Performance-Based Funding & Online Learning:

Maximizing Resources for Student Success

iNACOL
International Association for K-12 Online Learning

WRITTEN BY:

Susan Patrick, *International Association for K–12 Online Learning*

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iNACOL
International Association for K-12 Online Learning

The mission of the International Association for K–12 Online Learning (iNACOL) is to ensure all students have access to a world-class education and quality blended and online learning opportunities that prepare them for a lifetime of success. iNACOL is a non-profit organization focused on research; developing policy for student-centered education to ensure equity and access; developing quality standards for emerging learning models using online, blended, and competency-based education; and supporting the ongoing professional development of classroom, school, district and state leaders for new learning models. **Learn more at www.inacol.org.**

Acknowledgments

This paper would not have happened without the insights and wisdom from leading practitioners, providers, thought leaders and policy makers across the field of K–12 online learning. Although five authors are listed, the insights in this paper are an accumulation of the knowledge and creativity of the experts who convened to discuss performance-based funding models. We are tremendously grateful to all of them, including:

Table of Contents

Executive Summary

The focus of this report is on performance-based funding in online learning programs.

There is a new conversation taking place in public education on creating systemic incentives through school finance to encourage schools to innovate and be rewarded for positive student outcomes and performance. What if education funding was not based on seat-time, but on rewarding student performance? Performance-based funding is a term that captures this new concept.

Performance-based funding is a school finance model that links funding for public education programs with measurable student performance outcomes.

Performance-based funding means that funding is tied to an outcome—a policy outcome. In higher education, institutions seek outcomes tied to degree completion. In K–12 education, the performance-based funding outcomes have historically been tied to course completion (as the outcome).

Performance-based funding emerged first as an education finance policy to fund online course providers, but it is quickly spreading. States with performance-based funding policies include:

- **Florida** – All online courses have performance-based funding based on a student's successful completion of a course. In the future, the payments will be tied to successful assessments on end-of-course (EOC) exams required to earn a standard diploma (as they are available). There is performance-based funding policy for both brick-and-mortar and virtual schools with EOC implementation.

- **Minnesota** – Supplemental online courses have performance-based funding based on successful course completion; 88% of per course funding goes to the provider, and up to 12% to the enrolling district or charter school.

- **New Hampshire** – The Virtual Learning Academy Charter School (VLACS) has performance-based funding on successful competency and course completion for both full-time and supplemental enrollments. VLACS serves as the statewide online learning program. In our study, VLACS' funding model is among the best examples of performance funding anywhere in the country because VLACS has established competency milestones within courses, and plans to generate funding based on smaller units, rather than course completion. Student learning is defined and measured on attainment of those milestones based on mastery of competencies and standards.

Definition:

Performance-based funding is a school finance model that links funding for public education programs with measurable student performance outcomes.

> It is important to consider performance-based funding as a multi-step policy evolution from course completion to competency development.

As students successfully develop competencies and complete courses, they would trigger payment and performance-based funding incentives. It is important to protect quality and ensure student performance outcomes are validated through independent assessments and/or end-of-course exams.[1]

Other findings from the school finance adequacy study conducted by Augenblick, Palaich, and Associates for costs of online learning include:

- Calculated cost of a supplemental online course: $600/semester; and

- Base funding levels should be adequate to ensure equity in all funding models and weighted to serve students with special needs.

As interest in online courses grows, many states are looking for guidance regarding costs, models and performance-based funding policies.

The concept of performance-based funding is fairly straightforward—reward public education programs based on measurable student learning performance outcomes including course completion and competency development. It is also important to consider performance-based funding as a multi-step policy evolution from course completion to competency development. It is important to understand the idea that course completion-based funding is a step towards performance-based funding but is not the same as competency-based funding.

We do realize the topic of performance-based funding models is larger than online learning. Ideally, the models described for online courses and online learning will help inform the entire field of K–12 education on how a future with performance-based funding would work to incentivize increased student performance and performance-based education systems, and ensure adequacy and equity. The research in this report is focused on online learning to focus on the issues of equity and adequacy of funding in the context of performance-based funding models.

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[1]   Performance-based funding should not be confused with the concept of competency-based education. Performance-based funding is a funding formula to reward a defined policy outcome. Competency-based education is a redesign of the education system around students advancing upon demonstrated mastery. While future funding models to reward competency development quickly point to the vision of a performance-based funding model, policy makers should take care to be explicit about the disparate concepts of funding for specific policy outcomes (*performance-based funding*) and the difference between referring to an education model built on mastery (*competency-based education*); these should not be confused in the field of K–12 education.

I. iNACOL's Vision for Performance-Based Funding

Introduction

What if schools, our educational service providers, were rewarded via performance-based funding based on improved outcomes in student learning gains?

If access to online learning expands without ensuring that the models available to students are effective, the field may grow, but it is unlikely that it will achieve the improved educational outcomes we seek. Having expanded, the field will also be difficult to re-shape—once low-quality models are in place, it will be difficult to improve their effectiveness or replace them with more effective courses and content.

To avoid this scenario, it is essential that the field differentiate between high- and low-quality options for students. High-quality, effective courses and content must be recognized as such, become more available to students, and receive the funding they need to thrive. Similarly, lower-quality, *less* effective courses must be identified, and made less available to students and *less* able to receive the funding necessary to continue. Only then will the field of online learning achieve its full potential.

The most powerful lever available to differentiate between high-quality, effective models and lower-quality, less effective models is the state policy that regulates student access to, and funding for, online courses. Though districts play an important role in selecting the online options available to their students, the market for online learning models is significantly influenced by state policy. The ideal future state policy set would award access and funding based on performance by including:

- Accountability measures using evidence of student proficiency gains and student achievement as the measure of effectiveness, and eventually, authorization and funding only for courses and programs that are successful in developing student proficiency levels aligned to college- and career-ready standards and other state academic standards;

- Access for all students to all approved providers' courses that meet these quality standards and measures; and

- Funding that incentivizes effectiveness for courses that generate gains in student achievement (e.g., states pay bonuses to schools and districts when students achieve mastery at an advanced academic level or students realize large gains between pre- and post-course assessments).

Unfortunately, this ideal policy set is not yet feasible. The requisite independent end-of-course assessments across subjects and grade levels, pre- and post-testing on benchmarked college- and career-ready standards, assessments aligned to those standards, oversight, and data systems are not yet available. The majority of providers do not have the infrastructure needed to meet these requirements. Similarly, states and districts do not have the processes in place to hold providers accountable, and there are no systematic mechanisms within the field to demonstrate effectiveness (e.g., no industry certification process for quality courses).

However, the confluence of several events suggests that there is currently a unique window to make progress toward the policy set we seek. As interest in online courses grows, many states are looking for guidance regarding the policies they should put in place. With the advent of each state adopting college- and career-ready standards in English language arts and mathematics, educators are coalescing around the importance of college-readiness for all and are establishing clear sets of content, proficiency standards and aligned assessments. At the same time, new longitudinal data systems are increasing the importance and availability of student outcomes data.

In this context, the opportunity exists to establish the state policy sets required by launching a forward-looking, multi-staged evolution of policy. *This evolution would be guided by a policy framework in which access and funding are awarded based on performance. But the measures of performance would evolve over time, from the data that is available today toward the college-ready metrics we ultimately seek.* This also requires the development of trusted and independent, third-party "validating" end-of-course assessments as they become available to validate student proficiency per course, and by the field's growing capability to demonstrate effectiveness.

As assessments and data systems continue to evolve, policies can incentivize effectiveness even further by providing additional funding for growth and for the demonstration of achievement gains on benchmark assessments.

We believe this staged evolution of policy can and should begin now. By building upon the creation of standards and assessments already underway, this evolution gives states and providers a clear bridge from the current policy approach to that which we seek for the future. The environment created over time is such that the models that demonstrate outputs, then outcomes, then outcome gains will thrive. Those that fail to evolve and to perform will not.

The Focus of this Report Is on Performance-Based Funding in Online Learning

Much of the field of K–12 online learning is based on the concept of personalized learning: students should move through courses, grade levels, and schools at a pace that is suited for them as individuals. It is not based on school calendars or other timing factors that are extrinsic to learning. Closely tied to this notion is the view that schools should be funded based on measures that are connected to demonstrated positive student outcomes, unlike the most common current funding model that is based on student attendance and seat time, and not linked to student learning.

Performance-based funding is a term that captures this new concept. Performance-based funding is being applied, in a few cases, to online schools and course providers, but not yet in a way that is widespread, robust, and demonstrably sustainable. Much of the funding for online schools, in many states, is separate from the funding stream that pays for the large majority of students in physical schools.

The need exists to fully understand and describe online learning funding models, levels, and costs of online schools and courses; to cross-correlate those findings with funding for students in traditional schools; and to develop a performance-based funding model that can be successfully applied to online schools and courses, and perhaps eventually to all charter schools and possibly even all physical schools.

Online learning may also be one of the truly transformative influences on all of education, because many online learning policy issues cannot be easily addressed without looking at education as a whole. Examples of these types of issues include:

- Funding based on educational attainment instead of seat time;

- Student progression based on outcomes instead of social promotion;

- Enhanced use of data throughout education;

- Move to cross-curricular mastery of standards and competencies as benchmarks versus siloed completion of credits, course by course; and

- More effective use of education's essential "human capital"—especially the development and deployment of excellent teachers.

Ideally, the continuing evolution of high-quality but diverse online learning programs, together with the development of thoughtful state policies, provides a laboratory to explore issues that benefit students in every learning environment.

The many intricate policy details and questions can be confusing, and certainly challenging to understand and explain. We have a simple litmus test for evaluating online learning policy. Good policy answers the following three key questions affirmatively:

- Does the policy hold promise for increasing student educational opportunities?

- Does the policy hold promise for improving student educational outcomes?

- Does the policy support equity?

If the answer to these questions is yes, the policy is likely to be beneficial.

Access and equity are major drivers of online education in public schools across America. How funding models provide student access to online courses can be very different from state to state, but our research suggests that funding models and levels require adequacy and quality control to ensure academic success and protect equity.

Many U.S. Students Have Limited Access to Courses and Opportunities

The U.S. Department of Education reported consistently over the past decade that the biggest driver of online learning in K–12 education is providing access to teachers and courses "otherwise unavailable" to students. Queen and Lewis (2011) specified, "Sixty-four percent of school districts reported that providing courses not otherwise available at the school was the most important reason for offering online education."[2]

Imagine a high school student who does not have the opportunity to take all of the courses she needs to get into college. Today, for far too many young people, this is a sobering reality. Public schools around the country may lack the resources, staff, or demand to offer a full catalog of courses. According to recent data from the U.S. Department of Education, many students do not have access to all the courses that will prepare them for college and careers. Only 50% of U.S. high schools offer calculus; only 63% offer physics. Between 10% and 25% of high schools do not offer more than one of the core courses in the typical sequence of high school math and science education—such as Algebra I and II, geometry, biology, and chemistry. Minority students are disproportionately affected: a quarter of high schools with the highest percentage of black and Latino students do not offer Algebra II, and a third of these schools do not offer chemistry. This is related to the disproportionately low access that black and Latino students have to the very science, technology, engineering, and math (STEM) courses in high school they need as prerequisites to succeed in STEM majors in college. It is not acceptable.

The inconsistent availability of high-quality education options for students from different backgrounds and regions is a key civil rights issue, as low-income, rural, and minority students lack the opportunities of students in affluent areas. For example, in California, more than one million students attend high schools that do not physically offer the coursework for the A–G courses required for admission to the University of California system. Equity in educational opportunities is a key concern driving our analysis. Online courses are addressing this inequity in educational opportunity by providing high-quality opportunities to students regardless of where they live and what school they attend. Most importantly, online learning is an area of education where competency-based learning is taking hold rapidly, in which students advance upon mastery of content via personalized, real-time, data-driven learning pathways.

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[2]   Queen, B., and Lewis, L. (2011). *Distance Education Courses for Public Elementary and Secondary School Students: 2009–10* (NCES 2012-008). U.S. Department of Education, National Center for Education Statistics. Washington, DC: Government Printing Office.

Online Learning is a Solution

From its advent, online learning has grown because of its potential to increase student access to innovative teachers personalizing learning and individualizing instruction, without the restrictive barriers of place and time. High-quality online learning opportunities can level the playing field for students, enabling individualized instruction that, until web-based instruction, has not been possible at scale. Online learning can provide (where state policy allows) every student access to every Advanced Placement class, upper level math and science class, and a wide variety of foreign language classes—all taught by expert teachers and very affordable. Online learning is about creating opportunities for quality, personalized learning for all students and empowering teachers and students with access to the teaching and learning environments that work best for them.

Online learning continues to grow rapidly every year, with K–12 online education programs and states reporting annual growth rates of 15–50%. Yet many state policies are woefully behind this rapid growth. One typical policy with wide-ranging implications, for instance, is the way in which funding is linked to student attendance. Most states predicate student counts on the idea that the student is in a physical classroom and can be counted in a census-like fashion. In the online world, students are most often not in a physical classroom, and therefore the very language of seat time to generate funding does not fit virtual learning, resulting in a lack of funding for online programs or the need to change accounting practices.

A Vision of Performance-Based Funding

Introduction to Performance-Based Funding: Incentivizing Outcomes

Definition:

Performance-based funding is a school finance model that links funding for public education programs with measurable student performance outcomes.

There is a new conversation taking place in public education on creating systemic incentives through school finance to encourage schools to innovate and become rewarded for increasing positive outcomes and student growth in learning. Policy makers are considering new finance formulas to fund programs for improving student performance. At the center of this debate is a heightened interest in the public good for rewarding positive student learning outcomes.

It is an important next frontier of education finance to better link spending to effectiveness for student outcomes. Today, public officials are thinking about productivity and understanding the relationship between resources, inputs, flow of funding and effectiveness for student learning outcomes.

There is a policy lever emerging in states known as performance-based funding. Performance-based funding is a school finance model that links funding for public education programs with measurable student performance outcomes. The drivers of performance-based funding models include shifting policy and funding from a focus on inputs to outcomes.

The vision of performance-based funding is to align incentives through funding to reward programs that have the most growth and student success based on student performance outcomes. What if education funding was not based on seat-time, but on rewarding student performance? What if supporting students to achieve at higher levels and accelerate student progress was rewarded—rather than simply having them show up and funding education based on attendance?

Conceptually, this is an important policy framework to consider—aligning performance-based funding and student-centered learning with performance-based funding frameworks. Overarching policy goals include equity, closing the achievement gap, increasing student achievement for all students, creating incentives for maximizing individual student learning gains, inclusion and excellence. It would require a laser focus on equity, resources and adequacy of funding to provide needed supports for disadvantaged students.

A Future Vision of Performance-Based Funding Systems Aligned to Transforming and Improving Education toward Student-Centered Learning

A student-centered education system would both support policies and enhance practices that foster personalized, student-centered learning. Core to this concept is an unwavering focus on improving student performance and creating incentives for education systems based on student outcomes and growth. Student-centered, performance-based systems are built on a simple concept—that students must demonstrate mastery of competencies through a *performance* before advancing to higher levels of learning.

Importantly, it would require education systems to be extremely student-centered; that is, the system would be centered on student needs including knowing exactly where every student is upon entry in a program, and then working to fill gaps in knowledge and support their learning by accelerating them and supporting students— redesigning the education offerings and services by personalizing learning and maximizing each student's potential. This would result in realigning incentives around supporting student learning and redesigning supports to help address every student's needs.

If we are measuring outcomes constantly, we could set performance metrics focused on outcomes at a high bar for all students where each student accomplished at least one year or more of growth per year, and there would be incentives for helping students accomplish more learning per unit of time. Perhaps then we could foster an acceleration of closing the achievement gap, graduating students with a meaningful high school diploma on time, and bringing more students to college and career readiness, while rewarding the system for doing so.

This challenges our basic assumptions of education finance, where spending and accounting, based on simple time and attendance accounting, results in uneven student outcomes. There is significant research showing the lack of understanding of linkages of spending and successful outcomes.

A performance-based funding system also requires alignment with a data-driven performance-based education system with a constant focus on outcomes. Efforts must be redoubled to help ensure that all students are learning at high levels of rigor and are held to high standards. One could argue that you cannot have a performance-based funding system without adequate levels of base funding and weighted differentiated funding to bring strong supports and interventions to underserved students. Could we then discern that this performance-based education system is about more than a school's use of time, but the effective use of time to organize resources around each student's individual learning needs?

In an ideal world, for performance-based funding to work, there would need to be 10 elements implemented and aligned to performance-based systems of learning:

1. Consistent, high standards for all students with clearly articulated learning objectives and progressions, including the competencies on what a student needs to know and be able to do through a demonstrated student performance;

2. Quality assessments consisting of performance tasks and assessments, student performance evidence, with clear rubrics for teachers to assess learning at high levels of proficiency and deeper learning providing constant information on outcomes;

3. Student evidence of mastery through a demonstrated performance and an e-portfolio of student evidence;

4. Individual student performance profiles and maps to indicate progress on progressions and levels of mastery;

5. Data systems, task banks, and content management linked to e-portfolio systems to include the evidence of student learning;

6. Strong support systems for students and educators with adequacy of resources to provide robust student services around individual needs;

7. Strong accountability and independent moderating assessments to validate performance data and abundant evidence on the ground to ensure equity and rigor;

8. Selective auditing for ensuring classroom-level evidence of student learning is validated;

9. An examination of accountability to foster empowering local control, while asking what data is needed at the classroom level, school level, district level, state level and federal level to ensure accountability for closing the achievement gaps and increasing student performance; and

10. Funding systems that can provide stable, adequate funding per pupil while rewarding and incentivizing growth in student performance.

Performance-based systems require funding based on performance and, thus, a constant flow of performance outcomes data, re-alignment of performance metrics to provide improved quality assurance benchmarking and examination of data over time for true measurement of individual student growth and closing the achievement gap. Accountability and data analysis must be structured to ensure responsible oversight for equity and adequacy.

There are challenges to realizing this vision in the current state of education. Our existing federal and state accountability models (even growth and value-add accountability models as currently conceived) are constrained by grouping students into a grade-level apparatus and calendar-based, summative testing cohorts—batches of summative testing rather than appreciating progress along a trajectory with evidence for each student.

A performance-based funding system would require transparency, projections and allocations based on outcomes. A well-developed performance-based funding system might operate like a block grant with funding allocations on student membership, recalculated to reward student achievement. It could conceivably reward programs that do the most with students who are underserved and making the most gains as well as reward for successful completion of courses or units. As students gain proficiency on standards and competencies on the progressions, it would trigger payment and performance-based incentives for increasing student achievement and growth, as well as closing the achievement gap.

This vision of a performance-based funding system is important for evolving policy. Today's system of funding students for time in a seat and having varying levels of learning as they move through school results in widening achievement gaps and major disparities in levels of learning. Funding is based on simple accounting for numbers of student enrollments rather than incentivizing doing the most for the students who need it most.

Historically, most state funding formulas have relied on funding methods based on counting student enrollments, often with seat-time parameters, to create a consistent method for state budgets to pay for students to attend school for 180 or so days per year. For example, the National Center for Education Statistics[3] explains:

> "A secondary course meeting every day for one period of the school day over the span of a school year offers one Carnegie unit. A Carnegie unit is thus a measure of "seat time" rather than a measure of attainment of the course objectives. While some schools and districts use a performance- or competency-based metric of student progress, the Carnegie unit remains the predominant metric of student progress in schools in the United States and is part of the [School Codes for the Exchange of Data] SCED framework."

In order to realize the vision of performance-based funding, systems would need to have a laser focus on outcomes and paying for outcomes. Performance-based systems would require shifts to better provide the learning environments and services for the pent up demands of students who need courses, differentiated learning and personalized pathways. Ultimately, performance-based systems begin to unlock our perceptions of what school look

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[3]   Bradby, D., Pedroso, R., and Rogers, A. (2007). *Secondary School Course Classification System: School Codes for the Exchange of Data* (SCED) (NCES 2007-341). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Accessed June 1, 2014 online at http://nces.ed.gov/programs/handbook/data/pdf/appendix_c.pdf

like through the use of data to become more student-centered, and requires us to imagine how to reorganize and maximize success for each student's needs.

There is growing interest in states paying for performance, to incentivize successful completion of courses and not simply fund based on student enrollments. Building on this, there is interest in performance-based funding that could potentially reward programs that achieve the greatest gains in student learning.

In beginning a discussion of performance-based funding, policy makers wrestle with:

- Articulating clear principles for performance-based funding;

- Ensuring adequate levels of base funding for all students in performance-based funding, with weightings and adjustments that allow for differentiation by student characteristics and need; and

- Protecting high levels of rigor in defining student success by a process of auditing or independent assessment of performance to verify successful completion.

In the course of our research, we conducted literature reviews from K–12 and higher education on performance-based systems, brought together advisors and focus groups, convened professional judgment panels, held interviews, and—together with the field—identified the following principles for performance-based funding. Most of the performance-based funding systems today in higher education and K–12 education rely on funding for completion of courses and programs, an early stage of performance-based funding. A new vision would push further down the alignment with performance-based systems—and ask for funding to flow as students demonstrate performance and attainment of knowledge and skills based on evidence created, with validation on these outcomes independently validated through an audit or independent end-of-course testing. This goes a step further than just funding for successful completion. Thus, the principles developed for performance-based funding reflect the aspirational policy framework for furthering the conversation on competency-based models of students demonstrating proficiency.

These principles for performance-based funding include:

- The focus should be on student attainment of outcomes with evidence of performance.

- The foundation base amount must be adequate to meet student needs and be equitable.

- The foundation should include a base amount and adjustments that allow for differentiation by student characteristics and needs so that the formula should provide additional funding based on positive outcomes for high-need students.

- It must be based on performance measures that are objective, transparent to the public and easy to understand.

- It should allow for progression and funding based on demonstrated competency, not on seat time.

- The goal is improving student outcomes, not saving money.

- The formula must be predictable, stable and auditable.

- Over time, it should be applicable to all schools or education programs, and not just online programs.

- Independent, valid assessment of entry and exit benchmarks of proficiency, and ultimately, student learning performance outcomes are necessary to ensure rigor and quality (as well as protect from grade inflation).

Importantly, we don't want performance-based funding models to incentivize grade inflation or "cherry-picking" students. The research in this report was designed specifically to examine what a performance-based funding model that provides a level playing field for all students would look like.

The World of Online Learning: Where Performance-Based Funding Is Emerging

In the past decade, most of these debates around state funding formulas shifting from seat-time or simple counts toward a performance-based funding model are occurring in the area of online learning, specifically in funding individual students taking supplemental online courses through a state program. Questions arise for online courses as policy makers ask, "How should online courses be funded to ensure access and equity, especially since it is possible to offer them across a state, especially when a student doesn't have access to the course in her neighborhood school?" In more than half of the states, this is a major policy topic.

How does one fund students for "seat-time requirements" when the student may learn at any place, at any time? Students have licensed teachers who are instructing them at a distance, and the students are communicating through web-based technologies, turning in assignments and their work online as well as engaging in online discussion groups, while taking a course online. Online learning innovations can make traditional methods of student accounting or funding models irrelevant.

Ensuring Quality and Equity

Independently validating student outcomes that drive payment is critically important to protect equity and ensure rigor for each student. The field of K–12 education has many areas throughout the curriculum of untested subjects where there are no independent end-of-course exams. This also varies from state to state with untested subjects as well as untested grade levels. Most states have testing to ensure students have the knowledge and skills to be successful in reading/language arts and mathematics, and some states have end-of-course exams. With this in mind, it is helpful to begin implementing performance-based funding in areas that have independently validated tests to ensure rigor.

We do realize the topic of performance-based funding models is larger than online learning. Ideally, the models described for online courses and online learning will help inform the entire field of K–12 education on how a future with performance-based funding would work to incentivize increased student performance, performance-based education systems, and ensure adequacy and equity. The research in this report is focused on online learning regarding issues of equity and adequacy of funding in the context of performance-based funding models.

States Should Encourage Online Schools to Collect Performance Data on Student Learning Outcomes Now as a First Step

In a separate report, *Measuring Quality From Inputs to Outcomes,* iNACOL proposed better performance metrics for outcomes-based accountability for online learning programs and online courses. Online learning has the ability to collect student learning data in real-time and iNACOL worked with the field to develop outcomes-based performance metrics for improving quality assurance based on transparent student outcomes of online learning. We believe that online learning programs should collect performance benchmark data using outcomes-based metrics of student learning—starting with benchmarking student learning levels upon entry and exit of a program or course with an independent and valid assessment of student learning—to understand the amount of student learning growth during a program to evaluate course and program quality. Following this data availability, state performance-based funding models would more easily be implemented.

Ideally, our programs and accountability systems would both be doing this job of collecting student learning outcomes data along a trajectory to understand how fast and how far a student has moved per unit of time (quarter, semester, year), but most are not. If the accountability system is measuring individual student learning outcomes—at the course level or at the program level—then accountability and oversight at the state level could ensure that only high-quality programs would be offered to students. It is very important to align accountability and oversight of online programs, and then to address performance-based funding models to address overarching policy goals around quality assurance.

What Performance-Based Funding Models Exist Across the United States in Public Education?

Imagine these scenarios, all of which are possible today:

In Minnesota, Greg is a high school student in a suburban school district who takes a physics course, shows up to school every day, but has a 38% average and fails the course. The student is assigned an "F" grade and the school receives full funding for the student.

Another Minnesota student, Peter, takes an online Advanced Placement© (AP©) physics course from a state-approved online learning program because the rural school the student attends does not have a licensed AP physics teacher available. The student's resident district provides five courses during the year, and the student takes the sixth course online. The funding is divided equally across the six courses (each year-long course is 1/6 FTE); the online learning provider and the resident district are paid their shares by state. The online learning provider is paid only after the student successfully completes the course (successful completion is defined as finishing and passing the course). The district retains 12% of the 1/6 FTE and the online learning course provider is paid 88% on successful completion. This is a form of performance-based funding—funding when the student successfully completes the course.

In Utah, Ann and Chris are two high school students who take geometry online from a district that is among the state's approved providers of online courses. Both Ann and Chris like the scheduling flexibility of the online course and appreciate being able to work at their own pace. The course-providing district receives half of the funding for each student near the start of the first semester. Ann thrives in the online algebra course and successfully completes it on time. Once the semester is complete and Ann has successfully completed the course, the providing district receives the second half of the funding for that student. Chris finds that the online course is harder than she expected it to be. Chris doesn't finish on time, but she is determined to stick it out, in part because she recognizes that many of her college classes will be online. The online course provider offers her additional support and flexibility in completion time, providing a tutor online and going past the original target completion date. When Chris is ultimately successful and finishes the course, the providing district receives part of the second payment. The online course provider has been given an incentive to provide extra help for Chris, by receiving some funding even after the original target completion date.

In Florida, Marcus is a student who enrolled in Florida Virtual School (FLVS), and has demonstrated mastery on individual standards for each lesson by successfully completing assignments and showing mastery. Marcus successfully completes the course with a grade of A. The course has an end-of-course exam, and Marcus successfully passes the exam. As of the 2016-17 school year, in Florida, the end-of-course exams requiring passage to earn a standard diploma will independently validate student performance, which can then be used to evaluate providers. This will be the case for all schools, not just online. Funding will be adjusted if the student does not pass the required end of course exam. The entire state is moving to performance-based funding, and not just for online schools anymore.

Shifting from How Online Course Programs are Funded Today

The bigger vision for performance-based funding would be a more modular approach for financing student performance gains—or simply said, funding would flow to programs as students demonstrate successful outcomes on units along a progression based on competency development. Today's performance-based funding models are course completion models in K–12 online education. It is an evolution of policy and depends on the context of the state. Only one or two programs are close to funding based on successful attainment of outcomes based on competency and evidence—today, most performance-based funding is tied to course completion.

The conversation needs shifting to how to focus on funding students for demonstrating mastery through competency-based progressions with evidence *and* completing the course successfully.

New Hampshire's Performance-Based Model: Competency Development

The Virtual Learning Academy Charter School (VLACS) is New Hampshire's first statewide online high school, approved in May 2007, serving grades 6-12. VLACS is predominantly supplemental, unusual for a virtual charter school, and in SY 2013-14 served over 11,000 individual students with 22,731 course enrollments, a 29% increase from the previous year. Although 162 of its students were full time, over 20,000 of the enrollments were in supplemental courses.

VLACS receives funding from three sources: state education aid, out-of-state tuition, and grants. As a competency-based school, VLACS does not receive funding based on seat-time attendance, but receives funding based on course and competency completion percentages (i.e. if a student completes 30% of the course, VLACS will receive 30% of the funding).

This points to a multi-stage evolution in policy toward performance-based funding that starts with rewarding successful completion of courses but begins to eye the future of performance-based funding toward rewarding incremental student achievement and performance—centered on competency development in alignment with state academic standards.

II. Online Learning Funding Models

Funding is the single most important policy issue in online learning. An overview of funding supplemental online learning shows the range of funding models for part-time enrollments in online learning programs at the state level or across district lines. Let's explore the differences in funding models for full-time online schools versus part-time, supplemental online course programs that operate statewide.

Funding Models and Levels for Full-time Online Schools

States with Statewide Fully Online Schools

FIGURE 2: NUMBER OF STUDENT ENROLLMENTS BY STATE AND PERCENTAGE OF STATE'S K–12 POPULATION

Number of Enrollments in SY 2013–14

	State	% of state K–12 population*
48,358	AZ	4.48%[1]
40,000	CA	0.64%[2,3]
39,044	OH	2.24%[4]
36,596	PA	2.07%[5]
18,035	GA	1.07%
16,215	CO	1.90%[5]
13,455	FL	0.50%
10,258	TX	0.21%
10,000	NV	2.27%[2]
9,563	MN	1.14%
8,877	SC	1.22%
7,603	IN	0.73%
7,188	WI	0.83%
7,172	OR	1.26%
7,010	OK	1.05%
6,737	MI	0.43%
5,200	WA	0.50%[6]
5,136	KS	1.06%
5,079	ID	1.81%
3,491	UT	0.58%
3,026	LA	0.43%
2,927	TN	0.29%
1,689	WY	1.87%[7]
1,334	AR	0.28%
977	NM	0.29%
539	IA	0.11%
454	MA	0.05%
162	NH	0.08%
120	DC	0.16%
76	AK	0.06%
New in SY 2014-15	ME	N/A

Fully online schools
Fully online schools with restrictions
States with neither

[1] AZ is a unique count of PT and FT students for SY 2012–13.

[2] CA and NV are estimates based on SY 2012–13.

[3] In CA fully online schools are limited to drawing students from contiguous counties, but online schools are available to most students in the state.

[4] OH: Students counted are those in internet- or computer-based community schools (eschools); the state has no definition for "fully online."

[5] CO's SY 2012–13 number is an estimate, likely high.

[6] WA: Enrollment numbers from SY 2012–13.

[7] WY: Includes both PT and FT students.

* Source for K–12 population: http://nces.ed.gov/programs/stateprofiles/.

| 50k | 47.5k | 45k | 40,000 | 30,000 | 20,000 | 10,000 | 5k | 2.5k 1k 0 / 500 |

Source: Keeping Pace with K–12 Digital Learning 2014, Evergreen Education Group

Full-time online schools, or virtual charter schools, are often funded with the same Mape funding formula as any charter school in the state. However, some states set a separate base, statewide level of funding for students who are enrolled in a state full-time online school. Online schools are full-service public schools with many of the same base costs as their brick-and-mortar counterparts, including salaries, benefits, initial training, and ongoing staff development.

Online programs do not incur the same level of facilities and transportation costs as traditional districts, but they have significant technological components, with associated costs for hardware, bandwidth, and the like, which are critical to supporting the teaching and learning process. In addition, other costs, such as teacher travel for face-to-face training, telephone technology, and technical support, must be considered. Funding for online schools and, indeed for all learning, should facilitate quality learning while allowing for ongoing investment in research and innovation.

Few studies have compared the cost of online schools to traditional schools; those that have been done suggest that the cost of educating a student in an online environment is about the same as educating the same student in a brick-and-mortar school. Our research suggests that adequate funding levels for full-time online schools are 3-5% less than traditional environments.

Online schools should be funded within the range of brick-and-mortar school operating costs in each state. The study by school finance consulting group Augenblick, Palaich and Associates concluded, "The operating costs of full-time online programs are about the same as the operating costs of regular brick-and-mortar schools." Expenses for personnel and human capital make up the majority of expenses, and depending on the program model for instruction, teacher time, student supports and direct interactions, there is variance in expenses for staffing that will significantly drive the overall program costs. For full-time online schools that draw students from across the entire state, some argue that a single online funding level (not including additional weighted funding for special needs and similar student-specific situations) should be established within the range of brick-and-mortar school operating costs. Some states are considering a similar approach for all public schools, while others counter that this standardized approach doesn't properly account for the costs of educating students from diverse communities.

Most full-time online school funding falls into one of several categories:

- Online schools may be charter schools, and receive funding that is equal to physical charter schools. States in this category include Michigan, Minnesota, Oregon, Utah, and Wisconsin. Funding in these cases is usually between $6,000 and $9,000 per student.

- Online schools may be charter schools that are funded at a lower rate than physical charter schools. Indiana and Ohio, for example, fund online charter schools at about 90% of the brick-and-mortar charter school rates, which are already lower than traditional school district funding levels. South Carolina funds all charters through the South Carolina Public Charter School District; legislation in 2011 increased base funding for brick-and-mortar charter students to nearly double the funding level of virtual charter student funding.

- Online schools may be a mix of charter and non-charter schools, and funded at a rate that applies to all online schools. Arizona funds full-time online students at a rate of 95% of the base funding rate of traditional students, while Colorado sets a rate for multi-district online schools that is about 92% of the average rate across districts.

- Pennsylvania funds students at similar levels regardless of the delivery model, so students generate similar funding for online schools as they do for physical schools. Even so, charter schools are still funded at a lower level than what traditional school districts receive due to several adjustments made in the funding formula districts use to forward funds to charters.

In addition to the foundational funding difference between online schools and traditional schools, some state online schools qualify for a different weighting of students, or categorical funds, than traditional schools. Schools with a higher proportion of at-risk-weighted students receive a larger amount per pupil.

Additional funding details are provided in Table 1.

Table 1: Funding of online schools compared to traditional schools in select states

State	2012-13 fully online school FTE funding	Online school funding compared to funding for physical charter schools	Average per pupil spending in traditional schools across the state (average revenue per pupil)[4]	Online school funding as a percentage of average state funding
Arizona	$5,759	95%	$7,968	72%
California	$6,468	100%	$9,300	70%
Colorado	$6,462	92% (varies by district, but $6,400 is the average)	$8,926	72%
Florida	$5,182	81% on total (and 79% using completion rates)	$6,393	81%
Georgia	$4,334	100%	$9,432	46%
Indiana	$5,245	87.5%, proposed change would increase this to 100%	$9,479	55%
Iowa	$6,001	100%	$9,748	62%
Kansas	$4,030	100%	$9,972	40%
Louisiana	$8,395	100%	$10,701	90%
Minnesota	$8,807	100%	$8,807	100%
Nevada	$6,700	100%	$8,376	80%
Ohio	$5,745	92%	$11,224	51%
Oregon	$6,304	100%	$9,268	68%
Pennsylvania	$8,992	100%	$12,729	71%
Wisconsin	$6,445	100%	$11,453	56%
Wyoming	$6,500	100%	$15,232	43%

The purpose of Table 1 is to compare total funding available to online schools as compared to physical charter and traditional schools. The online school funding numbers in Table 1 are averages or representative funding levels derived from a variety of sources. Funding levels for specific schools are based on a variety of factors, including school size, authorizer, and whether it is single- or multi-district; as well as student characteristics; and others. In most cases, the funding differences between online schools and traditional schools, in addition to possible differences in proportions of weighted student subgroups, are primarily a result of traditional schools' access to additional targeted state funding streams, local revenues, and federal funding sources. Some states make funding information easily accessible on department of education websites (such as in Colorado at http://www.cde.state.co.us/sites/default/files/FY2013-14%20 Brochure.pdf and Georgia at http://scsc.georgia.gov/funding).

In other states, the funding number was developed based on conversations with representative schools or state education agency personnel. This list does not include all states with online schools because an average funding figure was not available for all states. The online funding number is compared to charter funding because in many states they are the same.[5]

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[4]   Cornman, S.Q., Young, J., Herrell, K.C. (2012). Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2009–10 (Fiscal Year 2010) (NCES 2013-305). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved June 29, 2013 from http://nces.ed.gov/pubsearch. Table 4, p. 13.

[5]   The comparison years are not the same, but the proportions are very similar in most cases whether the years are standardized or not.

Part-time/Supplemental Online Course Programs

States with State Virtual Schools

State	SVS course enrollments SY 2013–14	SVS YoY change from 2013	Course enrollments relative to population*
FL	377,508	-8%	48%
NC	104,799	+11%	24%
AL	51,809	0%	24%
GA	33,041	+28%	7%
SC	24,491	+46%	12%
NH	22,731	+29%	37%
MI	21,944	+5%	4%
ID	20,820	+9%	25%
VA	19,433	+49%	5%
WV	11,270	+87%	14%
MT	6,785	-15%	16%
ND	6,100	+91%	20%
TX	5,708	-50%	0%
WI	5,357	+6%	2%
UT	4,741	-54%	3%
SD	4,029	-1%	11%
AR	3,734	+87%	3%
IL	3,097	+3%	0%
NM	3,121	+5%	3%
VT	2,823	+188%	10%
MS	2,360	-24%	2%
MO	1,992	+23%	1%
HI	1,514	-17%	3%
IA	1,201	-3%	1%
CO	914	-9%	0%
AK	608	+82%	2%

* Course enrollments relative to population calculates the number of course enrollments, divided by the state's high school student population, multiplied by 100. This allows for a quick comparison between states of different sizes. The source for HS population is http://nces.ed.gov/programs/stateprofiles/.

Source: Keeping Pace with K–12 Digital Learning 2014, Evergreen Education Group

Supplemental Online Course Funding Models

Funding policy for supporting student enrollments in supplemental online courses is handled in a variety of ways. When a student is taking a supplemental course through a resident district program, the courses typically count towards the student's full-time or part-time status and funding for that student is the same as any other student in that district. However, when the supplemental course is provided by an entity other that the student's district, then other funding methods are used.

State virtual schools exist in 26 states as of fall 2014 and most are funded via state appropriation, and sometimes supplemented by enrollment or tuition fees paid by either the district or the student. While this reduces competition for student dollars from districts, funding relies on ongoing political support during appropriations allotments and not on student demand for courses. This also typically limits the number of students who can take online courses because when the budget limit is reached, no additional course slots are available. In addition, the funding amount isn't usually tied to student enrollment numbers or outcomes, as the appropriation is a set annual amount limiting access to available programs.

State-led supplemental online learning programs have traditionally been funded through line item state appropriations to the statewide online learning program, often a state department of education or a state-created entity. For example, the state virtual school offering supplemental middle and high school courses online in Virginia is housed at the Virginia Department of Education. Virtual Virginia's funding is based almost entirely on state appropriations. Virtual Virginia has been open since 2005 and the student demand to take online courses increases annually. Online course enrollments increased in school year (SY) 2013–14 from 13,026 to 19,433, an increase of 49%, after doubling enrollments the previous year. When the line item appropriations are expended, there are wait lists for courses. Costs for teachers, administrators, staff, technology, learning management systems and other services also increase proportionately with more student enrollments, as well. To increase access to online programs to keep up demand from students, it is recommended that state virtual schools should be shifted from line item appropriations to a sustainable funding model where funding follows the student to accommodate increases in demands for courses.

A study by the Southern Regional Education Board estimated that a state virtual school needs $4 million in funding for start-up and operational costs to serve 5,000 one-semester enrollments. While the state legislature may find it cost-effective to fund start-up and early operating costs through appropriations, ultimately these programs can only meet the growing demand if they are integrated into the regular per-pupil funding formula on a fractional or formula basis.

Consider the differences between full-time and supplemental programs, and between statewide, single-district and multi-district programs. Supplemental programs offer individual online courses taught by licensed state teachers, and are often a state virtual school (such as in Michigan, Idaho, Georgia, Florida, Montana, Virginia, Wisconsin, and other states), a higher education institution in their state, and in some cases, districts are beginning to offer their own online courses and provide "supplemental programs" themselves.

Funding of K–12 Supplemental Online Learning

Funding for student enrollments in supplemental online courses is handled in a variety of ways. When a student is taking a supplemental course through a resident district program, the courses typically count towards the student's full-time or part-time status and funding for that student is the same as any other student in that district. This funding approach tends to be used even in cases when the district is contracting with a vendor to assist in the operation of their district supplemental online learning program. However, when the supplemental course is provided by a state virtual school or as part of a state course access program, other funding methods are used.

Supplemental & Statewide Online Learning: State Virtual Schools

In the early day of K–12 online learning, state virtual schools were the dominant method for students taking supplemental online courses and they continue to be a significant provider today. In the 2013-14 school year, 26 states operated state virtual schools for a total of 741,516 course enrollments.[6] The role of state virtual schools is beginning to decline, as last year was the first year that total enrollments from state virtual schools declined since Keeping Pace began tracking enrollments in 2003. Funding of state virtual schools falls into one of five methods:

A. **Funded by a fixed appropriation and no fees are charged for enrollment.** However, since this is a fixed appropriation, there is a limit to the number of students served, and thus, states may need to limit enrollments if demand for courses exceeds available funding. In addition, some states restrict enrollment to students enrolled in public schools while others allow home-schooled students and/or private school students to enroll. States typically require the student's local school to approve the enrollment. States may have other restrictions related to enrolling in courses offered from a state virtual school.

   Eight states use this funding mechanism: Alabama, Hawaii, Iowa, Mississippi, South Carolina, Utah, Virginia, and West Virginia.

B. **Funded by a fixed appropriation and supplemented by a per course enrollment fee**. In some states, the enrollment fee is established by law or regulation, while other states allow the state virtual school to set the fee. Course fees typically range from $75-$400 per semester course. As is the case for option A, states may limit enrollments based on available funding or have enrollment restrictions.

   Ten states use this funding mechanism: Alaska, Colorado, Georgia, Illinois, Michigan, Missouri, New Mexico, North Carolina, North Dakota, and South Dakota.

C. **Funded based on the number of enrollments, although funding is performance-based with the state virtual school only receiving funding if the student meets a specific performance requirement (typically successful completion of the course).** Florida pioneered this funding mechanism and also legislatively established the right for any student to enroll in a virtual school course as long as eligibility requirements are met. Eligibility requirements vary by program. However, some states that use this funding mechanism still provide restrictions on student enrollment.

   Three states use this funding mechanism: Florida, New Hampshire, and Texas.

D. **Funded based on schools or districts paying a member fee to the state virtual school.** The membership fee may also be supplemented by a small course enrollment fee. There may also be a small state appropriation provided.

   Two states use this funding mechanism: Arkansas and Vermont.

E. **Funded based almost entirely on course fees.**

   1 state uses this funding mechanism: Wisconsin.[7]

There are a number of problems with the funding approach for state virtual schools. The majority of state virtual schools (18 out of 26) use a fixed appropriation (option A or B), which limits the number of students who can be served. In addition, the student will still typically generate full funding for the student's resident school. This has resulted in concerns that a portion of the student's educational program is being funded twice—once for the student's resident school and a second time through the appropriation for the state virtual school. Finally, when fees are charged (options B and F), the district may pass these fees on to the student, which means the opportunity to take an online course is based on the student's ability to pay for the course. While funding options C and D address these concerns, only a few states have adopted these funding approaches.

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[6] *2014 Keeping Pace with K–12 Digital Learning*, retrieved January 5, 2015 http://www.kpk12.com/wp-content/uploads/EEG_KP2014-fnl-lr.pdf.

[7] Districts in Vermont that don't participate in the consortium option described in option E also have the option to enroll students on a per-course fee basis.

Funding Models are Beginning to Evolve toward Performance-Based Funding Models

From Course Completion Funding to Performance-Based Funding

The advent of performance-based funding in K–12 online learning began in Minnesota and Florida with policies that provide funding based on course completion.

Florida: The First Example of Performance-Based Funding in K–12 Education[8]

When Florida Virtual School (FLVS) began with a $200,000 "break the mold" grant from the Florida Department of Education in 1996–97 to provide a student-centered, online learning program that allowed students to learn any time, any place, any path and any pace, the design of such a school—a virtual school—would change the way educators think about what is possible for offering great teachers without school walls. By 2003, as a nationally recognized leader in online learning, "Florida had garnered much attention on how the state would seek to incorporate a funding model for FLVS that would allow for continued growth, quality assurance, and support by the school districts throughout Florida. What resulted from this effort was the creation of a performance-based funding model that allowed FLVS to collect the [pro-rated amount of the] full-time equivalent (FTE) on students who successfully complete online courses. This landmark funding model for online schools was passed by the 2003 Florida Legislature and became effective on July 1, 2003."[9]

Prior to the legislation that changed FLVS funding, the main challenge was that Florida schools funded education programs based on seat-time, which doesn't support online-based models where students can learn at any time, at any pace, and from any location. The new legislation allowed FLVS to be paid in a new method of performance-based funding, which meant in Florida that the payment would only be made when a student successfully completed a course.

How does the accounting for this finance mechanism work?

FLVS and all districts submit three enrollment estimates. The first is in December /January before the legislative session. There is a chance to revise this forecast at the end of February. FLVS and all districts receive payments twice a month based on this official estimate (and the legislative appropriation) until the third calculation in December. The third calculation is based on the second official estimate from November and the twice a month payments are revised accordingly. The third official estimate is made in February and the fourth calculation is made in April, and the twice per month payments are revised once again through the end of the fiscal year on June 30. After the final count of the fiscal year in June, the fifth (final) calculation is made and any dollar adjustments to be paid to the Districts or to be paid by the Districts are made as part of the next fiscal year third calculation. In addition, this process does not include any funding for students who begin, but do not successfully complete, courses.

On the instructional design of the online course, courses are comprised of clearly articulated standards and competencies for what a student must know and be able to do, and students advance upon demonstrated mastery as they demonstrate higher levels of learning throughout the course, and they only advance when demonstrating competency on the lessons through evidence.

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8   Cornman, S.Q. (2013). Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2010–11 (Fiscal Year 2011) (NCES 2013-342). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved August 22, 2013 from http://nces.ed.gov/pub-search

9   FLVS® LEGISLATIVE REPORT. 2011–2012, retrieved August 11, 2013 from http://www.flvs.net/areas/aboutus/Pages/LegislativeReport.aspx

Once the course is successfully completed, the Florida Virtual School earns payment for the enrollment. The cycle allows for rolling course registrations and enrollments, and there are revisions to the enrollment counts and payments based on accounting for successful completion. However, no student may earn more than 1.0 FTE across all schools of enrollment and if so, the enrollments are re-calibrated to not exceed 1.0 FTE, reducing the funding for each course proportionately. This reduction in the funding model means that it becomes less sustainable for meeting the demand from students and for the first time in history, Florida Virtual School enrollments dropped in 2013-14. Student progress is evaluated and assessed by their teachers against clear rubrics throughout the course. In addition to state level assessment requirements, Florida Virtual School is also implementing semester end-of-course exams, and these EOCs count for 20% of the final grade. This policy was just recently implemented in fall 2014.

This completion-based approach has garnered increased attention, especially related to how individual courses are funded in both traditional brick-and-mortar schools and online schools in Florida.

Minnesota: Performance-Based Funding for Courses Follows the Student

Minnesota has online charter schools, multi-district programs, single-district programs, and intermediate districts and consortia of schools. There were 83,608 course enrollments in full- and part-time online learning programs reported to the Minnesota Department of Education (MDE) in SY 2012-13, an annual increase of 9%. In Minnesota, the state approves online learning providers and monitors course taking from the 31 approved providers. Minnesota has defined "supplemental online learning" as "an online learning course taken in place of a course period at a local district school."

Minnesota offers a sustaining funding model per course, where funding follows the student to the approved state online learning provider:

(a) For a student enrolled in an online learning course, the state department must calculate average daily membership and make payments according to this subdivision.

(b) The initial online learning average daily membership equals 1/12 for each semester course or a proportionate amount for courses of different lengths. The adjusted online learning average daily membership equals the initial online learning average daily membership times 0.88.

Thus, in Minnesota, state finance enables a split of 1/12 of a full-time enrollment funding to be divided from the student load, and then 12% of the funding stays with the enrolling district for the student, based on the number of courses taken online from an approved provider. In addition, there is a level of completion-based funding as the supplemental online course is only funded if the student successfully completes the course, as stated: "No online learning average daily membership shall be generated if the student does not complete the online learning course."

This illustration provides a good example of the evolution of funding in state-led online learning programs for supplemental courses from line item appropriations to funding that follows the student by a percentage to completion-based funding. This is where the entry point for performance-based funding is entering the K–12 education conversation.

Both Florida and Minnesota provide two innovative state policy examples in the United States where performance-based funding is used to incentivize improved student performance and successful course completion.

Funding Online Learning Adequately

Access, Equity, Quality and Funding: Why We Care

Online learning programs are funded through different funding formulas and models in different states. The emergence in the last decade of performance-based funding models in K–12 education originated with online learning. To date, there are only a few studies that examine research on online learning funding levels and models of performance-based funding.[10] The authors of several of these reports have come together in this research project to begin a conversation on performance-based funding through the lens of equity and adequacy[11] to serve each and every student.

Today, issues of equity arise as many online learning programs are funded at lower levels than traditional brick-and-mortar schools even though the costs of online teaching and learning in virtual schools are similar to providing teacher-led instruction in physical schools, primarily because the cost of personnel to provide interactive teacher instruction and to manage and lead programs is similar in both types of schools. Quality people are required to run quality programs, provide services, expand resources to differentiate instruction, assess student work and provide the technology infrastructure needed in managing blended and online learning programs.

Online learning has incredible potential to level the playing field so that all students have access to high-quality teachers regardless of their geographic location and zip code. Online courses with excellent teachers can be provided to students needing access to these courses using web-based technologies—and many online learning programs offer tremendous high-quality instruction delivered over the Internet to help students succeed toward college- and career-readiness goals. Providing each and every student with access to high-quality online courses and online learning programs to meet their individual needs is a very important goal. In promoting access, it is critical to lead with high-quality programs and direct quality assurance toward focusing on how well programs are serving individual student needs to evaluate and provide oversight of online programs themselves. Within this frame, the question of how to provide equitable and sustainable funding for online learning is an important debate. If funding levels are not adequate, programs are provided a perverse incentive to enroll students that may be easier to serve. If funding levels are low, and there is performance-based funding, there is a perverse incentive in policy to cherry-pick or cream higher performing students. Equity is a major driver in ensuring all students have a level playing field for opportunity and access. Funding levels must be appropriate to provide adequate supports and services for students, especially those students with special needs.

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[10]   These include *Promising Practices Funding and Policy Frameworks for Online Learning* from the International Association for K–12 Online Learning (http://www.inacol.org/cms/wp-content/uploads/2012/09/NACOL_PP-FundPolicy-lr.pdf); *Costs and Funding of Virtual Schools* from Augenblick, Palaich and Associates (http://www.apaconsulting.net/uploads/reports/9.pdf); *Funding Students, Options, and Achievement* from Digital Learning Now (http://www.digitallearningnow.com/dln-smart-series), and *Keeping Pace with K–12 Online and Blended Learning* from the Evergreen Education Group (kpk12.com)

[11]   For this report we are defining adequacy as providing the resources for educational programs and services that will result in a minimum of one year's growth in learning for one year of education.

We are especially concerned our current accountability systems have inadequate data to determine the level of proficiency upon entry to online learning programs, and how much growth is being achieved when students are several grade levels behind. Another challenge for virtual programs is that it is very difficult to determine the degree of student mobility without a brick-and-mortar location. These challenges are often true in traditional education environments, too. We are encouraging accountability for all programs to understand how well students are being served and knowing where they are when they come in, what their background is at the point of entry, and their level of proficiency upon course or grade completion, or graduation to best serve them and provide supports so they can be successful.

Policy makers creating a performance-based funding model must be careful not to create perverse incentives for schools to mostly seek high-potential students while avoiding the most challenging students; indeed the ideal funding mechanism would create equal opportunities with fair incentives to pursue, serve well and support the growth of all students, especially the students who are most at risk and in danger of dropping out.

These issues can lead to discussions that are beyond the scope of this report. No student should be denied access to a high-quality education that is personalized for her regardless of whether it is a brick-and-mortar classroom environment or an online learning program. We know that online learning is not the right fit for every student, but it may be the right environment for students who need flexibility or are seeking individualized instruction. Across the entire educational system, how do we encourage students to choose a learning modality that is best for them, while not allowing schools to unfairly choose the "best" students?

Online schools have the capacity to collect information on where a student is upon entry, and how well they are progressing through lessons and making progress toward academic goals. This transparency is one reason that online learning programs are a practical entry point for performance-based funding models.

All of these questions deserve further study. This report explores performance-based funding models through the lens of ensuring adequacy for providing fair and equitable incentives to continue supporting all students, especially the services and individualized learning opportunities for students who have not achieved success in physical schools and seek an alternative learning environment.

These questions must, in part, be addressed based on the specific context of each state. Independent state assessments to measure individual student growth are emerging in math and English language arts, and we hope that we will better understand the quality of programs based on student learning outcomes. This will help us consider performance-based funding models based on student achievement gains in the future. Today, there are many other subjects that do not have independent assessments for validating student levels of proficiency upon entry, or at the end of a course. We posit that it is important to ensure quality by having end-of-course testing by an independent entity, other than the course provider, but this also varies by subject, by grade level, and by state. Only a few states are implementing end-of-course exams that will facilitate performance-based funding on a single course level.

The recommendations in this report, therefore, are meant to be implemented by building on the state-specific context. One possible approach is for states to work towards a performance-based system that rewards student growth, at first in English language arts and mathematics as independent, validating assessments become available, and eventually, to monitor student learning growth in as many subjects as possible. In order to accomplish a true performance-based funding model built on student growth, there needs to be independent validating assessments of learning—to show growth from the day a student begins a course compared to the level of student learning at the end. Only then will there be a mechanism for rewarding providers through performance-based funding based on student growth.

III. The Costs of Online Schools and Courses

While online learning takes place at the school level or at the course level, since this paper discussed performance-based funding for supplemental courses, this section looks at online learning models and funding and focuses on costs at the course level. For course-level online learning, students take supplemental online courses while primarily attending a physical school. While these courses are similar to the courses in a full-time online school, the difference is that these students often access the courses from a computer lab in their school, or from home, but still have access to the student support services offered at their own physical school—while taking a supplemental course.

A high-quality online course does not necessarily isolate a student. Instead, the student regularly interacts with a teacher and actively participates in discussions with other students.[12] The student has a greater level of control over her path and pace than a student in most physical classrooms, and is able to progress through the course at a speed that allows her to accelerate through the portions where she does well, and slow down or repeat the topics that she finds more challenging. Because of the level of interaction that a good online course offers, online providers are able to provide differentiation and tiered supports to meet the requirements of serving students with disabilities. In some cases, the accommodations required by a student's individualized education program (IEP) can be met by remote services, the use of special software, or adaptive technologies. In many cases, the teacher is differentiating instruction and changing the instructional approach for a student with a disability, just as a teacher would do in a physical classroom.

The Cost of Full-time Online Schooling: An Adequacy Study to Achieve Student Success

For this report, school finance consulting firm Augenblick, Palaich, and Associates (APA) conducted a study to re-examine the costs of online schools and courses to ensure that all students can meet state standards and performance expectations. Background and methods for the study are provided in Appendix B.

Findings from the study to examine the costs of online schools are below. The largest driver of costs for online learning programs is the cost of labor (teachers, administrators, counselors), as it is in most K–12 schools. Further, the most important impact on student success is the quality of the teacher, and this is no different with web-based teaching and learning. The other major costs include content development, technology infrastructure, other operational costs for administration and program management, counseling and student support services (for more information, see Appendix B).

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[12]   INACOL has published quality standards for online courses, teaching, and programs, which cover these issues in depth. They are available at http://www.inacol.org/resources/publications/national-quality-standards.

The cost study was conducted using professional judgment panel methodology to understand and describe costs of online schools and courses; compare those findings with funding for students in traditional schools; and recommend a performance-based funding model for online schools and courses, which could possibly apply to all models of education. The cost study used comparative labor costs in Colorado and Pennsylvania.

APA created a cost model by looking at the resources required to operate an online school, and then compared those resources to a traditional model developed through a similar process (Professional Judgment (PJ) approach) in Colorado in 2010 (and updated in 2012) and Pennsylvania in 2007.[13]

For both the online program and in the comparison states' traditional models, the cost study approach taken was to identify the actual resources needed to ensure all students could meet state standards and performance expectations, not just the current program funding levels. This is an adequacy study of what resources are required to bring all students to high levels of rigor and success in meeting standards. As such, the figures in the Appendix and resources identified may look different or higher than what is currently allocated.

When compared to traditional schools, full-time online schools have similar adequacy costs to ensure student success:

- There are similar student-teacher ratios, because personnel is the largest cost driver for online learning programs.

- There are comparable student support services; online schools did identify the need for counselors at all levels and tutors at the secondary level.

- There are similar administrative needs, though online programs that also operate as an independent LEA contract for many of the services, such as human resources and payroll, would be handled by a traditional district.

- Technology needs are higher in online schools. Individual student laptops are needed for students and shipped to students (returned annually). Virtual programs also require Help Desk IT staffing to troubleshoot any issues that arise, similar to how a traditional program would employ IT staff at each school site for repair and maintenance. Virtual programs also have more hosting needs and need to provide reimbursements to ensure appropriate student and teacher Internet access and connectivity speed.

Using personnel salaries in Colorado and Pennsylvania under this costing-out approach, the cost of the full-time online school (that is resourced to bring all students to college- and career-ready success) is between 93% and 98% of a traditional school cost. Please note there are many states where foundation base amounts may be much lower than the amounts produced by an adequacy study—this report is not including a specific dollar amount, but examining relative costs for online schools to traditional schooling.

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[13]   It should be noted that the resources identified by the professional judgment panels here are examples of how funds might be used to organize programs and services in representative situations. APA cannot emphasize strongly enough that the resources identified are not the only way to organize programs and services to meet given standards and requirements. Instead, the purpose of the exercise is to estimate the overall cost of adequacy in online settings—not to determine the best way to organize programs.

The Cost of Supplemental Online Courses

A cost model was also created to look at the resources required to offer supplemental online courses. To do so, an additional professional judgment panel was convened that reviewed the work of the previous panels, and adjusted resources based upon any differences in services and supports needed to offer supplemental courses versus a fully online program.

Using this approach, the cost of providing supplemental online courses would be about $600 per student, per semester course, or about 7% of the per student amount for full-time programs.[14]

For supplemental courses, the professional judgment approach found that the cost of a single course is roughly 7% of full-time online learning (assuming a student takes a full load of six courses per semester, with 12 courses annually). In addition, because the school of record is providing resident services to students, the professional judgment panel suggested that supplemental courses be funded in a manner where a percentage of funding stays with the home school or district, then an online school receives one-twelfth of the remaining funds per supplemental course (per semester).

The research showed that for adequacy, the staffing levels should remain the same in online as in traditional classes, with a caseload of 125 students per teacher FTE. However, it is important to note that supplemental courses are often taught by part-time teachers, so a wide range of courses can be offered, with explicit requirements that courses are taught by licensed teachers with the same credential requirements as traditional courses with appropriate content expertise and online teaching skills. Therefore, there are both full-time and part-time adjunct instructors to cover specific individual courses; a part-time teacher may have a load lower than 125 students.

Supplemental course programs would also offer some counseling services and require program administration staff, with other positions assumed to be covered by the home school or district. Additional costs beyond personnel included: professional development, course fees, student connectivity and information system costs, central office facilities, other equipment and materials, legal, postage, and product distribution. Many of these costs were at a lower level than would be needed for a full-time program. Finally, for technology, supplemental course providers do not usually need to offer laptops to students, so technology costs were lower for supplemental courses.

It is important to remember that the resources and costs presented from this research were what was needed to ensure all students could be successful, and are likely different than what is currently being spent.

Variations in Current Online Learning Costs and Funding

The truth is that the costs of online learning vary dramatically due to the quality of a program, quality of teaching, quality of content, as well as the context and instructional design.

The biggest variable is the cost of instruction by teachers and this can be very different across programs with different student to teacher ratios, staffing roles and salary levels.

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[14] Note: Colorado and Pennsylvania salaries were applied to determine the cost of offering supplemental online courses.

The largest costs are always going to be the personnel for a program, including whether the school is hiring full-time or part-time instructors in an online learning program, and there are differences in salary costs in different states and localities. The second biggest driver in costs behind labor is the cost of course development and whether a program builds or buys online content or hosts open content. Whether a teacher develops the online course, a district system develops it, it is purchased, or it is an open educational resource can change the overall costs of an online learning program. There are different economies of scale depending on course program size and whether the online course content is built, purchased or sourced openly. You can imagine similar cost differentials if a district were writing all of their own textbooks versus buying from a publisher, or even using open textbooks that are free. When there is a national provider of online learning developing content, then the development cost might even be divided over a large number of students served—amortizing over thousands of students. Such providers not only utilize the content in their own online schools and programs, but may also sell the digital content to districts and other schools.

There can be lower cost models of online learning programs than the programs intended to meet adequacy standards considered here as an adequacy study (rather than actuals). Remembering that student-teacher ratios are a key cost driver, and lower cost actuals in less expensive programs may have higher student-teacher ratios. In examining different models and cost factors, most really inexpensive programs are structured with the district providing the teachers and a lab supervisor (assuming these are already existing and encumbered labor costs), then most of the new online learning program cost is just for online course licensing, necessary technology infrastructure, technical support, and any of the other wrap-around student services the program will provide.

Technology costs vary depending on whether the online school is in a district and offering students a computer to take home, and on what devices, broadband access, and technologies are provided. In district supplemental online learning programs, technology platforms and devices might be embedded in larger technology costs across the district or devices provided through a one laptop per child initiative. Programs might provide teachers with cell phones, data services, computers, headsets, cameras and other devices to assist in teaching online.

Depending on the program model, there can also be significant costs for counseling and student services. It is important to differentiate statewide programs costs versus a single district's cost by understanding what services are offered already by the local school. Full-time online schools are responsible for providing all of the student services.

Last, there is a fallacy in trying to take the cost of individual online courses and multiply this number to get the total cost of operating full-time online schools. The costs for supplemental online courses, often in the range of $400-600 per course, do not include the embedded services that a resident district is offering the student as they enroll in one or two online courses. In a full-time school, the school must provide the full range of counseling, student supports and services required by all state and federal laws, including hosting statewide assessments and reimbursing parents and students for travel mileage to take state tests.

IV. Guiding Principles of a Performance-Based Funding Model

This section first explores the principles of a performance-based funding model and discusses challenges in implementation.

Principles of a Performance-Based Funding Formula

Key elements of a K–12 performance-based funding formula include the following:

It must start with, and build from, a base amount that is adequate to meet student needs.

This foundational level of funding must allow for all schools to provide a high-quality education with successful student outcomes; performance-based funding should then be an additional amount beyond this adequate base funding.

It must be equitable.

Similar students (in terms of student characteristics and need) should be funded at similar and adequate levels to serve their unique needs.

Its goal is improving student performance, not saving money.

Some policy discussions about performance- or completion-based funding suggest that a main goal of such funding systems is to save money. Cost-savings should not be the goal of a performance-based funding model, but rather cost-effectiveness. While performance-based funding systems may possibly save money, the goal should be to align institutional financial incentives with improved student performance.

The foundation should include a base amount and adjustments that allow for differentiation by student characteristics and need.

In full-time models, the formula must allow for some differentiation of funding based on student characteristics and needs. Students with greater needs should receive greater resources to allow schools to help all students meet their educational goals. Given the challenges of having accurate identification of Free and Reduced Lunch (FRL)-eligible students in online settings (because there is little incentive for students to identify themselves as such when meals are not provided) identifying students with greater needs will require a different approach to achieve an accurate count. One option might be to look at the schools or geographic areas from which students enter the online school to determine the census poverty data and FRL rate in those areas or schools. While weighted adjustments are clearer in a school-based model, the weights should not be forgotten in a supplemental funding situation. The key in supplemental funding is determining which additional needs are covered by the home district and which are related to instruction and should be available for the supplemental course provider.

The formula should consider providing additional funding based on positive outcomes for high-need students.

The formula could provide higher funding to schools that meet outcomes goals for students who are under-credited, ELL, advanced, at-risk or have special needs. These goals might be different for different students. The concept is to reward programs with incentive funding for having the most improved student learning gains with the most challenged students.

It must be based on performance measures that are easily understood and objective.

The measures should be easily understood by all stakeholders, perceived as objective, and communicated with the public in a transparent way. They may be different for different grade levels or subjects.

The formula must be predictable, stable, and auditable.

Schools and states have a need to project budgets and funding levels, therefore the formula must be consistent over time (with some allowance for adjustments). The formula must use measures that can be audited to ensure that the formula is applied accurately and the funding level is correct. The state must define the funding so that it has a reliable estimate of how much it may pay for student performance.

Over time, it should be applied to all schools, and not just online schools.

Online schools are uniquely poised to collect real-time instructional data, as well as to assuage public concerns about quality in a relatively new instructional delivery medium. As the funding model is improved over time, it can be applied to all schools. Florida has taken this gradual approach in that the state virtual school was first funded based on successful completion, and in 2016–17, funding for all schools, for a small number of courses that require successful passage of an end-of-course exam to earn a standard diploma, will be based on both course completion and performance outcomes as measured and verified by end-of-course exams.

It should envision a future for progression and performance-based funding based on demonstrated competency attainment and achievement.

Although a funding system that is based on student count days or seat-time can be adjusted to include a performance component, a better approach allows for funding based on students demonstrating learning outcomes in a competency-based system,[15] while still maintaining a stable base by starting with an ADM count. The recommendations below recognize that states' abilities to implement competency-based progressions and funding are varied, and explore steps that states can take based on their current starting point, such as considering block grant programs or pilots to create performance-based funding models for programs.

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[15] iNACOL has published several reports on competency-based education that are available at http://www.inacol.org/resources/publications/competency-education/

v. Recommendations for Policy Makers: Implementing a Performance-Based Funding Model

The concept of performance-based funding is fairly straightforward—reward public education programs based on measurable student learning performance outcomes, including course completion and competency development. It is also important to consider performance-based funding as a multi-step policy evolution from course completion to competency development.

Performance-Based Funding Formulas: Two Models for Online Courses

Model 1: Performance-Based Funding by Course Completion Outcomes

Performance-based funding (course completion): Online learning programs are funded for successful completion of online courses, and the quality of the course is verified by an independent assessment to measure student learning (when possible).

Performance-based funding formula considerations for additional incentives: Programs receive 5% additional funding for students who show competency developments in learning progressions for a completed course. Funding is available for any course where measurement of performance is available. Ideally, measurement is based on growth in student learning.

Plus, additional incentive funding for special needs student performance: Additional funding is available for programs and schools that can show greater gains for its special needs populations. Using individual student growth measures, if a school can show well beyond average gains for a student in a special category, in comparison to other similar special needs students, additional funding, up to another 5%, is available.

OR

Model 2: Performance-Based funding by Competency Outcomes

Performance-based funding (competency development): Program providers receive funding based on course and competency completion percentages (i.e. if a student completes 30% of the course, the online program will receive 30% of the funding). This rewards successful completion of competencies or units—rewarding incremental student achievement and performance—centered on competency development in alignment with state academic standards.

Note: Where independent assessments are available, the quality of the course should be verified by independent, third party assessments (such as end-of-course [EOC] exams like Advanced Placement tests or state EOCs) to measure student learning and validate outcomes. There should also be student work and evidence in demonstrating competencies for selective auditing of quality and student learning outcomes.

An Assessment of Key Challenges in Implementing a Performance-Based Funding Model

State policy will have to be adapted to the local context. Through our research, we identified some of the challenges in implementing a performance-based funding formula, and some barriers for putting performance-based funding into practice include:

- Most states do not yet have systems of assessments that allow for measurement of student growth across most grade levels and subject areas. There are a number of untested subjects and grade levels without adequate independent assessments to ensure performance outcomes. In some areas, state assessments cover materials that are reviewed in more than one course, so tying growth to a single course is not possible. In addition, few states or school systems measure student proficiency with benchmark "entry-level assessments" at the start of the educational program, upon entry. To the extent that states are measuring student growth, it is usually based on year-to-year administration of state assessments in certain grades and subjects, not the amount of learning along a trajectory for each student for certain increments of time. Resistance to additional assessments based on concerns about cost, or additional student time, is likely.

- State data systems often do not meet the requirements discussed in the areas above. In particular, they usually do not account for student mobility very well, especially in cases where under-credited or at-risk students are transferring between schools.

- The ability of state assessments to measure student growth is limited because they often do not capture students who are far behind grade level in a given subject. The assessments tend to be more accurate in gauging students who are near average in performance.

- State assessments are also limited in the grade levels and subject areas covered. The existing data in almost all states is not comprehensive across all subject areas. The issue of how to assess performance in non-tested grades and subjects is a key challenge. For these and other reasons, state assessments are not likely to be sufficient to measure outcomes for a performance-based funding model.

- Performance-based funding is ideally tied to a competency-based model of student progression. If progression is based on performance instead of seat time, and funding is tied to performance instead of seat time, it raises the possibility that a student could complete more than a usual number of courses in the four years typically allotted to high school.

- Students who complete a required orientation course prior to beginning their first online, for-credit class, have higher success rates than students who do not complete an orientation course. It is unclear, however, if students can be required to complete such an orientation to qualify for a public school or a publicly provided online course. In the absence of such a requirement, online schools and providers face a risk of having high numbers of students begin courses but not complete them, creating costs for providers that may not be reimbursed.

- Ideally, student performance can be measured for most courses based on state-accepted measures, although there will almost always be elective courses that do not have such assessments. Preferably, these would be independently validated assessments.

How to establish performance-based funding that provides adequate funding, and sufficient incentives for ensuring that programs are geared toward ensuring student success, with validation of student learning through independent systems of assessments—these are the significant questions.

VI. Moving Forward

The policy environment, in addition to being different in each state, is also rapidly changing. The emergence of states with federal accountability waivers using a variety of new student growth and value-add accountability models has led to further complexity in quality assurance and evaluating school success. The emergence of consistent standards in states to ensure all students are successful and held to high standards with statewide assessments in English language arts and math, lends itself to a powerful path towards understanding where students are across the learning progressions in these subjects and what outcomes they have achieved. Thus, in the next few years, it appears that there could be more developments on performance-based funding truly based on outcomes and growth in these subject areas and grade levels that are tested independently. This is exciting, and it is far easier than addressing a performance-based funding formula in non-tested subjects and grades. For other core subject areas and grade levels, there is a need for end-of-course assessments to demonstrate student proficiency. Otherwise, how do we ensure quality when an online course provider is only paid when a student receives a certain grade? We must validate the student has learned through an independent assessment (somewhat like an AP exam at the end of an AP course), or we risk incentives for grade inflation to increase payments for programs. Protecting equity and quality must be at the center of the discussions on how funding models are implemented in practice and policy.

The findings and recommendations throughout this report are based on the current state of the field, in which online schools and courses have experienced mixed results in retention, completion and graduation rates, and programs continue to operate under state accountability systems that provide inadequate benchmarking of student growth as well as limited transparency for performance metrics of individual student growth over time. The recommendations also build on an understanding that each state is different in terms of the combination of its accountability system, funding methods and levels of per-pupil or per-course funding, and how those are applied to online schools.

We stress that states need to continue improving their accountability systems with improved performance metrics and benchmarking student learning across time and within programs. For online schools, this means in particular being able to track student proficiency upon entry and exit, competency development, as well as mobility, student goals, student persistence, and performance of subgroups. For online course providers, this means having pre- and post-assessments with independent end-of-course exams.

This report represents an early step towards formulating funding policy and implementing performance-based funding. iNACOL looks forward to working with state policy makers who wish to explore performance-based funding further.

Appendices

Appendix A: K–12 Education Funding

K–12 education funding is enormously complicated. Here we offer only the basics to provide the basis for a discussion of performance-based funding. Most states fund public education by providing each local education agency (LEA) with a set amount of funding per student. Forty-two states use this approach, while seven states fund based on funding a number of positions, such as teachers and administrators, per school; the remaining state, Hawaii, has only a single school district, so many functions that occur in other states between the state and school districts do not apply.

A publication from the Education Commission of the States describes a five-step process used by most states for funding schools:[16]

1. The state sets a "foundation" or "base" amount of funding per student. This foundation amount is deemed sufficient to provide an education that will allow students to reach state standards.

2. The state counts students via a single count day (13 states), multiple single-count days (seven states), count periods (six states), average daily membership (ADM; 16 states), or average daily attendance (ADA; seven states). With ADM, students are counted each day that they are enrolled in the district, and with ADA, students are counted based on schools taking attendance each day.

3. Students with certain characteristics are "weighted," meaning they are provided additional funding. For example, an ELL or at-risk student might generate an additional 20% funding. Whether a student can qualify for more than one weighting varies by state.

4. A "weighted student count" is created by adding the weights to the number of students, and the weighted student count is multiplied by the per-student foundation amount, generating the total amount of funding.

5. The total funding for the LEA is split between the state contribution and the local contribution, with the local contribution based on the LEA's wealth.

In addition to these steps, additional funding may be provided to districts as "categorical funds" that may provide money for certain student groups, school activities such as transportation, or characteristics of LEAs such as being very small, isolated, or in high-poverty areas.

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[16]   This section is heavily based on Education Commission of the States, *Understanding State School Funding. The Progress of Education Reform.* Volume 13, Number 3, June 2012.

LEAs also receive some federal funding, which accounts for about 12% of total education funding.[17] Most federal funds are provided to assist schools with economically disadvantaged students and to support special needs students.[18]

A final wrinkle is that many online schools are charters schools, and many states apply a different funding formula or level to charter schools that is lower than the state average funding level for non-charter schools. For example, in Oregon, charter school funding goes through the student's resident district to the charter school, and the charter school receives an average of 55% of traditional funding levels.[19]

The current system of funding K–12 education presents problems of equity. Additionally, in almost all cases, no link exists between the funding that schools receive and the outcomes that students achieve.

Appendix B: Examining Costs of Online Learning

With the advent of standards-based reform, states have set standards for what they want students to learn, created tests to measure the success of students, and created accountability systems to hold districts, schools, and students accountable for their performance. Adequacy studies are designed to identify the resources necessary for students, schools, and districts to be able to fully meet the accountability standards set by states. Many states have undertaken such studies to examine the costs for traditional schools and have used the results to inform the state's funding system. These states include Maryland, New Jersey, and Pennsylvania.

Less work has been done to identify the resources needed for non-traditional settings, such as virtual schools, to meet state standards. A number of approaches have been developed to determine adequate resource levels, including:

- **Professional judgment:** relies on experienced educators to identify the resources needed to meet state standards.

- **Successful schools:** examines the spending of successful districts or schools to determine the adequate level of resources needed.

- **Evidence-based:** looks at the academic research on resource allocations that improve student success to identify the needed resource levels.

- **Statistical approach:** relies on complex statistical models to determine the needed resources.

For this study, the professional judgment approach was deemed to be the best approach for a number of reasons. Both the successful schools approach and the statistical approach rely on specific data sets; because this study is taking a broad national view, comparable datasets are not necessarily available. Also, creating comparisons in "success" or even spending levels can be difficult across states. The evidence-based approach has not historically focused on virtual schools so its findings might not be applicable to this study. The professional judgment approach is also the most frequently used approach to studying adequacy and allowed us to get input from many practitioners from across the country.

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[17]   US Department of Education, The Federal Role in Education, http://www2.ed.gov/about/overview/fed/role.html

[18]   US Department of Education, *10 Facts About K–12 Education Funding,* http://www2.ed.gov/about/overview/fed/10facts/index.html

[19]   Northwest Center for Educational Options, *Unintended Consequences: An Analysis of Charter School Funding in Oregon*; http://www.nwceo.org/pdf/NW-CEO_Charter_School_Funding_Study_May_2010.pdf

Applying the Professional Judgment Approach

The professional judgment (PJ) approach relies on the assumption that experienced educators can specify the resources that representative schools and districts need in order to meet state standards and requirements, and that the costs of such resources can be determined based on a set of prices specific to those resources. Identified resources are typically divided into two groups:

- Those associated with a "base cost" that applies to all students; and

- Those associated with students who have special needs, including ELL, gifted students, and students with disabilities.

For example, when thinking about the base cost, a PJ panel of experienced educators might find that, for a representative school with 200 students, 10 teachers would be needed so that students can meet state academic standards. If the statewide average salary and benefits of a teacher were $40,000, then the cost per student based on the professional judgment panel's input would be $2,000 (10 teachers times $40,000/teacher, divided by 200 students). Based on the panel's judgments, other costs might also be incurred such as those associated with instructional aides, school principals, supplies and materials, professional development, and so on. Together, these costs could be added to determine the total "base" cost of providing an adequate education.

PJ panels were also asked to separately estimate the resources needed to serve students with special needs. Students with special needs include:

- Students with disabilities (for which students require individualized education programs [IEPs]);

- English language learners;

- Those who are at risk of failing in school; and

- Those who are identified as gifted.

Using the PJ approach, the additional cost of serving students with such special needs can be expressed through student "weights" relative to the base cost.[20]

Creating Representative Schools

When the professional judgment approach is used in a single state, representative schools are designed using average characteristics for that state, including grade configuration, size, and student demographic characteristics. For this study, we reviewed existing national data on online programs and identified what a typical online program would look like, which was then reviewed with the first panel to gain its approval. By creating a representative program in this manner, PJ panelists are able to more precisely estimate resources needed to meet state and federal requirements because the representative program more closely matches the sizes and student demographics of the programs that the panelists operate on a day-to-day basis.

The representative scenario used for the panels in this study was a fully online program of 1,000 students: 200 elementary, 300 middle, and 500 high school students. It is also an independent LEA. A single fully online school was used because it allowed for the identification and collection of the resources needed to fully operate a virtual

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[20] Pupil weights are factors used to express the added cost of serving students with special needs. Every student, regardless of special needs, is counted as a 1.00 student. In order to determine the base cost for a district, the number of students enrolled in the district is multiplied by 1.00 and that product is then multiplied by the base cost figure. If the *added* cost of serving a student with a special need was determined to be 60% of the base cost, then the weight applied to such a student would be .60 (for a total weight of 1.60). Additional weighting might be applied to all students in a district to account for certain district characteristics (such as size) that can impact per student costs.

program first, and then subsequently to determine the cost of individual courses at a later date. Average percentages for student need categories were used: 11% of students had a disability, 3% were ELL students, and 5% were identified as gifted in the scenario. Three levels of at-risk concentration were used to determine if there were any variances in resources needed to serve students based on the concentration of need in the school: 20%, 40%, and 60%.

Professional Judgment Panel Design and Participation

Two PJ panels were held as part of this study: the first focused on identifying the resources needed to serve students with no identifiable special needs, therefore the "base cost." The second focused on identifying the additional resources needed to serve at-risk students, ELL students, students with disabilities, and gifted students.

The panels had between seven and eight participants, including a combination of teachers, principals, personnel who provide services to students with special needs, program administrators, technology specialists, curriculum and assessment specialists, and school business officials. Educators who participated on the panels are listed at the end of Appendix B.

Standards and Requirements for Online Programs

Prior to the commencement of the panel discussions, all panelists first reviewed a specific set of background materials and instructions prepared by study staff. Panelists were tasked with identifying the actual resources needed to ensure that all students can be academically successful and that the academic and social emotional needs of students were addressed. To accomplish this task, it was therefore necessary for panelists to have a common understanding of the objectives and requirements that schools and programs would need to meet.

Typically, PJ panelists would be given a detailed summary document that outlined the requirements of a given state. However, in this study panelists were asked to identify the resources a program operating in any state would need. As such, panelists were given a brief document that summarized common input and output standards from across the states. The standard was not particular to any one state, but included examples of input requirements that states might have, such as graduation requirements and outcome expectations on statewide tests.

Panelists were asked to identify the level of resources they would need to ensure adequate levels of student success and not to try to identify specific levels of funding they would like to have. The panelists did not see the cost of the resources they identified.

Professional Judgment Panel Procedures

Once panelists were provided with instructions and background information to guide their efforts (as described previously) the PJ panels convened and a specific procedure was followed. At least two study team members were present at every panel meeting to facilitate the discussion and take notes about the level of resources needed as well as the rationale behind participant decisions. Panelists were frequently reminded that they should identify the resources needed to meet state standards and requirements in the most efficient way possible without sacrificing quality.

Each panel discussed the following resource need areas:

- Personnel, including teachers and pupil support staff, such as psychologists and counselors, instructional aides, administrators, business services, office support, etc.

- Other personnel costs, such as time for professional development.

- Non-personnel costs, such as supplies, materials and equipment costs (including textbook replacement and consumables), student information systems, maintenance and operations costs of any facilities, contract services, etc.

- Course development/purchase.

- Technology, including hardware, software, connectivity, and licensing fees.

The above resources were identified for students with no special needs during the first panel, then the second panel reviewed the resources identified by the first panel and added the resources needed to serve special needs students (at-risk, students with disabilities, ELL, and gifted). By keeping these costs separate, it allowed for a "base cost" and additional special needs "weights" to be created (which will be discussed in greater detail later in this report).

For each panel, the figures recorded by APA represented a consensus agreement among members. At the time of the meetings, no participant (either panel members or APA staff) had a precise idea of the costs of the resources that were being identified. Instead, the costing of resources by APA took place at a later date. This is not to say that panel members were unaware that higher levels of resources would produce higher base cost figures or weights, but without specific price information, it would have been impossible for any individual or panel to suggest resource levels that would have led to a specific base cost figure or weight.

The following educators participated on the two panels:

Andy Scantland, *Advanced Academics, CO*

Charles Hyde, *Riverside Unified School District, CA*

Christina Narayan, *Branson Online, CO*

Damian Creamer, *Primavera Online High School, AZ*

Dave Wells, eCADEMY, *Albuquerque, NM*

Emily Andersen, *Mountain Heights Academy (formerly Utah Open High School), UT*

Jon Voss, *Northern Star Online, MN*

Kathryn Knox, K12 Inc., *Colorado Virtual Academy, CO*

Kelly McAllister, *Riverside Unified School District, CA*

Kyle Cote, *Virtual Learning Academy Charter School, NH*

Marjorie Rofel, *Connections Education, MD*

Mike Smart, *Northern Star Online, MN*

Natalie Brown, *Branson Online, CO*

Scott Prescott, *Virtual Learning Academy Charter School, NH*

Ted Ochs, *Connections Education, MD*

A third session was held via webinar to address costs of supplemental online courses. Participants in that group were:

John Jacobs, *Wisconsin eSchool Network, WI*

Scott Prescott, *Virtual Learning Academy Charter School, NH*

David Myers, *Michigan Virtual University, MI*

Jon Voss, *Northern Star online, MN*

Dave Wells, *eCADEMY, Albuquerque, NM*

The Cost of Online Schools and Courses

In almost all cases, online schools and courses are funded at lower levels than state averages for physical schools.

These funding levels have often been set because of a general, but unsubstantiated, sense that online schools should be less expensive than physical schools. Very little substantial study of the costs of online education has been done recently, and the most comprehensive research on costs dates back to a 2006 study.[21] For this report, school finance consulting firm Augenblick, Palaich, and Associates (APA) conducted a study to re-examine the costs of online schools and courses to ensure that all students can meet state standards and performance expectations.

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[21]   Costs and Funding of Virtual Schools, Augenblick, Palaich, and Associates, 2006; http://www.apaconsulting.net/uploads/reports/9.pdf

The Cost of Online Schools

APA created a cost model by looking at the resources required to operate an online school, and then compared those resources to a traditional model developed through a similar process (Professional Judgment (PJ) approach) in Colorado in 2010 (and updated in 2012) and Pennsylvania in 2007.[22] **For both the online program and in the comparison states' traditional models, the cost study approach taken was to identify the actual resources needed to ensure all students could meet state standards and performance expectations, not just the current program funding levels. This is an adequacy study of what resources are required to bring all students to high levels of rigor in meeting standards.** As such, resources identified may look different or higher than what is currently possible.

The following tables, Tables 2-4, identify the resources that the Professional Judgment panelists recommended in order to enable online schools and students to be successful. Following the presentation of results is a comparison between the online model and the traditional model seen in the comparison states based upon the Professional Judgment approach in each setting.

Personnel

Table 2 identifies the personnel needed to serve online students in a representative online school. Results are presented for "base education," meaning personnel that would serve all students, then additional personnel are added by identified need category.[23] All figures are shown on a full-time equivalent (FTE) basis.

Table 2: Representative Online Program of 1000 Students

	Base Education	20% At-Risk	40% At-Risk	60% At-Risk	ELL	Students with Disabilities	Gifted
Enrollment							
Elementary	200	40	80	120	6	22	10
Middle	300	60	120	180	9	33	15
High School	500	100	200	300	15	55	25
Total System	1,000	200	400	600	30	110	50

Instructional and Pupil Support Staff – Base Education

The primary instructional and pupil support staffing needed to serve students in the online model in the base education category was teachers and counselors, then tutors at the secondary level.

Teachers were staffed at a ratio of 25:1 in all grades. At the elementary level, this allows teachers to provide synchronous, real-time instruction to students. At the secondary level, this allows for teachers to teach five classes

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[22]   It should be noted that the resources identified by the professional judgment panels here are examples of how funds might be used to organize programs and services in representative situations. APA cannot emphasize strongly enough that the resources identified are not the only way to organize programs and services to meet given standards and requirements. Instead, the purpose of the exercise is to estimate the overall cost of adequacy in online settings—not to determine the best way to organize programs.

[23]   While panelists could comfortably discuss serving at-risk students separately at the elementary, middle, and high school levels, for the other categories they were more comfortable discussing service system wide; results are presented accordingly.

on average and serve a caseload of 125 students at any given time. Professional judgment (PJ) panelists felt that the caseload would allow for the needed student contact time that would support student success and allow for differentiated instruction; they felt that at higher caseloads, this ability is compromised to bring students to success (this was an adequacy study). However, the largest cost of any online learning program is the personnel expenses. Variances in student-teacher ratios and differences in salary scales based on cost-of-living and higher scales will dramatically alter the cost of providing online instruction. This average is based on a 25:1 student-teacher ratio, a total caseload of 125 students, and at the salary average using data from Colorado and Pennsylvania.

Counselors were staffed at a ratio of 500:1 at the elementary and middle school levels, and 250:1 at the high school level. It was assumed that most student advisement would be handled by teachers. Additionally, 1.8 tutors and 3.0 tutors were staffed at the middle school and high school levels, respectively, to provide one-on-one tutoring support in the primary content areas for extended hours daily. Department heads were employed at the high school level, allowing for an additional section of "release time" for those staff members (adding up to a total of 2.0 FTE). Finally, 3.0 IT/Help Desk Technicians are needed to serve the 1,000 students.

Instructional and Pupil Support Staff – Students with Identified Needs

For all concentration levels of at-risk students, additional teaching staff was added to lower teacher-student ratios to increase contact time. Once the 40% at-risk threshold was reached, additional counseling staff, an attendance coordinator, and an instruction aide-level staff were added to increase check-ins with students and monitor "attendance" and course progress. A coordinator would also be employed at the system-level at 40%, which would become a Director of Student Services at the 60% threshold.

The 110 students with disabilities, with varying need, would be served by 4.5 teachers, 0.5 psychologists, 1.5 speech therapists, and 0.2 other therapists. Students would receive differing levels of service based upon need. This does not include any aides that may be needed to serve students at home. There was much discussion about how those services are currently provided to students through other channels than the online program and the inherent liability of employing school staff in home settings where they cannot be monitored. This is an evolving discussion in the online field. The absence of these aides will be a factor to keep in mind when weights for students with disabilities are discussed. At the administration level, there would also be a special education coordinator and compliance manager.

ELL and gifted students would be served by a 1.0 instructional coordinator each at the system level. Again, there was discussion about the nature of the online model allowing for individual student need to be well addressed by the online model already with the base education staffing noted.

System Administration and Management

Further, at the system-level there would also be: one director, one principal, two assistant principals, one technology manager, one community development coordinator, two registrars, and two clerical staff. These positions cover all students, including students with special needs.

As the largest line item on this list, it is particularly worth discussing the cost of $150 per course for curriculum development and/or purchase, instructional supplies, materials, and equipment. This includes both the cost of any instructional material kits that are sent to students as needed for a course, and it also includes the cost of either purchasing a developed course or developing the course in house, which could include staff time (thus this figure is in place of any curriculum development departments or staff positions). While many schools are currently able to do with less, the panelists indicated that resources are needed to ensure that an up-to-date, robust range of courses could be offered. They felt that individual schools might be able to develop a certain number of courses per year, but that nearly all schools would have some need to purchase courses in order to cover all the courses that students would want to take, particularly electives. The per course cost may come down in future years as a wider pool of courses become publicly available at a lower rate.

Table 3: Personnel FTE Needed to Serve Students In Representative Online Program of 1000 Students

Instruction and Pupil Support Staff	Base Education	20% At-Risk	40% At-Risk	60% At-Risk	ELL	Special Education	Gifted
Elementary School							
Teachers	8.00	0.40	0.80	1.20			
Counselors	0.40		0.20	0.40			
Middle School							
Teachers	14.40	0.70	1.40	2.10			
Tutors	1.80						
Instructional Aides			1.00	2.00			
Counselors	0.60		0.20	0.40			
High School							
Teachers	24.00	1.20	2.40	3.60			
Tutors	3.00						
Instructional Aides			2.00	3.00			
Counselors	2.00		0.50	1.00			
Dept. Heads (FTE)							
Systemwide							
Teachers						4.50	
Psychologists						0.50	
Speech Therapists						1.50	
Other Therapists (OT, PT, etc)						0.20	
IT/ Help Desk Support	3.00						
Executive Director	1.00						
Dir. of Student Services				1.00			
Coordinator			1.00		1.00	1.00	1.00
Principal	1.00						
Assistant Principal	2.00						
Technology Manager	1.00						
Grants/Title/ Compliance Manager						1.00	
Community Development Coordinator	1.00						
Attendance Coordinator			0.50	1.00			
Registrar	2.00						
Clerical Staff	2.00						

Table 4 shows the additional costs associated with serving online students (not including technology hardware, which is shown in Table 5). This includes costs for professional development, course fees (which accounts for costs associated with developing or purchasing online courses, as well as all course materials), student connectivity and information system costs, assessment, contracted services, as well as other non-personnel costs, such as central office facilities, other equipment and materials, insurance, legal, postage, product distribution, student activities and the program's authorizer fee.

Table 4: Other Associated Annual Costs to Serve Students in Representative Online Program of 1000 Students

Total System Enrollment	1,000
Professional Development	$150 per student
Course Costs, including Curriculum Development/Purchase, Instructional Supplies, Materials and Equipment	$150 per semester course ($1,800 per student annually)
Student Connectivity and Online Information System	$100 per student
Assessment	$100 per student
Contracted Services	
HR	$50 per student
Finance (audit)	$100 per student
Marketing	$400 per student
Substitutes	$7,500 per year
Non-personnel Costs	
Equipment & Supplies	$25 per student
Facilities & Utilities	$70 per student
Insurance	$5 per student
Legal	$50 per student
Board	$5 per student
Postage	$50 per student
Product Distribution/Logistics	$50 per student
Student Activities	$35 per student
Authorizer Fee	3%

Table 5 identifies the technology hardware needed (technology licensing and instructional technology personnel are already accounted for previously). For students, this was $500 annually to purchase a laptop and associated technology needs. For teachers and administrators, this included a laptop with a webcam, monitor, headset, and an additional amount to reimburse for connectivity requirements (at a level to upgrade service, not cover entire costs). For teachers, it also included an amount for a digital writing tablet/interactive white board. Additional central office technology included the phone system and network equipment. All figures are shown on an annual basis and assume a four-year replacement cycle.

**Table 5: Technology Needed to Serve Students
in Representative Online Program of 1000 Students (Annually)**

Total System Enrollment	1000 students
Student Technology	$500 per student
Faculty Technology	
Laptop (includes webcam)	$300 per teacher
Monitor	$37.50 per teacher
Microphone/Headset	$25 per teacher
Digital Writing Tablet/Interactive Whiteboard	$50 per teacher
Connectivity Reimbursement	$600 per teacher ($50 per month for 12 months)
Administration / Management Technology	
Laptop (includes webcam)	$300 per administrator
Monitor	$37.50 per administrator
Microphone/Headset	$25 per administrator
Connectivity Reimbursement	$300 per administrator ($25 per month for 12 months)
Central Office Technology	
Phone System	$8,500
Office Network Equipment	$13,750

Comparison of Online Cost Findings to Recent Studies of Traditional Schooling Costs

The findings above were compared to that of two recent adequacy studies focusing on traditional settings, in Colorado (updated in 2013) and Pennsylvania (2007).

Resource highlights, and several key similarities and differences between the two models, include:

Student-teacher ratios: Both the traditional model and the virtual model identified the need for class sizes of 25 students, with teachers at the secondary level teaching five sections of 25 students on average.

Pupil support services: Traditional programs had several staffing positions, such as nurses and librarians, which are not present in the virtual model. Other support positions, such as counselors at all levels and tutors at the secondary level, are similar between online schools and traditional schools.

Administration: Both models had similar administrative needs, though the representative virtual program (assumed to be an independent LEA) also contracted out many of the services—such as HR and payroll—that would be handled by a traditional district.

Other school personnel: Virtual programs did not require other personnel, including custodial staff, security personnel, and duty aides, which were included in the traditional school model.

Technology: Technology needs varied between online schools and physical schools. For example, for virtual schools, individual student laptops were needed for students at all levels; these are often shipped to students

and returned annually. Virtual programs also required Help Desk IT staffing to troubleshoot any issues that arose, similar to how a traditional program would employ IT staff at each school site for repair and maintenance. Virtual programs also had more need to host online content and technology systems (management systems, servers, and similar), and needed to provide reimbursements to ensure appropriate student and teacher Internet access and connectivity speed.

Other non-personnel costs: While there are cost savings in the virtual setting in the non-personnel cost areas of facilities maintenance and operation, costs that were higher in the virtual setting were related to curriculum (either purchasing or developing virtual courses), virtual student information systems, marketing, and postage for shipping materials and computers. Assessments were also a key cost area for virtual programs, as programs must rent space to hold in-person assessments in multiple locations across a state, as well as pay mileage reimbursements to families and teachers administering tests.

Using salaries in Colorado and Pennsylvania under this costing-out approach, **the cost of the virtual school is between 93% and 98% of a traditional school cost.** Given that the intent of this work is to produce a recommended way of funding virtual schools in all states—where foundation base amounts may be much lower than the amounts produced by an adequacy study—this report is not including a specific dollar amount.

While the base cost figure for the virtual school is very close to that of the traditional schools, a surprising finding of the professional judgment panels were related to additional costs of serving students with disabilities as lower than what is generally found for traditional settings. A main focus of full-time virtual schools is to employ web-based instructional methods, which include personalized learning and differentiated instruction for students. Thus, in high-quality online learning programs, the level of differentiation that is part of the core personalized learning model and may mean that students with different learning needs are having their specific needs addressed as part of the core, basic instructional program of the virtual school. Also, many of the students who attend virtual schools choose to do so because of issues with a traditional setting, and therefore counseling services and strong social emotional supports for students are important parts of the basic virtual school program.

Weights from the costing out of a full-time online program were:

- At-risk: 0.07 to 0.20 based upon concentration

- English language learners (ELL): 0.38

- Students with disabilities: 0.73

- Gifted: 0.11

With adequate base resources in place, the additional cost for an at-risk pupil was around half the level seen in many traditional costing-out studies. The weight for students with disabilities was also lower, but much of this difference seemed to be associated with the services provided to the students with the most significant disabilities. Often these students have higher costs associated with the one-on-one services they needed; but these services may be provided by an entity other than the online school, even though the full-time online school still bears responsibility for the cost of those services.

Overall, the findings indicate that the basic per-student costs associated with virtual programs are very similar to those of a traditional school when examining the resources needed to meet state standards. The cost of serving special needs populations might be lower assuming that the full level of resources identified as adequate for the base costs is available.

The Cost of Supplemental Online Courses

A cost model was also created to look at the resources required to offer supplemental online courses. To do so, an additional professional judgment panel was convened that reviewed the work of the previous panels, and adjusted resources based upon any differences in services and supports needed to offer supplemental courses versus a fully online program.

The research showed that for adequacy, the staffing levels should remain the same in online as in traditional classes, with a caseload of 125 students per teacher FTE. However, it is important to note that supplemental courses are often taught by part-time teachers so a wide range of courses can be offered, with explicit requirements that courses are taught by licensed teachers with the same credential requirements as traditional courses with appropriate content expertise and online teaching skills. Therefore, there are both full-time and part-time adjunct instructors to cover specific individual courses; a part-time teacher will have a load lower than 125 students. The panel estimated about 1/3 of teachers would be full time, and the other 2/3 would be part time. This full-time to part-time ratio has a resource implication in that benefits only need to be paid to full-time staff.

Supplemental course programs would also offer some counseling services, but because the home district would also be providing such service, they do not need to staff at the same level as the full-time programs. Panelists indicated that tutoring support would be assumed to be covered during individual teacher "office hours" so no additional positions were needed. Three IT/Help desk staff members would be available for extended hours throughout the day to address any technical assistance needs. The program would also be managed by four staff positions, including a director, a principal, and two additional FTE at a coordinator, manager, or assistant principal level, and supported by 2.0 clerical staff FTE to provide office management, secretarial support and registration services.

Table 6 identifies the personnel needed to serve students taking supplemental courses in an online program that has 12,000 semester enrollments on an annual basis. All staffing figures are shown on a full-time equivalent (FTE) basis.

Table 6: Personnel FTE Needed to Serve Students Taking Supplemental Courses in Representative Online Program of 12,000 Semester Enrollments on an Annual Basis

Enrollment	12,000 Semester Enrollments on an annual basis
Instruction and Pupil Support Staff	
Teachers	48.00
Counselors	1.00
IT/Help Desk Staff	3.0
System Administrators and Management	
Administrators	4.00
Clerical Staff	2.00

Table 7 shows the additional costs of serving students (not including technology hardware, which is shown in Table 8). The panel reviewed the cost areas and per student costs identified by the panels looking at full-time online programs, which included costs for the following: professional development; course fees (which accounts for costs associated with developing new online courses from scratch or purchasing online courses, as well as all course materials); student connectivity and information system costs; assessment; contracted services; and other non-personnel costs, such as central office facilities, other equipment and materials, legal, postage, product distribution, and student activities. In other research on blended learning, costs for online course development varies widely from this figure (from the professional development panel). How much online content will cost varies widely depending on the program model.

Many of the professional judgment panelists were from public online schools and engaged in their own course development, with different costs than those who are licensing third party online course content or using open educational resources (open courses). Depending on the model, there will be varying costs for online content. For example, in a Parthenon study of online learning courses titled, "The Costs of Digital Learning", highlights that a fully virtual program doing large scale development of their own courses can have course development costs two to three times as much as a blended learning program buying licensed or open digital content (not building their own), but those might be amortized over time. The Parthenon study highlighted the online course pricing from third party providers "is typically about $75 per course without instructors…which assumes a school purchases off-the-shelf products."

The panel felt that almost all of these cost areas would be part of a supplemental course program, except for assessment (including entry and exit performance assessments to measure growth), and student activities, which would be the role of the home school. The authorizer fee and substitute costs were also excluded. There were also cost areas where the panel thought that the amount necessary would be lower than a full-time program, such as marketing (since the program does not have to sustain itself in the same manner as a full-time program), product distribution/logistics and postage (the latter two because students are not provided computers as part of a supplemental course enrollment). All costs that are system-specific are shown per annual enrollment (therefore applied to 12,000 annual enrollments in this representative program), while course-specific costs are shown per course/per semester enrollment.

Table 7: Other Associated Costs to Serve Students Taking Supplemental Courses in Representative Online Program of 12,000 Semester Enrollments on an Annual Basis

Total System Enrollment	12,000 Semester Enrollments on an annual basis
Professional Development	$4.17 per annual enrollment
Course Costs, including Curriculum Development/Purchase, Instructional Supplies, Materials and Equipment	$150 per course, per student (semester enrollment)[24]
Student Connectivity and Online Information System	$16.66 per course, per student (semester enrollment)
Contracted Services	
HR	$4.17 per annual enrollment
Finance (audit)	$8.33 per annual enrollment
Marketing	$0.83 per annual enrollment
Non-personnel Costs	
Equipment & Supplies	$2.08 per annual enrollment
Facilities & Utilities	$5.83 per annual enrollment
Insurance	$0.42 per annual enrollment
Legal	$4.17 per annual enrollment
Board	$0.42 per annual enrollment
Postage	$0.17 per annual enrollment

Table 8 identifies the technology hardware needed (technology licensing and instructional technology personnel already accounted for previously). The supplemental course panel felt that similar hardware would be needed as was identified for a full-time program with two key differences: 1) students would NOT be provided a laptop to take a supplemental course; and 2) ONLY full-time teachers (1/3 of staff) would be provided laptops, peripherals, and

connectivity reimbursements (intended to upgrade a teacher's existing Internet and phone services, not to pay for services in their entirety). Management would still require technology hardware and additional central office technology, including the phone system and network equipment. All figures are shown on an annual basis and assume a four-year replacement cycle.

Table 8: Technology Needed to Serve Students Taking Supplemental Courses in Representative Online Program of 12,000 Semester Enrollments on an Annual Basis

Total System Enrollment	12,000 Semester Enrollments on an annual basis
Faculty Technology (only for full-time faculty)	
Laptop (includes webcam)	$300 per teacher
Monitor	$37.50 per teacher
Microphone/Headset	$25 per teacher
Digital Writing Tablet	$50 per teacher
Connectivity Reimbursement	$600 per teacher ($50 per month for 12 months)
Management Computing	
Laptop (includes webcam)	$300 per administrator
Monitor	$37.50 per administrator
Microphone/Headset	$25 per administrator
Connectivity Reimbursement	$300 per administrator ($25 per month for 12 months)
Central Office Technology	
Phone System (includes EIVR)	$8,500
Office Network Equipment, including servers, rack, switches, routers, storage, etc.	$13,750

Colorado and Pennsylvania salaries were then applied to the described resources to determine the cost of offering supplemental online courses.

Using this approach, the cost of providing supplemental online courses would be about $600 per student, per semester course, or about 7% of the per student amount for full-time programs.[24]

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24   The recommended funding is presented as a percentage, as opposed to a specific figure, in order to allow each state to apply that percentage to its own foundation amount. In states that hold back a certain percentage for the district when paying online provider to, when paying online providers, hold back a certain percentage for the district, then schools receive a 1/12th of the remainder.

Appendix C: Outcomes-Based Measures of Student Performance for Online Schools[25]

Student-level and School-level Measures

Performance measures for full-time online schools should be primarily based on student-level achievement measures, perhaps with some additional school-level achievement measures.

Proficiency

Proficiency is the most basic of the measures. It evaluates what students know at a point in time in a given subject, and it is usually associated with grade level. It is a necessary performance metric but it is insufficient, especially if proficiency data are solely based on age or grade cohorts, rather than an individual student's overall proficiency map. Understanding student proficiency is an important starting point for a robust set of indicators.

Individual Student Growth

Measuring individual student learning based on proficiency, skills, and knowledge gained in a given period of time is a foundational concept behind growth. Examining individual student learning growth is necessary because proficiency measures alone will tend to reward schools whose students arrive above grade level, and penalize schools whose students arrive below grade level. This is of particular concern to online schools because they are often chosen by students who have been unsuccessful in traditional environments, are not achieving at grade level, are at-risk, over-age and under-credited, or otherwise not successful in a physical school.

Growth models should be based on individual students, and they should track multiple data points to show a student's learning trajectory. They should not be based on cohorts, as some are. With data on proficiency levels, and individual student growth data available, it is possible to analyze quality assurance along a continuum of outcomes. Students can be measured who were not proficient, but achieve high levels of growth, or alternatively, students who come in proficient, but grow slowly. Placing students in a matrix that combines growth and proficiency provides a snapshot of how well students (or a school) are performing. Proficiency or growth alone is insufficient to describe a student's academic achievement and standing, but the snapshot of both, taken together, is powerful.

Graduation Rate

Obtaining a high school diploma or equivalent (such as a GED) represents an important milestone for students, and is an indicator of future economic and social success. Graduation rate, however, has some drawbacks that need to be addressed if it is to be used effectively as a performance indicator. Although many states are moving toward reporting that provides consistent comparisons across states, such as the Graduation Counts Compact of the National Governors Association,[26] often measures do not consider student mobility and credit deficiencies when students move into a new school. In many cases, graduation rate does not include an accommodation for extended time, and in some cases, schools' graduation rates are based on cohorts instead of individual students.

College and Career Readiness

Definitions of college readiness vary. The U. S. Department of Education defines college ready as having "the knowledge and skills to succeed in credit-bearing courses from day one, without remediation," and career ready as "demonstrating the academic skills to be able to engage in postsecondary education and training without the need

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[25]　This appendix is based on *Measuring Quality From Inputs to Outcomes: Creating Student Learning Performance Metrics and Quality Assurance for Online Schools.* International Association for K–12 Online Learning. October 2012

[26]　National Governors Association, Implementing Graduation Counts, http://www.nga.org/cms/home/nga-center-for-best-practices/center-publications/page-edu-publications/col2-content/main-content-list/implementing-graduation-2010.html

for remediation." Regardless of the specific definition, there is a growing gap between students having a high school diploma or GED and being fully prepared with knowledge, skills, and dispositions for postsecondary education or to enter the workforce.

Closing the Achievement Gap

The student achievement gap pertains to disparities in academic performance between groups of students, largely based on standardized tests. It is defined by the U.S. Department of Education as "the difference in the performance between each ESEA subgroup… within a participating LEA or school and the statewide average performance of the LEA's or State's highest achieving subgroups in reading/language arts and mathematics as measured by the assessments required under the ESEA." The subgroups include students who are economically disadvantaged, from major racial and ethnic groups, those with disabilities, and those with limited English proficiency.[27]

Appendix D: Individuals Participating in Research Meetings and Phone Interviews

In addition to the professional judgment panels, research included a series of multi-day sessions with online educators, state education agency administrators, and state policy makers. Participants explored existing funding initiatives, identified key findings and cost issues impacting online schools and supplemental online courses, and addressed unintended consequences for funding approaches. Input and information was obtained through individual interviews with the following participants:

Amy Anderson, *Donnell-Kay Foundation*

John Bailey, *Digital Learning Now!*

Chris Bleak, *Utah Association of Public Charter Schools*

Ken Bradford, *Louisiana Department of Education*

Richard Crandall, *Wyoming Department of Education*

Mark Fermanich, *Oregon State University*

Betheny Gross, *Center for Reinventing Public Education*

Aimee Guidera, *Data Quality Campaign*

Bryan Hassell, *Public Impact*

Dr. Kim Hunter-Reed, *HCM Strategists*

Robbie Jameson, *Michigan State Budget Office*

Kenneth Kapphahn, *California Legislative Analyst's Office*

Will Krebs, *Florida Department of Education*

Pat Laystrom, *Connections Education*

Tom Melcher, *Minnesota Department of Education*

Larry Miller, *Center for Reinventing Public Education*

Sally Roberts, *Florida Department of Education*

Marguerite Roza, *Center for Reinventing Public Education*

Peter Ruddell, *Wiener Associates & Oxford Foundation (MI)*

Rita Perez, *Pennsylvania Department of Education*

Ted Ochs, *Connections Education*

Martha Snyder, *HCM Strategists*

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[27]   U.S. Department of Education Definitions, http://www2.ed.gov/policy/elsec/leg/esea02/pg2.html

Appendix E: Definitions

Competency-based education is about students advancing upon mastery. Sturgis and Patrick (2011) developed a five-part working definition to describe the design elements of competency-based learning: 1) students advance upon demonstrated mastery; 2) competencies include explicit, measurable, transferable learning objectives that empower students; 3) assessment is meaningful and a positive learning experience for students; 4) students receive rapid, differentiated support based on their individual learning needs; and 5) learning outcomes emphasize competencies that include application and creation of knowledge along with the development of important skills and dispositions. (http://www.inacol.org/cms/wp-content/uploads/2013/10/iNACOL-Mean-What-You-Say-October-2013.pdf)

Online learning is "education in which instruction and content are delivered primarily over the Internet. The term does not include printed-based correspondence education, broadcast television or radio, videocassettes, and stand-alone educational software programs that do not have a significant Internet-based instructional component. Used interchangeably with virtual learning, cyber learning, e-learning."

Source: The Online Learning Definitions Project 2011, iNACOL, which references U.S. Department of Education Office of Planning, Evaluation, and Policy Development Policy and Program Studies Service (2010). Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies.

Performance-based funding is a school finance model that links funding for public education programs with measurable student performance outcomes. (Source: iNACOL)

Supplemental online programs provide a small number of courses to students who are enrolled in a school separate from the online program. Some states refer to these as part-time programs. Many students access supplemental online courses from a school computer lab, although some may access the classes from home.

Source: Keeping Pace with K–12 Online and Blended Learning, Evergreen Education Group.

Appendix F: References and Resources

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About the Authors

iNACOL

The mission of the International Association for K–12 Online Learning (iNACOL) is to ensure all students have access to a world-class education and quality blended and online learning opportunities that prepare them for a lifetime of success. iNACOL is a non-profit organization focused on research; developing policy for student-centered education to ensure equity and access; developing quality standards for emerging learning models using online, blended, and competency-based education; and supporting the ongoing professional development of classroom, school, district and state leaders for new learning models. Learn more at www.inacol.org.

Evergreen Education Group

For over fourteen years the Evergreen Education Group has been widely recognized as a leader in K–12 digital learning market and policy research and advisory services. We deliver digital learning-related insight to the field and are the publishers of the annual report Keeping Pace with K–12 Digital Learning, and numerous other national and state-level reports on the digital learning landscape. Evergreen is a valuable partner to legislators, state boards of education, state education agencies, non-profit organizations, publishers and many companies serving the K–12 education industry. Our policy and market research has helped lay the groundwork for the growth of digital learning and informs legislators and other policy makers about the latest developments in the industry.

Augenblick, Palaich and Associates

Founded in 1983, Augenblick, Palaich and Associates (APA) is a nationally recognized firm with experience analyzing public education systems and policies in all fifty states. APA's mission is to assist clients at the federal, state and local level in addressing education issues in order to improve the quality, effectiveness, and efficiency of our nation's public schools. In particular, APA's expertise in school finance and costing-out studies enables policymakers to understand how fiscal systems interact with education initiatives and priorities within states. A number of states' current funding systems are based upon APA's work. For more information, please visit www.apaconsulting.net.