ONLINE LEARNING:
WHAT EVERY PARENT SHOULD KNOW

A NETWORK FOR PUBLIC EDUCATION REPORT

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INTRODUCTION:

Using technology to deliver instruction in schools has become increasingly popular. Students are required to use online programs, textbooks and apps as part of their classwork and homework. BYOD (Bring your own device) school policies have filled classrooms and hallways with students carrying smart phones, laptops and iPads.

In some states students are required to take at least one online course. In 36 states, students may attend a virtual, full-time charter school, never meeting teachers or classmates face to face.

The increased reliance on technology in schools is moving at a breakneck speed—one that far exceeds the accumulation of research on its effectiveness. Does online and blended learning enhance student learning? What do we know about virtual schools? How does profit influence policy decisions on the use technology?

Beyond questions of effectiveness, there are also student privacy concerns. Online learning, in all of its forms, captures a treasure trove of student data. Who owns the data and to what ends may it be used? Can private student information be sold for commercial purposes, with or without parental consent? What educational decisions are being made for students based on data that may or may not actually capture their achievement or abilities?

These are some of the big questions our report *Online Learning: What Every Parent Should Know* answers. Through an extensive review of the research literature, thin as it may be, our report provides critical information on what is known and what remain unknown. It also provides parents with the questions they should ask their schools as technology is rolled into the classroom.

Carol Burris

Network for Public Education
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ONLINE LEARNING:

WHAT EVERY PARENT SHOULD KNOW

Online learning is a growing part of K-12 instruction. Schools are increasingly implementing digital learning and requiring that students use online programs and apps as part of their class work. Some students even attend a virtual, full-time charter school, never meeting teachers or classmates face to face.

The Obama administration was a strong supporter of the use of online instruction as part of K-12 education, and co-sponsored an initiative called "Future Ready Schools," encouraging Superintendents and other school leaders to "*to maximize digital learning opportunities*" in order to "*transform teaching and learning using the power of technology to help drive continuous improvemen*t." The U.S. Department of Education gave half a billion dollars to implement online learning, and has promoted individual online products developed by for-profit vendors on its website. In addition, many foundations have accelerated the expansion of technology in classrooms, including the Bill & Melinda Gates Foundation, which has spent $300 million dollars on developing online learning programs and incentivizing schools to adopt them.

The new Secretary of Education, Betsy DeVos, is a long-time supporter of online schools, and she and her husband, Dick, were early investors in K12 Inc., a for-profit corporation that operates a chain of online charter schools and sells online coursework for home-schooled students.

During her confirmation hearings as Secretary of Education, in response to written questions from Senators, Ms. DeVos inflated the four-year graduation rates of virtual full-time online schools, in some cases by as much as 300%. Her responses appeared to be drawn directly from a report by K12 Inc.

With so much attention focused on online learning, it is important that parents be armed with the facts. What does the research tell us about online learning, and what are the different types? How well do students do when they take courses online vs. courses with face-to-face classmates

and teachers? What is online learning's promise, and what are its pitfalls? What role does profit play in online learning? When virtual schools get dismal results, why are they still supported? And what are the privacy implications of outsourcing more and more student data into private hands, as occurs when more learning goes online?

These are a few of the questions this guide will attempt to answer. As millions upon millions of taxpayer dollars flow to online schooling, it is time to examine if the investment is worth it. And for parents who are considering whether full-time or part-time online learning may be a good option for their child, these questions are even more critical to answer.

HOW ARE DIFFERENT VARIETIES OF K-12 ONLINE LEARNING DEFINED?

The shifting terminology of online learning is confusing, making it difficult for researchers, practitioners, policy makers, and the general public to know what K-12 online learning really is. The term virtual school or cyber-school is generally used when students are engaged in full-time online instruction and do not attend a brick-and-mortar school. Most full-time virtual schools rely upon a learning management system to deliver online course content to students. These systems work by providing the student with a multiple-choice quiz at set intervals to determine if the student has "mastered" the material. The content can be text-based or videos. If students fail to achieve mastery, as defined by a standardized exam, they must re-take the exam. Sometimes the exam will contain the same questions or sometimes different questions that they must pass to advance to new material.

Blended or hybrid learning is the term used when students attend a brick-and-mortar school but spend a significant part of the school day engaged in online instruction through digital tools.[1] In practice it may be difficult to easily classify a school as one or the other. For example, many charter schools have a "check-in" component; however, the day-to-day instruction is primarily provided via online programs.

There is also the related concept of "competency-based" learning, which allows students to progress as they demonstrate mastery of academic content based upon accomplishing specific tasks, including passing tests. These methods could include online or blended learning, community service or internships, project-based learning, or credit recovery, among others. Proponents of competency-based education advocate for schools to be funded based on student completion of the content rather than actual attendance or amount of time spent in the classroom.

Proponents of online learning also commonly use the term "personalized learning" to emphasize the adaptive nature of some computer programs that may adjust content and questions according to whether the student has answered earlier questions correctly or not.

What all of these programs have in common is that they generally rely upon a learning management system to deliver online course content. It is important to note in the online learning context, the "teacher" may or may not be a certified teacher. Even if the "teacher" is certified, he or she may not have expertise in the subject matter in which the student needs assistance.

Many of these programs have a student-to-teacher ratio in which each teacher is responsible for 200-300 students. A confidential 2010 K12 Inc. memo revealed

that high school student-teacher ratios vary from 225 to 275-to-one.

Because of its relative lack of personal interaction, a growing number of critics, including education historian Diane Ravitch, have proposed that this form of instruction be renamed "depersonalized learning" instead. Even more conservative commentators like Michael Petrilli of the Fordham Institute have compared online learning to processed foods, and warned, "Let's not double-down on the old industrial model, by turning it into the robotic model."

WHAT IS THE PROFIT POTENTIAL OF ONLINE LEARNING?

Currently, many online or blended learning schools are operated as charter schools, often run by for-profit educational management organizations (EMOs). In 2015, for-profit Education Management Organizations (EMOs) operated more than 29% of full-time virtual schools, accounting for more than 69% of all students enrolled in this form of education.

The two largest full-time online EMOs are K12 Inc. and Connections Academy, the latter owned by Pearson. Combined, these two companies account for 52% of all full-time virtual school students in 2015-16.

In addition, as many as 24 states run their own online schools, often in partnership with for-profit or not-for-profit providers. For example, Florida Virtual School, the country's largest and oldest state virtual school, contracts with Connections Academy to provide full-time online courses. State-run online schools enrolled over 523,000 students during the 2015–16 school year.

What makes this method of instruction potentially profitable is that an online or blended learning school may still receive the full per-student funding amount that a district public school or charter school is provided by the state – while having far fewer costs for teachers, services, transportation or facilities.

Proponents of K-12 online learning argue in favor of funding equivalent to brick-and-mortar schools. The actual costs to educate a student online range from 60% to 80% of what it costs to educate a student a traditional school.

In advocating for the transition to full-time or part-time blended learning, proponents such as Michael Horn and Clayton Christensen have proposed eliminating policies or laws that regulate class size and student-teacher ratios, as well as those that require classes be supervised by certified teachers. They propose that supervision by para-professionals would be sufficient, thereby increasing profit.

It is interesting to note that in most cases, journalists and researchers have been unable to discern what percentage of public funding provided to online schools actually goes to educating students and what percentage is profit.

HOW MANY K-12 STUDENTS LEARN ONLINE?

There is no authoritative source that provides a reliable estimate of the number of K12 students engaged in online or blended learning.

The latest edition of the National Education Policy Center's Virtual Schools in the U.S. 2017 report included a total of 309,190 full-time online students in their analysis.

Whatever the actual figures, various forms of online learning are being implemented in

HOW DO K-12 ONLINE STUDENTS PERFORM COMPARED TO THEIR FACE-TO-FACE COUNTERPARTS?

According to the most comprehensive meta-analysis of online learning carried out by the US Department of Education:

"Few rigorous research studies of the effectiveness of online learning for K–12 students have been published. … when learners' age groups are considered separately, the mean effect size is significantly positive for undergraduate and other older learners but not for K–12 students."

Most published studies are not rigorous and were funded and/or produced by the ed-tech industry or their supporters. To the extent that there are positive results, much of the research has been focused on self-motivated and high-achieving students taking Advanced Placement, higher-level mathematics and science, or foreign language courses.[2]

A recent study by the Organization for Economic Co-operation and Development (OECD) concluded that that the countries which have invested heavily in education technology have seen no noticeable improvement in their performance on international assessments in reading, mathematics or science:

"One interpretation of all this is that building deep, conceptual understanding and higher-order thinking requires intensive teacher-student interactions, and technology sometimes distracts from this valuable human engagement. Another interpretation is that we have not yet become good at the kind of pedagogies that make the most of technology; that adding 21st century technologies to 20th century teaching practices will just dilute the effectiveness of teaching."

RESULTS FROM FULL-TIME ONLINE LEARNING

Whether the analysis is done by academic researchers, independent state auditors, investigative journalists, policy centers, or advocacy groups, almost all of the research to date has found that students who are learning in a full-time online learning setting perform considerably worse when compared to their face-to-face counterparts.

For example, it was reported that the scores of Colorado students who attended online schools were consistently lower than brick-and-mortar students. Similarly, 100% of online charter schools in Pennsylvania performed significantly worse than their brick-and-mortar counterparts in both reading and math.

The 2015 study by the Center for Research on Education Outcomes at Stanford University (CREDO) concluded that students at full-time online charter schools fell far behind similar students in district public schools or traditional charter schools, equivalent to receiving 180 fewer days of learning in math and 72 fewer days in reading. Macke Raymond, CREDO director, said that the gains in math were so small, it was "literally as though the student did not go to school for the entire year." [3]

The 2015 graduation rates of full-time virtual schools were 43.4% and 43.1% in blended schools, far lower than the national average of 82.3%.

The only groups that have consistently claimed positive results for full-time K-12 online learning have been advocacy organizations supportive of charter schooling and school choice or the for-profit corporations that operate many of these schools.

The proponents of virtual charter schooling argue that they generally enroll students who are more at-risk of dropping out or that are already significantly behind, and that this is the reason that the sector's performance is so comparatively poor. However, the student demographic enrollment data for virtual charter schools tell a different story.

The most comprehensive examination of student characteristics in full-time online school compared to their brick-and-mortar counterparts has been the annual National Education Policy Center's (NEPC) *Virtual Schools in the U.S.* reports. Those reports consistently show that students in virtual schools are more likely to be white and less likely to be poor, have disabilities and/or be English language learners than students attending brick and mortar schools.

Given the importance of teacher support, it is not a surprise that students who are enrolled in full-time online learning – like those enrolled in virtual or cyber charter schools – are often not successful. An allied analysis by Mathematica found that online charter schools on average provided students with less live teacher contact time per week than students in conventional schools had in a day, and that they expected parents to provide much of the support and instruction to compensate.

In fact, most full-time virtual charter schools require the parent/guardian or someone within the home to take responsibility for overseeing the student's online studies in the role of the learning coach, including instructional, motivational,

and administrative duties. Essentially, the parent/guardian is expected to be the primary instructor – regardless if the student is only in first grade and learning how to add and spell, or if the student is taking high-school chemistry or calculus.

PART-TIME ONLINE LEARNING: RESULTS FROM BLENDED LEARNING SCHOOLS

Most of the research that has found blended learning or part-time online learning to be effective has been produced by organizations that promote this strategy. Commenting on the problem of the lack of evidence, Robert Murphy and colleagues concluded that:

> *"Claims are made about the relative effectiveness of various blended learning models relative to more traditional forms of instruction…thus far little evidence has been collected to back these claims."*

For example, one of the few independent studies that has purported to find positive results from K-12 schools implementing blended or "personalized learning" was produced by the RAND Corporation in 2015. The study was funded by the Gates Foundation, which has also spent millions promoting online learning through advocacy and direct investments in education technology and blended learning schools.

The RAND study looked at 62 schools, all of which had also received funding from the Gates Foundation, as they implemented various forms of "personalized learning" between 2013 and 2015. Students were matched with similar students of the same grade and gender who had similar pre-test

scores on the Northwest Evaluation Association Measures of Academic Progress (NWEA MAP) assessments, and who attended schools with a similar overall student population as measured by race and economic status. Students in the "personalized learning" schools made significant gains on the NWEA MAP assessment compared to matched students, with an average effect size of 0.27 standard deviations in math and 0.19 standard deviations in reading.

However, there are several important caveats to this study.

• The study employed no single definition of "personalized" learning, and many of the schools also featured one-on-one tutoring and small group instruction with teachers – meaning the technology component had an uncertain impact. In fact, the authors observed that the most effective components seemed to be the use of small group instruction, spaces allowing for small groups to collaborate without noise and distraction, and having students discuss their own data. The RAND researchers did not seem to find that the technology component was as effective as these other factors, though their conclusions were admittedly uncertain because of their subjective nature and the limitations of the data.

• The only significant achievement gains were made by students at "personalized learning" charter schools, not "personalized learning" public schools, making it unclear if other aspects of schooling such as different attrition rates, more parental involvement or other disparities may have been responsible for the positive results. In addition, significant gains were only found at charter elementary

and middle schools, not charter high schools.

• Many of the "personalized learning" schools had received significant additional funding, not just from the Gates Foundation, but also from the Next Generation Learning Challenges[4] and the Charter School Growth Fund, which could have generated differences in other unobserved factors or resources.

• The study was not randomized and RAND researchers were unable to obtain results from students at neighboring schools who might have more closely matched the populations of the schools under study. Students could not be matched by anything other than gender, grade and prior test scores, as NWEA did not allow for comparisons based on other student characteristics, such as race or economic status.

• Students at the "personalized learning" schools took a much longer time on the spring post-tests than comparison students, which could also have biased the results.

One of the oft-cited selling points of "personalized learning" is ostensibly to allow for student agency, creating more engagement because students can supposedly direct their own learning paths. A recent report from the New Schools Venture Fund called for $4 billion dollars to be invested in "personalized learning" because students "feel ownership of their learning." [5] While announcing their big push into investments in education technology, Jim Shelton, head of education for the Chan Zuckerberg Initiative, an LLC worth nearly $45 billion in Facebook stock, claimed that "personalized learning…is about understanding students, giving them

agency, and letting them do work that is engaging and exciting."

Yet perhaps the most interesting aspect of the RAND study is that the student and teacher surveys reveal quite a different result. Only 25% of students responded that they had "opportunities to choose what topics I focus on in class," and they were far less likely to say that they were engaged in, and enjoyed, their schoolwork than matched students at comparison schools. Finally, high teacher turnover was a common problem at the "personalized learning" schools– further evidence that they provided neither favorable learning nor teaching environments.[6]

In July 2017, RAND released another report focused on a smaller and more selective group of 32 schools funded by the *Next Generation Learning Challenge*. Eight schools were district public schools, while 24 were charter schools. Many of the methodological problems in the earlier analysis remained, though the researchers tried to adjust for them in various ways. According to this study, students in the personalized learning schools showed smaller gains when compared with the gains of the previous RAND study-- approximately 0.09 in mathematics and 0.07 in reading, with only the mathematics gain being statistically significant. [7] Overall, only a slight majority of schools were estimated to have positive effects, with 15 schools out of 32 with statistically significant positive effects in math, and 11 schools significantly positive in reading. When separated by grade spans, the effect in math was statistically significantly positive only in middle schools, and of those schools only charter schools had significant positive effects in math.

About half of all teachers in the schools in the RAND study reported that there were important barriers to implementing personalized learning, such as their class sizes being too large, and their students varying too much in achievement -- similar to the percentage of teachers responding this way in the national survey. Finally, students in these schools were less likely to feel safe in their schools (78% vs. 92%), to feel there was at least "one adult in the school who knows me well" (77% vs. 86%) and to say "I am an important part of my school community" (72% vs. 79%).

According to lead RAND researcher, John F. Pane, the evidence for personalized learning is still "very weak."

Here is the bottom line. Despite being hugely promoted and publicized, many full-time online schools and part-time blended and "personalized" learning schools receive significant funding and attention only to yield disappointing results over time. While these school models may be effective at obtaining grants and gaining positive media exposure, there is no consistent evidence that they are advancing student learning or creating other benefits.

WHAT ARE SOME PROMINENT BLENDED LEARNING MODELS, AND WHAT DO WE KNOW ABOUT THEM?

ROCKETSHIP CHARTER SCHOOLS

Rocketship is a chain of blended learning charter elementary schools founded in California by John Danner in 2005. The chain received significant funding from both Reed Hastings, the CEO of Netflix, as well as from the New Schools Venture Fund (NSVF). At the same time, both Hastings and an NSVF board member, John Doerr, also invested in a for-profit math instructional software company also

started by Danner, called DreamBox Learning, that is used by Rocketship students.

When Rocketship began, students spent two hours a day in the Learning Lab on computers, using various software programs including DreamBox Learning. The labs contained upwards of 100 children at a time, monitored by paraprofessionals. Neither art nor music was offered at these schools, and only 20 minutes of play or recess each day.

In 2011, Rocketship received a $1.9 million dollar federal grant to open 56 elementary schools in Oakland, California; Chicago, New Orleans and Milwaukee. The chain also received more than a million dollars from the Gates Foundation between 2011 and 2013. In December 2012, PBS aired a show in which correspondent John Merrow observed that many students "sit at their computers for long periods of time, seemingly just guessing." In response, one Rocketship principal told him, "If you come back in a year, you won't see a learning lab." Another confided, "Next year, we're thinking of bringing the computers back to the classrooms and the kids back to the classrooms."

In January 2013, John Danner left to start another ed tech company. Test scores began to precipitously slip, and Rocketship's aggressive plans to expand stalled.

Though Rocketship administrators continue to claim students achieve big gains on the MAP tests, several current and former staffers revealed to NPR in 2016 that some students had been allowed to retake portions of these exams to boost their results– and others had been allowed to retake state standardized tests. In any event, an independent evaluation released in 2016 showed that whatever test score gains in elementary school were achieved by Rocketship students largely disappeared by their third year of middle school.

The most rigorous analysis from the What Works Clearinghouse concluded in 2013 that the program "has no discernible effects on mathematics achievement for elementary school students," according to their rigorous standards.[8] After a complaint from Rocketship-commissioned researchers, this conclusion was upgraded to "potentially positive effects" based on "small evidence."

The study that these updated conclusions were based upon compared MAP test scores for Kindergarten and first grade students who had received 20 to 40 extra minutes a day of math on DreamBox Learning compared to other students who received extra time on an online literacy program instead – showing that additional time doing math can boost results, not that DreamBox Learning is an especially effective method of delivering this instruction.

SCHOOL OF ONE OR NEW CLASSROOMS

Another aggressively promoted model of blended instruction in math, in this instance for middle schools, was originally called *School of One* when it originated in a few NYC public schools in the summer of 2009. In 2010-2011 it was implemented as a full-time mathematics program in three NYC middle schools, costing at least $3.3 million dollars, with about a million dollars of that spent by the NYC Department of Education, and the rest provided by venture philanthropists, including the Robin Hood Foundation, the Michael and Susan Dell Foundation, and the Gates Foundation. The program was later renamed *New Classrooms* or *Teach to One* when the venture spun off as a separate non-profit

company and was introduced in other districts around the country.

Before it was even tried out during the school year anywhere, *Time* magazine touted the *School of One* as one of the 50 top innovations of 2009. It quickly garnered positive media in The Wall Street Journal, The New York Times and Education Next. Gates repeatedly praised the value of this program, most recently in an April 2016 speech in which he said that *New Classrooms "represents the future not only of math, but a number of subjects."* Indeed, the Gates Foundation provided this company with more than $10.5 million dollars in funding between 2011 and 2014.

The *New Classrooms* model involves placing up to 150 students in a large room and putting them in front of computers loaded with "playlists" of various software packages, including videos, games, and/or multiple-choice tests. Each student's playlist is supposedly based on an algorithm or analysis of his or her strengths and weaknesses. Students also take turns receiving small group instruction from teachers or teaching assistants in the same room.

Two of the three NYC schools that had adopted *School of One* dropped it after the first year. Yet supported by a federal Innovation or i3 grant of $5 million dollars, matched by another $1 million dollars from the Carnegie Corporation of New York, the Wallace Foundation, and JP Morgan Charitable Giving Fund, the program was adopted by several other NYC middle schools in 2012-13 and 2013-14, and expanded into middle schools in Charlotte, North Carolina; Chicago, Northern New Jersey and Washington, D.C.

Jonah Rockoff, and a team of researchers at Columbia Business School, funded in part by the federal i3 grant, conducted a randomized study of *School of One*. This

study, which is not mentioned by *New Classrooms* nor posted on the i3 website of U.S. Department of Education, concluded that:

> *"School of One had no statistically significant effects on student achievement —positive or negative–relative to traditional math instruction."*

Nevertheless, *School of One, now renamed Teach to One (TtO),* received another $3 million dollars in the form of another i3 grant from the US Department of Education in 2015, to help fund its expansion in Elizabeth, New Jersey public schools. A first-year randomized controlled study found "no significant impact of TtO on student mathematics performance as measured by state-mandated assessments."

Most recently, after what has been called an "avalanche" of parent opposition and poor test scores, the Mountain View Whisman School District in California announced it would cease using the *New Classrooms* program in January 2017. A letter signed by 180 parents of fifth and sixth graders observed that "topics are taught in an incoherent and seemingly random order, are riddled with mistakes and outright wrong answers, and students are frequently given math problems that are better-suited for ninth-graders and beyond." The local newspaper noted, "Many parents say their children are frustrated with math or have lost interest in the subject because of *Teach to One.*"

The article also revealed that the district's contract with *New Classrooms* had a "non-disparagement" clause, forbidding teachers or district officials from publicly criticizing it.

SUMMIT PERSONALIZED LEARNING PLATFORM

The latest blended learning program that has received attention from the media is the Summit Personal Learning Platform, or PLP. This platform, designed by Summit Charter Schools in collaboration with Facebook, is purportedly being used in 100 schools across the country, and has aroused significant privacy concerns among parents because of its exceptionally open-ended Privacy Policy and Terms of Service.In March 2017, it was announced that the Summit online platform would be transferred from Facebook to the Chan/Zuckerberg Initiative, the private for-profit LLC owned by Mark Zuckerberg and his wife. Shortly thereafter, Summit announced that they would no longer provide parents with the right to consent to their ability to share their children's student data with an unspecified number of partners and for a wide number of uses.

Many parents have also expressed concerns regarding the time their children spend on computers, a lack of teacher attention and the Summit curriculum.[9] The parent outcry in at least two districts has been so vociferous that the Summit program was suspended midyear in one and rolled back in the other. A survey of Indiana Area middle school students using the Summit platform found that 39% using the platform said it should not be used at all, and another 30% said that it should be made fully optional.

As the researchers summarized the results, "most [students] did not feel that SLP helps students be creative, prepares them for the future education or future careers, helps them think critically or problem solve, helps them socialize or prepare them for future social situation, or strengthens the school community." In addition, students "expressed a desire to spend less time on screens, and critiques of screen time often overlapped with critiques of SLP as a platform and teacher."

WHY DO VIRTUAL SCHOOLS, CYBER CHARTERS, AND BLENDED SCHOOLS CONTINUE TO BE SUPPORTED, DESPITE UNIMPRESSIVE OR DISAPPOINTING RESULTS?

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.

Due to a lack of regulation in the online charter school sector, there is insufficient information in many states regarding the amount of money companies spend promoting their interests. Most of the information that we have regarding lobbying, political contributions and advertising generally comes from investigative journalists. According to *Education Week*, K12 Inc. and Connections Education spent more than $14.5 million dollars on lobbying since 2000 in the 25 states with public records. Google and nine other technology companies spent more than $61 million dollars lobbying Washington, D.C. officials in 2013.

The for-profit corporations that run the online charter schools are also active in supporting political candidates and legislators directly. Arianna Prothero from Education Week reported that:

"Together, K12 Inc. and Connections have spent nearly $2 million on contributions to political campaigns and parties since the mid-2000s, according to the National Institute on Money in State Politics. That number does not include spending on political action committees or donations made by individuals who work with either company."

For-profit online organizations increase influence through their membership in the American Legislative Exchange Council (ALEC). Corporations pay to become ALEC members and then donate money to sponsor state legislators to attend private conferences where they urge elected officials to introduce bills written by them or by ALEC staff. They also provide talking points on how to sell these bills to other legislators and to constituents.
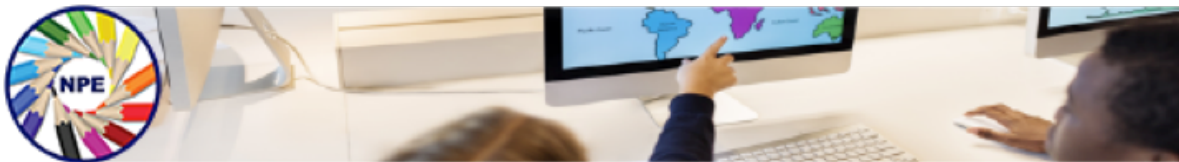
An example of the interconnectedness of the first three aspects is useful. As the issue of opening up the educational marketplace to online charter schools was being debated in Maine in 2012, Colin Woodward of the *Portland Press Herald* undertook an in depth special report on the political influence and relationship between corporate providers of online learning and the advocacy organizations that support this mode of instruction. His reporting, which won a George Polk Award, revealed how the decision to expand online learning in the state was the result of direct lobbying and contributions to Governor Paul LePage by K12 Inc. and Connections Academy, as well as the influence of ALEC and Jeb Bush's Foundation for Education Excellence, which receives funding from K12 Inc., Connections and other ed tech corporations.[10]

The fourth and final way by which these corporations gain support and recruit students is through advertising. Like the amount of money spent on lobbying, there are generally no requirements for these corporations to disclose how much money is spent advertising and promoting their schools. As a part of a *USA Today* investigation, Greg Toppo reported that his "analysis found that 10 of the largest for-profit operators have spent an estimated $94.4 million dollars on ads since 2007. The largest, Virginia-based K12 Inc., has spent about $21.5 million dollars in just the first eight months of 2012." He further indicated that:

"A look at where K12 is placing the ads suggests that the company is also working to appeal to kids: Among the hundreds of outlets tapped this year, K12 has spent an estimated $631,600 to advertise on Nickelodeon, $601,600 on The Cartoon Network and $671,400 on MeetMe.com, a social networking site popular with teens. It also dropped $3,000 on VampireFreaks.com, which calls itself "the Web's largest community for dark alternative culture."

Though intensive lobbying and large donations often forestall rigorous oversight and regulation of online charter schools, some states are attempting to hold these schools accountable.

The California Attorney General sued K12 Inc. alleging that K12 and the California Virtual Academies (CAVA) schools it operates falsely advertised its results. The lawsuit was settled by K12 Inc. for $168.5 million dollars. Most recently, the ECOT charters, the largest online chain in Ohio, lost its authorization after the state ordered it to pay back $80 million dollars for inflating the number of students enrolled. It was forced to close in January 2018, even though thousands of its students re-

enrolled in other online charter schools with similarly poor records.

WHAT ARE THE OTHER POPULAR USES OF ONLINE TECHNOLOGY IN SCHOOLS?

I-READY AND MAP EXAMS

Another popular trend is the use of online formative assessments, primarily i-Ready, owned by Curriculum Associates, and/or MAP exams, owned by Northwest Evaluation Association (NWEA). The purpose of interim or formative assessments is to provide feedback to teachers so that they can modify their instruction, thus increasing learning. Few if any independent evaluations published in peer-reviewed journals have offered evidence of the validity of either assessment nor any positive impact on student learning. The best study, a randomized experiment, indicated that schools using the MAP test and additional teaching resources provided by NWEA had no significant effect on reading achievement for students at 32 elementary schools in Illinois.

CREDIT RECOVERY

One of the growing uses of supplemental online courses is for credit recovery—that is assigning students who have failed courses to retake them online. One study found that Florida high school students who previously failed and took online credit recovery courses were more likely to receive a "C" or higher than students who retook these courses in face-to-face classes, but the study provided no

evidence of actual learning beyond the allotted grade. As the authors concluded, "the rigor of these courses and the level of student learning cannot be measured with the available data."

Another study randomly assigned Chicago high school students who had previously failed Algebra 1 to either online or face-to-face make-up courses. That study concluded "Students found the online course more difficult and had more negative attitudes about mathematics than students in the face-to-face course." In addition, compared with students receiving face-to-face classes, students in the online courses received lower grades, had lower pass rates, and lower scores on the end-of-course algebra exam.

There is also evidence in schools throughout the country that low-quality online credit recovery courses are being used to inflate graduation rates, as high-schools face increasing pressure to improve results or risk closure or the replacement of the staff. In many cases there is very little oversight of students taking online credit recovery courses, making it relatively easy for them to cheat.[11]

BEHAVIOR MANAGEMENT APPS

ClassDojo is an online app that allows teachers to award "dojo" points to students under various categories like "hard work," "participating," "teamwork," "leadership," and "perseverance and grit" or take away points depending on their behavior.

Teachers can communicate their students' ratings to parents through cell phones, computers or other devices – and the ratings can also be disclosed to the entire class on a smart-board. The company claims the app is being used in 90% of K-8

schools in the U.S. and in over 180 countries.

Parents can log-in to a website to see how many points or demerits their children have accumulated, and to see class photos of the class, messages and videos posted by teachers—which are also sometimes tweeted for all to see.

While the use of such apps may be effective in the short run for classroom management and to keep unruly students on track, there is concern that such systems substitute extrinsic rewards for the development of intrinsic motivation.

Because the app is provided to teachers for free, there is worry that the company is planning to make money through targeted advertising based on student data. An earlier version of the privacy policy said that the company may show users ads "based in part on your personally identifiable information."

That statement has now been removed, and the company says it plans to make money through "premium features" for which they will charge schools and parents. In general, vendors who offer apps ostensibly for free are really being paid through the use of student data for commercial purposes, either to help them market their products or create new ones.

Another behavior modification product called *Hero K12* is designed for older students and reportedly raised $150 million dollars in venture capital in the first half of 2017. The system requires students to carry electronic cards at all times that are scanned by teachers and track student absences and attendance. Teachers can also add digital points to the cards, depending on whether the students have done their homework or subtract points if they've committed misdeeds.

As one critic, author John Warner, recently wrote about the *HeroK12* promotional video:

"Notice the entire lack of human discretion within the system. We do not know (or care) why Jill arrives late, if her mother's car broke down (again) or if perhaps there is a younger sibling needing escorting to school. What matters is not the individual, but the lateness itself, apparently a threat to the orderly, well-functioning school…."

IS PRIVACY SUFFICIENTLY PROTECTED WHEN STUDENTS LEARN ONLINE?

Whether used for instruction, assessment, administration or behavior modification, all these ed tech apps have privacy implications that no parent should ignore. By design they are intended to collect highly sensitive personal student data, thus putting this information in third-party hands, often with weak security protections and without parent knowledge or consent. This runs the risk that the makers of these apps may misuse the data for non-educational purposes, redisclose it to other vendors and "partners," or store it in ways that make it vulnerable to hackers.

For example, K12 Inc. uses personal student data for marketing purposes. A recent letter from the US Department of Education to Agora Cyber Charter Schools, an online chain owned by K12 Inc, ordered the schools to stop violating federal privacy law by requiring parents who enroll their children to waive their rights to have their children's personal information protected from unrestricted disclosure and/or commercial use.

Inadvertent breaches have also become more widespread in recent years. In April

2017, it was revealed that *Schoolzilla*, a popular student data storage company, had exposed the personal data of about 1.3 million students. One month later, a hacker stole the personal information of up to 77 million students and teachers from the popular education platform *Edmodo*, and put the data for sale on the so-called "dark web."

According to EdTech Strategies, a Virginia consultancy, the number of student data breaches more than doubled in 2017. Student data is very valuable to hackers for the purposes of identity theft because very few children have negative credit histories. Most troublingly, the computer databases of a growing number of schools and districts have been assaulted by hackers, who have accessed personal student information and threatened to release it to the public if not paid "ransomware" in exchange. In the fall of 2017, the U.S. Department of Education put out a warning to school districts, parents and teachers on the need to safeguard personal student data from this growing threat.

For more information on how parents can evaluate the privacy policies of ed tech vendors, we refer readers to the Parent Toolkit for Student Privacy, published by Parent Coalition for Student Privacy and the Campaign for a Commercial Free Childhood.

Finally, there is mounting awareness that schools are increasingly using educational apps that employ predictive analytics and algorithms to drive instruction and assessment. Yet these algorithms may amplify bias, reinforcing inequities among students rather than dispelling them. For example, the use of these systems could steer some students towards less challenging courses and less productive careers based on data in their school records – or even erroneous information. Parents may not even know what these decisions are based upon given that many of these algorithms are non-transparent and proprietary, guarded closely by vendors for commercial reasons.

HOW CAN A PARENT EVALUATE THE USE OF AN ONLINE SCHOOL, BLENDED LEARNING PROGRAM OR EDUCATIONAL PRODUCT?

Based on the preponderance of evidence, as well as the fraud and mismanagement associated with cyber charter schools, we strongly recommend that parents not enroll their children in virtual schools. When evaluating an online course, parents should check out the class size or teacher/ student ratio associated with the course. Clearly, the smaller the better. Also, how much time does the program allow for actual student/ teacher interaction or classroom discussion and debate? What kind of a commitment will you have to make for your student to be successful? What is its student retention rate and passing rate?

Many students tend to become bored and disengaged and fail to learn critical communication skills and critical thinking when there is too little time devoted to human interaction and too little feedback offered by their teachers and fellow students. You should inquire how much time per day your child will be expected to spend on the online program or an electronic device. Excessive screen time has also been associated with both obesity and sleep disorders in children and adolescents, as well as other health and emotional problems.

Another important issue relates to the quality of an online program or app. A good question to pose to your child's teacher or principal is what is the purpose of the program, and where can you find evidence of its effectiveness. If an algorithm is being used to direct your child's education, ask to have it explained to you. If a school is using a commercial product to make educational decisions, we believe transparency is crucial.

Vendors often inflate claims for their products with self-serving studies of questionable quality or those commissioned and paid for by

"consultants." Ask if there are any studies published in peer-reviewed journals or by the Institute of Education Sciences *What Works Clearinghouse* attesting to the fact that the product helps kids learn.

You should also ask if any other schools or districts have used the product and if so, if you can contact teachers, administrators or parents in those districts who might attest to its value. Be sure to search the internet for reviews, critiques and/or news stories for the experience of those who may have tried the product or the program out elsewhere.

Another important issue to investigate is how much the program will cost to purchase devices or software or training staff members in its use. Who is footing the bill? If the program is free, how will the company make money? Will the vendor sell your child's data or use it for marketing purposes?

Start a conversation with your child's teacher or principal about these issues. Section IV and Appendix D of the Parent Toolkit offer a list of questions you can ask

your school or district to ensure that your child's data is safe from accidental disclosure, commercial use or other forms of abuse. The Toolkit also has advice on how to advocate for your school to adopt stronger privacy protections.

Responses to these questions will allow you, as a parent, to determine whether online learning and its tools are in the best interest of students, parents and taxpayers. It is always wise to be skeptical when corporations stand to profit from public dollars.

To learn more about online learning, as well as other topics related to public education, become a member of a local, state or national organization that fights for true personalized learning in the form of smaller classes and other education policies that have been proven to work. Such organizations include ours – the Network for Public Education. We also list national, state and local grassroots organizations with similar goals on our website.

[1] See Graham, C. R. (2006). Chapter 1: Blended learning system: Definition, current trends, future directions. In C. J. Bonk & C. R. Graham (Eds.), *Handbook of blended learning* (pp. 3-21). San Francisco, CA: Pfeiffer.

[2] See https://www.academia.edu/2426553/ Barbour_M._K._2013_._The_landscape_of_K-12_online_learning_Examining_what_is_known._In_M._G_._Moore_Eds._Handbook_of_distance_education_OE3rd_ed._pp._574-593_._New_York_Routledge

[3] As quoted in: http://blogs.edweek.org/edweek/DigitalEducation/2015/10/ CREDO_online_charters_study.html

[4] The Next Generation Learning Challenges is focused on the use of technology to improve student outcomes, and is funded by the Bill & Melinda Gates Foundation, with additional support from the William and Flora Hewlett Foundation, the Eli and Edythe Broad Foundation, and the Michael and Susan Dell Foundation.

[5] See Stacey Childress and Meghan Amrofell, Reimagining Learning; A Big Bet on the Future of American Education, Dec. 2016; http://www.newschools.org/bigbet/

[6] *Survey Results Addendum,* visit www.rand.org/t/RR1365z2. Siler-Evans, Kyle, Elizabeth D. Steiner, Laura S. Hamilton and John F. Pane. Personalized Learning Instructional Staff Survey Results (Spring 2014). Santa Monica, CA: RAND Corporation, 2014. https://www.rand.org/pubs/working_papers/ WR1062.html.

[7] These effect sizes, according to the authors, translate to gains of about 3 percentile points; meaning that a student in a personalized learning school at the median would have performed about 3 points higher than the median in the comparison group in both subjects. Pane, John F., Elizabeth D. Steiner, Matthew Baird, Laura S. Hamilton, Joseph D. Pane, Informing Progress: Insights on Personalized Learning Implementation and Effects, Santa Monica, CA: RAND Corporation, July 2017; https:// www.rand.org/content/dam/rand/pubs/research_reports/RR2000/RR2042/RAND_RR2042.pdf

[8] See U.S. Department of Education. 2014. *Elementary School Mathematics Intervention Report: DreamBox Learning, Updated.* Institute of Education Sciences, What Works Clearinghouse. https:// ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_dreambox_121013.pdf
For more on this updated report, see http://www.epi.org/publication/school-privatization-milwaukee/

[9] See http://www.cincinnati.com/story/news/2017/03/06/facebook-program-school-causes-controversy/ 97711414/ and http://www.nkytribune.com/2016/10/carrie-cox-some-parents-dont-like-the-new-summit-personalized-learning-platform-want-to-opt-out/

[10] The investigation was based upon emails obtained by the organization. In the Public Interest available here: https://www.inthepublicinterest.org/maine/ For FEE emails to other states officials, see https:// www.inthepublicinterest.org/jeb-bush-emails/

[11] See the Slate series of investigative articles at http://www.slate.com/articles/news_and_politics/schooled.html including Zoë Kirsch, The New Diploma Mills, Slate, May 2017; http://www.slate.com/articles/news_and_politics/schooled/2017/05/u_s_high_schools_may_be_over_relying_on_online_credit_recovery_to_boost.html see also http://www.latimes.com/local/education/la-me-edu-pass-credit-recovery-20170701-htmlstory.html