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VIRTUAL SCHOOLS IN THE U.S. 2015: POLITICS, PERFORMANCE, POLICY, AND RESEARCH EVIDENCE

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

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Executive Summary

This section provides a detailed overview and inventory of full-time virtual schools. Such schools deliver all curriculum and instruction via the Internet and electronic communication, usually asynchronously with students at home and teachers at a remote location. Although increasing numbers of parents and students are choosing this option, we know little about virtual schooling in general, and very little about full-time virtual schools in particular. Nevertheless, the evidence suggests that strong growth in enrollment has continued. Large virtual schools operated by for-profit education management organizations

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(EMOs) continued to dominate this sector. While more districts are opening their own virtual schools, district-run schools have typically been small, with limited enrollment.

This report provides a census of full-time virtual schools. It also includes student demographics, state-specific school performance ratings, and a comparison of virtual school ratings and national norms.

Current scope of full-time virtual schools:

- Our 2012-13 inventory identified 400 full-time virtual schools that enrolled close to 261,000 students.
- Although only 40.2% of the full-time virtual schools were operated by private education management organizations (EMOs), they accounted for 70.7% of all enrollments.
- Virtual schools operated by for-profit EMOs enrolled an average 1,166 students. In contrast, those operated by non-profit EMOs enrolled an average 350 students, and public virtual schools operating independently enrolled an average 322 students.
- Among the schools in the inventory, 52% are charter schools; together they accounted for 84% of enrollment. School districts have been increasingly creating their own virtual schools, but these tended to enroll far fewer students.
- Relative to national public school enrollment, virtual schools had substantially fewer minority students, fewer low-income students, fewer students with disabilities, and fewer students classified as English language learners.
- While the average student-teacher ratio was 16 students per teacher in the nation's public schools, virtual schools reported more than twice as many students per teacher. Virtual schools operated by for-profit EMOs reported the highest student-teacher ratio: 40 students per teacher.

School Performance Data:

- Most states have implemented school performance ratings or scores. These have typically been based on a variety of measures combined to produce an overall evaluation of school performance.
- In 2013-14, 28% of virtual schools received no state accountability/performance rating. Of the 285 schools that were rated, only 41% were deemed academically acceptable.
- Independent virtual schools were more likely to receive an acceptable rating than virtual schools operated by private EMOs: 48% compared with 27.6%.

- During the 2013-14 school year, charter virtual schools lagged behind their district-operated virtual schools in terms of acceptable school performance ratings by seven percentage points: 37.6% compared with 44.9%.
- As schools transitioned from the adequate yearly progress (AYP) measure to multiple performance measures under ESEA flexibility waivers, differences in performance outcomes of independent virtual schools and those run by private EMOs continued. In addition, full-time virtual schools continued to lag significantly behind traditional brick-and-mortar schools.
- Only 154 virtual schools reported a score related to on-time graduation in 2013-14. Based on data available in states' annual federal reports, 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.

Recommendations

Given the rapid growth of virtual schools, the populations they serve, and their relatively poor performance on widely used accountability measures, it is recommended that:

- Policymakers slow or stop growth in the number of virtual schools and the size of their enrollment until the reasons for their relatively poor performance have been identified and addressed.
- Policymakers specify and enforce sanctions for virtual schools if they fail to improve performance.
- Policymakers require virtual schools to devote more resources to instruction, particularly by reducing the ratio of students to teachers. Given that all measures of school performance indicate insufficient or ineffective instruction and learning, these virtual schools should be required to devote more resources toward instruction. Other factors, such as the curriculum and the nature of student-teacher interactions, should also be studied to see if they are negatively affecting student learning.
- Policymakers and other stakeholders support more research for better understanding of the characteristics of full-time virtual schools. More research is also needed to identify which policy options—especially those impacting funding and accountability mechanisms—are most likely to promote successful virtual schools.
- State education agencies and the federal National Center for Education Statistics clearly identify full-time virtual-schools in their datasets, distinguishing them from other instructional models. This will facilitate further research on this subgroup of schools.
- State agencies ensure that virtual schools fully report data related to the population of students they serve and the teachers they employ.

- State and federal policymakers promote efforts to design new outcome measures appropriate to the unique characteristics of full-time virtual schools. The waivers from ESEA present an opportunity for those states with a growing virtual school sector to improve upon their accountability systems for reporting data on school performance measures. emerging research to create effective and comprehensive teacher evaluation rubrics.

Section III

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

The virtual school sector is relatively new. Along with this newness comes volatility. In the last year, we have seen some large changes in this sector, with a number of full-time virtual schools being closed and an even larger number of new virtual schools opening. Although there is a notable lack of credible research evidence related to online education—especially evidence on full-time programs, as noted in earlier sections of this report—an increasing number of parents and students are opting for full-time online options. In addition, many states have adopted legislation permitting full-time virtual schools or removing the caps that once limited their growth. There is obviously continued enthusiasm for full-time online schools, even while information has been lacking on how these schools operate, which students they serve, and what their outcomes have been.

To fill this information gap, this section of the report offers a unique inventory of full-time virtual schools. The inventory, initiated in this NEPC report series, serves as a key research-based effort to track developments nation-wide. It helps identify which students full-time online schools are serving, how well the schools are performing, and how quickly their numbers are expanding or contracting. Questions we seek to answer include:

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

Student demographics reported here include grade level, ethnicity, gender, socioeconomic status, special education status, and English language learning status. Data on school performance includes a comparison of aggregate performance ratings and national norms. We also include data on staffing, specifically on teacher to student ratios.

This report builds on earlier reports; we have updated the inventory with available data on schools operating during the 2013-14 academic year. In addition, we have provided details on specific schools in Appendices C and D, which can be downloaded from the NEPC website: <http://nepc.colorado.edu/publication/virtual-schools-annual-2015>.

Data Sources, Selection Criteria and Aggregation Calculations

The findings presented in this section are based on publicly available data, collected, audited, and warehoused by public authorities. Data from the National Center for Education Statistics was particularly helpful in gathering key data on enrollment and student demographics and staffing. Data from state education agencies and from individual school web sites was also used to fill in data not available from NCES.

The scope of this inventory is limited to full-time, public elementary and secondary virtual schools based in the U.S. These include virtual schools operated by for-profit and nonprofit Education Management Organizations (EMOs) as well as virtual schools operated by states or districts. Private virtual schools (online schools funded in whole or in part by charging tuition and fees, rather than relying on a public funding program using tax dollars) are excluded. Also excluded are schools offering a combination of full-time virtual programs and blended programs, unless it was possible to separate data for the full-time virtual school component.

Schools were typically identified by the unique school ID code assigned by the National Center for Education Statistics (NCES) or, for relatively new schools, by unique building or school ID codes assigned by state agencies. These criteria helped identify and exclude smaller programs operated by districts, or schools not intended to be full-time virtual schools. That is, we worked to eliminate programs that simply offer an extensive menu of individual course options but do not function as schools.¹ We also excluded hybrid schools, which employ both face-to-face and online instruction, as well as schools enrolling fewer than 10 students.² Such restrictions allow for more confidence in attributing various outcomes to specific types of schools.

In applying selection criteria, we identified scores of virtual schools or programs that did not meet our criteria. In preparing our first report, we initially identified close to 100 schools that we eventually excluded because no enrollment data were available, or because we determined that they were based in traditional schools and data could not be disaggregated. In the second year, this was true for an additional 62 schools. For this report, we identified more than 20 virtual programs or blended instruction schools that initially appeared to be full-time virtual schools. After closer examination, we found that these did not meet our criteria and they were removed from the inventory.

The primary sources for total enrollment and school performance data were the Common Core of Data from NCES, state-level datasets, and school report cards for the 2013-14 school year. Data for grade level enrollment, race-ethnicity and gender were obtained from NCES and represent the 2011-12 school year, which is the most recent data available.

Aggregated data reflect weighted averages based on enrollment. That is, averages have been calculated so that the influence of any given school on the aggregated average is proportional to its enrollment. Comparisons were made to norms for all public schools in the United States.

Limitations

There are several general limitations that readers should keep in mind.

Incomplete demographic data. The tables in Appendices C and D 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 on free-and-reduced-price lunch status are rather complete, the special education data are not. This was particularly problematic in states where charter schools are not considered Local Education Authorities or districts, and thus do not have a legal responsibility to provide special education services. Also, some states combine charter school data with local district data, which makes it impossible to parse the numbers for only full-time virtual schools.

Comparison groups. National aggregate results for all public schools provide the base for several comparisons in this report, which profiles virtual schools in 30 states. 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 30 states represented are among the nation's 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 schools, although it constitutes a relatively small subset.

Instability in virtual schools. Full-time virtual schools are rapidly evolving; currently, the number of such schools, their demographic composition, and their performance data could vary from the 2011-12 demographic data and the 2013-14 performance data presented here (the most recent available for each category). 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 in the appendices are welcome and can be submitted to the authors through the National Education Policy Center.

Growth and Current Scope of Full-Time Virtual Schools

There is an array of education services delivered online. On one end of the continuum, is the delivery of individual courses to students who are otherwise enrolled in brick and mortar schools. Next, there are a wide array of hybrid or blended learning programs and schools that are serving students in a combination of face-to-face and online activities. On the other end of the continuum are full-time virtual schools where students receive all of their instruction online. Full-time virtual schools receive funding for delivering what is supposed to be the full education. It is important to be cognizant of the diverse forms or types of online learning that exist, although the focus in this section is only on the full-time virtual schools.

Although virtual schools still account for a relatively small portion of the overall school choice options in the U.S., they now constitute one of the fastest-growing options, overlapping with both homeschooling and charter schools. During the 2013-14 school year, we found 30 states that had full-time virtual schools—many of them charters. (Other

states also offer virtual education options, but in several other formats including, for example, blended learning or supplemental coursework.) Appendix B details student enrollments by state.

Figure 3.1 illustrates the estimated enrollment growth in full-time virtual schools over the last 12 years.³ The International Association for K-12 Online Learning (iNACOL) typically reports much higher estimates, but those estimates seem to include other types of virtual instruction—blended or hybrid schools, for example. Figure 3.1 also illustrates the proportion of students in full-time virtual schools enrolled in schools operated by K12 Inc. and Connections Academy, the two largest for-profit EMOs. K12 Inc. schools account for 36% of all enrollments in full-time virtual schools, and Connections academies account for 17% of all enrollments. Together, these two companies account for 56.7% of all enrollments in 2012-13. Their overall percentage of full-time virtual school enrollments has been increasing gradually each year

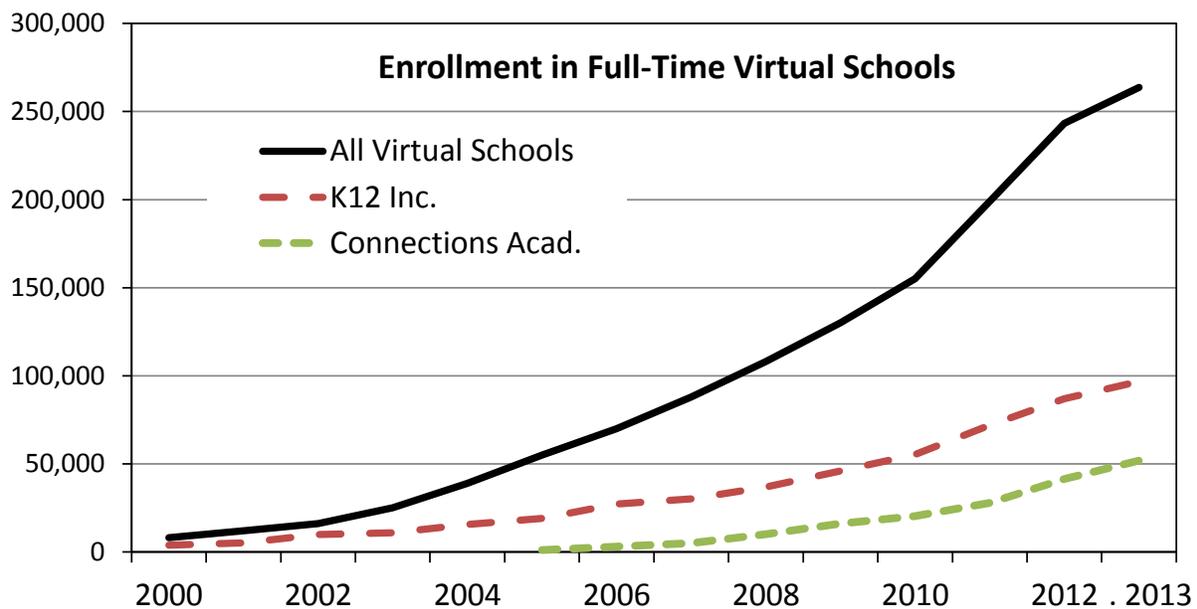


Figure 3.1. Estimated Enrollment Trends in Full-Time Virtual Schools

Some 32 schools included in our 2012-13 figures were excluded in 2013-14 because they no longer met our inclusion criteria; for example, some closed while others reported no enrollment. Four of the schools identified last year were also removed because we learned that they were blended learning and not full-time virtual schools. However, we identified an additional 92 new full-time virtual schools in 2013-14, bringing the total number of such schools to 400, with an enrollment of close to 261,000 students (Table 3.1). See Appendix C for a list of identified schools.⁴ Charter schools comprised the majority of the new schools (46), accounting for 52% of all full-time virtual schools and for 84% of their

enrollment. District virtual schools grew more slowly (25), likely because districts tend to create virtual programs rather than separate virtual schools.

Table 3.1. Distribution of Schools and Students Across District and Charter Sectors, 2013-14

	Schools	Percent of all Schools	Students	Percent of all Enrollment	Average Enrollment Per School
District	192	48%	43,033	16.54%	224
Charter	207	52%	217,204	83.46%	1,049
Total for All Virtual Schools	400	100.0%	260,237	100.0%	650

The statistics for 2013-14 represent a net increase of 60 schools and a 7.6% net increase in enrollment from 2012-13, when our report found 400 schools, enrolling just under some 261,000 students. Growth was far lower than the 21.7% growth between 2011-12 and 2012-13—but still notable at 7.6%.

Table 3.2. Distribution of Schools and Students by Operator Status 2013-14

	Schools	Percent of all Schools	Students	Percent of all Enrollment	Average Enrollment Per School
Independent	221	55.25%	70,769	27.19%	320
Nonprofit EMO	19	4.75%	6,659	2.57%	350
For-profit EMO	160	40%	182,809	70.24%	1,143
<i>K12 Inc.</i>	99	24.75%	95,535	36.71%	965
<i>Connections Academy</i>	29	7.25%	52,138	20%	1,798
Total for All Virtual Schools	400	100.0%	260,237	100.0%	651

Schools operated by for-profit EMOs increased by 24, and those operated by non-profit EMOs grew by 11. Independent virtual schools (those not managed by any EMO) grew most, increasing by 30. Like district schools, independent virtual schools tend to be small, so it is not surprising that for-profit EMOs experienced greatest growth in student population.

While new district-operated schools did add significantly to the number of schools operating, such schools tend to be small. Growth in student population came primarily from the significantly larger virtual schools operated by for-profit EMOs. In 2012-13, for-profit EMOs managed 138 charter and district schools; in 2013-14, that number grew to 160 (see Table 3.2). As noted earlier, K12 Inc. is by far the largest EMO in this sector. In 2013-14, K12 Inc. alone operated 99 full-time virtual schools enrolling just under 96,000 students. Connections Academy LLC, the second largest for-profit operator, operated 29 such schools with just under 53,000 students. (Note, however, that this figure under-

represents the role of for-profit EMOs. While this report includes only virtual schools that EMOs are entirely responsible for, many district-operated virtual schools subcontract to K12, Inc. and Connections Academy, LLC to provide online curriculum, learning platforms, and other support services.) In contrast to for-profit EMOs, their non-profit counterparts operated only 19 schools, enrolling 6,659 students. Generally, charter virtual schools are much more likely to be operated by an EMO.

Overall, EMOs operated 45% of all full-time virtual schools and accounted for 73% of enrollment, increasing their market share by close to two percentage points. Most are for-profit, and they continued to increase the average size of their already very large schools.

Individual online schools operated by the for-profit EMOs had an average enrollment of 1,143 students (Table 3.2). In contrast, the average enrollment in the schools operated by non-profit EMOs was considerably smaller, with an average of 350 students per school. Independent virtual schools (those public virtual schools with no private EMO involvement) had the smallest average school size, 322 students per school.

A number of other EMOs have emerged to operate full-time virtual schools. Insight Schools, Learning Matters Educational Group, and Mosaica Education Inc. all operated 7 virtual schools in 2013-14. The largest nonprofit EMOs are Learning Matters Educational Group (7 schools), and Roads Education Organization (4 schools). More expansion is coming from some EMOs that formerly operated only brick and mortar schools but are now expanding to include full-time virtual schools. These include Edison Schools Inc., Leona Group LLC, Mosaica Inc., and White Hat Management. Given the relatively lucrative circumstances⁵ under which full-time virtual schools can operate, it is likely that more for-profit EMOs will be expanding their business models to include full-time virtual schools.

Student Characteristics

To provide context for school performance data comparisons discussed later in this report, following is an analysis of student demographics.

Race-Ethnicity

Aggregate data from full-time virtual schools looked rather different from national averages in terms of student ethnicity. Close to 70% of the students in virtual schools were

white-non-Hispanic, compared with the national mean of 54% (see Figure 3.2). The proportion of Black and Hispanic students served by virtual schools was noticeably lower than the national average. Only 10.3% of the virtual school enrollment was Black while 16.5% of all public school students were Black. An even greater discrepancy is found among Hispanic students, who

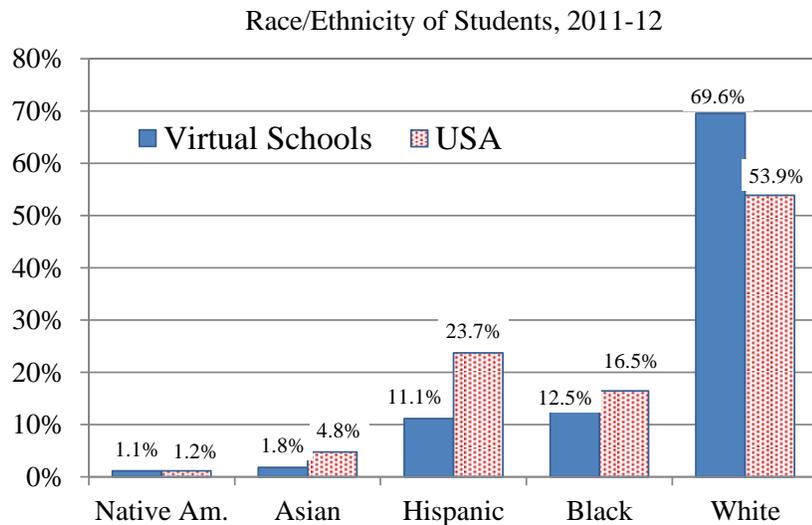


Figure 3.2. Race/Ethnicity of Students in Virtual Schools Compared with National Averages, 2011-12

comprised only 11% of the virtual school students but 23.7% of all public school students.⁶ Because virtual schools have a large presence in states with large Hispanic populations,

Table 3.3. Student's Race Ethnicity, 2011-12

	Native American	Asian	Hispanic	Black	White	Pacific Islander	Multi-racial
Independent	1.0%	1.4%	14.1%	9.5%	70.4%	0.3%	3.3%
Nonprofit	2.8%	2.4%	14.4%	3.9%	73.0%	0.3%	3.2%
For-Profit	1.2%	2.0%	9.8%	14.2%	69.1%	0.3%	3.6%
K12 Inc.	1.0%	2.6%	9.2%	17.0%	66.9%	0.3%	3.0%
Connections Acad.	0.9%	1.5%	11.4%	9.4%	71.7%	0.2%	5.0%
District	1.4%	1.5%	14.5%	8.4%	70.9%	0.2%	3.1%
Charter	1.1%	1.9%	10.6%	13.3%	69.4%	0.3%	3.5%
All Virtual Schools	1.1%	1.8%	11.1%	12.5%	69.6%	0.3%	3.5%
National Average ⁷	1.1%	4.7%	24.4%	15.7%	51.2%	0.4%	2.5%

such as Arizona, California, and Florida, this finding is surprising. It appears that virtual schools are less attractive to Hispanics, or perhaps that virtual schools are doing less outreach or marketing to this population. More limited access to technology by minority and low-income families may also help explain underrepresentation of these groups in virtual schools, even though most virtual schools loan a computer to students and frequently cover the expense for monthly Internet access. Data available from state sources for 2012-13 and 2013-14 was less complete than the 2011-12 data collected from the National Center for Education Statistics (NCES)⁸; still, the pattern of distribution of students by race/ethnicity was largely unchanged except for a very small increase in minority students.

Table 3.3 breaks out race/ethnicity data by school type and operator status. Non-profit EMO virtual schools had some distinct differences, although their very small share of enrollment makes drawing inferences difficult. Similarly, the differences between district and charter operated schools and those between for-profit or independent virtual schools are also very small.

Sex

While the population in the nation's public schools is nearly evenly split between girls and boys, the population of students in virtual charter schools overall skewed slightly in favor of girls (52.5% girls and 47.5% boys). Virtual schools catering to students in elementary and middle school tended to be more evenly split between boys and girls, but high schools were likely to have a larger proportion of boys. Charter schools and for-profit EMO-operated schools tended to have slightly more girls than boys enrolled, while district-run virtual schools tended to have a more even distribution.

Free and Reduced-Price Lunch, Special Education, and English Language Learner Status

As illustrated in Figure 3.3, the proportion of students in full-time virtual schools who qualified for free or reduced-price lunch (FRL) was 10 percentage points lower than the average in all public schools in 2010-11: 35.1% compared with 45.4%. Of those virtual schools reporting data, 13% enrolled a higher percentage of FRL students than the national average, while 87% of reporting schools indicated a lower percentage. The data available after 2010-11 was less complete, although it suggests that the proportion of FRL students in virtual schools has increased a few percentage points. In general, virtual schools continue to serve a noticeably lower percentage of economically disadvantaged students than other public schools.

Figure 3.3 also illustrates the representation of students classified as special education, indicating they have a disability as well as a recorded Individualized Education Plan (IEP). Overall, the proportion of students with disabilities in virtual schools is around half of the national average, or 7.2% compared with 13.1%. Only 92 schools reported

special education data in 2010-11 and the available data in subsequent years is even less complete. Just over 11% of the virtual schools reported having a higher proportion of students with disabilities than the national average, while 88.5% had a lower than average proportion of students with disabilities.

Given that charter schools overall usually have a substantially lower proportion of students with disabilities compared with district schools or state averages, one might expect an even greater difference in virtual school enrollments because it seems more difficult to deliver special education support via the Internet. However, it may be that the populations of students with disabilities in virtual and traditional public schools differ substantively in terms of the nature and severity of students' disabilities. Past research has established that traditional public schools typically have a higher proportion of students with moderate or severe disabilities, while charter schools have more students with mild disabilities that are less costly to accommodate.⁹

English language learners represent a growing proportion of students in the nation's schools, especially in the states served by virtual schools. However, only 0.1% of full-time virtual school students are classified as English language learners (ELLs). This is a strikingly large difference from the 9.6% national average (Figure 3.3). None of the virtual schools had higher proportions of ELLs than the national average, and the ELL student enrollment of most virtual schools with data available was less than 1%. There are no clear explanations for the absence of students classified as English language learners in virtual schools. One possible explanation could be that the packaged curriculum is available only in English; another possible explanation might be that instructors have insufficient time to support these students.

Enrollment by Grade Level

The National Center for Education Statistics has four school level classifications: elementary, middle school, high school, or other. Other refers to grade configurations that cut across the 3 levels of education. Close to half of virtual schools (45%) are designed or intended to enroll students from kindergarten to grade 12, which places them into the category of other. Fifteen percent are designated as primary schools, less than 2% as middle schools, and 38% as high schools. While this classification system is generally useful for describing traditional public schools, it is less useful for categorizing charter

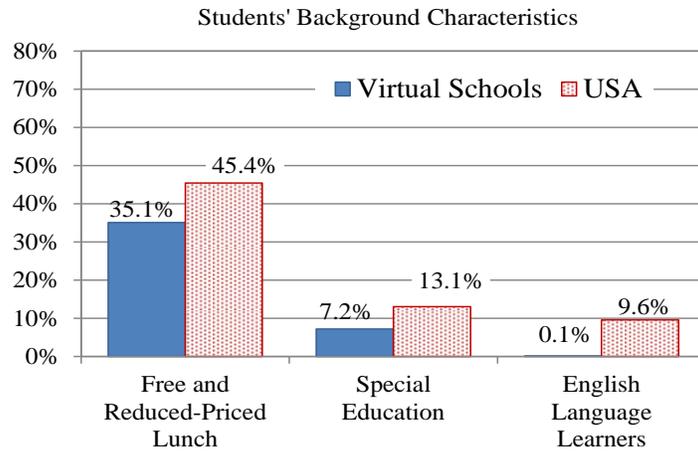


Figure 3.3. Students Qualifying for Free and Reduced-Priced Lunch, Classified as Special Education, or Classified as English Language Learners, 2010-11

schools that often have grade configurations that span primary, middle, and high school levels. This classification also has limitations in representing the distribution of students in charter schools because many have permission to serve all grades but actually enroll students in a more limited grade range.

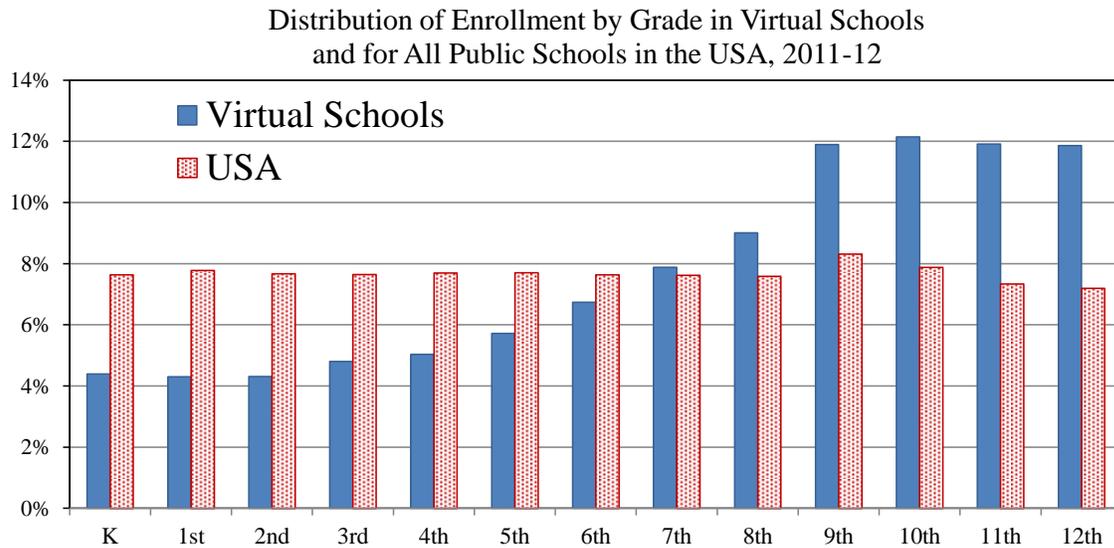


Figure 3.4. Enrollment by Grade Level for Virtual Schools and U.S., 2011-12

To more accurately display the distribution of students in virtual schools, we used actual student enrollment data by grade, obtained from the National Center for Education Statistics. Figure 3.4 depicts the enrollment distribution of students in virtual schools by grade level, compared with national averages. A disproportionate number of students were in high school or upper secondary level. This picture differs from the national picture, where a comparatively equal age cohort is distributed evenly across grades, with a gradual drop from grades 9 to 12.

District schools served slightly more students at the upper-secondary level than charter schools did. More pronounced differences were evident when for-profit schools were compared with nonprofit EMO-operated schools and independent schools, which both served many upper secondary level students (see Figure 3.5). Virtual schools operated by for-profit EMOs, predominately by K12 Inc. and Connections Academy, served substantially fewer students at the upper secondary level and showed stark enrollment drop offs after grade 9.

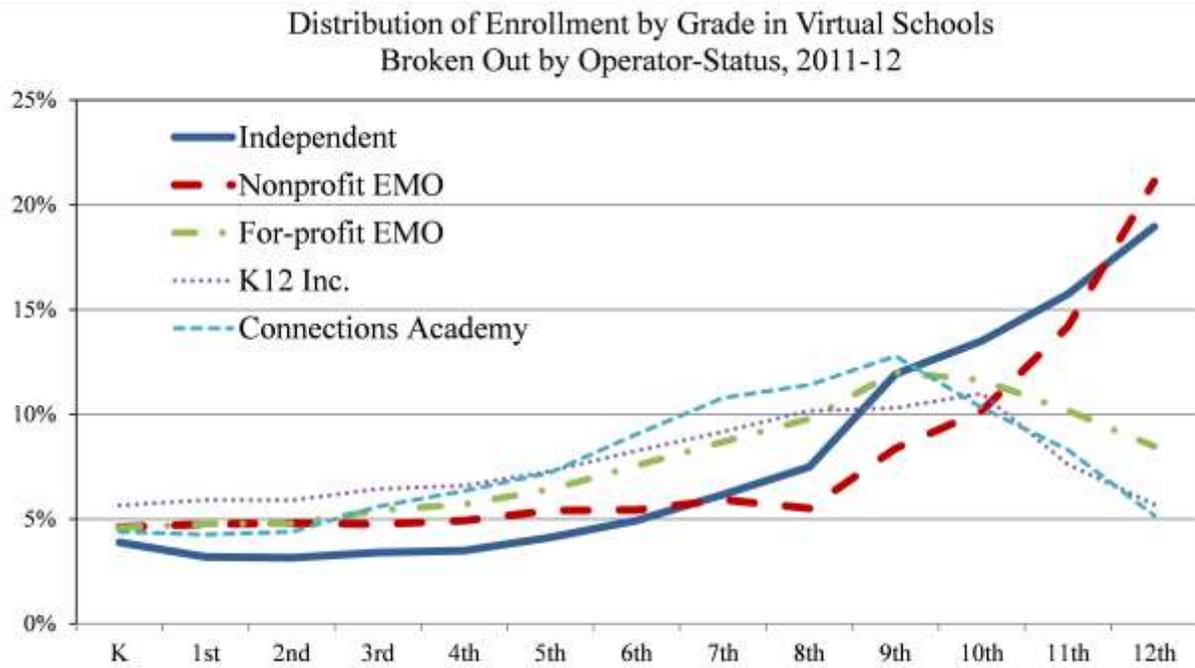


Figure 3.5. Enrollment by Grade Level Broken Out by Operator Status, 2011-12

Figure 3.6 illustrates the actual number of students served by virtual schools at each grade.¹⁰ Enrollment increased steadily through grade 10 and then decreased slightly in

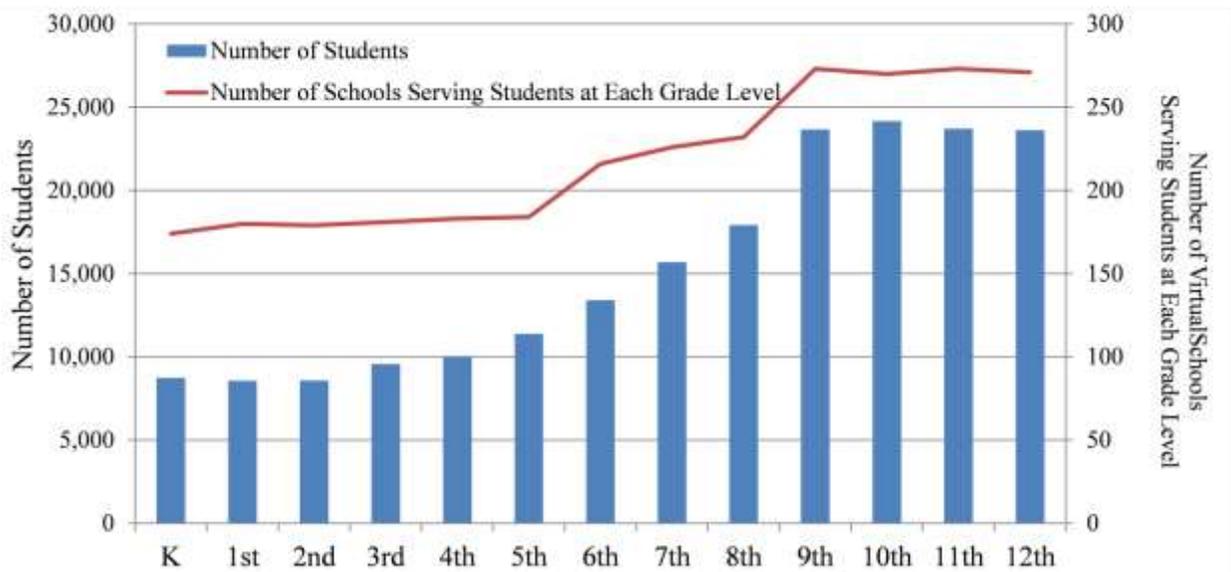


Figure 3.6. Number of Virtual School Students per Grade Level and Number of Schools that Offer Instruction at Each of the Grade Levels

grades 11 and 12. This could be a result of some schools not fully implementing their enrollment plans across all high school grades. Nevertheless, based on the low graduation rates in virtual schools—which we will discuss later—we believe this drop off in students is also explained by a relatively large proportion of students not persisting into the upper grades, and replacement of students in the full-time virtual schools does not appear to occur as often in these grades as it does in the lower grades.

Student-Teacher Ratios

The data available on student to teacher ratios is incomplete and—given the extreme variations reported from year to year—erratic. Due to a relative dearth of information on student-teacher ratio from state education agencies and from school report cards, the most up-to-date data available was not possible. Thus, we relied on the Common Core of data for school year 2011-12 from the National Center for Education Statistics to obtain more complete, albeit more dated, figures on teacher student ratios.

While the average ratio was approximately 15 students per teacher in the nation’s public schools, virtual schools reported more than twice as many students per teacher. Virtual schools operated by for-profit EMOs had the highest ratio (37 students per teacher), while those operated by nonprofit EMOs had the lowest (17.3 students per teacher). The raw data

Table 3.4. Teacher-Student Ratios, 2011-12

	Number of schools with data	Median	Mean	SD	Max	Min
Independent	142	22.1	33.78	40.10	356	1.4
Nonprofit	9	15.6	17.01	12.36	42	4.6
For-Profit	93	33.1	39.91	33.68	265	1.3
K12 Inc.	57	30.4	39.18	35.77	265	1.3
Connections Academy	16	37.2	35.72	6.49	45.6	24
District	84	26.2	40.51	51.92	356	1.4
Charter	160	26.6	32.86	26.38	150	1.3
All Virtual Schools	244	26.5	35.49	37.27	356	1.3
National Average ¹¹			16.0 ¹²			

showed considerable outliers, with some virtual schools reporting only 1 student per teacher and 17 schools reporting 10 or fewer students per teacher. At the other extreme, 3 schools reported having 200 or more students per teacher and 17 schools reported having more than 55 students per teacher.

Table 3.4 depicts the findings broken out by school type and operator status. The small number of nonprofit EMO-operated virtual schools stood out with a median of just under 16 students per teacher. The other groups of virtual schools reported median ratios of between 22 and 37 students per teacher and a mean of between 33 and 40 students per teacher. Connections Academy had by far the highest student-to-teacher ratios with a median of 37 students per teacher.

School Performance Data

This section reviews key school performance indicators, including Adequate Yearly Progress (AYP) status, state ratings, and on-time graduation rates. Performance-based school accountability systems identified in this report required full-time virtual schools and brick-and-mortar schools to fulfill similar academic progress and proficiency expectations. For example, while states have previously calculated graduation rates using varying methods, the four year on-time graduation rate, under a new federally mandated formula effective as of 2011-12 measures the percentage of students who graduate high school four years after entering ninth grade. Comparisons across these measures suggest that virtual schools are not performing as well as brick-and-mortar schools. The findings also reveal that virtual schools operated by private EMOs are not performing as well as public virtual schools with no private EMO involvement.

Adequate Yearly Progress and State Ratings Assigned to Virtual Schools

AYP

School performance ratings were obtained from state sources or directly from school report cards. Although these are weak measures of school performance, they do provide descriptive indicators that can be aggregated across states. Under NCLB in 2002, adequate yearly progress (AYP) reports were implemented as an accountability measure. States are required to administer state assessments in math and reading to demonstrate academic progress. Figure 3.7 illustrates the aggregated results for AYP from 2010-11 and a few earlier years. Essentially, the results for full-time virtual schools were 22 percentage points lower than results for brick and mortar charter and districts schools. Although the AYP measure is relatively crude, this gap is substantial and noteworthy.

While AYP has been a common metric, in recent years, 42 states (including Washington D.C.) have received waivers on AYP gains. Such waivers have allowed 28 states with virtual schools to discontinue the use of state-determined AYP standards in 2012-13. California, Iowa, and Washington are the only three states with full-time virtual schools that continue to report results based primarily on AYP. In 2011, only 5 of 22 (22.73%) full-time virtual

schools in California met their AYP targets. Of brick-and-mortar public schools, the percentage of schools meeting AYP was: 35% for elementary schools; 18% for middle schools; and 41% for high schools.¹³ These results mirror results in other states such as Pennsylvania and Ohio with a fast-growing number of virtual schools. In the 2010 and 2011 school years, when Pennsylvania was still reporting AYP status, the differences among schools' AYP for full-time virtual schools, traditional brick-and-mortar charters and district schools was substantial: 16.67% (2 of 12) cyber schools met AYP as compared to 75% of traditional brick-and-mortar schools and 61% of district charters, respectively¹⁴. In the same year, the Center for Research on Education Outcomes (CREDO) at Stanford University reported that in both reading and math, all eight cyber schools operating in Pennsylvania at the time performed significantly worse than their brick-and-mortar charter and district school counterparts.¹⁵

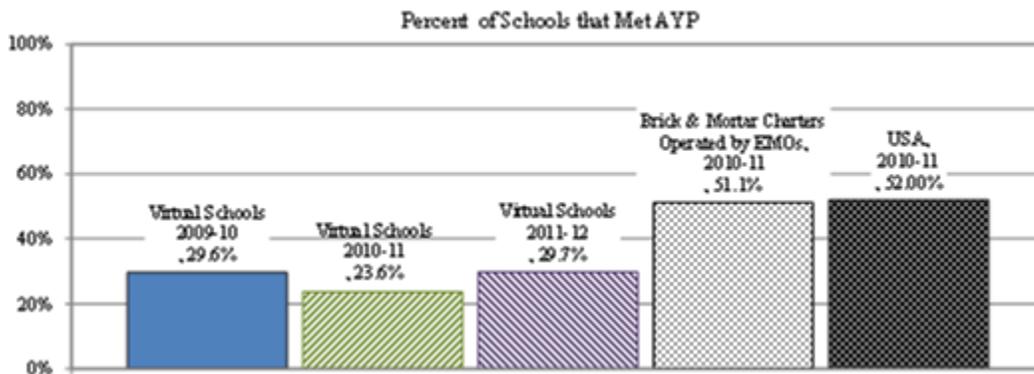


Figure 3.7. Percentage of Schools Meeting Adequate Yearly Progress, by School Type and Year

As Figure 3.7 indicates, annual AYP data collected over several years from state education agencies shows a trend towards lower AYP ratings lower for virtual schools managed by EMOs than for brick-and-mortar schools managed by EMOs: 29.6% compared with 51.1%. By contrast, Iowa's first two full-time virtual schools, Iowa Connections Academy and Iowa Virtual Academy (K12 Inc.), which opened in 2012-13, both made AYP for two consecutive years. Of course, there are variations among individual schools and companies represented in the virtual school cohorts discussed here. A few operators of full-time virtual schools have particularly dismal results. For example, only 30% of the virtual schools (13 out of 43) operated by K12 Inc. with school level reports for AYP made adequate yearly progress towards state proficiency goal in 2011-12. For Connections Academy, 45% (5 out of 11) of its full-time virtual schools met AYP. Under White Hat Management, not one school met AYP goals.

Having waivers for AYP requirements, 30 states with full-time virtual schools developed new school accountability systems. Typically, the new systems focus on growth in student performance over time and include an expanded set of indicators. However, ratings

systems vary considerably from state to state. While many states focus predominantly on student proficiency, a wide range of variables influence rating systems and outcomes: standards, scales, cut-off scores on standardized tests, and calculation methods. While twelve states assign schools to categories based on A-F letter grades, other systems include a color-coding rating scheme, a five-star rating system, or a score from 0-100. States using letter grades include: Alaska, Arizona, Idaho, Indiana, Utah, Ohio, Oklahoma, South Carolina and Nevada. Michigan's system uses a color-coding system of green, lime, yellow, orange, red, and purple. Washington D.C. and Pennsylvania use formulas that assign schools a numerical value to indicate performance along a continuum. Other states, Oregon for example, set an absolute standard against which all schools are measured (for example, level 1 = bottom 5% of schools). Still other states, including Wisconsin and Georgia, use a variety of multiple indicators that are then combined to arrive at an overall evaluation of school performance.

Several of the state-specific school performance ratings consider postsecondary and workforce readiness, academic growth gaps, academic growth, academic achievement, and graduation rate. For example, in the 2013-14 school year, Georgia implemented a College and Career Ready Performance Index (CCRPI) that uses multiple indicators to rate schools, including percentages of students reaching proficiency.

Another example of a state that is using multiple indicators is Minnesota, which uses both AYP indicators and its own Multiple Measurement Rating (MMR). The MMR targets a combination of multiple domains, emphasizing growth, achievement gap and proficiency in an effort to increase the validity of its assessments. Only two of 10 virtual schools in Minnesota consistently received an acceptable rating from 2011 to 2013; and, virtual schools that performed poorly on MMR also fell below AYP requirements. More disturbing is that every virtual school operated by private EMOs in Minnesota in 2013 performed poorly on both AYP the MMR measures. This suggests that more time and flexibility—and even alternative assessments—under current federal policy may not be enough to realize and reflect desired improvements.

Such results support are evidence of the 22 percentage point gap in AYP between virtual and traditional schools illustrated in Figure 3.7, with no evidence of an improvement trend emerging. That is: the overall negative trend for AYP performance documented earlier continued in the years 2012 and 2013 for EMO-managed full-time virtual schools in states still reporting of AYP. It remains to be seen whether Minnesota's experience—where EMO schools performed poorly not only in AYP but in an alternative assessment system—will prove the case in other states.

State School Performance Ratings

To compare academic performance of full-time virtual schools for 2011-12 to the 2013-14 school years, we used three possible ratings: academically acceptable, academically unacceptable, and not rated. To supplement admittedly imperfect AYP data, Table 3.5 details aggregated data from State School Performance Ratings from the three most recent years (ratings for individual virtual schools appear in Appendix D).

As noted above, many states have adopted new accountability systems using multiple measures intended to capture variables including academic proficiency, longitudinal academic growth, growth gaps, college readiness, attendance and graduation. Such new generation accountability systems are expected to add significantly to the size and scope of school performance measures, thus adding more detailed information about the aggregate performance trends of full-time virtual schools. In order to aggregate the ratings across states, we classified the ratings that virtual schools received as either “acceptable” or “unacceptable” based on guidance provided by state education agencies. We were then able to aggregate findings within and across states. Ratings were available for 228 out of 261 virtual schools included in the 2011-12 inventory, for 238 out of 381 virtual schools in the 2012-2013 inventory, and for 285 of 400 virtual schools in this new, 2013-14 inventory.

Table 3.5. Percentage of Virtual Schools with Acceptable School Performance Ratings, 2011-12 through 2013-14

	2011-12: Percentage of Total Rated Acceptable N=228	2012-13: Percentage of Total Rated Acceptable N=238	2013-14 Percentage of Total Rated Acceptable N=285
For-profit EMO	18.5%	31.9%	27.6% (29 out of 160)
Nonprofit EMO	50.0%	22.2%	50.0% (6 out of 12)
Independent	32.6%	36.7%	48.8% (82 out of 168)
Total	28.1%	34.2%	41.1% (117 out of 285)

Changes in the percentage of the total number of virtual schools rated acceptable appears to be on an upward trend: 28.1 percent in 2011-12, 34.2 in 2012-13, and 41.1 percent in 2013-14. However, this trend should be interpreted with caution. First, a steady percentage of virtual schools do not have state ratings: 71 virtual schools (27.20%) lacked ratings in 20011-12, 106 (27.82%) lacked ratings in 2012-13, and 112 (28.21%) lacked ratings in 2013-14. Second, some schools closed and some new schools opened, which raises uncertainty about the overall direction of the trend. Third, in 2013-14, California accounted for the largest share of virtual schools (35 schools) with no measures of school performance, followed by Michigan (15 schools) and Florida (12 schools). A law passed in 2012 called for California to suspend the state's standardized testing and reporting in 2013 to allow brick-and-mortar public schools and virtual schools time to transition to a new assessment system aligned with Common Core State Standards. Incomplete data and fluidity in school population and assessment likely have an undetermined import in this area.

Overall then: of 400 full-time virtual schools, state ratings were available for only 285 (71.2.%)—meaning that no state assessments were available for nearly 30% of the full complement of schools. Of the 285 that were rated, only 117 (41.1%) were rated acceptable. In 2013-14, independent virtual schools earned acceptable ratings at a much higher rate

than those managed by for-profit EMOs: 48.8% and 27.6% respectively. Over the last three years, in fact, independents show the single steady upward trend in ratings: 32.6%, 36.7% and 48.8%. Neither for-profit or non-profit EMO schools have show steady movement one way or the other.

It is interesting to note (Table 3.6) that district-operated virtual schools edged out their charter counterparts in acceptable school performance ratings by seven percentage-points in 2013-14. This is an interesting development that deserves further scrutiny by practitioners, academics, and policy makers.

Table 3.6. Percentage of Virtual Schools with Acceptable School Performance Ratings, 2013-14.

	2013-14 All Virtual Schools that received acceptable ratings N=285
District-Operated Virtual Schools	44.9% (61 out of 136)
Charter Virtual School	37.6% (56 out of 149)
Total	41.1% (117 out of 285)

Graduation Rates

In recent years, schools and states have been standardizing how they record and report graduation. The measure widely used today is “On-Time Graduation Rate,” which refers to the percentage of all students who graduate from high school within four years after they started 9th grade. We identified a total of 174 virtual schools (about 44% of the total 398) that reported a score related to on-time graduation in 2012-13. This is a slight improvement from the 2011-12 school year,¹⁶ but it is still surprisingly low. The large number of virtual schools not reporting a graduation rate is partially due to the fact that some of these schools do not serve high school grades; others are relatively new and have not had a cohort of students complete grades 9-12. Even so, the number seems low in light of the large enrollment reported for grades 9-12.

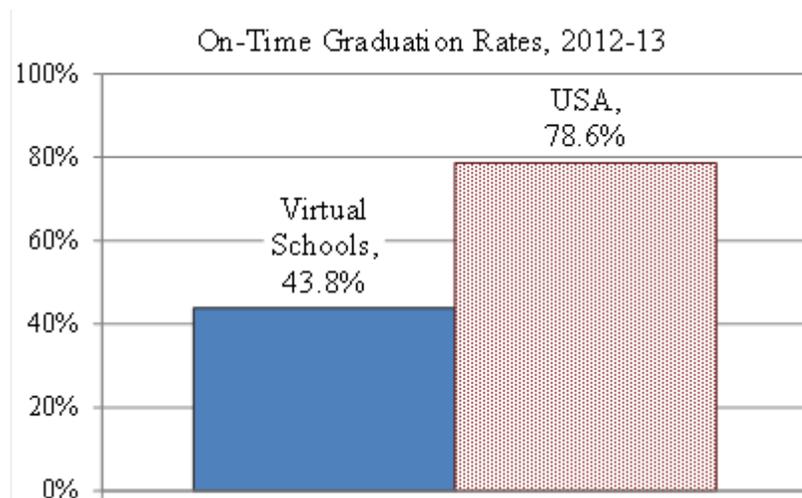


Figure 3.8. Mean Graduation Rates for Virtual Schools

As Figure 3.8 illustrates, the on-time graduation rate for the full-time virtual schools was a little more than half the national average¹⁷: 43.8% and 78.6%, respectively—an improvement of 6 percentage points compared with results for 2011-12. The evidence on graduation rates remains inconclusive

Table 3.7 Graduation Rates, 2012-13

	Number of schools with data	4 year graduation rate
Independent	102	50.87%
Nonprofit	9	40.50%
For-Profit	63	40.90%
K12 Inc.	30	37.83%
Connections Acad.	14	47.06%
District	57	44.70%
Charter	117	42.90%
All Virtual Schools	174	43.80%
National Average	NA	78.60%

Table 3.8. Graduation Rates, 2013-14

	Number of schools with data	4 year graduation rate
Independent	104	52.25%
Nonprofit	10	38.78%
For-Profit	40	38.96%
K12 Inc.	15	35.82%
Connections Acad.	10	50.83%
District	76	42.98%
Charter	78	43.06%
All Virtual Schools	154	43.05%
National Average ¹⁸	NA	74.7% ^{19 20}

because so many schools have not reported rates, but it is in line with the findings on AYP and state school performance ratings. Despite the limited data, this is an important outcome measure that contributes to the overall picture of school performance.

Table 3.7 shows that in 2012-13, independent virtual schools outperformed for-profit and non-profit counterparts in graduation rates—by more than 10 percentage points. Within the subgroup representing for-profit EMO-managed schools, the on-time graduation rate at K12, Inc. was 37.8%, and at Connections Academy 47% percent. In addition, district schools' rate of 44.7% was a bit better than charters' rate of 42%.

Table 3.8 illustrates that during the 2013-14 school year, independent virtual schools again had the highest on-time graduation rate, 52.2%. Rates in non-profits and for-profit operated virtual schools were 38.8% and 39%, respectively. Virtual schools operated by EMOs continue to lag significantly behind their counterparts in on-time graduation.

Within the subgroup representing EMO-managed virtual schools, high-school students at K12, Inc. had an on-time graduation rate of 35.8%; as in 2012-13, Connections Academy did better at 50.8%.

The rapid expansion of virtual schools is remarkable given the consistently negative findings regarding student and school performance.

Charter virtual schools again had a graduation rate similar to that of district-operated schools at about 43%. Overall, average on-time graduation rates remained much lower for virtual schools than for traditional public schools in the US: only 43.05 percent of students at virtual high schools graduated on time, whereas the national average for all public high schools was more than double that: 74.7 percent.

Discussion

In this emerging era of increased federal flexibility, each state with a waiver from federal accountability requirements has been working toward new accountability systems, including improved means of determining graduation rates. States with waivers have been given opportunity to use multiple measures and expand assessment criteria to include such variables as proficiency, student growth, high-school graduation rates, and college and career readiness. We can hope that new measures will be more suitable for capturing the performance of full-time virtual schools.

Unlike other technological options, full-time virtual schools do much more than simply supplement and expand the courses available in traditional brick-and-mortar schools. Instead, they are being used to expand school choice, concurrently advancing privatization, entrepreneurship and private financial investment. With key providers vigorously lobbying legislatures and national organizations promoting school choice, virtual schooling now has a firm foothold: 30 states and the District of Columbia allow full-time virtual schools to operate, and even more states allow, or in some cases require, one or more courses to be delivered online to public school students.

Our analyses indicate that full-time virtual schooling continues to grow rapidly. While it is growing more rapidly in some sectors than other, every sector is growing. Still, our

findings indicate for-profit EMOs continue to dominate and increased their market share from 2012-13 and again from 2013-14. Interestingly, in the current 2014-15 school year, a few of the largest virtual schools operated by K12 Inc. have indicated that they want to part ways with the for-profit giant. Should that happen, we could see some dramatic changes in the distribution of schools and students.

The rapid expansion of virtual schools is remarkable given the consistently negative findings regarding student and school performance. The advocates of full-time virtual schools remain several years ahead of policymakers and researchers, and new opportunities are being defined and developed largely by for-profit entities accountable to stockholders rather than to any public constituency.

Our findings indicate that district operated virtual schools as well as virtual schools without a management company are more likely to perform better. They are much smaller, and they have substantially lower teacher to student ratios. More research is needed to understand the characteristics of the successful outliers or exceptions.

Contrary to the overwhelmingly negative evidence on the performance of current virtual schools, we remain optimistic that full-time virtual schools can work and hope that more research and more reasoned policymaking can revise and strengthen regulations that steer the operation and growth of full-time virtual schools. Further expansion in this sector should be contingent on school performance.

Advocates of virtual schools may argue that the limitations in our data mean that findings such as those we share in this report are not definitive. We agree that there is a need for stronger measures of school performance. Nevertheless, even though the outcome measures available are not as rigorous as desired, and even though the data reported by virtual schools are not as complete as they should be, the findings still reveal that across all school performance measures, most virtual schools are lacking. There is not a single positive sign from the empirical evidence presented here. Given this picture, continued expansion seems unwise. More research is needed; and to enable such research, state oversight agencies need to require more, and better refined, data.

Recommendations

It is recommended that:

- Policymakers slow or stop growth in the number of virtual schools and the size of their enrollment until the reasons for their relatively poor performance have been identified and addressed.
- Policymakers specify and enforce sanctions for virtual schools if they fail to improve performance.
- Policymakers require virtual schools to devote more resources to instruction, particularly by reducing the ratio of students to teachers. Given that all measures of school performance indicate insufficient or ineffective instruction and learning,

these virtual schools should be required to devote more resources toward instruction. Other factors, such as the curriculum and the nature of student-teacher interactions, should also be studied to see if they are negatively affecting student learning.

- Policymakers and other stakeholders support more research for better understanding of the characteristics of full-time virtual schools. More research is also needed to identify which policy options—especially those impacting funding and accountability mechanisms—are most likely to promote successful virtual schools.
- State education agencies and the federal National Center for Education Statistics clearly identify full-time virtual-schools in their datasets, distinguishing them from other instructional models. This will facilitate further research on this subgroup of schools.
- State agencies ensure that virtual schools fully report data related to the population of students they serve and the teachers they employ.
- State and federal policymakers promote efforts to design new outcome measures appropriate to the unique characteristics of full-time virtual schools. The waivers from ESEA present an opportunity for those states with a growing virtual school sector to improve upon their accountability systems for reporting data on school performance measures

Appendices to Section III

Appendix B. Numbers of Full-Time Virtual Schools and Students They Serve, by State

Appendix C. Virtual Schools in the Inventory and Characteristics of Students They Serve

Appendix D. Measures of School Performance: State Performance Ratings, Adequate Yearly Progress Status, and Graduation Rates

The Appendices as well as links to data sources are available for download as PDF files at <http://nepc.colorado.edu/publication/virtual-schools-annual-2015>

Notes and References: Section III

- 1 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 offer the complete state-mandated curriculum; they are just basically individual courses that students can take if they want to. Such a program would never receive an NCES ID no matter how many students enroll in these online courses because it's not a school.
- 2 See notes in the appendices for more details regarding inclusion criteria.
- 3 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.
- 4 To be included in this inventory and considered in our analyses, a virtual school has to meet our selection criteria. First of all, it must be classified as a school and not a program. For example, it must be classified as a functioning school and not just a collection of individual optional courses. Online courses offered by school districts or schools to cut costs or attract students from other schools/districts/states, as referred to in Note 1, are therefore not included.

Additionally, when separating programs from schools, we look for the existence of unique NCES or State Education Agency ID codes that are designated for school units. We exclude hybrid schools, and we avoid schools that have both face-to-face instruction and virtual instruction. Further, in order to be included in our inventory, these virtual schools should have evidence of at least 10 students enrolled. An important part of our analyses examines school performance; by including only full-time virtual schools, we are better able to attribute school performance outcomes to full-time virtual schools.

- 5 Marsh, R.M., Carr-Chellman, A.A., & Stockman, B.R. (2009). Why parents choose cybercharter schools. *TechTrends*, 53 (4);
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Woodard, C. (2013, July 3). Special Report: The profit motive behind virtual schools in Maine. *Portland Press Herald*. Retrieved February 28, 2014, from http://www.pressherald.com/news/virtual-schools-in-maine_2012-09-02.html.
- 6 Comparisons with demographic composition of charter schools in the nation is 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."
- 7 Source: United States Department of Education, National Center for Education Statistics, Common Core of Data (CCD), State Nonfiscal Public Elementary/Secondary Education Survey, 2011-12 v.1a. Retrieved December 1, 2014.
- 8 Data on ethnicity is from 2011-12, the most recent year from which we could obtain NCES data. The NCES provides the most comprehensive data, all from a single audited source. We obtained more incomplete data on race/ethnicity, sex, free- and reduced-price lunch status, English Language Learner status, and special education status for 2011-12 and 2012-13 from state sources and from school report cards. The figures we present are based on the most complete data source, the NCES 2011-12 data. We comment in the narrative when we see noticeable differences from the data we have collected in subsequent years.
- 9 Bordelon, S. J. (2010). Making the grade? A report card on special education, New Orleans charter schools, and the Louisiana charter schools law. *Loyola Journal of Public Interest*.

- 10 Five of the virtual schools also had pre-K students and eight of the virtual schools had students classified as “ungraded” which are not depicted in this figure. In the national population, 0.2% of all students do not have a grade specified and are designated as “Ungraded.”
- 11 Note: United States Department of Education, National Center for Education Statistics, Common Core of Data (CCD), State Nonfiscal Public Elementary/Secondary Education Survey, 2011-12 v.1a.
- 12 The pupil/teacher ratios in 2010 and 2011 were both at 16.0. Keaton, P. (2013). Selected Statistics From the Common Core of Data: School Year 2011–12 (NCES 2013-441). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved December 1, 2014, from <http://nces.ed.gov/pubsearch>.
- 13 Education Data Partnership (2014). Adequately Yearly Progress under NCLB. Retrieved January 20, 2014, from <https://www.ed-data.k12.ca.us/Pages/UnderstandingTheAYP.aspx>.
- 14 Pennsylvania Department of Education. (2012) Academic Achievement Report. Retrieved December 1, 2014, from <http://paayp.emetric.net/>.
- 15 Center for Research on Education Outcomes. (2011). *Charter school performance in Pennsylvania*. Stanford, CA: Author.
- 16 Stetser, M., & Stillwell, R. (2014). Public High School Four-Year On-Time Graduation Rates and Event Dropout Rates: School Years 2010–11 and 2011–12. First Look (NCES 2014-391). Washington, DC: National Center for Education Statistics, U.S. Department of Education. Retrieved December 1, 2014, from <http://nces.ed.gov/pubs2014/2014391.pdf>.
- 17 Note that when we indicate national average or “USA” we are referring to the average for all public schools, including virtual schools which comprise a very small portion of the national set of schools.
- 18 Education Commission of the States (ECS) (n.d.). *Graduation Rate Goals*. Washington, DC: Author. Retrieved December 1, 2014, from <http://mb2.ecs.org/reports/Report.aspx?id=865>.
- 19 To offer a more accurate picture of 4-year on-time graduation rates, researchers from the *Education Week* Editorial Project (2013) used a method known as the Cumulative Promotion Index (CPI) based on the graduation rate file from U.S. Department of Education Common Core of Data. For more details on the results and methodology, see:
- Editorial Projects in Education (EPE) Research Center. (2013, June). *Graduation in the United States. Rate Approaching 75 percent*. Washington, DC: Author;
- Editorial Projects in Education (EPE) Research Center. (2013, June). *Diplomas Count 2013 State Graduation Briefs*. Washington, DC: Author;
- Editorial Projects in Education (EPE) Research Center. (2013, June). *Diplomas Count 2013: Second Chances--Turning Dropouts into Graduates*. Washington, DC: Author.
- 20 One source estimates the national graduation rate at 91.8%. This is based on the national average of state incremental goals toward 2014 graduation target for 13 states, published by the Education Commission of States.

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