

FOREWORD

By Dara Zeehandelaar and Michael J. Petrilli

A major development in recent years is the explosive growth of online learning. Sometimes it's "partial immersion" (a.k.a. "blended learning"), whereby instruction is provided via a mix of online and face-to-face modalities. Today's students also learn using web-based resources like the Khan Academy or by enrolling in distance-learning "independent study" courses. In addition, a growing number of pupils are taking the plunge into fully online schools: in 2015, there were an [estimated](#) 275,000 full-time virtual charter school students across twenty-five states.

To be certain, the Internet has opened a new frontier of possibilities for America's K–12 students. Much less sure, however, is whether these new opportunities are actually improving achievement, especially for the types of students who enroll in virtual schools. We set out to learn more using data from our home state of Ohio. Ohio's fully online charter schools ("e-schools") are a rapidly growing segment of public charter schools that today have an enrollment of more than 35,000—one of the country's largest populations of full-time online students. Ohio e-school enrollment has also grown at a greater rate than enrollment in the state's brick-and-mortar schools, both charter and district, making it a sector well worth paying attention to.

The present study focuses on the demographic characteristics, course-taking patterns, and academic results of pupils attending Ohio's e-schools. How many students are enrolling, and who are they? What types of online courses are students taking? Does it appear that e-schools lead to improved outcomes for kids? To dive into these questions, we partnered with Dr. June Ahn, an associate professor at New York University (NYU)'s Steinhardt School of Culture, Education, and Human Development. His research expertise includes how technology, information, and new media can enhance the way education is delivered—and, ultimately, how they impact the way students learn.

Using student-level data from 2009–10 through 2012–13 obtained from the Ohio Department of Education, Dr. Ahn's analysis finds that e-schools serve a unique student population. On the one hand, e-school students are largely similar in race and ethnicity to brick-and-mortar district schools; they enroll smaller percentages of minority students (and more white students) than brick-and-mortar charters. But compared to students in brick-and-mortar district schools, e-school students are initially lower-achieving (and more likely to have repeated the prior grade), more likely to participate in the federal free and reduced price lunch program, and less likely to participate in gifted education. (Brick-and-mortar charter schools attract lower-performing students still.) Given these characteristics,

it's not surprising to observe, as this study does, that students taking online math courses are more likely to enroll in basic and remedial classes and less likely to take advanced ones (such as Advanced Placement) relative to students taking face-to-face math courses.

Dr. Ahn's analysis also confirms that, *controlling for demographics and prior achievement*, e-school students perform worse than students who attend brick-and-mortar district schools; students who attend brick-and-mortar charter schools perform slightly better in some subject areas (and slightly worse in others) than students in district schools. On average, Ohio's e-school students are academically behind at the start of each school year, and they lose even more ground (relative to their peers) during the year spent at the e-school.

These findings are largely congruent with previous research in Ohio, most notably a study of the impact of online charter schools on student achievement from Stanford University's Center for Research on Education Outcomes (CREDO). Its 2015 [analysis](#) of virtual charter schools nationwide estimates that the sector's students lose the equivalent of 180 days of learning in math and seventy-two days of learning in reading when compared to similar students attending brick-and-mortar district schools. CREDO also found that the results of Ohio online students generally tracked with these dismal national averages. Using a slightly different analytical approach than CREDO, the results reported here corroborate the disappointing findings on Ohio's online schools.

Importantly, the analysis confirms what some charter advocates in Ohio have long suspected—e-schools weigh down the overall impact of the Buckeye State's charter sector. In fact, by separately analyzing e-schools and brick-and-mortar charters, it finds that brick-and-mortar charters have a positive impact on student achievement for students in grades 4-8 when compared to district schools. In high school, brick-and-mortar charter students perform better in science, no better or worse in math, and only slightly worse in reading and writing, compared to students in district schools. The good news for charter advocates is that Ohio's brick-and-mortar charters may not have an overall negative impact on achievement as previously [suggested](#).

Nevertheless, the consistent, negative findings for full-time e-school students are troubling. One option is to pull the plug—literally and figuratively—but we think that would be a mistake. Surely it's possible, especially as technology and online pedagogy improve, to create e-schools that serve students well. The challenge now is to greatly improve the outcomes for online learners. We therefore offer three recommendations that have the potential to boost student achievement in states, including Ohio, which are wrestling with the rapid development of online schools.

First, policy makers should adopt performance-based funding for e-schools. When students complete courses successfully and demonstrate that they have mastered the expected competencies, e-schools would get paid. Implementing performance-based funding policies would create incentives for e-schools to focus on what matters most—academic progress—while tempering their appetite for enrollment growth and the dollars tied to it. It would also encourage them to recruit students likely to succeed in an online environment—a form of “cream-skimming” that is not only defensible but preferable in this case.

Second, policy makers should explore ways to improve the fit between students and e-schools. A recent Mathematica [report](#) on virtual schools found that maintaining student engagement is a major barrier to higher achievement. Ideally, an e-school could increase motivation by allowing students to choose courses based on their own interests and pace them according to their own needs. But based on the demographics we report, it seems that students selecting Ohio’s e-schools may be those already lacking engagement in schooling (whether due to difficulties learning in a traditional classroom environment, disillusionment after prior failure, or a lack of support at home).

Ohio recently enacted a provision requiring e-schools to offer an orientation course—a perfect occasion to set high expectations for students as they enter and let them know what would help them thrive in an online learning environment (e.g., a quiet place to do schoolwork, a dedicated amount of time to devote to academics). This is one way to improve the student-school fit. In addition, state lawmakers could explore rules that would exempt e-schools from policies requiring all charters, virtual ones included, to accept every student who applies. This would allow e-schools to operate more like magnet schools that maintain certain admissions procedures and standards for enrollment. There is also a need for rigorous research that investigates which strategies are most effective at sustaining student engagement and lifting achievement in an online environment, especially for students who opt for virtual schools because they are frustrated with (or failing out of) other forms of schooling.

Third, policy makers should support online *course choice* (also called “course access”), so that students interested in web-based learning aren’t limited to full-time options. Currently, Ohio students considering digital learning are faced with a daunting decision: either transfer to a full-time e-school or stay in their traditional school and potentially be denied the chance to take any tuition-free credit-bearing virtual courses aligned to Ohio state standards. Instead of forcing an all-or-nothing choice, policy makers should ensure that a menu of course options, including online ones, are available to students. To safeguard quality and public dollars, policy makers must create an oversight body that approves sound online options (and denies shoddy or questionable ones). Financing arrangements may need to change too, perhaps in ways that more directly link funding to the actual course provider.

But done right, not only would course choice open more possibilities for students, it would also ratchet up the competition that online schools face—and perhaps compel them to improve the quality of their own services.

Innovation is usually an iterative process. Many of us remember the earliest personal computers—splendid products for playing *Oregon Trail*, but now artifacts of the past. Fortunately, innovators and engineers kept pushing the envelope for faster, nimbler, and smarter devices; today, we are blessed as customers with easy-to-use laptops, tablets, and more. Though the age of online *learning* has dawned, it's evident that there is much room for improvement as far as online *schooling* goes. Bold changes are greatly needed to spur better opportunities for students. For advocates of online learning—and educational choice—the work has just begun.

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EXECUTIVE SUMMARY

Online learning is often touted as the future of K–12 public education. It’s an efficient way to diversify, and even democratize, educational opportunities and experiences in a connected world. And students are taking advantage: In 2015, an estimated 2.7 million K–12 students took a total of 4.5 million online courses while attending brick-and-mortar schools, and 275,000 students were enrolled full-time in online charter schools (and took another 3.3 million courses).¹

Despite the popularity and promise of fully online schools, however, we have much to learn about this most immersive form of education technology. These schools have certainly received a fair amount of negative attention concerning their attrition rates, test scores, and capacity to educate the types of students who often attend them: those who are not well-served by the traditional K–12 system. At the same time, online schools could give students the opportunity for an education that is not otherwise available to them. A student in a rural area could learn an uncommon world language, for example, or a high-achieving student living in a low-performing district could access an advanced curriculum. Online schools also offer alternatives to students who may not be succeeding in the conventional system due to behavioral or special needs, and they are growing in popularity among students who are behind in credits and in danger of dropping out, and among parents who choose homeschooling for their children.

However, current evidence suggests that students in fully online schools learn less, and often significantly so, than students in traditional brick-and-mortar schools.² This report lends empirical evidence to the discussion by examining two research questions in the state of Ohio (which has one of the largest numbers of full-time online students of any state) regarding its fully online charter schools (or “e-schools”):

1. How many and what kind of students choose e-schools, where do they live, and what courses do they take?
2. How are students performing in Ohio e-schools compared to their peers in brick-and-mortar district schools?

To explore these questions, we partnered with the Ohio Department of Education to access detailed administrative data for all K–12 students in the state. The data encompass approximately 1.7 million students per year for the 2009–2010 to 2012–2013 school years. They include district and school enrollment, course records, demographic information, and test scores on state assessments (but no

student names or other personally identifiable information). We utilize this quantitative data to analyze enrollment trends, patterns, and achievement of student populations who choose the online option.

Here's what we found:

- » Although e-school enrollment accounts for only 2 percent of Ohio's total public school student population in 2013, the sector experienced larger growth than either brick-and-mortar district schools or charters over the preceding four years.
- » E-school students largely live in and around the state's urban centers, where there are also established brick-and-mortar charter schools. There are a few rural and small-town areas that have relatively high e-school participation rates as well.
- » E-school students are mostly similar in race and ethnicity to students in brick-and-mortar district schools. But compared to students in brick-and-mortar district schools, e-school students are lower-achieving (and more likely to have repeated the prior grade), more likely to participate in the federal free and reduced price lunch program, and less likely to participate in gifted education.
- » Students taking online mathematics courses are more likely to enroll in basic and remedial math courses relative to students taking face-to-face math courses. Almost no students take advanced online courses like AP Statistics, Calculus, or Algebra II, especially compared to their peers in face-to-face settings.
- » Across all grades and subjects, students who attend e-schools perform worse on state tests than otherwise-similar students who attend brick-and-mortar district schools, *even accounting for prior achievement*. In contrast, students in grades 4–8 who attend brick-and-mortar charter schools perform slightly better than students in district schools in both reading and math. (Results are mixed but modest for students in grade 10.)³

Online education is reconfiguring the delivery of schooling and the activities that students experience on a daily basis. However, our analyses suggest (in line with other recent reports) that online students are not achieving at the same level as their peers in brick-and-mortar schools. The analyses also support what charter advocates have long suspected—that e-schools actually drag down the achievement of the state's charter sector.

Our findings reveal some important considerations for Ohio policy makers as they consider the future place of online learning within K–12 education:

1. E-schools serve challenging student populations, by their own design and by the choice of those who attend them. Many of these students may not be well suited or well supported to succeed in online learning environments that require independent learning and self-direction. E-schools must figure out how to do better by this population.
2. If e-schools can't effectively educate the students who choose to enroll, consider utilizing them more strategically—specifically, by targeting students who are poised to benefit most from online delivery.
3. Rethink the “all-or-nothing” nature of enrolling in e-schools. Instead, allow students to combine high-quality fully online and face-to-face classes (without making them jump through hoops to earn credit, or pay tuition).
4. Harness the potential of e-schools to better understand how students learn online.

Though the age of online *learning* has arrived, it's clear that there is much room for online *schooling* to improve—especially in Ohio. There is great potential in the state, and others, to provide high-quality learning opportunities for students via fully online schools (and online courses, and blended learning). For advocates of online learning, and educational choice more generally, recognizing that potential will require a dedication to making continuous improvements to promising practices. It also calls for a willingness to completely overhaul practices that are consistently demonstrated to be ineffective.