs) represent a growing proportion of students in the nation's schools, especially in the states served by virtual and blended schools, since many of these states have high concentrations of students whose first language is not English. Of the 215 full-time virtual schools with available data, only 2.5% of students were classified as ELLs—a striking difference from the 9.6% national average[17] (see Figure 6). In contrast, available data from 194 blended learning schools indicated that English language learners accounted for 11.7% of their student population.

Sex

While the population in the nation's public schools is nearly evenly split between females and males, the 2019-20 student population in both virtual schools (375 schools with data) and blended schools (257 schools with data) skewed female: 53.4% in virtual schools, and a more equal 50.4% in blended schools (see Figure 7). These ratios remained largely the same for charter, independent and for-profit schools, while the percentage was slightly higher in district virtual schools.

Figure 7. Distribution of Students by Sex in Virtual and Blended Learning, 2019-20



Enrollment by Grade Level

To illustrate the distribution of students in virtual schools as accurately as possible, Figure 8 details actual student enrollment by grade for 2019-20; comparisons were based on national averages. A disproportionate number of virtual school students were in high school or upper secondary level, in contrast to the national picture where a relatively stable cohort of students was generally distributed evenly across grades, with a gradual drop from grades 9 to 12. This finding is a bit surprising because the lower cost of educating at the primary and lower secondary level has made those options more popular in brick-and-mortar charters, while in general, virtual schools more often serve upper secondary-level options.

District-operated virtual schools served more students at that level than charter schools. For-profit EMOs, unlike nonprofit EMO and independent schools, served comparatively few upper-level students. The dominant for-profits K12 Inc. and Connections Education not only served substantially fewer students at the upper level but also showed stark enrollment drops after Grade 9.

As is true for the largest operators, other for-profit EMO virtual schools typically see steep declines after Grade 9. In contrast, many district-operated schools serve only students in the final few grades of high school, offsetting the for-profit decline in higher grades. This decline in the for-profit grade cohorts may be related to low graduation rates in virtual schools if their dropout rates are high.

Figure 8. Enrollment by Grade Level for Virtual Schools and U.S., 2019-20

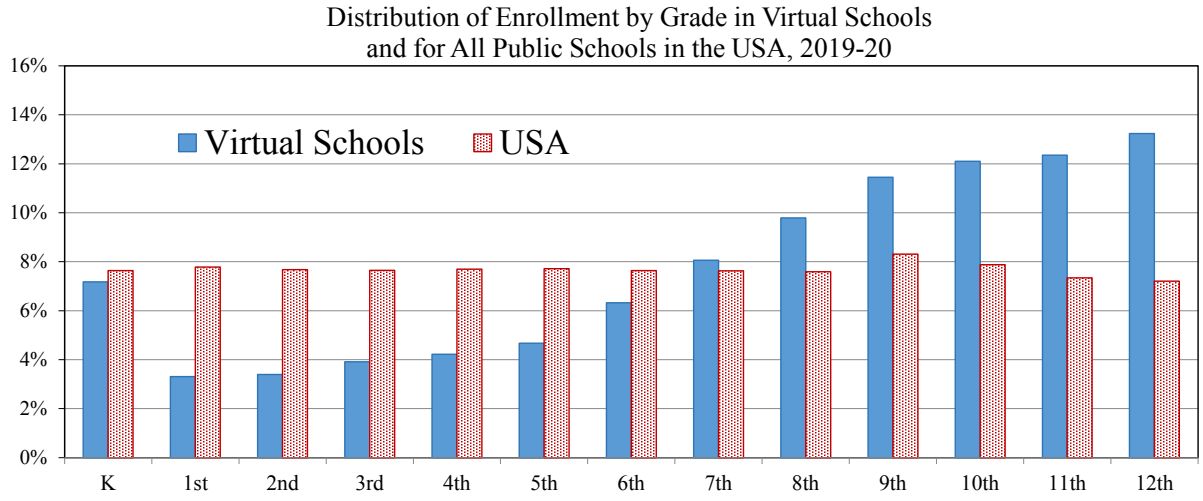
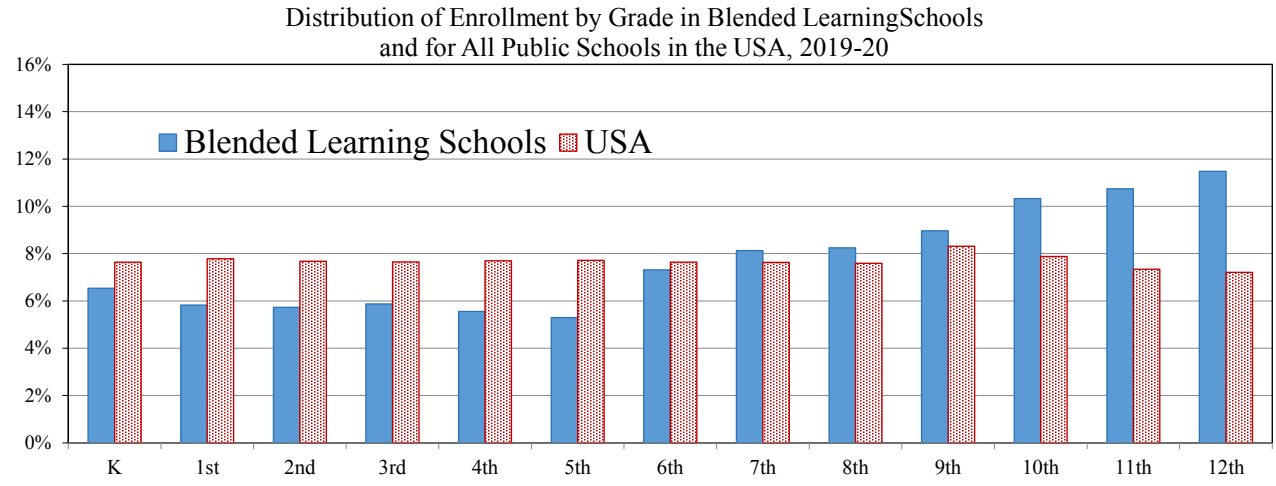


Figure 9 illustrates grade-level student distribution in blended schools, which have high concentrations of high school students and fewer elementary and middle school students. The large concentration of Grade 12 students may be due to students using blended schools for credit recovery or as an alternative for late graduation. Given that students at the upper secondary level are likely to be more technologically savvy, and given that more mature students are better able to self-regulate and work independently, it makes sense to see concentrations of students in those grades attending blended schools. High school students may also have greater expertise and interest in blending learning.

Figure 9. Enrollment by Grade Level for Blended Schools and U.S., 2019-20



Student-Teacher Ratios

Far more schools reported demographic data for their students than reported student-teacher ratios or metrics that allowed for calculating them. However, a number of states did report data on student-teacher ratios at the school level, allowing us to calculate means for them by using 2019-20 enrollment as a weight. This calculation produced a mean ratio representing the average class size that students experienced rather than the average class size that schools provided.

Table 5 contains key indicators related to student-teacher ratios in full-time virtual schools. While the average ratio was approximately 16 students per teacher in the nation's public schools, virtual schools reported nearly twice as many students per teacher (26.8). Even so, this represents a reduction of more than 50% since our last report, when the number of students per teacher was more than 59. District virtual schools had a similar average student-teacher ratio (27.7), slightly higher than that in charters (26.4).

Among virtual schools, independents had a somewhat lower average student-teacher ratio (22.5) than nonprofits (26.4) and for-profits (29.2). The nonprofit ratio was similar to that for all virtual schools.

Table 5. Student-Teacher Ratios in Virtual Schools, 2019-20

	Number of Schools with Data	Mean Students per Teacher	SD	Min	Max
All Virtual Schools	209	26.8	41.0	1.0	261.1
Independent	132	22.5	50.0	1.0	261.1
Nonprofit	14	26.4	28.6	7.0	119.8
For-Profit	63	29.2	10.5	15.8	66.0
District	123	27.7	46.5	1.0	261.1
Charter	86	26.4	30.2	1.0	249.0
National Average[18]		16.0[19]			

However, these ratios are heavily affected by many unexpected outliers reporting substantially different numbers than they did earlier. Some virtual schools reported fewer than one student per teacher and others more than 700.

Table 6 includes blended school data by EMO, district, and charter status. On average, blended learning schools have larger student-to-teacher ratios (24.4 students per teacher) than the national average but still lower than that for than full-time virtual schools.

In the blended sector, nonprofit-managed schools had the lowest number of students per teacher (21.4), compared to independents (23.3) and for-profits (32.6). District schools (29.2) had a higher ratio than charters (23).

Whereas virtual schools saw significant reductions in the number of students per teacher

across all subsets, blended schools' averages were fairly stable, with some modest reductions of three to four points among certain subsets.

Table 6. Student-Teacher Ratios in Blended Learning Schools, 2018-19

	Number of Schools with Data	Mean Students per Teacher	SD	Min	Max
All Blended Schools	200	24.4	21.5	2.9	152.4
Independent	98	23.3	24.0	3.1	152.4
Nonprofit	68	21.4	10.3	2.9	75.3
For-Profit	34	32.6	27.3	7.1	145.0
District	81	29.2	30.4	3.1	152.4
Charter	119	23.0	10.3	2.9	75.3
National Average		16.0			

Overall, student-teacher ratios for both virtual and blended schools have improved in recent years, but still lag well behind the national average of 16 students. This has implications for school performance. A correlational analysis between student-teacher ratios and graduation rates of virtual and blended schools showed a weak, but statistically significant, negative correlation between the two variables ($r = -.189$; $p < .001$). In other words, as the number of students-per-teacher at a school increase, graduation rates tend to decrease.

School ratings are discussed in detail below, but it is worth noting here that a comparison of means showed a statistically significant difference in the average student-teacher ratio between schools that had an "acceptable" versus an "unacceptable" performance rating ($t = -4.18$; $p < .001$). Schools with an "acceptable" rating had an average student-teacher ratio of 24.3, whereas schools with an "unacceptable" rating had an average student-teacher ratio of 46.9.

Generally, poor student-teacher ratios will likely continue to perpetuate poor performance indicators for both blended and virtual schools. The averages have improved, but it remains to be seen if the trend will continue, especially considering potential changes due to the massive rise in distance learning triggered by the pandemic. As more districts engage in virtual and blended learning schools, lower student-to-teacher ratios may evolve.

School Performance Findings

This section reviews overall school report card ratings and on-time graduation rates. General findings and trends are presented and discussed here, while detailed findings by state appear in Appendix I-B.

The first decade of the new millennium provided little research into full-time virtual and blended school student achievement at the K-12 level, and results of existing research were

negative. A review of early evidence on the performance of virtual schools is available in Miron and Urschell (2012)[20] and in Miron, Shank, and Davidson (2018).[21] The second section of this report, "Research into Virtual and Blended Schools: A Lasting Legacy of Little Impact," offers additional performance information for both full-time virtual and blended learning schools. Existing evidence strongly indicates that virtual schools are performing poorly with no signs of improvement. And, aside from self-reported or self-funded evidence, research indicates that blended learning schools are performing only slightly better.

This overview indicates that virtual schools have been studied more than blended schools, which are likely to receive more scrutiny because of their increasing numbers and size.

Methodology

State education agencies provide a metric for school performance when they assign school performance ratings, typically on school report cards. While some of our earlier research incorporated mean performance on state assessments, here we focus only on school report cards because they provide a more holistic picture. A second and more compelling reason is that over the past two years, many states introduced new tests aligned with college- and career-ready standards, while others changed their cut scores or expectations for "proficiency," or they adopted a new scoring scale. When states took such actions, test results were no longer comparable over time. Moreover, some states now report limited or no school performance data from state assessments.

Performance data is limited by the availability of report cards for schools and districts. As a result of the changing and currently incomplete database, variations in school performance since our last report should be interpreted cautiously.

Gaps in report card ratings are due to several factors. Due to current flux in accountability systems resulting from new requirements under the Every Student Succeeds Act (ESSA) and from flexibility waivers and extensions granted under the Elementary and Secondary Education Act (ESEA), many states have suspended their accountability systems as they finalize new formats and transition to new standards and state tests. Several states do offer some school report card data but are not currently assigning an overall performance rating; others have no current school report card data available and offer no explanation. Finally, Wyoming does not count virtual schools as separate entities but instead assigns student data to the brick-and-mortar buildings students would otherwise attend. While the state does report on virtual schooling in aggregate, it does not separate the achievement data of students attending virtual schools full-time from those taking one or two classes online. As a result, meaningful school ratings for virtual and blended schools were available for only 28 of the 40 states included in this report.

This points to a larger story about school accountability as virtual and blended schools in the United States continue to expand. It is understandable that states are being cautious about holding schools accountable under new provisions; however, gaps in data make it difficult to assess the extent to which virtual and blended schools are successfully meeting student needs. Some states have reported data on individual measures to help parents make deci-

sions about where to send their children to school, but others have not reported any data at all during current transitions.

State School Performance Ratings

Current report card data is comparable to that in our last report, although it still suffers from the same limitation: a lack of available data for all states. Further, there is also insufficient detail from some states as to what measures or indicators are used to determine school performance. While annual school report cards often include multiple measures varying from state to state, they tend to include student performance in math and English/language arts, graduation rates, and achievement gaps. In some states, measures also include performance in science and social studies; percentage of students taking advanced coursework like Advanced Placement (AP), International Baccalaureate (IB), and dual-credit courses; performance growth; college and career readiness; attendance; staff retention; student and parent satisfaction; and/or ACT/SAT scores. But even as the type, number, and weighting of such indicators in formulas to determine overall school performance ratings vary across states, such ratings do reflect an individual state's educational values. Therefore, they provide a reasonable representation of an individual school's performance relevant to state expectations.

For the purposes of this report, a coding system was used to aggregate ratings across the 28 states with school performance data. Each received one of three possible ratings: "academically acceptable," "academically unacceptable," or "not rated" (meaning that the state assigned overall school performance ratings for 2019-2020 but did not do so for that particular school). Due to the impacts of COVID-19, many states opted not to offer summative performance ratings for the 2019-20 school year, and so some data from 2018-19 was substituted. It is also important to note that in addition to some schools being not rated within a state, there are also a number of states that do not assign schools an overall summative rating. These include California, Hawaii, Idaho, Kansas, Kentucky, Maine, Minnesota, Nebraska, Tennessee, and Utah. When states did include overall ratings, state agencies may have provided guidance about how to interpret them. Lacking such guidance, we determined a cutoff score based on two factors: an interpretation of the scale being used and the number of schools receiving each rating. This common coding system for individual schools allowed for aggregate findings within and across states.[22]

Overall school performance ratings for virtual and blended schools were available for only 28 out of the 40 states included in this year's report, either for reasons noted above or because state ratings for 2019-2020 had not been released in time for this report's publication. Given inescapable limitations on data, the school performance results captured here should be interpreted cautiously.

Overall school performance ratings for 2019-20 (or 2018-19) are based on report cards in the following, with italics indicating which are additions since our last report: Alaska, *Alabama*, Arkansas, Arizona, Colorado, District of Columbia, Florida, Georgia, *Illinois*, Indiana, Louisiana, Massachusetts, *Michigan*, Nevada, *New Hampshire*, *New Jersey*, New Mexico, North Carolina, Ohio, *Oklahoma*, *Oregon*, Pennsylvania, Rhode Island, South Carolina, South Da-

kota, Texas, *Washington*, and Wisconsin. Unfortunately, although Utah had school performance ratings for 2017-18, it had none for 2019-20, presumably due to COVID-19 impact.

Performance ratings were potentially available for 338 (70.9%) of 477 full-time virtual schools and 157 (32%) of 306 blended learning schools. Both received fewer acceptable state ratings for 2019-20 compared to 2017-18, with the percentage for virtual schools dropping from 48.5% to 42.8%. A total 44.1% blended schools were judged acceptable.

Of the 103 for-profit EMO virtual schools rated, 35 (34.0%) were found acceptable (see Table 7). Of these, K12 Inc. managed 47 and Connections Education 28; all other EMOs managed one to three schools each. Of the K12 Inc. schools, 34 (72.3%) were rated unacceptable. Of the 28 Connections Education schools, 16 (57.1%) were rated as unacceptable. Of the 31 rated blended schools operated by for-profit EMOs, only six (19.4%) were found acceptable. All 12 Success VLC schools were found unacceptable, as were four of five K12 Inc. schools. All other for-profit EMOs managed one to three blended schools each. Consistent with our overall findings, virtual schools appear to be outperforming blended schools in the for-profit sector: 34.0% acceptable and 19.4% acceptable, respectively.

Table 7. Percentage of Virtual Schools with Acceptable School Performance Ratings, 2019-20

	Acceptable		Unacceptable		Unrated	
					N/A	Blank
	N	Percent of Schools with Ratings	N	Percent of Schools with Ratings	N	N
Full-Time Virtual	119	42.8%	159	57.2%	60	144
Independent	75	44.1%	95	55.9%	38	87
Nonprofit	9	64.3%	5	35.7%	13	14
For-Profit	35	37.2%	59	62.8%	9	43
Charter	50	35.2%	92	64.8%	20	76
District	69	50.7%	67	49.3%	40	68

Note. Unrated: N/A = schools within states that have overall school performance ratings, but are not available for certain schools; Unrated: Blank = schools in states without overall state performance ratings.

Of the 27 nonprofit EMO virtual schools rated, nine (33.3%) were rated acceptable. Within this nonprofit group, only one EMO managed more than three schools: Learning Matters Educational Group managed seven schools, with two (28.6%) rated acceptable. Of the 30 blended schools operated by nonprofit EMOs, 14 (46.7%) were found acceptable. In this group, only FirstLine Schools operated more than three schools. All four of its schools were rated unacceptable, representing 36.4% of all unacceptable ratings (11) for nonprofit managed blended schools. The several other EMOs in this category managed one to three schools each. In contrast to a general trend for virtual schools to outperform blended schools, in this nonprofit EMO-managed sector, blended schools (46.7% acceptable) outperformed virtual schools (33.3%)

The schools managed by one large nonprofit EMO—Rocketship Education— are not included here, because the states or districts it serves do not report performance ratings. This is a notable exlusion, because Rocketship manages 17 schools, all blended charters. The EMO's single school in Wisconsin received an acceptable rating. Of Rocketship's total 17 schools: 12, or 70.6% were in California; two, or 11.8% were in Tennessee; another two, or 11.8%, were in the District of Columbia.

Of the 170 independent virtual schools that had ratings, 75 (36.2%) were found acceptable by their respective state accountability systems. Ninety-five (55.9%) of these schools had unacceptable reatings.

In addition to the 159 virtual schools that received unacceptable ratings, 60 virtual schools were not rated at all. In some cases, states did not provide ratings because schools did not meet participation rate thresholds; in other cases, the lack of ratings was unexplained.

The 44.1% of blended schools rated acceptable in 2019-20 appears effectively unchanged from the 44.6% rating in 2017-18. Table 8 contains relevant key findings.

Over the last two years, performance ratings for nonprofit EMO blended schools have notably improved, from almost none rated acceptable in 2017-18 to over half (56%) now rated acceptable. A partial explanation is that specific schools included in the inventory have changed substantively. Slightly less than half of all independent blended schools had acceptable ratings (49.4%), a slight increase from 2017-18 (47.8%). Over the same period, the percentage acceptable for district schools declined (from 54.8% to 37.8%) while that for charter schools improved (from 35.3% to 50.7%).

Table 8. Percentage of Blended Schools with Acceptable School Performance Ratings, 2019-20

	Acceptable		Unacceptable		Unrated	
					N/A	Blank
	N	Percent of Schools with Ratings	N	Percent of Schools with Ratings	N	N
Full-Time Blended	119	44.1%	80	55.9%	14	149
Independent	75	49.4%	44	50.6%	9	74
Nonprofit	9	56.0%	11	44.0%	5	62
For-Profit	35	19.4%	25	80.6%	0	13
Charter	50	50.7%	34	49.3%	8	103
District	69	37.8%	46	62.2%	6	46

Note. Unrated: N/A = schools within states that have overall school performance ratings, but are not available for certain schools; Unrated: Blank = schools in states without overall state performance ratings.

In addition to the 80 blended schools that received unacceptable ratings, 14 blended schools received no rating at all.

Graduation Rates

Four-year graduation rates were obtained from state sources and checked to ensure a common measurement standard of students graduating from high school within four years after entering ninth grade. Percentages include all types of diplomas, traditional and otherwise, although states may specify different rates for different types of diplomas.

Many states did not issue report cards due to the coronavirus pandemic, and several (Georgia, Hawaii, Kentucky, Nebraska and Wisconsin) did not have graduation data available for 2019-20. In such cases and where possible, data from the prior school year (2018-19) was used. In states with available graduation rates, some schools' rates were masked because of low enrollment; other relatively new schools may not have had a complete 9-12 student cohort. And, of course, many schools served only grades below the high school level. Of the 472 virtual schools in the inventory, information on graduation rates was available for 310 (65.7%); of the 305 blended schools, information was available for 176 (57.7%).

As Table 9 illustrates, on-time graduation rates of 54.6% for full-time virtual and 64.3% for blended schools were lower than the overall average national graduation rate of 85% (NCES, 2020). Blended schools outperformed virtual schools by nearly 10 points, and while falling below the national average, their rate indicates an improvement of 2.8 points over the 2017-18 rate of 61.5%. Virtual schools experienced similar improvement, 4.5 points over the earlier rate of 50.1%. These increases for both school types continue the promising trend of improving graduation rates evident in earlier reports.

Table 9. Four-Year Graduation Rates, 2019-20

Virtual Schools	Number of Schools with Data	Graduation Rate	Blended Learning Schools	Number of Schools with Data	Graduation Rate
All Virtual Schools	310	54.6%	All Blended Schools	176	64.3%
Independent Virtual	191	53.1%	Independent Blended	101	67.7%
Nonprofit Virtual	30	57.2%	Nonprofit Blended	42	69.5%
For-Profit Virtual	89	55.4%	For-Profit Blended	33	53.9%
K12 Inc.	*(46)*	*(56.3%)*	*K12 Inc.*	*(7)*	*(80.9%)*
Connections	*(30)*	*(62.0%)*	*Success VLC*	*12*	*(28.6%)*
District Virtual	149	61.8%	District Blended	77	66.7%
Charter Virtual	161	52.6%	Charter Blended	99	63.2%
Overall Average National Graduation Rate		85%			85%

Despite slow improvement, current graduation rates across nearly all subgroups of virtual and blended schools are poor compared to the 85% overall average national graduation rate.

Independently managed virtual schools slightly underperformed all virtual schools with a graduation rate of 53.1%, while independently managed blended schools overperformed all blended schools with a graduation rate of 67.7%.

Rates in for-profit and nonprofit virtual schools were 55.4% and 57.2%, respectively. Within the subgroup of EMO-managed virtual schools, the graduation rate for Connections Education was 62.0%, and for K12 Inc., 56.3%. Notably, the blended schools from K12 Inc. that reported data came within some four points of the national average. Blended schools managed by Success VLC demonstrated very poor rates, with just over one in four students graduating. For virtual schools, profit status had no major bearing on graduation rates; each subset differed by only three to four points. For blended schools, however, for-profit schools lagged behind independent and nonprofit schools in graduation rate by approximately 15 points.

For 2019-20, graduation rates for both charter and district virtual and blended schools improved. In 2017-18, district virtual and blended schools had graduation rates of just 50.9% and 58.3% respectively, but those rose to 61.8% and 66.7% this year, a marked improvement. In contrast, the graduation rates in charter virtual and blended schools improved only very slightly over the same time span: rates in charter virtual schools moved from 49.9% to 52.6% and in blended schools from 62.8% to 63.3%.

For both virtual and blended schools, graduation rates in district schools outpaced those in charter schools, by 9.2 points in virtual schools and by 3.5 points in blended schools.

Highlights from Select States

A summary of school performance ratings assigned to virtual and blended schools is included in Appendix I-B. Some of the findings in states were particularly noteworthy. In Texas, for example, the details specific to its school performance ratings indicated that schools could receive an assigned grade from A to D and be considered acceptable in the state assessment system. Because of this, it was no surprise that all the Texas schools were rated as acceptable, even though some were assigned a rating (or grade) of D. Texas may appear to be a leader in virtual education—but it is important to remember that ratings are relative to individual state standards and expectations. The lack of national measures of school performance means across state comparisons should be carefully interpreted. In addition to Texas, New Hampshire also had acceptable school performance ratings assigned to all of its three schools (two virtual and one blended) considered in this study.

In direct contrast, Pennsylvania found all 16 of its rated virtual and blended schools to be performing unacceptably. (Three were unrated for unspecified reasons.) Graduation rates for the state's virtual and blended programs were also poor, 54.7% for virtual schools and 32.5% for blended schools.

In Louisiana, 9 of 12 schools with ratings were judged unacceptable, and two were not rated for unspecified reasons. Only one school, a district-managed virtual school, received an acceptable rating, an A. Louisiana's graduation rates were available only for its virtual schools. Similar to the very poor school performance ratings, the graduation rate for Louisiana vir-

tual schools was 41.9%.

Ohio, too, had predominantly unacceptable ratings, with 15 (88.2%) of 17 rated schools deemed unacceptable. A single school earned an acceptable rating, and one was unrated for unspecified reasons. Similar to the case in Louisiana, weighted graduation rates for Ohio's virtual schools were very low with 52.0% for virtual and 44.7% for blended schools.

By far, Michigan had the most schools with school performance ratings: 80. Of these, 71 (88.8%) were rated unacceptable. Michigan employs a 100-point scale, with 60 the cutoff score for acceptable. The 71 schools with unacceptable ratings had scores ranging from 1.48 to 54.37 (based on 2018-19 data). As was true in other states with high unacceptable rates, weighted graduation rates for both virtual and blended schools were low, 45.4% and 44.0%, respectively.

Florida offers many options for virtual schools, including enrollment in state-level Florida Virtual Schools (FLVS), FLVS franchises, and District Virtual Instruction Programs (VIPs). Of 38 schools identified in this report (35 virtual and three blended), 29 schools were rated. Nineteen (65.5%) were judged acceptable, and 16 of those earned an A. A majority (17) of these successful schools were state-level FLVS, and two were FLVS franchises. Of the 10 schools rated unacceptable, only one was a state-level FLVS; four were K12 Inc. schools. This data suggests that Florida's FLVS initiatives are comparatively successful; however, missing data makes it difficult to determine how representative this picture may be. The state's weighted graduation rates were better on average than the school rankings, at 82.2% rate for virtual schools. (Blended schools rates were unavailable.)

Enrollment in the 19 Florida schools rated acceptable ranged from 29 to 2728 students, with an average size of 348. In contrast, enrollment in 10 schools rated unacceptable ranged from 31 to 2405, with an average size of 567. This finding suggests that schools rated acceptable are typically smaller than schools rated unacceptable—but given the imbalance in the numbers of acceptable/unacceptable schools, caution in drawing that conclusion is advisable.

In addition to state data appearing in Appendix I-B, school-level detail on state acceptable and unacceptable ratings has been compiled; authors will consider requests for them.

Recommendations

Full-time virtual and blended learning schools represent potentially promising new school reforms. In general, however, their overall performance remains poor, with little substantive improvement evident over time. Moreover, their continued expansion undermines the overall education system in two ways. First, most students who choose these schools fare poorly in terms of measurable learning. And second, the reforms redirect an increasing portion of the public resources to schools largely operated by private education management organizations.

We reiterate that this study focuses only on full-time virtual schools and full-time blended learning schools. We are aware, however, that a growing number of districts and individual

schools are creating virtual and blended learning "programs." We are also aware that teachers within traditional public schools are innovating and increasingly employing blended learning. Although we know little about such programs and classroom innovations, it is likely that they maintain lower and more suitable student-to-teacher ratios and produce better outcomes. More research is needed to understand if such efforts might indicate features or strategies leading to more successful outcomes.

In light of current evidence that full-time virtual and blended learning schools continue performing poorly, it is recommended that policymakers:

- Require federal and state education agencies to accurately identify and monitor full-time virtual and blended schools, remedying gaps in information on their performance.
- Ensure and enforce sanctions for virtual and blended schools performing inadequately.
- Use performance data to inform funding decisions.
- Establish requirements for reduced student-to-teacher ratios.
- Slow or stop the growth in these sectors until all reasons for their relatively poor performance have been identified and addressed.
- Sponsor research on virtual and blended learning programs and classroom innovations within traditional public schools and districts.
- Sponsor evaluations of promising models for virtual and blended learning schools, including district efforts born of the pandemic.
- Convene events with scholars, practitioners, representatives from state and federal education agencies, and other policymakers to more carefully design a model for full-time virtual schools. Such a model should include finance and oversight mechanisms ensuring that virtual schools focus on the interests of taxpayers and students, not of corporations.

Notes and References Section I

1 The authors will consider requests to obtain or review their school-level data sets from which findings are based.

2 Miron, G., & Urschel, J.L. (2012). *Understanding and improving full-time virtual schools: A study of student characteristics, school finance, and school performance in schools operated by K12 Inc.* Retrieved March 26, 2021, from https://nepc.colorado.edu/sites/default/files/nepc-rb-k12-miron.pdf

Molnar, A. (Ed.). Miron, G., Huerta, L., Cuban, L., Horvitz, B., Gulosino, C., Rice, J.K., & Shafer, S.R. (2013). *Virtual schools in the U.S. 2013: Politics, performance, policy, and research evidence.* Boulder, CO: National Education Policy Center. Retrieved December 18, 2015, from http://nepc.colorado.edu/publication/virtual-schools-annual-2013

Molnar, A. (Ed.). Rice, J.K., Huerta, L., Shafer, S.R., Barbour, M.K., Miron, G., Gulosino, C., Horvitz, B. (2014) *Virtual schools in the U.S. 2014: Politics, performance, policy, and research evidence.* Boulder, CO: National Education Policy Center. Retrieved December 18, 2015, from http://nepc.colorado.edu/publication/virtual-schools-annual-2014

Molnar, A. (Ed.); Huerta, L., Shafer, S.R., Barbour, M.K., Miron, G., Gulosino, C. (2015). *Virtual schools in the U.S. 2015: Politics, performance, policy, and research evidence*. Boulder, CO: National Education Policy Center. Retrieved December 18, 2015, from http://nepc.colorado.edu/publication/virtual-schools-annual-2015

Miron, G. & Gulosino, C. (2016). *Virtual schools report 2016: Directory and performance review*. Boulder, CO: National Education Policy Center. Retrieved December 4, 2016, from http://nepc.colorado.edu/publication/virtual-schools-annual-2016

Molnar, A., Miron, G., Gulosino, C., Shank, C., Davidson, C., Barbour, M.K., Huerta, L., Shafter, S.R., Rice, J.K., & Nitkin, D. (2017). *Virtual schools report 2017.* Boulder, CO: National Education Policy Center. Retrieved June 16, 2017, from http://nepc.colorado.edu/publication/virtual-schools-annual-2017

Miron, G., Shank, C., & Davidson, C. (2018). *Full-time virtual and blended schools: Enrollment, student characteristics, and performance*. Boulder, CO: National Education Policy Center. Retrieved November 20, 2018, from http://nepc.colorado.edu/publication/virtual-schools-annual-2018

Molnar, A., Miron, G., Elgeberi, N., Barbour, M.K., Huerta, L., Shafer, S.R., Rice, J.K. (2019). *Virtual schools in the U.S. 2019*. Boulder, CO: National Education Policy Center. Retrieved March 26, 2021, from http://nepc.colorado.edu/publication/virtual-schools-annual-2019

3 For example, school districts or schools offer online courses to cut costs or attract students from other schools/districts/states. These are not actually schools in the sense that they do not offer the complete state-mandated curriculum; they simply offer individual courses that students can choose to take. Such a program would never receive an NCES ID no matter how many students enroll because it is not a school. Although no systematic data is available, some speculate that districts may be using the virtual programs as a way to place or "park" students who are not succeeding in the face-to-face classes due to learning obstacles or disciplinary reasons.

4 Special education is an obligation of school districts (Local Education Authorities) and not necessarily individual schools. In most states, charter schools are considered LEAs and therefore their data on special education is included in the NCES district-level datasets. States in which charter schools are not classified as LEAs, such as Florida, do not have special education data attributable to individual charter schools.

5 Compiling an aggregate data set of the 40 states would have been possible, albeit time-consuming. Unfortunately, that would have introduced other methodological problems since a few of these larger states inconsistently reported school-level data for charter schools, which serve most students in virtual and blended learning

schools.

6 Alabama, Iowa, Kentucky, Maine, South Carolina, and South Dakota.

7 Beyond the 40 states with either virtual or blended schools, some states also allow other virtual education options, in several alternative formats such as individual online classes, or supplemental online coursework. These were beyond the scope of this research. Further, virtual and blended program as well as individual class innovations that occur within districts and brick-and-mortar schools are also excluded from this study because they are not classified as "schools."

8 Estimates for 2000 to 2010 are based on two sources, the annual *Profiles of For-Profit and Nonprofit Education Management Organizations* from NEPC, and the annual *Keeping Pace* reports from Evergreen Education, a consulting group that prepares reviews of policy and practice for online learning.

9 Miron, G., & Urschel, J.L. (2012). *Understanding and improving full-time virtual schools: A study of student characteristics, school finance, and school performance in schools operated by K12 Inc.* Retrieved December 11, 2014, from http://nepc.colorado.edu/files/nepc-rb-k12-miron.pdf

Woodard, C. (2013, July 3). Special report: The profit motive behind virtual schools in Maine. *Portland Press Herald*. Retrieved March 18, 2021, from http://www.pressherald.com/news/virtual-schools-in-maine_2012-09-02.html

10 Note that we compare virtual and blended schools from 39 states with the national average representing 50 states. A comparison group of 39 states would likely be slightly closer to the distribution in virtual and blended schools. The 11 states that might be pulled out from the national average, however, are all very low-population states and would have minimal influence on the national average. Ideally, it would be preferable to compare demographics for each virtual or blended school with the population in the actual catchment area from which they enroll students. Such analyses are beyond the scope and budget of this study.

11 Comparisons with demographic composition of charter schools in the nation are also relevant since the virtual schools that enroll most students are charter virtual schools. Thirty-six percent of all charter school students are white, 29.2% are black, 27.2% are Hispanic, 3.5 are Asian, and 3.2% are classified as "other."

12 Ahn, J., & McEachin, A. (2017). Student enrollment patterns and achievement in Ohio's online charter schools. *Educational Researcher, 46*(1), 44–57. Retrieved August 20, 2019, from https://doi.org/10.3102/0013189X17692999

An additional study also examines shifting enrollments in Pennsylvania virtual schools over time and some key financial consequences. See Mann, B., & Baker, D.P. (2019, February). Cyber charter schools and growing resource inequality among public districts: Geospatial patterns and consequences of a statewide choice policy in Pennsylvania, 2002–2014, *American Journal of Education 125*(2), 147-171.

13 Miron, G. (2014). Charters should be expected to serve all kinds of students. *Education Next 14*(4), 58-59.

14 For example, one Ohio school with an exceptionally high rate of special education student enrollment (22.1%) actively promotes its school for students with disabilities who seek a least restrictive environment. A post on the school website explains that a team of educators meets with each family of a child with disabilities to create an IEP outlining services to be provided by the school. Retrieved February 3, 2021, from https://www.ohdela.com/media-center/blog/ohdela-fits-all-student-needs.html [inactive link]. https://ohdela.com/about-us links to school website which talks more generally about how children with special needs are served.

15 Miron, G., & Urschel, J.L. (2012). *Understanding and improving full-time virtual schools: A study of student characteristics, school finance, and school performance in schools operated by K12 Inc.* Retrieved December 11, 2014, from http://nepc.colorado.edu/files/nepc-rb-k12-miron.pdf

16 A recent study on this topic, apparently from smaller virtual schools, used a qualitative approach to explore

the experiences of six online teachers teaching students with disabilities. This study found the teachers used a variety of strategies to accommodate students with disabilities, including modifying curriculum, adapting instructional practices, and drawing on outside resources for support. The study recommended that virtual schools should promote a teacher-focused approach to accommodating the needs of students with disabilities and their parents.

Crouse, T.M., Rice, M.F., & Mellard, D.F. (2016). *"How did I survive?" Online teachers describe learning to teach students with disabilities*. Lawrence, KS: Center on Online Instruction and Students with Disabilities, University of Kansas. Retreived March 28, 2021, from http://hdl.handle.net/1808/22567

17 This statistic is based on NCES data from U.S. Department of Education.

National Center for Education Statistics. (2015). *The condition of education 2015* (NCES 2015-144), English Language Learners. Retrieved December 2, 2015, from https://nces.ed.gov/fastfacts/display.asp?id=96

18 *State nonfiscal public elementary/Secondary education survey*, 2011-12 v.1a. United States Department of Education, National Center for Education Statistics, Common Core of Data (CCD) Retrieved January 17, 2021, from https://nces.ed.gov/ccd/stnfis.asp

19 The pupil/teacher ratios have remained consistent at approximately 16:1 over the past several years. Projections suggest that this ratio is likely to remain constant for public schools.

NCES (2016). The Table 208.20. *Public and private elementary and secondary teachers, enrollment, pupil/teacher ratios, and new teacher hires: Selected years, fall 1955 through fall 2026*. Washington DC: National Center for Education Statistics. 2013-441. U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved December 1, 2014, from https://nces.ed.gov/programs/digest/d16/tables/dt16_208.20.asp

20 Miron, G., & Urschel, J. (2012). *Understanding and improving full-time virtual school: A study of student characteristics, school finance, and school performance in schools operated by K12 Inc.,* Boulder, CO: National Education Policy Center. Retrieved November 27, 2018, from http://nepc.colorado.edu/files/nepcrbk-12miron.pdf

21 Miron, G., & Shank, C., & Davidson, C. (2018). *Full-time virtual and blended schools: Enrollment, student characteristics, and performance* . Boulder, CO: National Education Policy Center. Retrieved November 20, 2018, from http://nepc.colorado.edu/publication/virtual-schools-annual-2018

22 It is important to note that states' respective standards and expectations vary, with some states setting high standards and others being more lenient.

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Section II
Research into Virtual and Blended Schools: A Lasting Legacy of Little Impact

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May 2021

Executive Summary

Thirty years have passed since the first U.S. K-12 online learning program was established; 25 since the first supplemental virtual school appeared; 20 since the for-profit education management organizations K12 Inc. and Connections Academy were founded; and, 10 years since the NEPC's first report on virtual education was published. In light of these decades of experience and reports, this section briefly surveys recent related research and findings consistent over time, including those from this series of NEPC reports. It further explores issues related to the impact of findings on policy and practice.

Consistent with broader research in the field, reports in this series have repeatedly found that students in both virtual and blended schools generally underperform their brick-and-mortar counterparts. As those sectors continue to grow, legislators and other policymakers have nevertheless largely failed to impose additional oversight and accountability—a failure that may be attributed largely to the fact that corporate providers have large coffers and influence, as do supportive ideologically driven individuals and organizations. A contributing factor, some argue, is that researchers have not yet established a credible base of useful strategies for practitioners and policymakers, a gap that became starkly apparent in March 2020 when education leaders working to immediately implement virtual instruction found both schools and practitioners unprepared for an online environment.

Providing a counterexample to the general failure of most researchers and research to affect policy and practice, the state-funded Michigan Virtual Learning Research Institute (MLVRI) has had significant positive effects. Its designated mission is to analyze the effectiveness of online models by tracking enrollments, completion rates, and overall student impact as well as to study and strengthen 19 discrete areas of teaching and learning. While its existence

hardly guarantees that state policy will align with its findings, the institute has certainly benefited Michigan's virtual and blended education programs and their stakeholders. Since the pandemic forced schools to close and implement online learning, MVLRI has provided: research-based guidance for students, parents, school-based mentor teachers, online teachers, school board officials, and administrators; a tool for school leaders to review online curriculum; orientation modules for students new to online learning; access to webinars and courses for teachers; and, a series of resources and learning opportunities specific to remote teaching.

Notwithstanding this positive example, the broad field of research on K-12 virtual and blended schools has been appropriately criticized for: confusing terminology; a lack of historical perspective; the absence of construct validity; a fragmented rather than systemic approach; and, American-centrism.

Given these factors, it is recommended that:

- State and federal legislators create goals for a comprehensive research program designed to inform policy for, and improve practice in, virtual and blended schools.
- State and federal legislators either create new independent entities, or support existing ones, charged with undertaking long-term research programs to evaluate virtual and blended schools.
- Researchers in the field design future efforts with a focused effort to avoid known limitations in existing literature.

Section II
Research into Virtual and Blended Schools: A Lasting Legacy of Little Impact

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May 2021

Introduction

The field of K-12 online and blended learning has marked several milestones: 30 years since the first K-12 online learning program was launched[1]; 25 years since the first supplemental virtual schools were established[2]; 20 years since the dominant, for-profit education management organizations K12 Inc. and Connections Academy[3] were founded; and, over 25 years since the first journal article on K-12 online learning was published.[4] In addition, this report marks the tenth year of NEPC reports on virtual and blended education. Among designated purposes for the series is to "assess the research evidence that bears on K-12 virtual teaching and learning . . . [and to] provide research-based recommendations to help guide policymaking."[5] This section addresses that goal by asking: After decades of experience, what is known from and about research in the field? What is the relationship of those findings to policy? And, what recommendations do answers to those questions imply?

Recent research indicates both a continuing trend to characterize what is known and an emerging trend to examine the nature of existing research. Typically, this section of this annual report would further detail research specifically related to the findings in its first and third sections. However, those findings have remained unchanged over the years, consistent with findings in the broader field: Both virtual schools and blended schools generally have poor outcomes, and policymakers pay little or no attention to research findings—although the Michigan Virtual Learning Research Institute (MVLRI) demonstrates the potential of state research centers to have positive effects. Rather than repeat what has already been said in these reports multiple times with only minor annual updates, the following discussion moves instead to demonstrate contributions of this series to the literature base over time. Final segments then explore the persistent lack of alignment among research, policy, and practice. To explain the misalignment, the report moves on to detail first the influence

of well-funded corporate and ideologically motivated promoters, and then weaknesses in existing research. The conclusion includes recommendations stemming from the discussion.

Recent Research Trends

Recently, while researchers have continued asking what is known from existing research about K-12 virtual and blended schooling, they have also begun asking more and more questions about characteristics of the existing literature base. More specifically, questions have probed such topics as who has been doing the research, where it has been published, and what can be learned from emerging patterns.

The second edition of the *Handbook of Research on K-12 Online and Blended Learning* constitutes one notable effort to summarize credible findings.[6] It is organized around nine guiding questions, asking what existing research had to say about each of several important topics: background and historical markers contextualizing the field; learning in K-12 online and blended environments; preparing and mentoring current and future teachers; similarities and differences among content areas; preparing and mentoring support personnel; effective design for online and blended learning; new insights; global implementation; and emerging issues in research, policy, and practice. In addition to those broad topics, introductory chapters include examination of the field's history and current practice both in the U.S and internationally, as well as a historical analysis of policy.[7] Also included are chapters on the theory, methodologies, measurement instruments, and role of evaluation in driving the research.[8]

Consistent with the theme of those introductory chapters, recent work has begun probing characteristics of the research itself. For example, the journal *Distance Education* published an analysis of 356 journal articles by 384 distinct authors from 1994 to 2016.[9] The authors found that almost 60% of the articles were authored or co-authored by the 20 most prolific scholars; however, over 70% of the authors had published only a single article. Additionally, although the *Journal of Online Learning Research* initiated publication only in 2015, it published the largest percentage of articles analyzed (i.e., 7% of all articles reviewed and 41% of those published 2015-2017). Of the 155 journals publishing articles, 102 published only a single article on the topic of K-12 online learning. Taken together, these findings indicate that research in the field of K-12 online learning has been largely characterized by authors and journals with little to no experience with the field prior to or following the publication of a single article.

Because that article's authors made their data set publicly available, others have mined it and made additional contributions to this line of inquiry. For example, a 2019 article presented an analysis of the first four years of the *Journal of Online Learning Research*.[10] They found that it published a much higher proportion of articles focused on K-12 blended learning, in both special topic and regular issues. The authors also found the topics of teacher preparation and professional development appeared overrepresented in the scholarship. Finally, the authors confirmed an overwhelming U.S. focus in both authorship and the studies' geographic location.

Another example of work growing out of the *Distance Education* article was published in *Online Education*.[11] Authors noted that while citation information was included for the inventoried articles, several received little attention—52 received five or fewer citations, while 10 received none. The authors speculated that even though the sample included well-known researchers and one-time authors, the articles may have attracted less scholarly attention because of a relatively narrow focus, often on programs or published in outlets outside the U.S.. Interestingly, the authors noted:

> What we did not find were articles that were uninteresting, poorly researched, or irrelevant. Many of the articles described and discussed programs that grappled with and overcame some of the same challenges online learning still faces today: issues of interaction, community, technology, management, etc.[12]

This work suggests that whatever weaknesses there may be among authors and publications, some relevant and credible research is escaping notice.

This brief summary of recent trends provides context for readers interested in how research in the field has been evolving. In earlier NEPC series editions, this second section has also typically included a review of research specific to topics in the first section (i.e., growth, demographics, and performance of schools) and third section (i.e., key policy issues). However, findings in those areas have been consistent over time: Both full-time virtual and blended schools typically perform poorly in relation to brick-and-mortar schools; and, year after year, state legislatures have been largely unwilling to pass bills strengthening oversight and accountability.[13] This year those findings appear yet again. Given this unchanging picture, rather than yet again reviewing much of the same literature on those topics with some minor annual updates, an exploration of how these reports have contributed to the existing research base over time seems a more productive overview.

A Decade of NEPC Research into Virtual and Blended Schooling

The following segments survey the areas that have become the topics for Section I of this annual report—growth, characteristics, and performance of full-time virtual education and blended schools—and for Section III, policy governing those schools.

Research on Student Performance and Demographics

The first NEPC report on virtual schooling, titled *Online K-12 Schooling in the U.S.: Uncertain Private Ventures in Need of Public Regulation*, was designed to examine the state of K-12 online learning, broadly speaking. It included the topics of supporting research, influential forces, and regulatory issues. In the executive summary, the authors reported:

> Over just the past decade, online learning at the K-12 level has grown from a novelty to a movement . . . Little or no research is yet available on the outcomes of such full-time virtual schooling. Partial or blended approaches to virtual edu-

> cation, however, have existed for some time and have been studied fairly extensively . . . and research has shown the virtual courses to produce test scores comparable to those from conventional, face-to-face courses. While such research is useful, it tells us little about scaling up from isolated courses to full-time virtual schooling . . . Moreover, the rapid growth of virtual schooling raises several immediate, critical questions for legislators regarding matters such as cost, funding, and quality. [14]

These issues, of course, continue to be concerns.

The following year, reports began focusing on full-time K-12 virtual schools, closely examining the education management organization (EMO) K12 Inc. (now Stride, Inc.).[15] Still the dominant for-profit provider today, even then K12 Inc. offered full-time online learning opportunities to more students than any other provider. In the report, the authors found that: Students attending K12-operated schools were less likely to be a minority, receive free or reduced lunch, be an English language learner, have a disability, or be characterized as at-risk; while K12 Inc. schools received less funding than traditional public schools, they also experienced many cost advantages; and K12 Inc. produced weaker student outcomes across a range of performance measures.

In 2013, this series began consistently tracking the existence and the performance of full-time, publicly funded K-12 virtual schools, describing policy issues and assessing supporting research. From 2013-19, the authors consistently reported that students attending full-time K-12 virtual schools were performing poorly relative to their brick-and-mortar counterparts (see Table 2.1).

Table 2.1. Summary of NEPC Research Related to the Effectiveness of Virtual Schools

NEPC Report	Finding
2013	While 52% of brick-and-mortar district and charter schools met AYP, only 23.6% of virtual schools did the same. [16]
2014	"Virtual schools' Adequate Yearly Progress results were 22 percentage points lower than those of brick-and-mortar schools . . . The on-time graduation rate for full-time virtual schools was close to half the national average: 43.8% and 78.6%, respectively."[17]
2015	"Full-time virtual schools continued to lag significantly behind traditional brick-and-mortar schools . . . The on-time graduation rate (or four-year graduation rate) for full-time virtual schools was nearly half the national average: 43.0% and 78.6%, respectively."[18]
2016	"Of the 121 virtual schools for which data were available, 22 (18.2%) had proficiency rates above the state average; 82% had proficiency rates below state averages . . . The on-time graduation rate (or four-year graduation rate) for full-time virtual schools was half the national average: 40.6% for virtual schools and 81.0% for the nation as a whole."[19]

http://nepc.colorado.edu/publication/virtual-schools-annual-2021

2017	"[Only] 37.4 percent of full-time virtual schools received acceptable performance ratings . . . The graduation rate of 43.4% in virtual schools [compared very poorly to a national average of 82.3%]." [20]
2018	"Virtual schools continued to underperform academically, . . . 36.4% of full-time virtual schools received acceptable performance ratings. The graduation rate of 50.7% in virtual schools . . . fell far short of the national average of 83%."[21]
2019	"Overall, 48.5% of full-time virtual schools were rated acceptable . . . the on-time graduation rates for full-time virtual schools (50.1%) . . .fell far short of the national average of 84%."[22]

Echoing the past, Section I of this year's report finds that for the 2019-20 school year, only the percentage of acceptable ratings for virtual schools dropped from 48.5% to 42.8%.[23] These findings of poor performance were consistent with the larger body of research into student performance in full-time K-12 virtual schools (see Appendix II-A). In fact, some scholars have even suggested that the reality for many students, particularly those in rural areas, is that for families interested in school choice options, the only alternative to a failing brick-and-mortar neighborhood school is a failing virtual charter school.[24]

The results of the research on performance is even more troubling when the demographics of students enrolled in full-time K-12 virtual schools is considered (see Table 2.2).

Table 2.2. Summary of NEPC Research Related to the Proportion of Students by Demography Enrolled in Virtual Schools Compared to the National Average

NEPC Report	Demographic Characteristics									
	White	Black	Hispanic	Asian	Native Am	Pacific Islander	Mixed/2 or More	FRL	SpEd	ELL
2013[25]	⇑	⇓	⇓	⇓	=			⇓	⇓	⇓
2014[26]	⇑	⇓	⇓	⇓	=			⇓	⇓	⇓
2015[27]	⇑	⇓	⇓	⇓	=			⇓	⇓	⇓
2016[28]	⇑	⇓	⇓	⇓	=	=	⇑	⇓		⇓
2017[29]	⇑	⇓	⇓	⇓	=	=	⇑	⇓	=	⇓
2018[30]	⇑	⇓	⇓	⇓	=	=	⇑	⇓	=	⇓
2019[31]	⇑	⇓	⇓	⇓	=	=	⇑	⇓	⇑	⇓

⇑ higher proportion of students compared to national average
⇓ lower proportion of students compared to national average
= approximate the same proportion of students compared to national average

Essentially, full-time K-12 virtual schools have historically served a higher proportion of White students and a lower proportion of minority students, significantly fewer students receiving free and reduced lunch, fewer English language learners, and fewer students with disabilities (although the disabilities trend has shifted recently).

In 2016, blended schools were added to the project. Patterns for student performance have been similar for full-time K-12 blended schools (see Table 2.3).

Table 2.3. Summary of NEPC Research Related to the Effectiveness of Full-Time K-12 Blended Schools

NEPC Report	Finding
2016	"Blended schools tended to score even lower on performance measures than virtual schools . . . [Only] five out of 22 independent blended schools (22.7%) had a higher percentage of students rated proficient than the state percentage. The on-time graduation rate (or four-year graduation rate) for full-time blended schools was half the national average: 37.4% for blended schools and 81.0% for the nation as a whole."[32]
2017	" . . . 72.7% acceptable ratings for blended schools... The graduation rate of 43.1% in blended schools fell far short of the national average of 82.3%."[33]
2018	" . . . 43.1% of blended schools received acceptable performance ratings... The graduation rate of 49.5% in blended schools fell far short of the national average of 83%."[34]
2019	"A total of 44.6% blended schools were rated acceptable. This is the first time in the last two years that blended schools perform less than virtual schools . . . "[35]

Similarly, this report's first section finds that only 44.1% of blended schools were rated acceptable in 2019-2020.[36] Unfortunately, there is not yet a larger body of research on blended schools for comparison of these findings. One positive finding to emerge, however, is that blended schools appear to be serving a more diverse range of students, especially Hispanic students (see Table 2.4).

Table 2.4. Summary of NEPC Research Related to the Proportion of Students by Demography Enrolled in Blended Schools Compared to the National Average

NEPC Report	Demographic Characteristics									
	White	Black	Hispanic	Asian	Native Am	Pacific Islander	Mixed/2 or More	FRL	SpEd	ELL
2016[37]	⇓	⇓	⇑	=	=	=	⇑	=		
2017[38]	⇓	⇓	⇑	=	=	=	⇑	⇓	=	⇑
2018[39]	⇓	=	⇑	=	=	=	⇑	⇑	⇓	⇓
2019[40]	⇓	⇓	⇑	=	=	=	⇑	=	=	⇓

⇑ higher proportion of students compared to national average
⇓ lower proportion of students compared to national average
= approximate the same proportion of students compared to national average

http://nepc.colorado.edu/publication/virtual-schools-annual-2021

The fact that students in both full-time virtual and blended schools continue to perform poorly is particularly disappointing in light of the fact that overall, those schools serve fewer students typically classified as "at risk."[41]

Research on Policy

Findings related to policy, the topic of the following section, are also dismally consistent: Little or no meaningful regulation has been enacted over the last several years (see Table 2.5).

Table 2.5. Summary of NEPC Research Related to the Legislative Changes

NEPC Report	Finding
2013	"Although there have been some recent legislative efforts to clarify expectations in such areas as accountability and standards, states are struggling to establish accountability mechanisms appropriate for both guiding and auditing virtual schools—even as they allow them to expand . . . A continuing challenge for states will be to reconcile traditional funding mechanisms, governance structures, and accountability demands with the unique organizational models and instructional methods found in virtual schools." [42]
2014	" . . . policymakers have been struggling to reconcile traditional funding structures, governance and accountab ility systems, instructional quality, and staffing demands with the unique organizational models and instructional methods of virtual schooling."[43]
2015	"Our analysis revealed that state legislatures have proposed bills that attempt to increase oversight of virtual schools; however, we found little evidence to indicate that legislative actions are being informed by the emerging research on virtual schools."[44]
2017	"State legislatures continue to respond to challenges raised by virtual schooling, as evidenced by proposed bills that attempt to increase oversight of virtual schools; however . . . fewer than 40% of proposed bills have been enacted."[45]
2019	"Our analysis revealed a decrease in legislative activity in 2017 and 2018, yet state legislatures have continued to propose bills similar to previous years that attempt to increase oversight of virtual schools."[46]

The year's report finds a continued decrease in legislative activity, with "little evidence to indicate that emerging research is informing legislative action."[47] Sadly, the words "we found little evidence to indicate that emerging research is informing legislative action" appear in every report since 2015.

One area where policymakers have ignored a growing body of literature is funding. As previous reports have indicated, only virtual school operators themselves and ideologically supportive advocacy organizations have insisted that virtual education is more costly than traditional brick-and-mortar schools.[48] Independent researchers have consistently found that virtual schools are less costly than traditional brick-and-mortar schooling.[49] In fact, several

proponents of school choice initiatives have argued that online learning is more cost-efficient,[50] and others have argued the same for blended schools.[51] Yet, there has still been little or no legislative action to meaningfully address the issue of how virtual and blended schools are funded, and for-profit corporate operators continue to earn healthy profits.[52] Even a history of scandals seems to have had little impact on legislative inaction.[53]

In General

The reality is that for the last 10 years, NEPC has produced research reports indicating poor quality of education provided by full-time K-12 virtual schools, and more recently, by blended schools. Report findings have continuously aligned with published research in the broader field. Yet, over that time, state legislators have been largely unwilling to strengthen oversight and accountability. Even when legislation has been proposed, legislators have failed to enact it—even though some school choice advocates themselves have indicated concern about the lack of accountability, potential overfunding, and staffing issues. [54] Critical findings in these areas have been clear for some time, generating the critical question of why the research—both that of NEPC and across the broader field—has had such minimal impact on both practice and policy.

Issues Related to Minimal Research Impact on Policy

This segment examines influences on policymakers and weaknesses in existing research, which both help explain why credible, independent research has not yet substantively shaped legislation and practice.

Influence on Policymakers

As a part of the report *Online Learning: What Every Parent Should Know*, the Network for Public Education wrote:

> Online charter schools, the various governmental agencies and foundations that support digital learning, and the for-profit education technology sector employ an aggressive strategy to encourage popular support and ensure a favorable regulatory environment. There are four main avenues that the for-profit cyber charter companies use to expand and promote weak governmental oversight and regulations: direct lobbying, donations directly to candidates and legislators, involvement with and support of advocacy groups, and advertising.[55]

Often the relationship among for-profit companies, member and policy organizations, lobbyists, advocacy groups, and politicians can get quite messy (see Appendix II-B for a graphic illustration of common interactions).

As noted in the first section of this report, for-profit EMOs accounted for 59.1% of the total enrollment in full-time virtual schools and 25.3% of the total enrollment in blended schools.

These corporations:

- donate money to organizations like the American Legislative Exchange Council (ALEC), where their executives participate in and co-chair committees with elected politicians, drafting model legislation for politicians to introduce in their states;
- donate money to "nonprofit," "nonpartisan" associations, and policy centers that conduct research to support policies included in draft legislation produced by organizations like ALEC;
- hire local, state, and national lobbyists to use research from the "nonprofit," "nonpartisan" associations, and policy centers to attempt to influence politicians to support legislation drafted by organizations like ALEC;
- donate money to create and support local and statewide parent and student advocacy groups to establish grassroots campaigns that support their lobbying efforts, working to persuade politicians to support legislation drafted by organizations like ALEC; and
- donate money directly to the election and re-election campaigns of politicians likely to support legislation drafted by organizations like ALEC, often after professional relationships have been established through lobbying efforts or participation in ALEC events.[56]

Almost a decade ago, reporters at the *Portland Press Herald* examined over a thousand pages of documents obtained through a public records request, allowing them to detail how the generic model described above operated in Maine.[57] Their "investigation found [that] large portions of Maine's digital education agenda are being guided behind the scenes by out-of-state companies that stand to capitalize on the changes, especially the nation's two largest online education providers" (see Appendix II-C for a graphic illustration of the Maine process).

The Maine situation is far from unique; many examples could be used to illustrate how corporations and ideologically driven organizations join forces to influence K-12 virtual and blended learning policy. In another example, the Michigan legislature in 2009 passed *Public Act 205*, which lifted a ban on virtual charter schools and allowed two companies (i.e., Connections Academy and K12 Inc.) to each create one full-time virtual school. Enrollment in each was limited to 400 students in the first year and an additional 1,000 students in the second year. However, for each regular education student registered in year two, each school was required to enroll one student from the state's official list of dropouts. As a part of the legislation, at the end of year two the state's education department was to review each school's performance and adjust enrollment limits appropriately. Table 2.6 details student performance on the Michigan Educational Assessment Program (MEAP) during those first two years, 2010 and 2011. Figures below statewide averages are presented in red.

Table 2.6. Summary of Performance for Michigan Connections Academy (CA) and Michigan Virtual Academy (K12) on 2010 and 2011 MEAPs

MEAP	CA 2010	K12 2010	Statewide 2010	CA 2011	K12 2011	Statewide 2011
Gr 3 – Math	44.0%	14.3%	35%	42.2%	26.3%	36%
Gr 3 – Reading	75.0%	66.7%	63%	64.4%	55.3%	62%
Gr 4 – Math	23.7%	40.0%	40%	37.8%	20.5%	40%
Gr 4 – Reading	71.0%	66.7%	64%	82.2%	56.4%	68%
Gr 4 – Writing	36.8%	48.4%	47%	37.8%	25.6%	45%
Gr 5 – Math	13.9%	32.0%	30%	33.3%	36.8%	40%
Gr 5 – Reading	72.2%	68.0%	65%	77.8%	60.5%	69%
Gr 5 – Science	8.3%	8.0%	17%	18.5%	19.4%	15%
Gr 6 – Math	18.9%	20.0%	36%	19.0%	22.0%	37%
Gr 6 – Reading	75.7%	66.7%	63%	83.3%	70.7%	67%
Gr 6 – Social Studies	21.6%	20.0%	28%	21.4%	26.2%	28%
Gr 7 – Math	34.6%	14.7%	36%	36.2%	34.4%	37%
Gr 7 – Reading	73.1%	47.1%	56%	59.6%	57.4%	60%
Gr 7 – Writing	50.0%	35.3%	48%	38.3%	34.4%	47%
Gr 8 – Math	18.8%	19.1%	29%	-	-	29%
Gr 8 – Reading	65.6%	66.7%	56%	-	-	61%
Gr 8 – Science	12.5%	9.6%	15%	-	-	16%
Gr 9 – Social Studies	34.7%	-	33%	28.1%	24.6%	29%

As indicated in the table, student performance at the Michigan's Connections Academy was lower than the statewide average in eight of 18 areas tested in 2010, and nine of 15 areas tested in 2011. The Michigan Virtual Academy also had poor results, lower than the state average in nine of 17 areas tested in 2010, and 13 of 15 areas tested in 2011. Nevertheless, in the spring of 2011, only months before the mandated Department of Education review, the legislature was persuaded to remove all meaningful restrictions. The state's Senate Bill 619 removed the cap on the number of virtual charter schools in Michigan and limited enrollment going forward for each virtual charter school to 2,500 students in the first year, 5,000 students in the second year and 10,000 students after the second year.

While Michigan offers another example of how influence operates, it also offers an illustration of the potential research does have to influence policy and practice. In 2012 its legislature directed the Michigan Virtual University to create the MVLRI, a state-supported research center. As one of its duties, the institute was to "analyze the effectiveness of online learning delivery models . . . [by] highlighting enrollment totals, completion rates, and the overall impact on pupils."[58] In addition to this specific mandate, Section 98 of the State School Aid Act also directs MVLRI to research ways to strengthen teaching in 19 discrete

areas (see Appendix II-D). While it is debatable how well the MVLRI achieves each of these mandates annually, the 19 discrete topics certainly represent a wide range of issues related to how K-12 virtual and blended learning opportunities might be better designed, delivered, supported, and regulated. Unfortunately, the fact that this institute exists and produces research that *could* inform public policy does not guarantee that it *will*.

As one example, Michigan's *K-12 Virtual Learning Effectiveness Report* for the 2012-13 school year indicated that enrollment in virtual learning had doubled over the prior two years—an unsurprising development, given the removal of all meaningful enrollment restrictions. It also reported that full-time virtual charter schools had significantly higher rates of student withdrawal and a slightly higher rate of student failure than students in brick-and-mortar schools.[59] The following year, the report indicated students in virtual schools still had a completion rate approximately 25% lower than that of students in traditional schools. Interestingly, while full-time virtual charters and district-based supplemental programs performed poorly, students attending the state-funded Michigan Virtual School performed much better.[60] Similarly, the 2014-15 *K-12 Virtual Learning Effectiveness Report* found students in virtual schools and programs had a completion rate approximately 30% lower than that of students in traditional schools, although again, the rate in the Michigan Virtual School was more than 20% better.[61] The two most recent reports also found disappointing pass rates as well. In 2017-18, the pass rate for students in full-time district virtual schools was 47%, while that for students enrolled in other virtual charters was 53%, well below the 79% pass rate for students in brick-and-mortar schools. Similarly, the 2018-19 report found the pass rate for students in district virtual schools to be 51% and for students in virtual charter schools 49%—again, far below the 76% for students in traditional schools.[62]

Given that an independent body was required by law to report this consistently negative data, legislators and policymakers might have been expected to take action to improve the quality of education in full-time virtual charter schools and/or to extend the relative success of the state's own supplemental virtual program. Yet, the next section of this report, focused on policy issues, indicates that none of the five bills introduced or passed in Michigan during the 2019 and 2020 legislative sessions focused on meaningful regulation relative to the poor performance of Michigan's full-time virtual schools, or to any of the other 19 areas that MVLRI must research.

It is evident that the mere existence of a state-funded research center cannot guarantee that its work will shape policy. However, the work of MVLRI has nevertheless surely benefitted practice of virtual and blended education in the state, especially during the time of pandemic emergency remote learning. For example, MVLRI maintains *Michigan's Online Course Catalogue* that lists every online course available to students in the state and provides a description of how the course is taught, which program/vendor offers it, its previous student completion rates, and much more that schools can use when seeking supplemental or full-time virtual offerings for students.[63] In addition, the Institute has developed research-based guides to online learning for students, parents, school-based mentor teachers, online teachers, school board officials, and administrators.[64] It has also provided a research-based tool for school leaders to review online courses,[65] and *Strategies for Online Success* orientation modules for students new to online learning.[66] During the pandemic, MVLRI has provided teachers with access to 17 webinars and over 200 courses for professional learning based

on needs identified in its research,[67] and it also created a series of resources and learning opportunities specific to remote teaching.[68] Finally, in 2020, MVLRI undertook a systematic review of all the research it had produced since 2012 to generate thematic lessons learned for both practitioners and policymakers.[69] So, although legislators and policymakers may not have used MVLRI research to guide their work, teachers and school/district leaders have received significant benefit from the Institute.

Issues in the Research

It would be easy to blame only legislators and policymakers for ignoring existing research. But that would be intellectually dishonest, since researchers themselves are partly responsible for the problem. Scholars have long complained about shortcomings in the work that limit its practical application. For example, 15 years ago one scholar argued that one reason for weak research could be "placed on the doorstep of the research community for a lack of theoretical rationale."[70] Nearly a decade after online learning first expanded, scholars were noting a lack of rigor, with much being research produced by ideological think tanks or found in unpublished graduate theses and dissertations.[71] At the time, some thought the existing work constituted foundational descriptive work that often precedes experimentation in any field.[72] However, in 2015 other researchers noted that the criticism remained valid.[73]

Over the past four years, Farhad (Fred) Saba's critique of the field of distance education has informed a line of inquiry into the state of research into K-12 online and blended learning.[74] In his work, Saba identifies confusing terminology, a lack of historical perspective, absence of construct validity, and a focus on discrete elements rather than systemic relationships as characteristic of research in the field.[75] In addition, the field is characterized by American-centrism.[76] I discuss each of these limitations below.

Confusing Terminology

Over the years, researchers have used a variety of terms to describe education provided wholly or partly online. Some have used terms interchangeably, while others have used multiple terms for the same context. Generally, academics have used "K-12 online learning" to refer to the overall field, "virtual schooling" to refer to supplemental forms of K-12 online learning (with students taking one or more courses online while enrolled in a brick-and-mortar school), and "cyber schooling" to refer to full-time forms of K-12 online learning.[77] However, the International Association for K-12 Online Learning (now the Aurora Institute, but referred to in this report by the better known acronym iNACOL), the main professional association for K-12 online and blended practitioners, defines online learning as "education in which instruction and content are delivered primarily over the Internet," which iNACOL instructs can be used interchangeably with virtual learning, cyber learning, e-learning, virtual school, eSchool, and online school.[78] Such conflated terminology means that researchers cannot compare the results among studies because they simply do not know if the same thing is being compared. As a result, important literature may not be recognized, frustrating efforts to build a field based on what is already known.

Recently, the problem has grown as the COVID-19 pandemic forced schools to rapidly transition to at-home learning. The academic community has generally termed this transition during March and April of 2020 as "emergency remote teaching."

> In contrast to experiences that are planned from the beginning and designed to be online, emergency remote teaching is a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances. It involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated. The primary objective in these circumstances is not to re-create a robust educational ecosystem but rather to provide temporary access to instruction and instructional supports in a manner that is quick to set up and is reliably available during an emergency or crisis.[79]

Teachers and schools, legislators and policymakers, and the general media, however, have used a variety of terms to describe newly organized virtual schooling, which has persisted in many places into the 2020-21 school year.

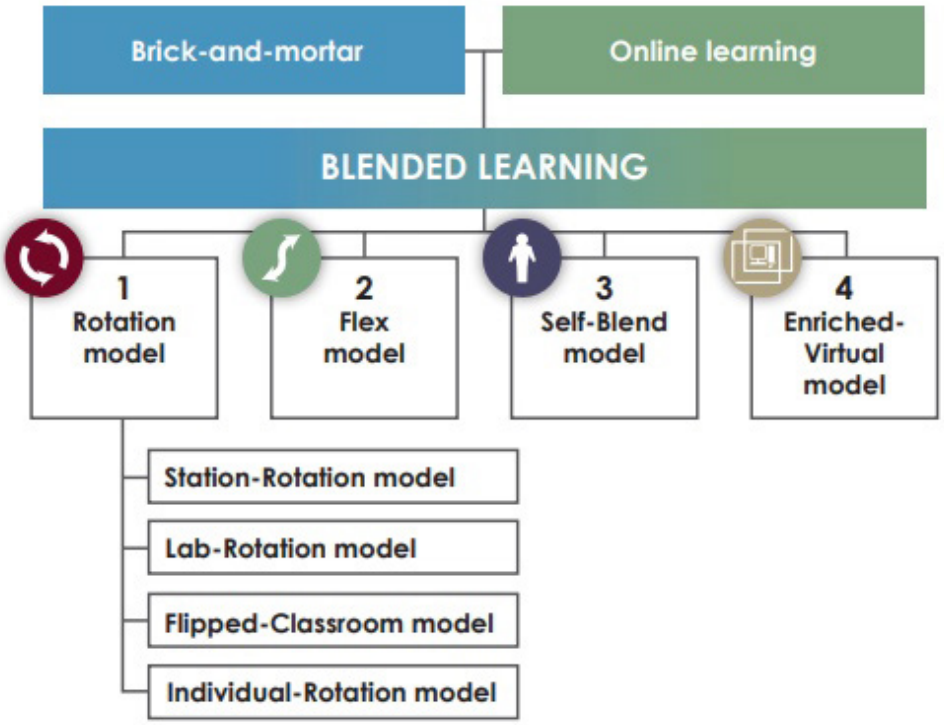
The failure to recognize that much recent K-12 online learning was always intended to be temporary has led to still more confusion about what is known. For example, since January 2020 an *Education Week* series has offered research syntheses intended to be useful to practitioners and policymakers.[80] One article begins, "The times have dictated school closings and the rapid expansion of online education. Can online lessons replace in-school time?" [81] While pandemic conditions are noted as the prompt of the article, the research overviewed was not specific to the temporary context. Instead, it drew on research on various other configurations, including: a teacherless, database-driven online credit recovery program; full-time virtual charter schools; a variety of online credit recovery programs with multiple delivery models, including teacher-led vs. teacherless, summer school vs. regular school year, public vs. for profit EMO, and so on. Only one of the articles surveyed examined any context similar to the home-based experience during the pandemic, that of full-time virtual charter schools. However, even that was a statewide study asking how effective well-established, primarily for-profit virtual schools had been—hardly comparable to a local school district creating an entirely new full-time online program in a matter of days.

Unlike online learning, more easily identified by geographical separation between student and teacher, blended learning is even harder to define.[82] The definition from iNACOL is:

> 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.[83]

However, this seemingly straightforward definition has often been confounded by "the dynamic and evolving conception of blended learning."[84] For example, consider the variety of terms in the Christensen Institute's taxonomy (see Figure 2.3).

Figure 2.3. Taxonomy of Blended Learning[85]



In particular, this model means that "flipped classroom model" research is often not labelled as blended learning, and "enriched virtual model" could be conflated with virtual learning.

Again, the pandemic has introduced another confounding factor in terminology. Many formal definitions—such as the one offered by iNACOL—have suggested that blended learning and hybrid learning are synonyms, but during the pandemic many schools adopted a hybrid model of learning similar to the one illustrated in Figure 2.4.

Figure 2.4. Hybrid Learning Model for Flexible Learning During the Pandemic[86]

Monday	Tuesday	Wednesday	Thursday	Friday
Learning Group A **In-Person**	Learning Group A **In-Person**	**Flex Learning Day** for all students	Learning Group A **Distance Learning**	Learning Group A **Distance Learning**
Learning Group B **Distance Learning**	Learning Group B **Distance Learning**		Learning Group B **In-Person**	Learning Group B **In-Person**

In this hybrid model, students are either engaged in in-person learning or in distance learning—but they have no control over time, place, path, and/or pace, as stipulated in the iNACOL definition. Yet, blended and hybrid are also thought to be interchangeable terms. In still other models, some students are in the classroom (i.e., "roomies"), while others are at home ("i.e., "Zoomies"), and the teacher is in the classroom offering live instruction to

both groups, with lessons being synchronously streamed to the remote students—sometimes called concurrent teaching or co-seating. Figure 2.5 summarizes some of the overlap and inconsistency in the descriptions of the different modalities.

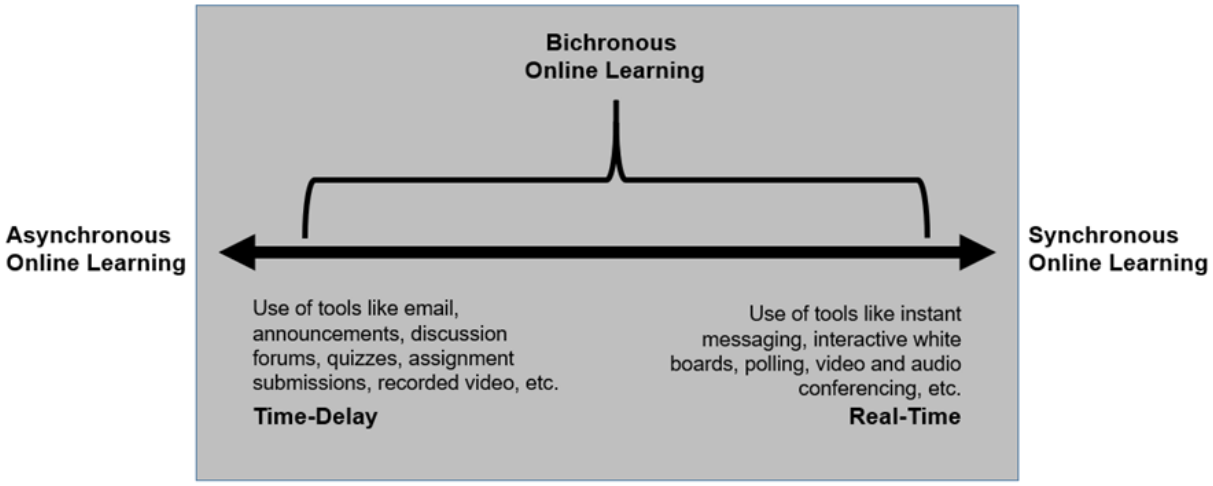
Figure 2.5. Merging Modality Models[87]

	f2f	synchronous concurrent	synchronous consecutive	asynchronous consecutive	open access
Blended (Hybrid)	X		X^	X^	
HyFlex	X*	X*		X*	
Multi-Access	X^	X^	X^	X^	X^
Blended Synchronous (Synchronous Hybrid)	X*	X*			

Note: Asterisk (*) designates where learners have the option to swap between modes. Caret (^) designates where modality or access options exist for learners and may provide options to swap between modes but are dependent on design.

There have even been recent attempts within the literature to synthesize synchronous and asynchronous modalities (see Figure 2.6).

Figure 2.6. Conceptual Model for Bichronous Online Learning[88]



http://nepc.colorado.edu/publication/virtual-schools-annual-2021

As one researcher summarized, "what used to be a simple binary of face-to-face or online has now become so extremely complex that our ability to understand each other is impaired."[89] The profusion of contested and conflated terms means it is exceedingly difficult for researchers to make meaningful comparisons among different types of contexts and to build a solid, readily accessible literature base. Even worse, practitioners and policymakers are stymied in their efforts to understand what is being found and to use new knowledge to guide their work.

Lack of Historical Perspective

The lack of historical perspective is not a new problem. For example, in the preface to the first edition of the *Handbook of Research on K-12 Online and Blended Learning*, the editors wrote that "although most of the people doing work in the area knew each other (and even occasionally worked together), many new to the field thought that they were discovering K-12 online and blended instruction for the first time."[90] This is an especially concerning issue because so many publishing scholars are new to the field and so much research is published in obscure outlets, as discussed above. Combined with confusing terminology, fragmentation in authors and publications further erodes researchers' ability to situate their own work within the field's origin and conceptual growth. Additionally, practitioners and policymakers turning to ahistorical research may develop a skewed understanding of the field.

As one example, the COVID-19 pandemic is not the first time emergency school closings have has prompted technological innovation in education. During the Spanish flu outbreak in 1918-19, students in Long Beach used the telephone to continue learning as schools closed. Because telephone technology was only 40 years old at the time, "the fact that California students were using it as an educational device was so novel that it made the papers."[91] Historically, school leaders confronted with such emergencies have repeatedly turned to the most popular technology in use at the time. The reliance on new technology, however, means that useful technological strategies refined through experience are typically ignored.

A prime example of a well-developed, successful distance learning strategy is correspondence: paper packets of educational materials mailed to students for use at home. In 2009, after H1N1 influenza forced nearly 750 schools to close, affecting nearly half a million students, researchers looking to history for lessons found that during the Spanish flu pandemic, the Los Angeles district created correspondence modules to allow students to continue their education at home, as well as to provide teachers with professional learning opportunities. Scholars citing the event in a 2020 article noted that "Los Angeles offers an interesting model for contemporary schools interested in creating Internet-ready study materials or valuable professional activities for instructors in the advent of school closure." [92] Recently, the Los Angeles district leaders innovated again by turning to an older technology for distance learning: television. Even before any schools were closed in March, 2020, the Los Angeles Unified School district announced a plan with a Southern California Public Broadcasting System station to draw educational programming from its library for daily broadcast, providing instruction for students throughout the school day.[93]

While some jurisdictions struggled with getting devices into the hands of students and/or the ability of students to connect devices to the internet, a few used the lessons—and tools—of the past to overcome obstacles. However, when research routinely fails to highlight useful lessons from the past, policymakers are left to focus solely upon new, shiny technology and to hope that one day research catches up.

Absence of Construct Validity

Essentially, construct validity is how well something measures what it is designed to measure. To date, efforts have been made to validate only three measurement tools in the field of K-12 online and blended learning: the Educational Success Prediction Instrument; the Parental Involvement Mechanisms Model Instrument; and the K-12 Blended Teaching Readiness Instrument.[94] Because validated instruments are the building blocks for models—and eventually conceptual and theoretical frameworks—the lack of validated instruments useful to the field has inhibited development of theory.

Some researchers have made limited use of theories from other fields,[95] but "theoretical work takes place against a background of disciplinary assumptions that may not be evident to those seeking to import a theory."[96] For example, theories from the broader field of distance, online, and blended learning are often based on adult learners, who are very different from adolescents and children in their orientation to learning. This lack of explanatory models and theories is crucial, because they are central to the creation of new knowledge. In addition, they often provide a common language and focus for specific scholarly communities.[97]

Lacking validated instruments, then, research in the field of K-12 online and blended learning has been largely atheoretical, problematic because "we must make sure that what is passing as good theory includes a plausible, cogent explanation for why we should expect certain relationships in our data."[98] Theory helps advance a field as it "seeks to achieve progress in solving problems . . . [and should] be developed to uniquely fit the needs of the field and [should] be particularly adept at attending to the concerns of . . . practitioners and scholars."[99] To date, the only theory development relative to this field has been the Academic Communities of Engagement (ACE) framework.[100]

Unsurprisingly, vendors have stepped into this void to play a significant role in driving adoption of their tools and pedagogies. Even as corporations confidently promote internal research on their products, however, their practice shows little regard for the reliability, validity, or independence of their work.[101] Experience with corporate-produced curriculum argues persuasively that any measurement tools they produce should be viewed with heavy skepticism.

NEPC researchers have long expressed concerns about the role of corporate vendors in the K-12 classroom. A decade ago, for example, a report on school commercialism for the 2010-11 school year included a discussion of both Shell Oil Company's "Energize Your Future" curriculum that portrayed the company as a leader in alternative technologies, and the American Coal Foundation's "The United States of Energy" fourth-grade curriculum that

emphasized several states' use and production of coal.[102] In each case, corporate image and interests were prioritized over facts. Eventually, a coalition of advocacy groups succeeded in pressuring Scholastic to stop publishing the latter and to vow to pull back generally from publishing corporate-sponsored materials.

While the benefits of coal may seem like an extreme example, the adoption of vendor-created curriculum prior to and during the pandemic has included equally questionable content. For example, activists posted the following bits of online curriculum from vendor Acellus.

> One lesson . . . depicted one animal character asking a pig in make-up why she's called "sweetie lips," to which the pig blushed and replied, "Don't ask. We're not even going there."
>
> Another lesson asked students, "Osama Bin Laden was the leader of what terrorist group?" One of the multiple-choice answers was "Towelban." Another lesson describing Harriet Tubman's escape from slavery was illustrated with an image of a masked bank robber.[103]
>
> . . . a first-grade language arts video lesson . . . shows an Acellus instructor teaching about the letter "G." As she pulls something from the box in front of her, she says, "Watch out! Ooh, it's a gun," and removes a silver toy gun.[104]

The Hawaii Department of Education had used this curriculum for over a decade, exposing thousands of students to this kind of content, before any objections were raised.[105] In fact, it wasn't until many school districts adopted the Acellus online curriculum as a response to teachers' need for online content during the pandemic that these examples were exposed. Many districts stopped using the curriculum following the revelations.[106]

Given that policymakers typically turn to whatever materials or tools are most readily available, the lack of validated measurement instruments in the field that so badly needs them is a critical concern. Commercial vendors, who have consistently proven themselves to produce only self-interested educational materials, will be only too happy to fill the void—likely making matters worse if researchers turn to them instead of developing valid instruments themselves.

The Need for a Systems View

In what may be the most developed aspect of his broader critique of the field of distance education, Saba argues that research in the field has too often focused on the discrete components of design, delivery, and support efforts. Instead, Saba has consistently argued that scholars should work to help develop a more comprehensive or systems view of understanding the field.[107] From his perspective, the more a system is broken down into parts, the less is understood about interactions within the whole. Further, when researchers dismiss the big picture, they can develop a kind of monovision, and the individual research fragments they produce can be combined in oppositional ways. And this does appear to be happening; most current research investigates discrete components of design, delivery, and support efforts.

One example of the focus on discrete elements is how iNACOL distinguishes between online learning and blended learning—and promotes a personal learning approach assessed through a competency-based education model that uses blended learning pedagogies.[108] The lack of historical perspective described above also promotes monovision, with K-12 online learning researchers ignoring past, successful distance education strategies such as correspondence and instructional radio and television. Also ignored is the wealth of research into various forms of technology integration.

In contrast, in designing the ACE Framework, scholars worked toward describing how a K-12 student engages in an online or blended course by exploring the interplay among the student's ability and the affective, behavioral, and cognitive supports provided by both the course and the larger community.[109] That is, they worked to build an understanding of the student within the education system in its entirety. Unfortunately, research into the discrete elements has been and continues to be the dominant focus of research in the field to date.

The lack of coherence generated by alternative approaches has not only hampered the amount and quality of research in the field, it has also confused or misdirected those wanting to use it. For example, teacher preparation is based on accepted, research-supported systems. However, together they produce real-world efforts lacking in overall coherence. Asked about motivation, teacher educators would confidently point to the theories of Albert Bandura; asked about instructional design, they would likely refer to Gagné's nine events of instruction. In recent years, SAMR (substitution-augmentation-modification-redefinition) has become the accepted model for helping teachers infuse technology into instruction. These common examples of theories, frameworks, and models are well supported by research. Divergent approaches in the research have limited K-12 online and blended learning scholars' ability to undertake the kind of systems thinking evident in the ACE Framework, and these broader education examples.

In fact, so fragmented has the research become that teacher preparation programs cannot even determine what future teachers who may be working in an online or blended environment should be exposed to. A 2011 survey of teacher preparation programs found that only 1.3% of the 522 responding universities indicated any focus on virtual learning;[110] in 2016, the percentage for 363 respondents to the same survey rose to only 4.1%.[111] Despite the fact that teacher preparation programs have had an emphasis on technology integration for decades, typically focusing on online tools and curriculum, both studies found fewer than 5% of the teacher education programs surveyed reported having any content specifically designed to prepare teachers for work in K-12 online and blended environments.

One reason is that the vast majority of such programs include a stand-alone course for technology integration,[112] rather than integrating or infusing instruction throughout the program (as is recommended by the U.S. Department of Education[113])—making the topic a discrete element of a fragmented program rather than part of a unified system of instruction. Under normal circumstances, when only approximately two million K-12 students engage in supplemental online learning and an estimated 400,000 K-12 students are enrolled in full-time online learning schools, the lack of preparation affected only a small minority of teachers. However, with the pandemic and the near complete closure of K-12 schools in March 2020, the reality that most teachers were unprepared to facilitate online learning became a prob-

lem for the entire K-12 system.[114] Ignoring that the whole is indeed greater than the sum of its parts has done much to minimize coherent research useful to those seeking guidance.

American-Centrism

The vast majority of scholarship in the field focuses primarily on the U.S. (and, to a lesser extent, North America), even though much K-12 online and blended learning is happening outside it.[115] Evidence includes the analysis of articles in the *Journal of Online Learning Research* discussed earlier, which reported five articles either with no specific geographic focus or for which location could not be determined; however, 91% of all articles with a geographical focus were reporting on the U.S.[116] Following publication of the analysis, the journal's editors acknowledged that they viewed the "finding as an opportunity to better focus on international research and launched the international section in the last issue."[117] Nevertheless, since the editors made this statement, only a single article has had an international focus.[118] There is no intention here to single out the *Journal of Online Learning Research*. As also noted above, researchers who compiled the data set allowing for this analysis themselves concluded one of the reasons some articles received few citations was that they focused on programs or were published in outlets outside of the U.S.[119] Further, an earlier analysis of articles published in the *American Journal of Distance Education* (U.S.), *Distance Education* (Australia), the *Journal of Distance Education* (Canada), and the *Journal of Distance Learning* (New Zealand) from 2006 to 2010 reported that over half of the 24 articles published in these journals focused on the U.S. as well.[120] This limitation has been both consistent and pervasive.

Again, such restricted vision limited responses to school closings during Spring 2020, with media widely questioning schools' and educators' preparedness to shift to a full-time online environment: "How prepared are teachers, parents for remote learning?" or "'We just weren't prepared': Knox County Schools superintendent on coronavirus shutdown" or "New York's Andrew Cuomo asked why the country wasn't ready for a mass shift to online education."[121] Such concerns continued into the fall as schools began to reopen for the 2020-21 school year, asking similar question like, "As districts return to remote learning, are they any better prepared?"[122] Over the past decade, many have called for online learning as a remedy for short-term closures like snow days.[123] Why *weren't* U.S. schools better prepared to react to the pandemic?

It is likely that at least part of the answer to that question is that since U.S. researchers were pursuing their own fragmented, U.S.-centric agenda, they failed to take much notice of activities in other countries—some of which had been preparing for emergency situations as early as 2010.

> In Singapore online and blended learning was so pervasive that teaching in online and virtual environments was a required course in their teacher education programs and schools are annually closed for week-long periods to prepare the K-12 system for pandemic or natural disaster forced closures.[124]

Similarly, a 2011 report from iNACOL detailed how a number of private schools in Bolivia

developed virtual classrooms and trained teachers for that environment following high absenteeism during the H1N1 influenza pandemic of 2009.[125] The same report noted the public school systems in places like Hong Kong and Singapore had followed a similar trend. Perhaps Hong Kong was the first to identify the need when schools closed due to the SARS outbreak in 2003 and emergency remote learning was implemented.[126] Afterward, schools began planning for a more formal use of online learning for future disruptions. When the H1N1 outbreak in 2008 closed schools, online learning provided continuity for some 560,000 students.[127] Similarly, scholars at the University of Canterbury in Christchurch, New Zealand described how remote learning was used in "the immediate post-earthquake challenges of redesigning courses using different blends of face-to-face and online activities to meet the needs of on-campus, regional campus, and distance pre-service teacher education students."[128]

This is not to suggest that jurisdictions like Singapore, Bolivia, Hong Kong, or New Zealand are geographically or educationally similar to the U.S. However, each illustration demonstrates how a pandemic or natural disaster led policymakers to examine their education systems, along with the opportunities and limitations of their geography, to develop and execute a plan for future short-term and long-term disruptions. Historically, policymakers in the U.S. have been fond of adopting educational policy shown to be successful in international jurisdictions. Had more attention been paid to virtual and blended learning experience outside the U.S., as well as to earlier experiences within it, practitioners and policymakers might have developed initiative and strategies for their own education disaster planning.

Summary and Recommendations

Research from NEPC has aligned with literature in the broader field of K-12 online and blended learning by consistently finding that students in both virtual and blended schools generally underperform their counterparts in brick-and-mortar schools, even as those schools serve fewer at-risk students than traditional schools.

Virtual and blended education have nevertheless continued to grow, outpacing the availability of useful research. However, even in areas where the literature has provided guidance, legislators and policymakers have consistently failed to act to impose additional oversight and accountability—even as the MVLRI made good data and useful information available to practitioners and leaders, concretely demonstrating the potential for research to help shape good practice.

Both the available literature and investigative journalism have demonstrated that a main reason legislators and policymakers ignore the research is that corporations and ideologically driven individuals and organizations wield significant influence by generously funding select activities and persons. It would be dishonest, however, to say that these advocates were solely to blame. Recent scholarship has indicated that research into K-12 online and blended learning is still immature; researchers have not yet been able to build a credible base to provide practitioners with a solid body of strategies to adopt. The confusion, fragmentation, incoherence, and limited vision in the research base allows professional associations and nonpartisan organizations to choose selectively among often oppositional alternatives, al-

lowing policymakers to ignore research that doesn't support their own beliefs. In addition, the lack of a credible research base exacerbated difficulties when the COVID-19 pandemic forced abrupt school closings and rapid shift to online instruction in 2020.

Given these factors, it is recommended that:

- State and federal legislators create goals for a comprehensive research program designed to help develop policy for, and improve practice in, virtual and blended schools.
- State and federal legislators either create new independent entities, or support existing ones, charged with undertaking long-term research programs to evaluate virtual and blended schools.
- Researchers in the field design future efforts with a focused effort to avoid known limitations in existing literature.

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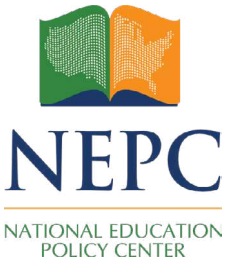

Section III
Key Policy Issues in Virtual Schools: Finance and Governance, Instructional Quality, and Teacher Quality

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May 2021

Executive Summary

This section draws from a comprehensive analysis of all proposed and enacted virtual school legislation in 50 states during the 2019 and 2020 legislative sessions, building on earlier reports detailing seven years of activity in the 2012-2018 sessions. We again focus on whether legislatures have been moving closer to or further from core recommendations advanced in this NEPC series, and on whether this or other relevant research is informing legislative action. Our analysis revealed a continued decrease in activity consistent with our 2017 and 2018 findings, although bills attempting to increase oversight continue being proposed. As in previous reports, we found little evidence to indicate that emerging research is informing legislative action. This section also analyzes bills specific to state responses to the COVID-19 health emergency in the 2020 legislative session.

Based on this review and analysis, it is recommended that policymakers:

- Develop new funding formulas based on the actual costs of operating virtual schools.
- Develop new accountability structures for virtual schools, calculate the revenue needed to support them, and provide adequate funding.
- Establish geographic boundaries and manageable enrollment zones for virtual schools by implementing state-centered funding and accountability systems.
- Develop guidelines and governance mechanisms to ensure that virtual schools do not prioritize profit over student performance.

http://nepc.colorado.edu/publication/virtual-schools-annual-2021

- Require high-quality curricula, aligned with applicable state and district standards, and monitor changes to digital content.
- Assess the contributions of various providers to student achievement, and close virtual schools and programs that do not contribute to student growth.
- Implement a nationwide longitudinal study across multiple providers and with interim checkpoints to assess the quality of the learning experience from the student perspective.
- Delineate the definitions of adequate quantity of instruction to ensure subject mastery.
- Define certification training and relevant teacher licensure requirements specific to teaching responsibilities in virtual schools, and require research-based professional development to promote effective online teaching.
- Address retention issues by developing guidelines for appropriate student-teacher ratios and attending to other working conditions (for example, student attendance) that may affect teachers' decisions about where to work.
- Work with emerging research to develop valid and comprehensive teacher evaluation rubrics specific to online teaching.
- Identify and maintain data on teachers and instructional staff that will allow education leaders and policymakers to monitor staffing patterns and assess the quality and professional development needs of teachers in virtual schools.
- Examine the work and responsibilities of virtual school principals and ensure that they are prepared with the knowledge and skills to be effective, particularly with respect to evaluating teachers and promoting best practices.

Section III
Key Policy Issues in Virtual Schools: Finance and Governance, Instructional Quality, and Teacher Quality

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May 2021

As evidenced in this series of policy reports, policymakers continue to struggle to reconcile traditional funding structures, governance and accountability systems, instructional quality, and staffing demands with the unique organizational models and instructional methods associated with virtual schooling. State legislatures continue to respond to inherent challenges, in part by proposing bills intended to increase oversight; however, fewer than 25% of bills proposed were enacted in 2019 and 2020. In addition, little evidence suggests that emerging research is informing legislative actions.

Below we revisit critical policy issues introduced in our earlier reports, specifically:

- Finance and governance
- Instructional quality
- Teacher quality

Beginning with the 2013 report, we defined these areas and began surveying emerging research relative to them; then, in the 2014 report we shifted our focus to legislative activities characterizing how states were addressing evolving virtual school models. The last four annual reports have analyzed legislation, examining all proposed and enacted virtual school legislation in 50 states from 2012 through 2018. Early analysis of 2012 and 2013 bills served as a baseline allowing us to identify and track more recent trends, up to and including the comprehensive analysis of all virtual school legislation introduced in 2019 and 2020, presented here. We also add a new section specific to bills responding to the COVID-19 crisis in

the 2020 legislative session. In addition, we draw on our own research, recent policy reports and research, and popular press accounts. To provide context, we reintroduce and provide updates to critical policy issues, relevant assumptions, and unanswered empirical questions. To conclude each section, we advance policy recommendations and offer thoughts on next steps for research and policymakers.

Overview

Our nationwide, comprehensive analysis of all 2019-2020 proposed and enacted virtual school legislation drew on the FiscalNote Bill Tracking Database. Keywords searched were: cyber, virtual, online, technology, non-classroom-based, distance learning, digital learning and blended learning.[1] Our analysis sought bills targeting new, revised or revoked programs specific to K-12 virtual education. This analysis provides a richer understanding of how legislators are promoting, revising, and curbing evolving virtual school models compared to previous years. In addition, analysis of seven earlier legislative sessions allowed us to track whether legislative trends are moving closer to or further from our earlier recommendations.

We found that in 2019, 58 bills were proposed in 23 states: 17 were enacted, and 41 failed. (See Appendix III-A, which provides a comprehensive listing as well as summaries of relevant bills). In 2020, 59 bills were considered in 23 states: nine were enacted, 42 failed, and eight are pending. In total, 29% of bills proposed in 2019 and 15% of bills proposed in 2020 were enacted. The raw number of bills introduced continues to decrease consistent with a trend first observed in 2018, when a significant drop appeared.[2] However, as detailed momentarily, the focus on specific themes has remained constant since 2012.

In 2019, 23 states considered legislation and 13 states enacted at least one bill. Much of the activity occurred within a relatively small number of states: Oklahoma (11), Pennsylvania (7), Texas (7), Oregon (5), and Indiana (4). In 2020, 23 states considered legislation and eight states enacted at least one bill. Again, very few states—nearly the same as those in 2019—accounted for most activity: Oklahoma (19), Pennsylvania (6), Indiana (5) and Ohio (4). Consistent with findings in earlier reports, Pennsylvania and Oklahoma saw most activity both years.

Typically, proposed legislation ranged from narrow to sweeping. Three trends were significant, two continuing from previous years and one newly emerging. As in the past, many bills targeted funding issues, including costing-out virtual school models, proposals to reduce funding, and proposals to curb profiteering. Also similar to prior years, in the 2019 and 2020 legislative sessions a body of substantive legislation indicated interest in topics generally related to governance: pilot programs, task forces, oversight commissions, and state boards to study and oversee virtual schools. Some bills, not surprisingly, couple both governance and finance, as when a task force might have been proposed to investigate a particular funding issue. A third newly emerging trend was an increase in legislation specific to moratoriums or closures of virtual schools. In addition to these continuing and strengthening trends, also notable is an area where interest has been fading recently: Bills related to cyber security and student data privacy issues have decreased significantly.[3]

As is true for nearly all of recent experience, the COVID-19 pandemic has had a significant impact on legislation. As we examined specific bills and isolated their topics, we found that many addressed the issues of instructional and teacher quality in the context of a health emergency and nationwide school closures. Therefore, rather than providing an overview here, this report concludes with an analysis of COVID-19 related bills.

Three charts in Appendix III-A highlight the main themes covered by select bills. Analysis of the substance of select bills is integrated into the following sections with a focus on states exhibiting significant legislative activity and bills that address the three policy areas. Each section concludes with an assessment of how legislative developments during the past eight years have moved policy closer to or further from addressing the critical policy issues outlined in our recommendations.

Finance and Governance

Despite increased attempts to identify funding, governance and accountability mechanisms to strengthen oversight of virtual schools, policymakers and practitioners continue to face challenges in these areas. Legislatures continue to advance bills proposing task forces and boards to oversee implementation challenges, although there is limited evidence concerning how and whether such attempts have been informed by the findings and recommendations of past task forces, state studies and empirical research. There is, however, substantive evidence that state audits and legal challenges have prompted continued efforts to improve accountability and governance structures and to address profiteering. In 2019-20, such efforts were especially evident in Pennsylvania and Oklahoma, as detailed below.

Linking Funding to Actual Costs of Virtual Schools

To date, and despite many attempts to enact legislation addressing funding issues, no state has implemented a comprehensive formula that ties funding allocation directly to virtual schools' actual costs and operating expenditures. Policy debates persist, both because of cost differences between virtual and traditional schools and because of other policy considerations. Developing a comprehensive formula would involve gathering sound and complete data on virtual schools' costs and expenditures related to governance, program offerings, types of students served, operational costs, student-teacher ratios and other factors. As in previous reports, our exhaustive search on this topic has not found an empirical study that accounts for the true cost differentials of traditional and virtual schools.[4] However, new evidence shows states attempting to develop a more methodical funding approach through directives for task forces and state studies intended to provide policymakers with reliable data to guide their decisions. Proponents of more finely tuned funding include charter school advocates, who have called for legislatures to align per-pupil funding with the actual costs of educating virtual school students.[5]

As in past years, and as new task forces and oversight committees have begun studying cost differentials, legislation has been introduced—and in some instances enacted—to revise vir-

tual school funding. Policymakers' sustained attention on virtual school funding makes clear funding is a key concern. The Pennsylvania legislature has consistently been a frontrunner in attempts to calibrate funding formulas as virtual charter schools have grown, yet their efforts to enact bills addressing funding have repeatedly failed.[6] With the governor's support, over the last two years the legislature has repeatedly called for changes in funding formulas for all charter schools.[7] Cases of mismanagement have fueled the push for reform. Eugene DePasquale, the state's Auditor General, has continually recommended developing new systems to increase accountability for virtual charters and to eliminate incentives for profiteering.[8] In January 2020, he declared that "The General Assembly should revisit Pennsylvania's charter school law—which I believe is the worst in the nation—to make sure our limited education funding is not being diverted to benefit private companies."[9] His investigation into Lincoln Learning Solutions' two charter schools uncovered several questionable accounting practices, including: a 148% pay raise for the CFO between 2014 and 2018; over $622,000 in expenses for lobbying the state legislature during the same years; and, an unusually high reserve fund of $81.8 million.[10]

In 2019, the Pennsylvania legislature proposed three bills that called for a wide range of actions linked to costing-out the operations of cyber charter schools. To determine the actual cost of educating students in virtual charters, one bill (PA HB 1450) proposed establishing a Cyber Charter School Funding Advisory Commission charged with studying virtual school operations as well as school finance laws in Pennsylvania and other states. Afterward, the commission would be charged with making recommendations for changes in the Pennsylvania charter school law to implement more appropriate funding formulas. Similarly, two additional bills (PA HB 1449 and PA HB 1612) proposed that the Legislative Budget and Finance Committee and the Department of Education, respectively, conduct comprehensive costing-out studies of all charter and cyber charter schools. Two bills in the state went beyond calling for such studies. A moratorium on the "formation and approval of new cyber charter schools and the expansion of existing cyber charters" was proposed to allow the Legislative Budget and Finance Committee time to conduct its study and disseminate results (PA HB 1449).[11] Another bill (PA HB 1897) called for the extreme measure of closing all virtual charters by the end of the 2020-21 academic year and suspending new applications for them. The bill also proposed allowing only districts to operate full-time cyber programs and restricting outside contracting for necessary support services to non-profit entities. As has consistently been the case in recent legislative sessions, all of these to address funding issues in virtual schools failed.

Costing-out was also of interest in other states, including Arizona and Oklahoma, during 2019 and 2020. In Arizona (AZ HB 2891), the legislature proposed that the State Auditor General "conduct and complete a cost study of Arizona online instruction in this state."[12] The comprehensive study would examine: "administration, technology, personnel and curriculum costs"; the percentage of online courses offered via synchronous instruction; and total funding supporting all online education in the state. Another bill (AZ HB 2526) proposed a progressive reduction in funding based on percentages of the base rate for students in traditional schools: 95% for the first 200 students; 80% for 201-1,000 students; and 60% for over 1,000. Both proposals failed.

In Oklahoma, two bills (OK HB 3065 and OK SB 1365) also proposed reductions in per-pu-

pil allocations. One bill (OK HB 3065) called for a flat rate drawn from all public and private sources not to exceed $3,500. A second bill (OK HB 1365) called for a 5% reduction in per-pupil funding for statewide virtual schools with enrollment over 5,000. Both failed. This is perhaps not surprising because although the legislature proposed 30 total bills in 2019 and 2020 relating to virtual schools and programs—more than any other state—only five were enacted.

While interest in making adjustments to funding based on real costs continues, little evidence suggests that policymakers are drawing on either the results from their own state studies or on evidence emerging from other research. Absent a wider empirical accounting of real costs, legislative proposals seem likely to continue to be fueled more by political motivation than by reliable evidence.

Identifying Accountability Structures

Governance accountability structures should ensure that all virtual school expenses and practices directly benefit students. Concerns include, for example, monitoring costs and quality of staff, materials and instructional programs—including technological infrastructure, digital learning materials, paraprofessional services, and third-party curriculum. Oversight of other areas, such as student attendance and learning transcripts, allow monitors to evaluate instructional time and outcomes. In a new trend observed across four states in 2019 and 2020, per-pupil funding would be linked to student performance.

For example, a bill in New Mexico (NM SB 429) proposed that a virtual charter school failing to meet student performance targets would be subject to a 10% reduction in funding until targets were reached. The bill included other performance-related measures, including a requirement that charter authorizers review grade-by-grade student performance when a charter petitioned for renewal. If a specific grade level failed to meet performance targets, the school would not be allowed to offer it for the next three years. The bill also would also limit enrollment in new charters to 200 students "until the virtual charter school has demonstrated to the commission's satisfaction that the virtual charter school's performance meets or exceeds its performance targets."[13] The proposal also limited charter terms to three years for both new and reauthorized schools, and for applications submitted in 2019 onward, only grades 5-12 would be offered. This comprehensive accountability bill failed.

In Oklahoma (OK SB 54), a proposal would require the state's department of education to examine monthly student performance reports and reduce payments based on a letter grade performance metric. Specifically, virtual charter schools would not receive payments for students who received a letter grade of F; for students receiving other grades, the school would receive a monthly payment for each course in which a student was enrolled equivalent to "one-sixth (1/6) of one-twelfth (1/12) of Three Thousand Five Hundred Dollars ($3,500.00)." An Indiana bill (IN HB 1204) proposed that schools be required to report whether enrolled students met the "minimum standards of educational activity" (including the amount of time each student was engaged in educational activities) and whether they participated in a statewide assessment. Based on these reports, the state would reduce tuition support using a formula taking into account the number of students who did not meet

both conditions. Another Indiana bill (IN SB 183) proposed requiring all virtual schools to report the "average projected per student cost"; the state would then calculate whether a projected cost would be less than 90% of the base rate for traditional students. If the 90% threshold were not met, the school would not be funded at the projected level.[14] And, a Nevada bill (NV SB 441) proposed that the State Public Charter School Authority be charged with "establishing a system for withholding a portion of funding from a charter school for distance education if the charter school fails to provide evidence of adequate academic progress of the pupils enrolled at the charter school."[15] The Nevada (NV SB 441) bill passed, while the others failed.

Delineating Enrollment Boundaries and Funding Responsibilities

Monitoring which virtual schools provide education services, and to which students, requires addressing capacity issues and delineating enrollment zones. Careful enrollment audits are also necessary to ensure that a student's resident district is forwarding appropriate local and state per-pupil allocations to a virtual school. Several bills in this analysis address these issues.

A new legislative trend in 2019 and 2020 was evident in efforts to adjust virtual schools' enrollments or limit their growth. Legislatures have sought to cap or limit enrollment to address issues specific to both accountability and cost. In Indiana, one of two bills (IN SB 183) proposed a total student enrollment cap of 1,200 students beginning in the 2019-20 academic year. A second bill (IN SB 441) proposed two separate enrollment caps. For schools established before July 1, 2020, enrollment on that date would be the future limit; for those established after June 30, 2020, the limit would be 500 students. In Maine (ME LD 513), a bill proposed capping enrollment in all virtual charter schools at 1,000 students, and also prohibiting addition of grade levels beyond those not in a school's original charter contract. At odds with this trend toward greater restrictions, a North Carolina bill (NC SB 392) proposed expanding enrollment for schools participating in the state's virtual school pilot program. The proposal would eliminate the previous cap of 1,500 students in the first year of operation and eventual growth up to a maximum 2,592 students, allowing unlimited enrollment instead. The Maine bill was enacted, and the others failed.

As in previous years, legislative proposals on enrollment boundaries and limits persisted in 2019 and 2020. Delineating enrollment zones has proven challenging for students' resident districts, which must send tuition payments to virtual schools that may be geographically distant, complicating verification of student enrollment. Previous efforts by state legislatures to address this issue have consistently failed,[16] but a Nevada bill (NV SB 441) enacted in 2019 would prohibit virtual charters from enrolling students residing outside the district where the charter operates. A New Mexico bill (NM SB 429) proposed the same residency requirement, while also limiting local school boards from authorizing more than one virtual charter school. Two Oklahoma bills also addressed enrollment guidelines. The first (OK SB 1538) proposed that a student's petition to transfer to a statewide virtual charter school could not be denied "by the student's resident district if the resident district does not offer a full-time virtual education program that is equivalent to a program offered by the statewide virtual charter school."[17] The second (OK SB 1097) proposed that "beginning with the

2022-2023 school year, if a student wishes to pursue full-time virtual education, he or she shall be required to enroll in the full-time virtual education program offered by the student's resident district."[18] The bill in Nevada was enacted, and the others failed.

These bills constitute examples of attempts to slow or control the scaling-up of virtual schools while policymakers examine related issues, consistent with our reports' recommendations. Overall, we find that studies of virtual school accountability structures done via task forces or commissions to inform policy are becoming more common. Charged with identifying best practices for governance and delivery of online instruction, such publicly funded study groups may yield important information for policymakers and practitioners.

Limiting Profiteering by Education Management Organizations

In 2019 and 2020, legislators in several states responded to the complicated accountability issues and public controversies related to for-profit education management organizations (EMOs). These organizations provide a variety of products and services to virtual schools—including software and curriculum, instructional delivery, school management, and governance. As outlined in Section I of this report, virtual schools that have contracts with for-profit EMOs operated 38.4% of all virtual schools and served 64% percent of full-time virtual school student population. K12 Inc. continues to be the largest of the for-profit virtual school providers, operating 71 schools and serving 96,771 students in 2019-20—amounting to 29% of the estimated 332,379 full-time virtual school students in the U.S. K12 Inc. profits in 2019 were a net $62.2 million and total revenues of $1.01 billion[19] and profits in 2020 were a net $56.1 million and total revenues of $1.04 billion,[20] compared to 2018 net profit of $46.4 million and total revenues of $917.7 million.[21]

Slack accountability and perverse motivation of for-profit virtual school operators to capitalize on minimal state oversight has encouraged widespread profiteering and continually prompted calls for action. As a result, audits conducted by state legislative analyst offices and auditor generals, either mandated by law or prompted by public calls for accountability, have triggered legal and policy challenges for both policymakers and law enforcement. In California, Ohio, and Pennsylvania, profiteering has been an especially contentious issue for legislatures.[22] For example, ongoing audits by Pennsylvania's Auditor General have resulted in several school closures and criminal convictions of former virtual school operators—but past legislative efforts to curb damaging practices have consistently failed.[23] In fact, past proposals in multiple states have routinely failed, indicating the intransigence of the problem, although earlier California did enact a bill including restrictions on for-profit EMOs operating virtual charters, [24] and Ohio did enact one with new procedures for determining full-time equivalency, defining student attendance, and defining learning engagement.[25]

Several states made efforts to improve monitoring in these areas. Some proposed bills spelled out minimum requirements, or they defined what "counts" as attendance and engagement, collectively known as login records, which are used to calculate per-pupil revenue disbursements. In Indiana for example, two bills advanced requirements, but stopped short of defining what constitutes either. One (IN SB 567) proposed requiring virtual school authorizers to report their methodology for determining when students can be counted as

attending and engaged. Another (IN HB 1204) would require the department of education to define the minimum requirements for engagement during a semester or term. Only the first was enacted.

Other state legislatures attempted to provide more substantive guidance for school operators and authorizers. For example, in Nevada an enacted bill (NV SB 411) requires the State Public Charter School Authority to adopt standards for schools to collect and report data on: the frequency of interaction between students and their teacher; learning supports in a student's home and community; methods for administering test and exams; the time students spend on a computer, television or the internet as part of their program; the time required for a student to complete learning tasks; and, the number of lessons a student completes.[26] Similarly, a failed Missouri bill (MO SB 996) would have required a school to report to a student's parent or guardian the instructional activities that the student would need to complete, including: "(a) Online logins to curriculum or programs; (b) Offline activities; (c) Completed assignments within a particular program, curriculum, or class; (d) Testing; (e) Face-to-face communications or meetings with school staff; (f) Telephone or video conferences with school staff; (g) School-sanctioned field trips; or (h) Orientation."[27] And in Oklahoma, the legislature enacted the Virtual Charter School Reform and Transparency Act of 2020 (OK HB 2905), which addresses both attendance and engagement. Specifically, full-time attendance requirements are met when a student

> a. completes instructional activities of no less than ninety percent (90%) of the days within the quarter, b. is on pace for on-time completion of the course as defined by the governing board of the virtual charter school, c. completes no less than seventy-two instructional activities within the quarter of the academic year.[28]

The bill also defines instructional activities to include meetings with a teacher, completed assignments with grades factored into the student's semester grade, school-sanctioned field trips, and orientation. While these three bills provide additional guidance, they do not close the gaps associated with over-reporting full-time enrollment and under-defining learning engagement, the practices that have fueled profiteering by virtual school providers in many states.[29]

Another persistent trend specific to issues of profiteering is concern for governance structures and conflicts of interest. As in previous years, the Pennsylvania legislature proposed more bills in this area than any other state. Of three bills proposed, three failed. One (PA HB 2833) was an attempt to expand the requirement for public audit of EMOs and entities they contract with to manage governance, operations and management of a school: "Cyber charter schools, including cyber charter management companies and other entities that operate cyber charter schools, whether for-profit or not-for-profit, shall be subject to audit by the Auditor General."[30] Another bill (PA HB 1897) called for local school boards of a virtual education provider to disclose at a public meeting any conflicts of interest between the local school board and any third-party vendor engaged. And, a more comprehensive bill (PA HB 355) would have explicitly prohibited all charter school administrators, including virtual charter schools, from receiving any "compensation from another charter school or from a company that provides management or other services to another charter school." It would

also have prohibited charter school administrators or any of their immediate family members from serving as a voting member on the charter school board employing the administrator. And, it would have required a charter school board of trustees to be comprised of at least five nonrelated members.[31] Four additional bills addressing conflicts of interest and nepotism were proposed in New Mexico (NM SB 429), Oregon (OR HB 2763), Florida (FL SB 1746) and Oklahoma (OK HB 1395); only the Oklahoma bill was enacted.

And finally, in the 2019 and 2020 legislative sessions three bills addressed the issue of financial or material inducements. They would prohibit providing financial compensation or any promise of equipment or anything of value as an inducement for a student to enroll in a virtual school (TX SB 1455 and OK SB 761), or as an incentive to recruit new students to the school (OK HB 3066); all three bills failed.

Legislative proposals have yet to resolve the need for accountability structures that effectively eliminate profiteering. Yet, some efforts have succeeded. The proposals advanced in many the bills outlined above are consistent with our recommendation calling for policy or other actions by public officials to ensure that for-profit virtual schools do not prioritize profit over student performance.

Recommendations to Ensure Effective Funding and Governance Mechanisms

While some state legislators have made efforts to address the important finance and governance challenges of operating virtual schools, a need remains for additional research to identify funding and governance practices that will increase accountability, identify cost-effective best practices, and eliminate profiteering. Given the evidence detailed above, we reiterate our recommendations from previous reports.

Specifically, we recommend that policymakers and educational leaders:

- Develop new funding formulas based on the actual costs of operating virtual schools.
- Develop new accountability structures for virtual schools, calculate the revenue needed to support them, and provide adequate funding.
- Establish geographic boundaries and manageable enrollment zones for virtual schools by implementing state-centered funding and accountability systems.
- Develop guidelines and governance mechanisms to ensure that virtual schools do not prioritize profit over student performance.

Instructional Program Quality

As earlier reports have noted, accountability procedures for virtual schools must address not only their unique organizational models but also their instructional methods. Quality of content, quality and quantity of instruction, and quality of student achievement are all

important aspects of program quality.[32]

Virtual instruction advocates claim that virtual schooling will provide efficient, highly individualized instruction, reaching students who seek access to quality courses.[33] The era of COVID-19 brought an immediate shift to online learning for many students across the country and, indeed, around the world. In previous editions of this report, we disputed the accuracy of a prediction by Clayton Christensen, who pioneered the concept of online education as a "disruptive innovation,"[34] that by 2018, half of all high school courses would be taken online.[35] With the COVID-19 shift, this prediction is finally a reality. However, the question that remains to be answered is what does education—both brick-and-mortar as well as virtual—look like post-pandemic? What will be the new normal in K-12 education and what lessons will traditional schooling take from its dip into the world of virtual schooling? One prediction in *Forbes* declares, "The change will be permanent: educational activity will no longer be face-to-face or online but a blend, able to move from one to another immediately fluidly, continually, through a student's life, way beyond the school, college or university years."[36] Like Christensen's prediction above, the collective educational world shall see if the prediction in *Forbes* of a permanent change becomes a reality.

Based on legislative activity in 2019 and 2020, the disconnect in the online education industry between a growth explosion and a legislative gap only widened. Data available in 2016 show 200,000 students were enrolled in 200 virtual schools across 26 states,[37] while approximately four million students enrolled in one or more supplementary online courses each year.[38] As noted in Section I of this report, in 2019-20, 40 states had virtual or blended learning schools. In fact, 477 full-time virtual schools enrolled 332,379 students, and 306 blended schools enrolled 152,530 students. Contrast that growth with 10 bills introduced but only one enacted across five states in the 2019 and 2020 legislative sessions focusing on instructional program quality in virtual schools, and the gap remains a chasm.

Requiring High-Quality Curricula

To comply with 21st-century learning standards that require technological literacy, states range from requiring students to complete at least one online course, to requiring students to have an online "experience," and to encouraging schools to buy digital content rather than textbooks.

The industry claims that virtual learning is highly individualized. However, some education experts contest that claim, agreeing that while each student progresses at his or her own pace and with the program adjusting student assignments based on performance, that does not make it individualized. In fact, it is restrictive, with students allowed only one mode of instruction.[39] Students generally cannot choose options such as writing an essay, producing a play, or conducting independent research to cover the same content.

Further, given the variability of digital materials and formats, authorizers face numerous challenges in effectively evaluating course quality and monitoring student learning. Because the online environment is flooded with content developed by various providers—ranging from large for-profit organizations to statewide virtual schools to local districts—and in var-

ious formats—ranging from individual courses to full grade-level curricula—authorizers and parents often have difficulty ensuring quality content in the highly decentralized environment. While growth in the online industry may serve many students who currently lack access to required, remedial, or advanced courses, it leaves states scrambling to understand trends and to provide proper guidance and legislation. According to a study by the Center on Reinventing Public Education (CRPE),

> The primary approaches to regulating online charter quality relate to entry barriers and oversight. States restrict the number of online schools permitted, regulate teaching credentials and other inputs, and impose additional application and oversight requirements. Few state laws provide charter authorizers with guidance to ensure robust performance outcomes or instructional quality in the online environment.[40]

In the 2017 report, we noted that several states were creating clearinghouses of reviewed and approved online courses and providers. In fact, in the 2015 and 2016 sessions, legislators considered 11 bills (five enacted, five failed, one pending) regarding clearinghouses. However, the focus on clearinghouses and online courses was not sustained, as there were no bills in this area considered from 2017 to 2019. While not specifically related to full-time virtual schools, in 2020, Pennsylvania (PA SB 1273) failed to enact legislation to create a centralized online clearinghouse of kindergarten through 12th grade online courses that would be available to public schools, private schools, home schoolers, and the general public.

Like curricula in traditional schools, online curricula should be aligned with a designated set of standards to ensure that students' online learning experiences provide the information and skills policymakers deem essential. In fact, a recent report asserted that, "All states have included specific language to require that online school curricula align with state standards and assessments. This may be in response to the fact that many online charter providers operate across many states with different learning standards."[41]

However, in 2019 and 2020, only four bills (one enacted and three failed) focused on monitoring virtual course quality. In Oklahoma (OK SB 55), a 2019 failed bill would have required a virtual charter school director to assess the degree to which courses offered met subject matter standards. In Pennsylvania (PA HB 1897), a 2019 failed bill addressed robust course offerings, graduation requirements, and grades. Oklahoma (OK HB 3400) enacted legislation in 2020 that requires the Statewide Virtual Charter School Board to provide high-quality online learning opportunities aligned with the subject matter standards adopted by the State Board of Education. And Mississippi (MS HB 1167) failed to enact legislation in 2020) that would ensure all subjects and grade levels offered through virtual instruction meet minimum curriculum standards established by the State Board of Education. This bill also aimed to ensure instructional and curricular quality through an accountability plan for courses and programs that meet the nationally recognized standards for K-12 online learning.

Ensuring Quality and Quantity of Instruction

Related to ensuring quality and quantity of instruction, it appears 2019 and 2020 have ush-

ered in shifts in practice but not in accompanying policy. Particularly, legislative activity related to seat time and competency-based education has continued to decline in 2019 and 2020.

Seat Time

Since the late 19th century, the amount of time that students spend in direct contact with a classroom teacher, measured in Carnegie Units of 120 hours of annual "seat time," has been understood as a measure of student learning.[42] This understanding and measurement of seat time has been challenged by critics who point out that the amount of time students spend in school does not necessarily guarantee how much they learn and that time-based measurements, in particular, are incompatible with virtual schooling.[43] Some states have moved away from using Carnegie Units as a measure of learning, but have retained the idea of using the time that students "attend" virtual school (which is, in effect, seat time) as a measure of enrollment. In this section of the report, seat time is discussed as it relates to organizing and delivering instruction. Not surprisingly, states have struggled with how to define seat time in virtual school settings. Some attempts include:

- Student participation and engagement: Students meet enrollment requirements through evidence of participation or work, which may include "teacher contact, submitting assignments, participating in webinars or discussion, or attending tutoring sessions."[44] For example, in Colorado, virtual schools can track attendance based on participation and completion of tasks.

- Parent or learning coach report: This method is often used in conjunction with other reporting tools. For example, in South Carolina, parents must verify the annual number of educational hours and engage in regular parent-teacher conferences in person or by phone.

- Performance or class completion: Students must progress toward specific performance targets. "In Idaho, attendance can be submitted as a percentage of the instructional program completed over a timetable set by the school."[45] New Hampshire now funds its online charter school based on the percentage of assignments each student successfully completes. If a course has 10 assignments and a student finishes eight of them, the school receives 80 percent of the funding.[46]

In 2020, the National Conference of State Legislatures referenced seat-time as a barrier to innovation because the amount of time needed to complete a course varies by student, and significant learning can occur outside the classroom."[47] Further, CRPE's Larry Miller and the Foundation for Excellence in Education's Matthew Joseph call for a "grand new bargain" to end funding based on seat time, claiming that the time has come for states to provide more flexibility on the location and timing of education, and to base funding on the quality of instruction the students receive. The authors further state that many school systems are awarding credit for learning through internships, volunteer activities, and independent study projects. However, districts can still use flawed measures like student logins, and the state provides no guidance on how much student progress is sufficient to earn funding."[48],

Even given these calls for extensive change in the traditional approach to K-12 education, states have not made substantive progress. Several proposed bills, as outlined in the Finance and Governance subsection, have begun to address the issue of seat time as it relates to defining attendance for calculating funding; however, alignment on what constitutes seat time, related to organizing and delivering quality instruction, is limited.

Competency-Based Education

Affecting both traditional and virtual schools, competency-based education is another continuing trend and is closely tied to the issues of seat time and individualization. Competency-based education refers to evaluating learning based on content mastery rather than passage of time. According to the National Conference of State Legislatures, "students advance and move ahead on their lessons based on demonstration of mastery. In order for students to progress at a meaningful pace, schools and teachers provide differentiated instruction and support."[49]

In 2019, the Aurora Institute (formerly iNACOL) updated its definition of competency-based education as follows:

- Students are empowered daily to make important decisions about their learning experiences, how they will create and apply knowledge, and how they will demonstrate their learning.
- Assessment is a meaningful, positive, and empowering learning experience for students that yields timely, relevant, and actionable evidence.
- Students receive timely, differentiated support based on their individual learning needs.
- Students' progress based on evidence of mastery, not seat time.
- Students learn actively using different pathways and varied pacing.
- Strategies to ensure equity for all students are embedded in the culture, structure, and pedagogy of schools and education systems.
- Rigorous, common expectations for learning (knowledge, skills, and dispositions) are explicit, transparent, measurable, and transferable.[50]

In 2016, Illinois launched the Competency-Based High School Graduation Requirement Pilot Program, resulting in statutory changes in 2018 that enabled districts and collaboratives to apply. As of 2021, 25 sites in the pilot program represent 47 school districts. The Illinois initiative is intended to allow students to earn graduation credits in ways other than traditional coursework; incorporate real-world knowledge and challenges; and encourage students to gain career-related competencies. Comprehensive evaluation of the program is not yet available.[51]

Not surprisingly, competency-based education has both advocates and critics. While not

limited to virtual schools, challenges posed by competency-based education include inflexible funding systems, inappropriate data systems, local and state policies based on traditional instructional approaches, and student data privacy concerns. Further, competency-based education may inherently narrow both the curriculum and the allowed range of pedagogies to learning products that can be concretely or electronically measured without the subjective judgment of teachers. Many realms of traditional education cannot be easily defined or measured as "competencies" and, therefore, may fall out of a curriculum built around this model.

Finally, empirical data do not yet exist to fully support or negate a competency-based approach. A 2020 literature review of implementation and outcomes research from 2000 to 2019 found mixed results, including a negative correlation between competency-based education and lower math scores on state summative assessments as well as SAT scores. The literature review reflected "mixed results with respect to claims that CBE implementation supports (a) academic achievement and progress; (b) intrinsic motivation and engagement; and (c) other important academic outcomes." The review concluded, "Therefore, connections between CBE implementation and student outcomes are unclear at present."[52]

Even with this extensive movement toward implementation of competency-based protocols, there was no legislative activity specifically focusing on virtual schools in the 2019 or 2020 sessions.

Tracking and Assessing Student Achievement

As assessment of student achievement is complicated by increasing interest in mastery-based systems, documenting student proficiency becomes a primary concern. Issues requiring policy attention stem from the flexibility inherent in online education and the need for consistent performance evaluations.

State and federal policies that increase demands for demonstrated student achievement make the flexibility of online options an especially important consideration. State accountability systems must evolve accordingly. Research questions that arise include how to track outcomes from varied providers.

Advocates and for-profit companies have claimed that students in virtual schools perform equal to or better than peers in traditional schools.[53] However, there are a limited number of rigorous studies that evaluate the performance outcomes of online programs. Two comprehensive studies include the following:

- A 2015 Stanford University-based Center for Research on Education Outcomes (CREDO) study, still one of the most definitive studies to date, is a comprehensive analysis of achievement for students in online charter schools. The report finds that

  > the majority of online charter students had far weaker academic growth in both math and reading compared to their traditional public school peers. To conceptualize this shortfall, it would equate to a student losing 72 days of learning in reading and 180 days in math, based on a 180-day school year.[54]

- The 2018 Center for American Progress study compares the outcomes of for-profit virtual charter schools in Colorado, Idaho, Nevada, Ohio, and Pennsylvania against outcomes for other students in the same states. At a high level, the study found the for-profit virtual schools graduate about half their students, placing them among the lowest performing schools in their respective states. Additionally, the for-profit schools underperform the state average for third-grade English language arts and eighth-grade math proficiency. "The difference between the scores varied significantly across the five states studied for this report—from 4 percent to 19 percent—but the trend was consistent."[55] Finally, student academic growth at these schools was significantly below expectations.[56]

More recently, in 2019, *Education Week* reported that nationally, "half of all virtual charter high schools had graduation rates below 50 percent in the 2016-17 school year." Further, of the 163 schools nationwide in the study, in Indiana "not a single virtual charter school operating in 2016-17 had a graduation rate over 50 percent in the past four years."[57] As stated in Section I of this report, 2019-20 graduation rates for full-time virtual schools improved slightly to 54.6 percent, though still significantly lagging the national average of 85 percent.

However, even though the low performance of online school students suggests the need for stronger accountability, the trend in virtual schooling may be toward less state-level policy oversight. Even as more online options are being incorporated, fewer states are changing policy to support the shift; schools and districts can easily contract with online providers outside of a policy framework.[58] Other factors further complicate efforts to measure student achievement. Consistent data have become more fragmented as states withdraw from common assessments, and parents increasingly opt their children out of state testing.[59]

The Education Commission of the States (ECS) found in 2020 that 25 states require no additional oversight specific to student performance in virtual charter schools. This excludes the five states that have not enacted charter school laws. States that do provide additional oversight include: Indiana, which requires virtual schools to adopt a student engagement policy; Louisiana, which requires more frequent performance reviews of virtual schools in their first three years of operation; and Ohio, which requires that virtual charter schools comply with the Aurora Institute standards for K-12 online learning.

Minimal interest on enforcing quality standards for student achievement in full-time virtual schools appears in legislation. Specifically, five bills failed to be enacted in 2019 and 2020. In 2019, Texas (TX SB 1045) failed to pass legislation to evaluate the performance of students enrolled in an online program separately from other students, New Mexico (NM SB 429) failed to pass legislation to require a charter authorizer to perform biannual performance reviews of virtual charter schools, and Oklahoma (OK SB 298) failed to enact legislation that would remove the ability to adopt alternative accountability systems for virtual charter schools. In 2020, Pennsylvania failed to enact two pieces of legislation: One (PA SB 1328) would have automatically triggered an evaluation of an online program if a student demographic performs below the average of the district in the same grade level, and another (PA HB 2720) would have required multiple measures for reporting AP achievement.

Recommendations to Ensure Quality of Instruction

The legislative focus on digital learning—including but not limited to virtual schools—has continued to decrease significantly in 2019 and 2020, certainly not keeping pace with the dynamic online education marketplace. Our overall legislative analysis indicates little continued progress over the past two years in proactively addressing issues related to instructional program quality. Based on the preceding analysis, we reiterate our recommendations from the previous reports. Specifically, we recommend that policymakers and educational leaders:

- Require high-quality curricula, aligned with applicable state and district standards, and monitor changes to digital content.
- Assess the contributions of various providers to student achievement, and close virtual schools and programs that do not contribute to student growth.
- Implement a nationwide longitudinal study across multiple providers and with interim data checkpoints to assess the quality of the learning experience from the student perspective.
- Delineate the definitions of adequate quantity of instruction to ensure subject mastery.

Ensuring High-Quality Teachers

Our previous reports indicated instructional technologies have been increasingly integrated in K12 education over the past several decades. In recognition of that trend, professional standards for teacher preparation now recognize the effective use of technology as a key competency for educators.[60] However, such theoretical competency has been sorely tested in practice over the past year as educators and students in brick-and-mortar schools have had to make an abrupt and radical shift to virtual and hybrid forms of education to mitigate public health risk of the COVID-19 pandemic. The pandemic has shown many students and teachers unprepared for an online learning environment, and it has further exposed the challenges and complexity of fully online teaching and learning. While well-established full-time virtual schools might have been expected to provide guidance for effective remote teaching, the relatively slow progress with respect to research and policy intended to ensure high-quality teachers for virtual environments continues as in the past.

There is still limited evidence on how to identify quality teachers in virtual contexts, how to recruit and retain them, how to evaluate their effectiveness, and how to provide ongoing support to promote best practices. In all of these areas, practice continues to outpace available empirical evidence.

Our analysis of 2019 and 2020 legislative activity reveals several shifts in state policymaking around virtual teacher recruitment, training, evaluation and retention. First, legislative activity related to virtual teacher recruitment and training has decreased. Only four states considered bills directly addressing these issues; they all focused on holding virtual teachers

to similar certification standards as brick-and-mortar teachers, and they all failed. Second, compared to prior legislative analyses, we found fewer bills in 2019 and 2020 addressing professional development, but a larger proportion of those bills focused on teachers working specifically in virtual schools. Third, we noted an increase in bills over the past two years addressing factors that may increase virtual teacher satisfaction, retention, and success; several of these bills addressing student attendance, engagement and class size were enacted by state legislatures.

Recruiting and Training Qualified Teachers

Any discussion of teacher quality in virtual schools needs to consider serious questions related to what teacher quality is in a virtual setting and how important teachers are in the virtual school model. While virtual schools rely heavily on instructional technologies and online curricula, teachers continue to play an important role in those contexts.[61] Some have argued that an effective K12 online education requires teachers who actively engage students in learning activities and regularly communicate with parents about performance and expectations.[62] However, data on virtual school class sizes and synchronous instruction time suggest a diminished role for teachers and a greater reliance on self-paced online curricula and automated instruction and assessment. While evidence suggests that most online courses delivered by state virtual schools are led by teachers,[63] the role of teachers varies. The continued expansion of online education will require ongoing attention to defining teacher quality in virtual schools and to recruiting teachers who are prepared to teach effectively in them. Further, given the financial incentive for virtual schools to reduce costs by hiring less experienced and less qualified educators, strong policy is needed to ensure teacher quality standards.

The nature of teaching and the profile of teachers in full-time virtual schools differs from the traditional teacher workforce. For example, most state virtual schools are disproportionately staffed by part-time teachers. A 2019 report found that 15 of 18 virtual schools reporting data on teacher type relied more on part-time than on full-time teachers.[64] Six programs reported that they use part-time instructors exclusively. Florida Virtual School is a noteworthy exception, with the vast majority of their teachers working full-time.[65]

While some virtual schools hire their own teachers, many rely on the online teachers available through organizations supplying online courses and digital content to schools. Some school districts, particularly those in larger metropolitan areas, are increasingly managing their own teachers and administrative staff in an effort to control costs and build internal capacity for the use of instructional technology.[66]

Research on virtual schools has identified some characteristics of teachers who work in them as well as factors that virtual school administrators prioritize when hiring. A study of 325 online teachers found that in virtual environment, teachers "tend to be self-motivated, place a high value on learning and education, and enjoy the challenge and the process of using technology for teaching."[67] Another study comparing online to traditional schools found that in both types, administrators most valued teachers' "willingness to work hard in support of the school's mission" when hiring. The second highest priority in virtual environment was

applicants' certification status, a difference from traditional environments where performance on a sample lesson took second place in priorities.[68] Given that all states require most online teachers-of-record be certified,[69] the emphasis on certification in hiring teachers for virtual schools suggests there may be too few certified teachers applying, which may be forcing virtual school administrators to focus more on basic qualifications than on other criteria likely related to teacher quality and effectiveness (for example, experience teaching online courses, performance teaching a sample class). However, some contend that it may not be quality concerns driving teacher credential requirements, but instead the political interests of unions and other stakeholders. Authors of one report argued that "such provisions are often concessions to labor groups or in response to scandals, rather than intentional efforts to drive quality."[70] It appears that while it is possible that too few credentialed teachers are choosing to work in virtual schools, it is also possible that virtual school administrators prefer to emphasize basic credentialling requirements rather than other quality indicators potentially associated with higher salaries.

Recent studies have also examined the competencies and skills needed to teach in online environments and have shown them to be distinct from those needed in traditional in-person classrooms. A 2018 article synthesizing existing literature identified seven global competency domains for online and blended teaching: pedagogy, management, assessment, technology, instructional design, dispositions, and improvement.[71] Recognizing the very limited evidence base, the authors raised questions related to how well virtual teachers are prepared to teach students working at different paces, interpret and use data from software packages, assess and grade students based on mastery, facilitate online discussions, and navigate different learning management systems. While the study was not focused on preservice teacher education, the competencies identified might be valuable to preparation for teaching in online environments.

At the moment, it is questionable that such preparation is adequate. A 2016 review of research on teacher preparation for online teaching identified three intersecting domains: content knowledge, pedagogical knowledge, and technological knowledge.[72] The authors found few programs designed to prepare teachers across those areas, with programs varying widely in content and learning experience. Another 2016 study confirmed that few teacher preparation programs offer training in online teaching methods, and even fewer offer student teaching placements in online environments. Such opportunities for online experience have grown modestly, [73] but the recent shift to online learning due to COVID-19 has likely accelerated further growth over the past year. Most virtual teachers report that much of their learning occurred on the job,[74] and preferred unstructured professional development like mentoring and online forums over structured activities like graduate courses and workshops.[75] While teachers indicated that such unstructured opportunities allow them to take "ownership of their own learning,"[76] whether they are effective is an open question.

In terms of the work required in virtual environments, one 2015 study found that online charter school teachers tend to spend less time developing curricula, planning lessons, and providing direct instruction than their brick-and-mortar counterparts.[77] This is not surprising, given that commercial curriculum programs reduce many conventional teaching responsibilities (for example, lesson plans and direct instruction). Online teachers' time allocations are more heavily weighted toward providing individual attention to students, in-

cluding identifying struggling students and grading student work. While this finding seems consistent with the emphasis of virtual education on individualization, other evidence on the amount of time that teachers spend with students and the automation of instruction and assessment raise questions about how meaningful and effective this individual attention is. The 2015 study found that teachers in online schools spend an average of only six hours or fewer each week on synchronous instruction, and even this is highly variable, making it difficult to characterize teacher work in an online environment and the training and professional development needed to support it.[78]

Our analysis of 2019-2020 legislation on virtual schools identified only a handful of bills directly addressing teacher recruitment and training and they all focused on certification and licensure requirements. Four bills required virtual teachers to meet the same certification standards as regular public school teachers. For example, an unsuccessful bill (MD HB 536) introduced during the 2019 Maryland legislative session proposed requiring "a virtual learning program of a public charter school to employ a teacher with the same certification required by professional staff in other public schools." A version of this bill was reintroduced in 2020 (MD HB 724) and also failed. An unsuccessful 2019 Texas bill (TX SB 1455) that focused on teacher qualifications in full-time virtual schools specified that teachers should be certified to teach in the assigned course and grade level. This notion of in-field teacher certification has been an important consideration in K12 public school policy for many years and was a hallmark of the "highly qualified teacher" provision of the 2004 federal No Child Left Behind legislation. An unsuccessful 2020 Oklahoma bill (OK SB 1100) would have required that the Statewide Virtual Charter School Board provide oversight of the operations of virtual charter schools, including the subject certification of teachers. A failed 2020 Mississippi bill (MS HB 1167), "The Digital Access Learning and Virtual Instruction Program Act of 2020," addressed a range of issues in virtual education including teacher quality. The bill called for the utilization of "highly qualified teachers to deliver digital access learning or virtual instruction to public school students" and specified that "a highly qualified teacher that delivers digital access learning or virtual instruction under this act must meet all qualifications for licensure in the State of Mississippi." None of these bills passed in the 2019 or 2020 legislative sessions. While this legislative activity could represent an interest in ensuring a basic qualification standard for teachers in virtual settings, it is not at all clear that certification standards for traditional schools ensure quality in virtual settings.

In addition to the bills focused on teacher certification and licensure, several bills in the 2019 and 2020 legislative sessions addressed ongoing professional development for virtual instruction. In past legislative analyses, most of the teacher professional development bills applied generally to teachers in all settings, not specifically to those working in virtual schools. Compared to prior years, the 2019 and 2020 legislative analysis revealed a smaller number of bills addressing professional development, but a larger proportion of those bills focused on teachers working specifically in virtual environments. This shift may reflect an increase in full-time virtual schools and a growing recognition that teachers need professional development to be effective in those settings. Four bills identified in our analysis of 2019 and 2020 legislation focused squarely on professional development for teachers working in virtual schools. The failed 2019 Texas bill mentioned above (TX SB 1455) would have required teachers in full-time virtual schools to successfully complete an "appropriate

professional development course." An unsuccessful 2020 bill in Indiana (IN HB 1172) would have required licensed teachers working in a virtual education program to comply with mandatory licensed teacher training. Two professional development bills were successful. Legislation introduced in 2019 in Oregon (OR HB 2022) established the "Oregon Digital Learning Academy." The Academy replaces the former Oregon Virtual School District with an expanded purpose of providing professional development related to online learning. Enacted 2019 legislation in Indiana (IN SB 567) required that the state board adopt rules governing the operation of virtual charter schools, including professional development for teachers.

In addition, three bills in our 2019 and 2020 analysis addressed the professional development needs of teachers more broadly and the provision of online platforms for offering professional development opportunities. A successful 2019 bill in Maine (ME LD 576) established a working group to study and develop an online platform "to facilitate the provision of online, virtual instruction by state-certified teachers to students in every public school in the State and the provision of a variety of high-quality professional development opportunities to educators across the State." A failed 2019 bill in Alaska (AK SB 114) proposed the establishment of a virtual education consortium for the purpose of making virtual education and professional development resources available to students and teachers throughout the state. The consortium would have provided "training and professional development on virtual instruction methods and the differences between virtual instruction and instruction offered in a classroom." This explicit recognition of the distinction between virtual and face-to-face teaching methods is unique in our legislative analyses over the years. In contrast to the increasing standards and opportunities for professional development in virtual teaching and learning, a failed 2020 bill in Indiana (IN HB 1263) proposed to remove state school board authority over teacher professional development and to decentralize these decisions to schools including virtual charters. This bill also proposed to eliminate state professional development requirements for teacher licensure.

As in our earlier reports, our analysis of legislative activity found limited progress toward establishing requirements for the preparation and ongoing professional development of teachers working in full-time virtual schools. More work is needed to understand the distinct nature of teachers' work in virtual schools and the preparation they need to be effective in those settings. Further, we need better information on the demand for, and supply of, teachers working in online environments to guide policy on how best to recruit and prepare virtual teachers who can support student success.

Evaluating and Retaining Effective Teachers

Evaluating and retaining effective educators in virtual schools continues to be an issue needing greater research and policy attention. Our previous reports have recognized the challenges of using conventional, albeit imperfect, tools for teacher evaluation in virtual settings.

Due to factors like asynchronous instruction, limited face-to-face time, and student self-pacing,[79] neither standards-based evaluation tools with established rubrics for observation[80] nor value-added measures based on students' growth in standardized test scores translate well to full-time virtual schools. Most virtual schools report that teachers are observed by

peers (58%), master teachers (59%), or administrators (93%) at least once each year, though it is not clear how these observations are conducted in an online setting. Further, administrator observation occurs less frequently than in brick-and-mortar schools.[81] Existing research offers little guidance on how best to evaluate the performance of teachers in virtual settings, and as in previous years, there was no new legislative activity in 2019 and 2020 legislative sessions.

Assuming quality teachers can be identified, the retention of those teachers should be an important consideration—although it is not at all clear that virtual school operators consider teacher retention a high priority. Research on traditional classroom teachers reveals that those who are more satisfied with their working conditions are more likely to remain in their jobs and in the teaching profession. As a result, in past reports much of our attention focused on factors that research identified as related to teacher satisfaction in virtual schools. Research on job satisfaction, organizational commitment, and turnover intention among teachers working in K-12 virtual schools has identified class size, workload, and conditions for success as relevant to retention in virtual environments.[82] Another study, this one of teachers in one virtual school, found three key factors contributing to job satisfaction: (1) flexibility in when, where, and how they teach; (2) time to interact and communicate with individual students; and (3) conditions and support required for teachers to positively affect student performance.[83] Given these findings, it is not surprising that a Wisconsin study identified student perseverance and engagement as the most pressing challenges for online teachers.[84] Likewise, teachers in the California K12 Virtual Academies have raised serious concerns about student attendance. One teacher, for example, indicated that "only a fraction of her 75 or so students regularly attend class, and she has no way of knowing if the others watch her recorded lessons."[85] This evidence is related to a broader finding based on national data that virtual school instruction tends to involve a "limited number of live contact hours and a lean staffing model."[86]

Compensation is also a relevant factor. The majority of virtual classroom teachers are part-time and their compensation is based on student enrollment, generally ranging from $130 to over $200 per student, depending on their experience and the type of course. Full-time compensation is typically structured like the pay scales of brick-and-mortar schools in the teachers' states. [87]

While the 2019 and 2020 analysis identified no bills directly addressing retention, we did identify a number of bills addressing teacher satisfaction in virtual schools and potentially affecting retention. Five bills addressed virtual school student attendance and proposed consequences for truancy or failure to participate. Three were enacted (OK HB 2905, OH HB 409, LA HB 321), one failed (IN HB 1172), and one is pending (OH SB 292). Two state legislatures also considered new laws regarding student engagement, seat time and expectations for participating in instructional activities, but both bills failed (IL HB 1204, MO SB 996). Three bills addressed class size in virtual schools; one of these bills was successful (IN SB 567) and two failed (IN SB 183, NC SB 392).

In sum, the research and legislative activity over the past two years remained quiet with respect to virtual teacher evaluation, but included a number of bills addressing factors that have been associated with teacher satisfaction, and a handful of those bills were enacted

by state legislatures. Policies on virtual school student attendance, engagement, and class size—if they are designed to create more favorable workload and conditions for success—may have a positive effect on teacher satisfaction and retention.

Recommendations to Ensure Teacher Quality

Regardless of whether schooling occurs in person, online, or in a blended format, high-quality teachers are an essential ingredient in effective K12 education. However, limited research exists on the knowledge and skills that teachers need to be effective in virtual settings, the supply of and demand for online teachers, and the factors related to retaining quality virtual teachers. Evidence on these issues is needed to guide educationally sound policy on the preparation, professional development, evaluation and retention of quality virtual teachers. Further, our legislative analysis demonstrates that little progress has been made over the past two years on issues related to teacher quality in virtual contexts. A handful of state legislatures introduced bills related to the certification and ongoing professional development of virtual teachers, and several considered, and in some cases enacted, new laws and reporting requirements that may increase the satisfaction and retention of virtual teachers.

Given these findings, we reiterate a number of recommendations from previous reports. Specifically, we recommend that policymakers, educational leaders, and researchers work together to:

- Define certification training and relevant teacher licensure requirements specific to teaching responsibilities in virtual schools, and require research-based professional development to promote effective online teaching models.
- Address retention issues by developing guidelines for appropriate student-teacher ratios and attending to other working conditions (for example, student attendance) that may affect teachers' decisions about where to work.
- Work with emerging research to develop valid and comprehensive teacher evaluation rubrics specific to online teaching.
- Identify and maintain data on teachers and instructional staff that will allow education leaders and policymakers to monitor staffing patterns and assess the quality and professional development needs of teachers in virtual schools.
- Examine the work and responsibilities of virtual school administrators and ensure that those hired for these roles are prepared with the knowledge and skills to be effective, particularly with respect to evaluating and supporting teachers and promoting best practices.

2020 COVID-19/Virtual School-Related Legislation

Overview

The onset of the COVID-19 pandemic in early 2020 had a significant and abrupt impact on education across the United States, in ways many education leaders and policymakers had never experienced. The pandemic prompted states nationwide to swiftly transition most traditional brick-and-mortar schools to remote/online learning. Face-to-face and online teaching and learning vary enormously and are significantly affected by available funding. Even schools that had already adopted online learning platforms or education technology, however, were unlikely to be prepared to operate essentially as a fully functioning virtual school this past year.

While we traditionally have looked at bills related to full-time virtual schools, we needed to broaden our focus to include bills intended to support schools that had involuntarily moved to sudden and heavy reliance on virtual instruction. In most states, pandemic-related bills included appropriation of new funds and orders to *implement* online/remote learning, while in others, bills were attempts to adjust school expectations to accommodate imminent ambiguity. This analysis provides a first glimpse into the substantive interventions that states attempted in response to the emergency. While there were attempts to provide necessary support for full-time virtual schooling, they may have stopped short of fully accounting for the mechanisms, practices, and resources needed.

The analysis of all 2020 legislative bills created or amended in response to the pandemic employed the databases of OpenStates.org, Education Commission of the States (ECS), and the National Conference of State Legislatures (NCSL) Bill Tracking services. Keywords used included cyber, virtual, online, technology, nonclassroom based, distance learning, digital learning, and blended learning; additional coding included COVID-19, pandemic, and/or emergency. Based on dates of introduction aligning with crisis conditions, a few bills that addressed remote learning protocol under the event of temporary school closure or a public health crisis were included, even though they lacked pandemic-specific language.

Across 19 states, 80 bills coded for connection to the pandemic were identified. Of those 80, 29 were discarded because of duplication or because they did not apply to virtual school practices. In total, 51 bills were analyzed, including 18 that were enacted (35.3%), 18 that failed (35.3%), and 15 that are still pending (29.4%). Appendix III-A provides a complete list of bills that were included in this analysis. Because school conditions changed rapidly at the onset of the pandemic, including the timeline of bills helps provide a more complete picture of legislative activity. Attempts to address challenges of sudden online schooling began in February of 2020 with five bills; they rose in March, April, and May, with seven bills each month; they peaked in June with 12 bills. Hence, nearly three-quarters of the year's legislation were packed into the first half of 2020, excluding January. Remaining months saw fewer bills introduced: four bills in August marked the beginning of the next school year, followed by three in September, one in October, and two in December. Clear frontrunners among states included New Jersey with nine bills, followed by Minnesota with seven, North

Carolina with six, Michigan with five, and Massachusetts with four.

In total, 18 major themes were identified among the group of 51 bills selected, outlined in Appendix III-B**.** Many addressed multiple topics, and so appear in multiple categories. The most prevalent themes, in descending order of prominence, included: access to technology, hardware, and broadband connection, 20 bills in eight states (CA, MI, MN, MS, NC, NJ, PA, VA); redefining the instructional calendar, adjusting average daily attendance (ADA), 20 bills in 10 states (CA, DC, IA, IL, KY, MA, MI, MN, NC, NJ); adjusting requirements for teacher training, evaluation, and professional development, 10 bills in six states (IL, MI, NC, OH, WI, VT); and, emergent funding for establishing online/remote learning, eight bills in five states (LA, MA, MI, MN, NC). A number of states also advanced general mandates allowing virtual or remote instruction in the event of such an emergency (eight bills in five states; AZ, IL, KY, MN, NJ).

Finance and Governance

Funding was a commonly discussed theme in many of the 2020 bills as states imposed or permitted online efforts. Nine bills in six states, four of which were enacted, granted emergency internal funding (LA, MA, MI, MN, MS, NC). Two bills, one pending (NJ S 2507) and one failed (MN HF 59), discussed allowing school districts to use capital reserve funds to generally support instruction under a state of public health emergency. Appropriations were commonly suggested to be used for "expanding the state learning management platform"[88] and purchasing "digital content and curriculum."[89] Alternatively, Minnesota (MN HF 4660, MN SF 150) looked outward for supplemental funds by trying to establish partnerships with nonprofits to help support newly adopted blended learning. Funding bills generally recognized that the onset of COVID-19 would require school districts to engage in extra coordination and planning, and therefore established special supportive funds.

Among the eight bills that simply provided permission and parameters for establishing remote instruction, some required approval from the school board or superintendent before implementation of certain "e-learning" programs; others mandated that virtual instruction immediately replace in-person learning for the duration of any public health emergency. Notably, New Jersey (NJ A 3904) detailed a suggested protocol to guide districts new to online instruction. This enacted bill required the state commissioner to keep all stakeholders informed of instructional decisions, provided more information on how to deliver virtual instruction to students without technology, and offered guidance on the length of a virtual day, school-funded food programs, and assessment schedules. Such explicit guidance for school districts to implement the operations of remote learning rarely appeared in this body of legislation. Rather, bills more commonly broadly mandated that schools immediately adopt virtual schooling both in the late 2019-2020 school year and some also for the 2020-21 school year. One Minnesota bill (MN HF 59) included a definition of distance learning or virtual instruction to guide local decisions, whereas most called on local governance to approve remote instructional plans as they thought best.

Instructional Quality

In light of the sudden conversion of traditional schools to virtual learning, many states considered whether standards of instructional time, assessments, and academic benchmarks would be maintained. Conditions were, and continue to be, extraordinary: School personnel nationwide suddenly lost all access to in-person instruction as they endured the personal and professional stresses of a global pandemic; interim innovators had to factor into their plans not only those stresses, but also many other barriers that different kinds of families face. Understandably, many states saw legislative proposals calling for suspension of regular expectations for performance, attendance, and time in the classroom. Seven bills were proposed, six enacted (AZ, KY, NC, NJ, OH, WI), extending or suspending student assessments and other accountability measures for academic promotion (failed, CA). One extensive bill enacted in Ohio (OH HB 197) addressed accountability, assessments, promotion/retention, and charter school ratings. Like other bills in this category (NC SB 704, WI AB 1038/ACT 185), the Ohio bill prohibited publishing state school district report cards, protecting districts from penalties and sanctions they might otherwise have suffered for academic decline resulting from pandemic disruption. Arizona (AZ HB 2910) passed a bill releasing schools from adhering to special education requirements for grade promotion, while a similar bill failed in California (CA AB 117). In addition, promotion requirements for elementary school students contingent upon reading assessments were waived for Arizona, North Carolina, Ohio, and Wisconsin (AZ HB 2910, NC SB 704, OH HB 197, WI AB 1038/ACT 185).

Many bills acknowledged the need for compromise in calculating attendance-related statistics and instructional days. Of 20 total bills in 10 states adjusting such requirements, 60% targeted those two areas (CA, DC, IA, IL, KY, MA, MI, MN, NC, NJ). Kentucky (KY SB 177) and Michigan (MI HB 5912) passed bills modifying attendance calculations to prevent loss of funding that might otherwise result from the pandemic. Some legislation proactively waived the requisite number of instructional days if the governor announced a public health emergency, or if districts were expected to, and capable of, providing remote instruction instead (MI HB 5912, IA SF 2310, NC SB 704, NJ A 3904, KY SB 177). A few states went so far as to require a "nontraditional" or "remote instructional plan" to include virtual learning in preparing for the 2020-2021 school year if districts wanted to count remote instructional days toward full attendance (enacted: NC SB 704, KY SB 177, NJ A 3904). Some provisions protected family choice: Iowa (IA SF 2310) allowed students with a family member at high risk for COVID-19 to enroll in an alternative fully online public school.

High-needs student subgroups experienced disproportionate stressors. Legislation proposed to offset inequities included subsidies for supporting the homeless, students with special needs, and English language learners (CA, IL, MA, MN, NC). North Carolina (NC HB 1105) enacted legislation allocating funds to a nonprofit organization to provide homeless students with benefits including tutors, food services, instructional space, personal technology, and counseling during the pandemic. Similarly, Massachusetts and Illinois passed legislation establishing direct grants to school districts to support homeless students, students with disabilities, English language learners, and students with low socioeconomic backgrounds (MA S 2790, IL SB 1569). Equitable access to technology and other emergency funds for low-income communities of color and otherwise disadvantaged students were also proposed by California (CA AB 2626) and Minnesota (MN HF 4660). Because low-income

students typically lacked the suddenly essential technology, 19 bills across 8 states were drafted to close the "digital divide" (CA, MI, MN, MS, NC, NJ, PA, VA). Only 16% of such technology-related bills were enacted in 2020, while 68% failed. North Carolina (NC HB 1043), however, championed a generous bill enacted for online learning, allocating $11 million to improve broadband connectivity and $30 million to fund hardware for students. Of other bills addressing technology, six proposed grant funding limited to improved Wi-Fi connectivity (MN, NC), two proposed funding limited to securing devices for students in need (NJ), two proposed funding limited to securing appropriate software (CA, PA), seven bills included the suite of directives for wireless access, devices, and learning platforms (CA, MI, MN, NC, NJ, VA), and finally, two bills allocated funds for general distance learning technology (MS).

Teacher Quality

Other anticipated evaluations and certifications related to teacher preparation and performance were also adjusted for the 2020-2021 school years in some states to allow flexibility and support while educators were managing unconventional instruction. Wisconsin (WI AB 1038 / ACT 185) and Ohio (OH HB 197) enacted legislation prohibiting the use of student assessment scores in teacher evaluations. Illinois (IL HB 1569) and Ohio (OH HB 197) passed bills giving permission to either score teacher evaluations as "excellent" or to waive them altogether. Given that other ongoing teacher training and certification would be difficult to complete outside classrooms, provisional teachers' licenses allowed temporary certification to teach remotely (VT H 969 / ACT 154, OH HB 197) and as was the case for Illinois (IL SB 1569), teachers were allowed to finish student teaching virtually during the spring of 2020. Ohio (OH HB 197) enacted legislation that permitted their department of education to issue one-year, nonrenewable, provisional licenses to educators that have met all other requirements for the requested license except for the requirement to pass a subject area exam. Since such training methods were unique, some virtual professional development (PD) legislation was proposed to assist in the sudden pedagogical shift. An enacted North Carolina bill (NC SB 704) provides for teachers and staff training on effective use of the remote instruction resource, and an unsuccessful bill in that state (NC HB 1116) proposed to leverage the state virtual school to provide North Carolina teachers with a suite of professional development options that use a variety of formats to meet the learning needs of teachers in the state. Michigan (MI SB 994), however, was the only state to introduce "an amount equal to $500 per full-time equated classroom teacher . . . to recognize the additional overtime and hazardous conditions have incurred or experienced to provide distance learning during the period of school closure as a result of the COVID-19 pandemic."[90]

Unique Needs

Outside of the direct needs of students and teachers to support teaching and learning, some legislation addressed other more general needs of families and staff during an exceedingly difficult time. Four states (NJ, MI, NC, VT) proposed six bills, with three being enacted) providing ancillary funding and services to ensure all stakeholders were adequately sup-

ported and able to manage and support student learning, without which the switch to virtual schooling would be difficult, and perhaps impossible, for many. North Carolina (NC HB 1105) passed a bill authorizing community-based organizations to provide childcare and other economic and remote learning support while under emergency circumstances. School nutritional services and appropriations for other food-related costs are pending in Michigan (MI SB 994), but passed in North Carolina (NC HB 1043) and Vermont (VT H969/A 154). Michigan (MI SB 994) introduced legislation for social-emotional intervention and New Jersey (NJ A 3975) introduced a bill offering educational training and counseling services for children at risk of abuse or neglect in the home. For many families, the critical need to ensure students' social-emotional well-being took priority over academic assignments and performance.

In General

Overall, a substantial number of pandemic-relevant themes and support mechanisms emerged in 19 legislating states in 2020. However, given the pervasive and extensive disruption experienced, it's noteworthy that in 31 states, no state-wide legislation was proposed. The critical need for responses to a panoply of challenges, however, is evident in the brevity of most bills cited. And some proposals were simple amendments to formerly enacted virtual education bills, with select language edited to include phrases addressing emergency situations. Such brief bills or modest alterations suggest that legislators did not necessarily think deeply about how to address remote learning needs, nor did they try to change the existing structure of virtual schooling. Instead, they designed emergency bills aimed at putting a band aid on the hemorrhaging issues. Those familiar with adopting new pedagogies and working productively in substandard environments know that ongoing training and detailed planning are not just helpful, but essential to effective practice. Thus, the few states that did craft comprehensive plans for remote learning were outliers, and even those left many questions concerning next steps and implementation. In addition, given the uncertainty of the year and rapidly changing circumstances, some state legislatures might have been hesitant to revamp funding and services when no one could predict how long virtual instruction models might last for brick-and-mortar schools.[91]

Recommendations

Based on this review and analysis, it is recommended that policymakers:

- Develop new funding formulas based on the actual costs of operating virtual schools.
- Develop new accountability structures for virtual schools, calculate the revenue needed to support them, and provide adequate funding.
- Establish geographic boundaries and manageable enrollment zones for virtual schools by implementing state-centered funding and accountability systems.
- Develop guidelines and governance mechanisms to ensure that virtual schools do not

prioritize profit over student performance.

- Require high-quality curricula, aligned with applicable state and district standards, and monitor changes to digital content.
- Develop a comprehensive system of formative and summative assessments of student achievement, shifting assessment from a focus on time- and place-related requirements to a focus on student mastery of curricular objectives.
- Assess the contributions of various providers to student achievement, and close virtual schools and programs that do not contribute to student growth.
- Implement a nationwide longitudinal study across multiple providers and with interim checkpoints to assess the quality of the learning experience from the student perspective.
- Delineate the definitions of adequate quantity of instruction to ensure subject mastery.
- Define certification training and relevant teacher licensure requirements specific to teaching responsibilities in virtual schools, and require research-based professional development to promote effective online teaching.
- Address retention issues by developing guidelines for appropriate student-teacher ratios and attending to other working conditions (for example, student attendance) that may affect teachers' decisions about where to work.
- Work with emerging research to develop valid and comprehensive teacher evaluation rubrics specific to online teaching.
- Identify and maintain data on teachers and instructional staff that will allow education leaders and policymakers to monitor staffing patterns and assess the quality and professional development needs of teachers in virtual schools.
- Examine the work and responsibilities of virtual school principals and ensure that they are prepared with the knowledge and skills to be effective, particularly with respect to evaluating teachers and promoting best practices.

Notes and References Section III

1 The keyword *blended learning* was added to the 2015 and 2016 legislative bill analysis, and was not used in previous searches of the StateNet® Bill Tracking Database. The authors thank Ben Erwin (Policy Researcher, Education Commission of the States) and the Education Commission of the States for their assistance in developing the database of virtual school related bills for the 2019 and 2020 legislative sessions.

2 In 2018, 42 bills were considered in 23 states; 17 were enacted, 19 failed and six were pending. In 2017, 85 bills were considered in 34 states; 28 were enacted, 54 failed and four were pending In 2016, 113 bills were considered in 37 states; 33 were enacted, 60 failed and 20 were pending. In 2015, 98 bills were considered in 28 states; 36 were enacted and 62 failed. In 2014, 131 bills were considered in 36 states; 38 were enacted, 62 failed, and 31 were pending. In 2013, 127 bills were considered in 25 states; 29 were enacted, seven failed and 92 were pending. In 2012, 128 bills were considered in 31 states; 41 were enacted and 87 failed.

3 In 2017 and 2018 legislative sessions a total of 16 bills related to cyber security and student data privacy were proposed (eight bills were enacted, seven bills failed and one was pending). In the 2019 and 2020 legislative sessions we identified only one bill related to cyber security and student data privacy: OH HB 684.

4 As in previous reports we again highlight the work of Baker and Bathon (2013) who developed a comprehensive methodology for estimating the actual costs of virtual schools, This research eclipses the limited recommendations made by other recent reports that have attempted to define a process for costing out virtual schooling. Specifically, Baker and Bathon outline how costs in virtual schools vary widely compared to those in brick-and-mortar schools. For example, virtual schools have lower costs associated with teacher salaries and benefits, facilities and maintenance, transportation, food service, and other in-person services than their brick-and-mortar counterparts. However, virtual schools may have higher costs linked to acquiring, developing and providing the digital instruction and materials necessary for full-time virtual instruction; they also need to acquire and maintain necessary technological infrastructure. See Baker, B.D. & Bathon, J. (2012). *Financing online education and virtual schooling: A guide for policymakers and advocates*. Boulder, CO: National Education Policy Center. Retrieved November 12, 2013, from http://nepc.colorado.edu/publication/financing-online-education

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