

analysis

33 ways to improve Nevada education without spending more

Reallocating education dollars could dramatically boost Silver State school performance with no net increase in spending

BY GEOFFREY LAWRENCE

Executive Summary

Nevadans from all walks of life want a better quality of education for the state's rising generation. This desire has repeatedly been frustrated, however, by the demonstrated inability of public school districts, historically and currently, to translate increased financial resources into higher student achievement.

While Nevadans have nearly doubled school spending per pupil on an inflation-adjusted basis over the past 40 years — now spending more, per pupil, than do a majority of Nevada's neighboring states — most education spending still goes to programs that do little for student achievement.

Nevada is not alone in its failure to translate increased school funding into greater student achievement. There's a nationwide disconnect between school spending and student success — a fact which has led academics at top universities to research how best to improve the cost-effectiveness of public spending on education. This body of research, over the past several decades, has yielded education reforms that would fundamentally improve the delivery of education in America.

Because this reform agenda frequently challenges traditional methods of public schooling, however, it has encountered fierce resistance from entrenched bureaucrats, union officials and other special interests. In reaction, these interest groups

have launched their own "Counter Reformation" that ostensibly seeks improvement of student achievement, but primarily through expansion of existing public-education practices.

Yet, voluminous academic research examining the counter-reformation proposals has produced a remarkable consensus: While counter-reformation policies can improve student achievement, the gains are neither lasting nor cost-effective. On this, education scholars across the political spectrum agree: Whether they're from The Brookings Institution or the Cato Institute, the Center for American Progress or the nation's leading universities, they concur: To make public spending on education cost-effective, an aggressive slate of reform policies is required.

This study reviews the academic literature and empirical evidence on alternative policy proposals and concludes by synthesizing these research findings into a policy agenda that would make Nevada's education spending much more effective.

These recommendations are particularly relevant as a current ballot initiative would finance a counter-reformation policy agenda by new taxes imposed on Nevadans. As this report shows, existing resources — redeployed more effectively — can provide Nevada youth with substantially superior opportunities for success in life.



Table of Contents

Introduction	4
What has been the effect of higher spending on student achievement?	5
Measuring success	6
Academics spur education reform movement	7
Educator effectiveness	8
Alternative routes to licensure	10
School choice and competition	10
Online and blended learning	14
Institutional resistance and the counter-reformation	17
Class-size reduction	18
Full-day kindergarten	20
Counter-reformation policies offer little return on investment	23
A cost-effective agenda to prepare Nevada's children for success	23
Attract and retain a talented workforce	24
Keep teachers in the classroom	28
Divert funding from programs that have limited impact on student achievement	29
Inject market forces into public education	30
Leverage technology to help students learn	32
Additional reforms	32
Conclusion	34
Endnotes	35

Introduction

All Nevadans want their children to be well prepared for success in life. And in an increasingly complex and sophisticated global economy, achieving success requires that children master skills and accumulate knowledge in fields both general and specialized. Usually, students learn the knowledge and skills that enable success through completion of a structured curriculum of formal education.

While nontraditional forms of education, including self-learning and home schooling, can endow children with knowledge and skills on par with or even superior to more formal education delivery systems, formal instruction at institutions owned and administered by local governments is so pervasive that most observers mentally draw an immediate line between the need to prepare children for success in life and the quality of instruction offered at local public schools.

Despite this leap of logic, it is understandable that parents would demand a high quality of instruction at public schools when more than 90 percent of school-aged children attend these institutions.¹ The leap of logic is compounded, however, by a parallel leap that conflates quality of instruction with the funding levels that public school districts enjoy.

Taken together, the two assumptions lead to a frequent oversimplification: The more money taxpayers “invest” in the public education system, the more successful children are to become.

To the undiscerning eye, the simplicity of that proposition is attractive. Yet, the fallacious assumptions that undergird its construction reveal a fatal flaw in the proposition’s integrity.

First, children can and do obtain knowledge and skills through means other than formal instruction at public schools. Historically the pathway to success has been paved by parents who took an active interest in a child’s education at home. Marketable skills have also long been acquired through extra-curricular endeavors, apprenticeships and internships. Today, children increasingly also gain access to knowledge through technology: Internet-based resources allow both children and adults to receive highly individualized courses of instruction through the increasingly ubiquitous presence of computers, tablets and smartphones.

To ignore these realities would be to ignore some of the most significant influences on children’s educational development.

Second, even to the extent that public schools are a primary conduit for educational instruction, the notion that higher funding would improve the quality of that instruction relies entirely on the presumption that public schools deploy their resources effectively. However, substantial evidence suggests that, in an education marketplace where local governments act as the monopoly provider, this condition is rarely met.²

What has been the effect of higher spending on student achievement?

Historical evidence shows that, despite massive spending increases, educational achievement has stagnated or declined in public schools.

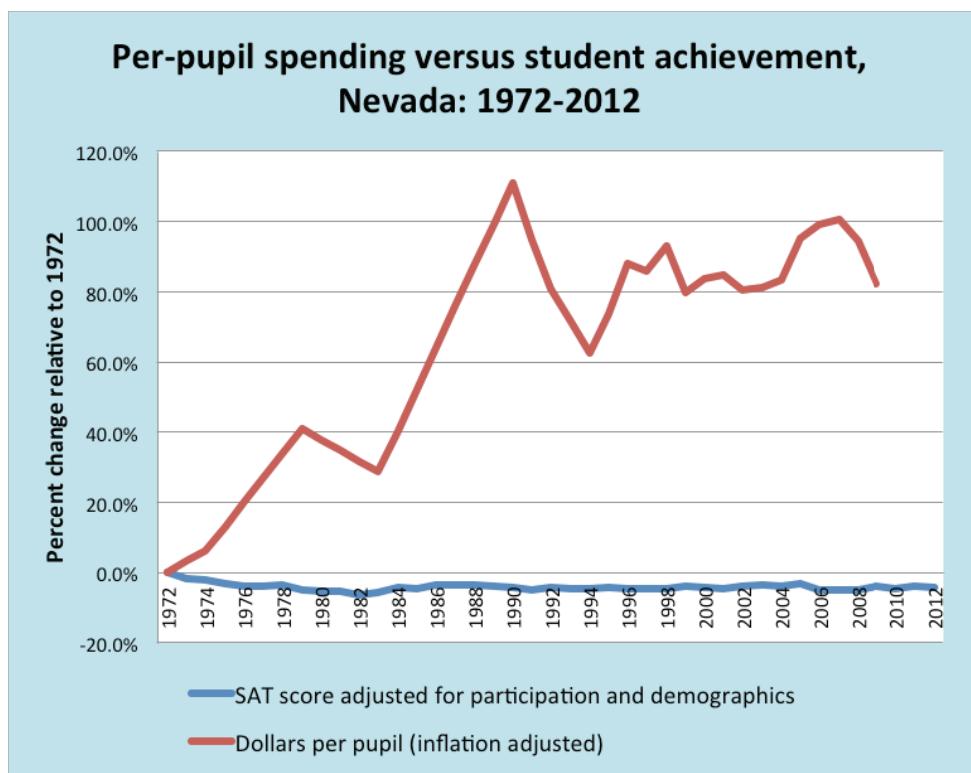
By the time a typical American student graduated high school in 1970, taxpayers had committed a cumulative \$56,903 to his or her education (adjusted for inflation to 2013 dollars). By 2010, that amount had nearly tripled, to \$164,426.³ Despite the impressive increase in spending, however, the student graduating in 2010 was unlikely to have gained more skills or knowledge than the 1970 graduate, as measured by performance on the National Assessment of Educational Progress (NAEP) — a standardized test administered by federal authorities.

At the state level, it has been less easy to track the long-term relationship between public-school spending and student achievement, since NAEP scores were unavailable for individual states until 1990. However, education scholar Andrew Coulson recently developed a method of adjusting state scores on the Scholastic Aptitude Test (SAT) to account for changing participation rates and socioeconomic factors, allowing researchers to track this relationship over a longer period.⁴ As a measure of students' preparation for college-level coursework, these adjusted SAT scores are a proximate indicator of whether students have gained the skills necessary for success in life. Coulson's research shows a striking inability of public schools to translate increased funding into improved student performance.

In Nevada, per-pupil spending nearly doubled, on an inflation-adjusted basis, between 1972 and 2012. Yet, the state's adjusted SAT scores indicate that students, on average, were slightly *less* prepared for college-level coursework by 2012, despite the dramatic spending increase.⁵

As Coulson concludes, "There has been essentially no correlation between what states have spent on education and their measured academic outcomes."⁶

This is not to say it is inconceivable that higher spending on public schools



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could lead to gains in student achievement, but history shows this result is unlikely precisely because public school monopolies rarely allocate their resources effectively. As Stanford education scholar Eric Hanushek puts it, “It’s absolutely true that if you spend money well, it has an effect. But just putting money into schools and assuming it will be spent well isn’t necessarily correct and there is substantial evidence that it will not happen.”⁷

These observations are not particularly controversial. They are echoed by education scholars from across the ideological spectrum. As Bruce Baker writes on behalf of the Albert Shanker Institute, a think tank sponsored by national teacher unions, “Clearly, there are … factors that may moderate the influence of funding on student outcomes, such as how the money is spent — in other words, money must be spent wisely to yield benefits.”⁸

Certainly these observations are intuitive even to the casual observer. For any organization to translate revenues into a desired outcome, it must allocate those revenues in ways that are most likely to achieve that outcome.

The same is true for individuals: If Jerry’s goal is to own a fast car, he won’t achieve that objective by spending his income on other items. Instead, he must align his spending decisions with the goals he hopes to achieve.

Measuring success

If these observations are so intuitive, then why do public school districts have such a difficult time spending their vast financial resources in ways that contribute meaningfully to student achievement?

The answer to this question is complex. Until recent decades, it was often unclear which strategies for boosting student achievement were most effective. Much of the data used to track students’ mastery of critical concepts had severe limitations and was inconsistent over time, hampering researchers’ ability to evaluate alternative approaches.

Over the past two decades, however, the availability of reliable data has improved — as well as statistical research methods used by education scholars. As more data has become available and research techniques have improved, it has increasingly become possible to measure the relative effectiveness of different educational delivery systems.

What’s more, the quality and availability of data continues to improve as several states have begun to implement their own longitudinal student data tracking systems. Originally pioneered in Tennessee where they were implemented in 1993,⁹ these systems track the academic growth of individual students as they progress through the public education system.

Although useful insights can be extracted from comparisons of student achievement across different cohorts of students, individual student data allows for more reliable research because it removes the possibility that qualitative differences exist across cohorts that are outside of school-controlled

factors, such as the increasing availability to students of online learning platforms at home. Longitudinal student data tracking thus helps researchers better control for outside factors and isolate the specific impact of various programs or personnel on student achievement.

Systems like Tennessee's Value-Added Assessment System¹⁰ use initial data points for each student to generate a long-term growth trend specific to that child's unique aptitude level. In ensuing years, if the child's actual growth falls below or above the projected trend line, this data can provide useful information about whether the child has been given the appropriate tools to succeed. These systems recognize that individual students may deviate from the projected trend line during a given year for any number of reasons, but if an entire cohort of students is exposed to some new pedagogical method and consequently performs above or below the projected trend line, then analysts can draw meaningful conclusions about the effectiveness of that method relative to its costs.

Armed with this information, policymakers can today make far better decisions than in decades past about which educational strategies are cost-effective and which teachers provide exceptional value to students.

Academics spur education reform movement

The development of these improved data collection and analysis techniques beginning in the early 1990s spurred a revolution of thought among education scholars at some of the nation's leading universities, including Harvard, Stanford and UCLA.

Scholars had previously identified four broad groups of variables they posited could have a measurable impact on student achievement and set about using the new data to test their hypotheses. These groups included:

1. Students' socioeconomic background
2. Students' family involvement
3. The policy environment governing public education
4. Funding levels

These investigations have generally found that children from more affluent families and from families with a high degree of parental involvement tend to achieve at higher rates.¹¹ These studies have used data such as the educational attainment of parents or survey responses as proxies to estimate parental involvement, while demographic parameters such as household income levels are easy to observe.

A seminal review of the academic literature published in 1994 by the National Committee for Citizens in Education, for instance, concludes "the most accurate predictor of student achievement is the extent to which the family is involved in his or her education," and that "efforts to improve children's outcomes are much more effective when the family is actively involved."¹²

While there is little dispute regarding these realities, scholars and policymakers must recognize that such conditions are beyond the direct control of public officials. Sound tax and regulatory policies that allow individuals to become successful entrepreneurs can have an indirect impact on these

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factors by elevating household income levels, fostering wealth creation and thus freeing parents' time to help their children learn. But no simple government fiat can eliminate the conditions of scarcity. Parents' time and financial resources will always be limited.

It is the last two groups of variables then that policymakers can address directly: the policy environment and spending levels for public education. As Coulson and other education scholars have shown,¹³ there has historically been little correlation between spending levels and student achievement, precisely because public school districts have not allocated funding cost-effectively.

The emerging ability of researchers to isolate the impact of specific educational methods on student achievement, however, has prompted scholars to develop and experiment with radical new techniques for making public spending on education more cost effective.

Collectively the ensemble of new policy ideas developed using this data-driven approach has come to be known as "education reform." It includes a vast array of ideas and strategies, but all share the common goal of improving schools' ability to translate the vast financial resources at their disposal into improved student outcomes.

Scholars' increasing focus on the policy environment has both explicitly and implicitly recognized that spending levels might become relevant to student outcomes only once policies have been put into place to ensure that available funds are spent in the most cost-effective manner.

In such a post-reform environment, it is conceivable that additional spending might yield additional results, but only with a decreasing marginal return because additional monies would increasingly be allocated to programs that are relatively less cost-effective. Still, a large body of research indicates that — following decades of rapid increases in per-pupil spending — public education systems have the financial resources to produce far greater results even without additional spending.

Generally, the slate of ideas included within "education reform" can be grouped into several broad categories. These include:

- Strategies for improving educator effectiveness;
- Strategies for improving the available talent pool of educators;
- Strategies for exposing public schools to market forces; and
- Strategies for better utilizing technological resources to improve student outcomes.

Educator effectiveness

Research shows that no school-controlled factor is more significant for a child's academic development than the talent level of the child's teacher. As James Stronge, education scholar at the College of William and Mary, says, "The quality of the teacher in the classroom is the most important factor that a school district can control. It's more important than class size or school facilities or even course offering."¹⁴

Therefore, some of the most cost-effective strategies for improving educational outcomes have focused on identifying and retaining the most effective educators, while also identifying and removing ineffective educators.

The emergence of longitudinal data tracking systems such as Tennessee's Value-Added Assessment System allow analysts to quickly identify which educators have consistently driven students to achieve extraordinarily high levels of success. Stanford education scholar Eric Hanushek and UCLA economist Steve Rivkin have used data produced by these systems to show that highly effective teachers tend to accelerate the academic development of their students by 50 percent. In other words, these students master 1.5 years worth of learning for every one year spent in a highly effective teacher's classroom.¹⁵

With more than 20 years of data now available from the earliest longitudinal data tracking systems, education scholars have recently become able to track the impact of highly effective teachers into the adulthood of their students. Harvard economist Raj Chetty, for instance, has used this data to show that students who are fortunate enough to learn from skilled elementary school teachers tend to attend college at higher rates and experience higher incomes over their lifetimes.

On the other hand, just as students benefit from the most talented educators, they can be handicapped for life if they are unfortunate enough to receive a series of ineffective educators. As Kati Haycock, president of The Education Trust, observes, "Research shows that kids who have two, three, or four strong teachers in a row will eventually excel, no matter what their background, while kids who have even two weak teachers in a row will never recover."¹⁶

Chetty estimates that replacing a teacher who performs in the bottom 5 percent with a teacher of merely average quality for a single year would boost the present value of a classroom's combined lifetime income by \$250,000.¹⁷ Hanushek estimates that if the bottom 5 to 8 percent of teachers nationwide were replaced with teachers of average quality, the additional skills gained by those students would improve future economic output by nearly \$100 trillion in present-value terms.¹⁸

The results of this research have resonated across the political spectrum. Appearing before the Hispanic Chamber of Commerce in 2009, President Barack Obama said, "From the moment students enter a school, the most important factor in their success is not the color of their skin or the income of their parents, it's the person standing at the front of the classroom."¹⁹

Robin Chait, education scholar at the left-leaning Center for American Progress has piggybacked on this research to advocate for easier removal from the classroom of teachers who consistently underperform. She notes that — regardless of the reason for these teachers' ineffectiveness — their failures have the effect of handicapping the children assigned to their classrooms. Further, the failures of ineffective teachers have been acutely pronounced among students that can least afford it — those in high-poverty schools.²⁰

Another response to the teacher-effectiveness issue has been to attract more gifted educators to the classroom by offering attractive compensation packages for top talent. University of Florida economists David Figlio and Lawrence Kenny have found that schools offering sizable merit-pay bonuses exclusively to the highest-performing teachers have been more effective at elevating student performance.²¹

Further, they find that merit pay programs designed to attract and retain effective teachers can offset the disadvantages faced by students who experience parental disengagement. "The estimated relationship between the presence of merit pay in teacher compensation and student test scores," Figlio and Kenny

conclude, “is strongest in schools that may have the least parental oversight.”²²

Writing on behalf of the Nevada Policy Research Institute, former Nevada Superintendent of Public Instruction and UC-Berkeley education scholar James Guthrie has recommended an aggressive merit-pay plan that would offer the top 10 percent of teachers compensation packages reaching \$200,000.²³

Alternative routes to licensure

Another key strategy for improving teacher quality has been to expand the available talent pool from which administrators can draw by allowing aspiring teachers to pursue alternative routes to licensure. These programs allow seasoned professionals to more quickly acquire the credentials they need to enter the classroom, thus fostering a lateral entry into the teaching profession of some of the best minds in the nation.

In an important report for the Brookings Institution, Harvard education scholar Thomas Kane, Dartmouth scholar Douglas Staiger and Robert Gordon of the Center for American Progress analyzed the impact that various forms of licensure have on educators’ ability to teach effectively.

Tracking the performance of students between 2000 and 2003, they found that the traditional path to licensure — requiring teachers to pass many semesters of college education courses unrelated to the topic they will teach — adds no value to teachers’ classroom effectiveness. Their review found that teachers who were traditionally certified, on average, performed no differently from teachers who were alternatively certified or even than teachers who were not certified at all.²⁴

The authors observe that traditional certification requirements serve as little more than a barrier to entry into the teaching profession, and that a greater supply of talent could be accessed if those requirements were relaxed.²⁵

The nation’s first alternative teacher certification programs were launched in New Jersey in 1984 and Texas a year later. They were intended specifically to help alleviate a teacher shortage in those states that originated, in part, due to the artificial barrier to entry that traditional licensure programs create.²⁶ Other states began to replicate these programs beginning in the 1990s once the successes of New Jersey and Texas became clear.

Harvard education scholar Paul Peterson has additionally noted that traditional licensure requirements tend to exclude minorities from the teaching profession and that easing these requirements would lead to greater minority representation among teachers.²⁷ This is significant because, as research by Swarthmore College economist Thomas Dee has demonstrated, minority students tend learn more from teachers of their own ethnicity than from teachers of other ethnicities.²⁸

School choice and competition

School reformers recognized early on that introducing market forces into the realm of public education could help to direct resources more efficiently — just as the forces of supply and demand accomplish that task in most other aspects of life. In fact, as far back as 1869 — when the network of government-run schools was just beginning to expand — economists were already developing this idea. As John Stuart Mill wrote at that time, “[Government should] leave to parents to obtain the education where and

how they please, and content itself with helping to pay the school fees of the poorer classes of children, and defraying the entire school expenses of those who have no one else to pay for them.”²⁹

Private Choice

The idea of allowing parents to direct public monies for their child’s education, however, was developed much further by Nobel laureate economist Milton Friedman in a 1955 article titled “The Role of Government in Education.”³⁰ While the main concept behind Friedman’s proposal for choice among schools was not new, he became the first to clearly articulate the reasons the idea had merit.

Friedman posited that if parents could receive direct control over public funding for the education of their children, then public monies would tend to flow toward schools and programs that parents valued highly. On the whole, parents would value schools and programs that best prepared their children for success in life and could use past performance as a guide to determine what approaches are most likely to be successful. School administrators, in turn, would search out the best educators and most cost-effective educational strategies in order to attract students. Friedman’s aim was to substitute market forces — expressed by the decisions of parents — for government monopoly. The monopoly, as Friedman saw it, was not accountable to education consumers and this exemption from market discipline allowed education dollars to be used ineffectively.³¹

Six... studies determined that all student groups experience higher achievement when they participate in choice programs...

Friedman’s theory would go largely untested until the Milwaukee Parental Choice Program was installed as the first large-scale school choice program in the nation in 1990. The program’s founding was overseen by Milwaukee schools superintendent and Malcolm X University founder Howard Fuller, who had grown frustrated with the high failure rates at the city’s urban schools — particularly among low-income and minority students.³² Program eligibility was limited to low-income families and researchers began to track the program’s success beginning with the first cohort of students to participate.

A series of longitudinal studies produced by education scholars at the University of Arkansas find that Friedman’s school-choice theories have proven successful. Students who enrolled in private schools through Milwaukee’s choice program read at higher levels and graduated high school and enrolled in college at higher rates.³³ Enrollment in a choice school was also less costly than educating a child in Milwaukee’s public schools — indicating that market forces *did* improve the cost-effectiveness of public education dollars, as Friedman had theorized.³⁴ Further, the scholars found evidence that the competitive pressures created by the choice program even led to higher performance within Milwaukee’s public schools.³⁵

Since its introduction to urban Milwaukee in 1990, private school choice programs have proliferated around the nation. Scholars have continued to conduct rigorous investigations into their impact and have consistently made findings similar to those from Milwaukee.

To date, 12 random-assignment studies have been undertaken to determine the impact of school choice on student achievement. Six of those studies determined that *all* student groups experience higher achievement when they participate in choice programs, five studies found that *some* groups of students benefit and one study finds no visible impact. No study has found a negative impact of choice on student achievement.³⁶

[S]chool choice, by introducing market forces, can increase the cost-effectiveness of public spending on education...

Researchers have also pursued the question of whether choice negatively impacts public schools. Suspicions have arisen, for instance, that only the students with the highest academic aptitude would be selected for admission to private-school alternatives, leaving lower-performing students behind in public schools. Of the 23 empirical studies published examining this question, all but one conclude that academic outcomes at public schools actually *improve* in the presence of school choice. This improvement has been attributed to competitive pressures for retaining students. No study has found that public schools are harmed by choice.³⁷

Again consistent with the experience in Milwaukee, all six empirical studies that have examined the fiscal impact of school choice have found that choice programs save money for taxpayers, while still delivering higher student achievement.³⁸

In addition, empirical research has found that school choice leads to less racial segregation among schools, primarily by placing private options within the reach of more minority students.³⁹ Among beneficiaries of Florida's statewide scholarship program for low-income students, for example, 32 percent of students are black while another 37 percent are Hispanic. Only 24 percent are white. Fifty-four percent of beneficiaries come from single-parent households.⁴⁰

The empirical research to date has delivered conclusive evidence that school choice, by introducing market forces, *can* increase the cost-effectiveness of public spending on education, and that this change has been particularly beneficial for low-income and minority students.

Charter Schools

An alternative idea for creating choice and competition within the network of public schools was originally developed by University of Massachusetts professor Ray Budde in a 1974 paper titled “Education by Charter.”⁴¹ Budde proposed that school districts authorize innovative groups of teachers to run a school directly without interference by district-level administrators.

Within these “charter schools,” teachers would be able to experiment freely with new pedagogical techniques and organizational structures, but the schools could face closure if students failed to learn. Students, in turn, would have the option of enrolling free of charge — making charter schools direct competitors with district-run schools.

The proposal gained little attention until American Federation of Teachers president Albert Shanker voiced his support for Budde’s idea during a 1988 speech to the National Press Club.⁴² Although Shanker and his union allies would soon grow to oppose the charter concept, Shanker’s comments during that 1988 speech drew the attention of policymakers in Minnesota who were looking for new ways of improving student outcomes in that state’s urban school districts.

Budde’s original concept was modified slightly by the Minnesota legislature, which passed the nation’s first charter-school law in 1991. The state’s lawmakers recognized that school district administrators would face an obvious disincentive to sponsor schools that would compete directly for students with district-run schools. So, instead of relying on local school district to sponsor charter schools, Minnesota created a statewide agency to accomplish that task.⁴³

Importantly, this change would also free charter schools from many of the labor-market strictures

that collective bargaining agreements impose on schools authorized by local school districts. As state-sponsored entities, charter schools would not be subject to labor contracts agreed upon by school districts and could negotiate their own labor contracts. Effectively, this meant that charter schools could offer alternative pay structures based on merit and other market realities, rather than adhere to the strict, formulaic salary schedules found at district-run schools.

City Academy High School became the nation's first charter school when it opened in Saint Paul in September 1992. Minnesota's experiment with charter schools was soon recognized as a rousing success and earned an "Innovations in American Government Award" from Harvard's Kennedy School of Government.⁴⁴ Charter school laws began to proliferate among the states. To date, 42 states and the District of Columbia have passed laws permitting charter schools, although many states created laws more restrictive than Minnesota's law.⁴⁵

More than 5,700 charter schools were in operation nationwide by 2011, enrolling almost two million students.⁴⁶ A national report on charter schools commissioned by the U.S. Department of Education found that charter schools tend to serve a higher proportion of low-income and minority students than district-run schools and that charter schools also attract high proportions of low-performing students. Charter schools also employed more minority teachers and teachers who pursued alternative routes to licensure than traditional public schools.⁴⁷

Writing for the left-leaning Center for American Progress, a team of education researchers found that only 57 percent of newly created charter schools use a formal salary schedule for teachers and even this often serves only as a baseline for compensation. Nearly half of charter schools use some form of merit or performance-based pay for teachers, while less than 10 percent of district-run schools do so. The authors recommend that more district-run schools adopt the wage practices and personnel policies used by charter schools as a means of attracting better educators and, consequently, improving student performance.⁴⁸

Four random assignment studies have tracked the effectiveness of charter schools relative to district-run schools and all have found evidence that charter schools produce positive outcomes for students. A team of scholars from MIT, Harvard, Duke and the University of Michigan examined how students who won lotteries to attend charter schools in Boston fared relative to their peers who did not win these random lotteries. They found that charter schools "reduce the black-white reading gap in middle school by two-thirds."⁴⁹

In similar reviews of charter schools in New York City⁵⁰ and Chicago,⁵¹ Stanford economist Caroline Hoxby found that students selected to attend charter schools tend to achieve at higher rates than their peers who were not selected. In Chicago, as she writes, "students in charter schools outperformed a comparable group of lottery losing students who remained in regular Chicago public schools by 5 to 6 percentile points in math and about 5 percentile points in reading."⁵²

In Nevada, charter schools laws have evolved slowly. The 1997 law that first authorized charter schools limited the number of such charters to 21 statewide and required charters to be sponsored by local school boards, with state approval. In her UNLV master's thesis, current George Mason University education professor Sonya Horsford — wife of Nevada Congressman Steven Horsford

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— reports that teacher unions reluctantly supported the charter-school concept only as a means of staving off support for private-school choice. “These opponents to education reform,” she writes, “preferred the adoption of restrictive charter school legislation over vouchers.”⁵³

Subsequent revisions to the law relaxed and then removed the statewide cap on charter schools. Landmark legislation in 2011 created an independent State Public Charter School Authority to review applications and sponsor new charters — similar to the structure originally used in Minnesota.⁵⁴ Additional legislation in 2013 clarified the performance frameworks that must be included in charter contracts and granted bonding authority to charter schools for capital needs. Despite Nevada’s slow embrace of charter schools, the National Alliance for Public Charter Schools now ranks Nevada’s charter school law as the 13th best nationwide.⁵⁵

During the 2012-2013 school year, 32 charter schools were operational in Nevada, enrolling 18,391 pupils. Additionally, the State Public Charter School Authority approved five new charter schools for the 2013-2014 school year.⁵⁶

Online and blended learning

In the business world, technological advancement leads to more efficient production processes and allows for the creation of goods that previously could not exist. In education as well, improvements in technology have made new teaching techniques available that could have far-reaching implications for schools’ ability to translate financial resources into student success.

As with earlier innovations developed by academics in the school-reform movement, online educational platforms today continue to challenge traditional paradigms and introduce more new alternatives for public schooling.

Online educational platforms allow a high degree of flexibility over how and when students learn. They can be used to supplement the efforts of classroom teachers for certain topics and can also serve as a primary delivery mechanism for an entire course or curriculum.

Blended Learning

Some classroom teachers and school administrators have discovered they can enhance the educational experience of their students by exposing them to materials prepared by some of the world’s best educators through web-based platforms such as *Khan Academy*.⁵⁷

This blending of classroom teachers’ efforts with technology has given rise to entirely new pedagogical methods. The “flipped classroom” model, for instance, is a recent innovation within traditional schooling that was developed at Clintondale High School, outside of Detroit, beginning in 2011.

At Clintondale, where nearly 75 percent of students come from low-income households and are eligible for free and reduced-price lunch, principal Greg Green decided that the traditional model of public schooling was failing to prepare his students for success. Green responded by implementing a pilot program in his school’s ninth-grade classrooms that would reverse students’ daytime and nighttime tasks.

Green asked teachers to record their lectures onto video and post the digital versions on the school’s website or onto YouTube. Students were made responsible for watching these videos

on their own time, as homework. Then, having already viewed the lecture material, students would use class time to practice what they had learned through assignments that traditionally would be assigned as homework. This time, though, teachers would be standing by to offer guidance to students who struggled.

Teachers quickly noted that this method allowed them to better retain students' attention during classroom hours and made these hours more effective. Students also enjoyed the ability to watch teachers' lectures at their own leisure, using smartphones, tablets or other devices. For students who did not have home internet access, Green held the school's library open for longer hours.

During the first year of the pilot program, failure rates in English among ninth graders at Clintondale fell from 52 percent to 19 percent. In math, failure rates declined from 44 percent to 13 percent. In science, failure rates fell from 41 percent to 19 percent and, in social studies, from 28 percent to 9 percent. Attendance rates also improved and disciplinary problems declined.⁵⁸

Teachers have also made widespread use of lecture material made available by other educators from around the world in lieu of recording all lectures themselves. Calculus students at Clintondale began watching the video lectures of a renowned math teacher at a private school in Virginia. Students learning about the Holocaust followed a series of videos made by a teacher in Israel who had taken her class to Auschwitz. These experiences allowed Clintondale's teachers to expand the horizons of their students by virtually importing some of the world's top teaching talent into the low-income, Detroit-area school.

Clintondale has since expanded the successful pilot program schoolwide and has gained widespread acclaim, prompting Harvard's Graduate School of Education to applaud the success of the "flipped classroom" model.⁵⁹

Academic research into the long-term impact of blended learning on student achievement is sparse, because the technologies that enable blended learning are relatively new and because technology-enabled learning can be designed and implemented in many ways.

However, one of the earliest and most uniform programs of blended learning — the Cisco Networking Academy — was the subject of a research team at Indiana University. Tracking the performance of 10,371 students at 1,641 participating schools, the researchers concluded that the "combination of centralized curriculum, standards-based testing, and local instruction worked equally well in a variety of environments and enabled students to reach their own potential."⁶⁰ In other words, students in a blended learning environment were better able to overcome disadvantages such as parental disengagement and perform up to their full capabilities.

Virtual schools

While technology can be used to supplement the efforts of a classroom teacher, it can also obviate the need for a traditional classroom altogether. Increasingly, entire courses or curricula are delivered to students through virtual classrooms. They are still overseen by teachers, but eliminate much of the need for brick-and-mortar facilities.

Nationwide, online schools are run by states, school districts, charter school administrators and

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private-school operators, and are generally available to middle- and high-school aged students. Students can attend these schools full-time or part-time to secure classes unavailable in their local public schools. The number of states offering students some form of online learning opportunities has grown rapidly. As of 2010, 48 of the 50 states offered some form of online schooling opportunity.⁶¹

Some of the first virtual schools were created by state lawmakers who wished to make a wider class offering available to students attending traditional high schools. Utah created the nation's first state-run virtual school in 1994, followed by North Dakota in 1996 and Florida in 1997.⁶² Today, 27 states boast state-run virtual schools.

The Florida Virtual School remains the country's largest, with nearly 411,000 enrollments in the 2012-13 school year.⁶³ As the largest, it has been among the most intensively studied virtual schools anywhere. Employing only certified Florida teachers, the school is funded entirely on the basis of how many students successfully *complete* each course, giving educators a unique incentive to ensure the success of their students.⁶⁴ The school has grown substantially since 1997, now offering access to more than 120 courses for students from kindergarten through twelfth grade. They can enroll in these courses whether they attend Florida public schools or not. Out-of-state residents, however, must pay fees to participate in the classes.⁶⁵ All credits earned at the Florida Virtual School are transferrable to any Florida public school and the school has negotiated similar agreements with schools in other states as well.

A comprehensive assessment of the Florida Virtual School completed in 2007 concluded that "during the 2004-05 and 2005-06 school years, FLVS students consistently outperformed their counterparts in Florida's traditional and middle schools on such measures as grades, Advanced Placement scores and FCAT scores."⁶⁶ Further, because the school has almost no costs related to transportation, construction or facilities maintenance, it "is able to offer computer-delivered instruction at a lower per-student cost than traditional schools."⁶⁷ Despite serving a higher proportion of minority and at-risk students than traditional schools, the assessment finds that students of Florida Virtual School are more likely to succeed and at lower cost.

The U.S. Department of Education completed a meta-analysis on the impact of virtual schooling in 2010 and concluded that "on average, students in online learning conditions performed better than those receiving face-to-face instruction."⁶⁸ In part, this improvement occurs because students taking online courses spend more time on task than students in traditional courses.⁶⁹

Student-teacher interaction is also higher when students enroll in online courses, *despite* the lack of face-to-face contact. As the Southern Region Education Board notes:

Students report that they enjoy the level of interactivity with other students and their teacher and find this to be extremely helpful in mastering the course content. Other reasons include the beneficial effect of alternative pacing of the course that allows students to spend more time on what they do not understand and to move more quickly over what they do understand.⁷⁰

The question of virtual schools' impact on the socialization of young students has only begun to be researched, with the first major study published at the University of Memphis in 2009. The results of that study are strongly encouraging, however, as it provides evidence that students enrolled in full-time virtual schools are at least as well socialized as their peers enrolled in traditional public schools.⁷¹

In Nevada, eight virtual charter schools were in operation during the 2012-13 school year,

enrolling 9,434 students — more than double the enrollment of just five years earlier.⁷² While the state has no state-run virtual school, the Clark County Virtual High School serves students statewide and had 140 full-time students during the 2010-11 school year.⁷³ Additionally, the Washoe Online Learning for the Future program enrolled 250 fully online students during the 2012-13 school year and was the only school within the Washoe County School District to receive exemplary status in the No Child Left Behind accountability ratings.⁷⁴

While academic research into the effectiveness of virtual schooling is still evolving, early evidence reveals that virtual schooling is a far more cost-effective means of preparing students for success in life than the traditional brick-and-mortar school. The greater success of at-risk students who have struggled in traditional schools is especially significant: When given the opportunity to participate in online courses, these students have achieved at far higher rates.

[V]irtual schooling is a far more cost-effective means of preparing students for success in life than the traditional brick-and-mortar school.

Institutional resistance and the counter-reformation

The innovations pioneered by education scholars to improve the effectiveness of public education spending over the past decades have, in many respects, directly challenged the traditional model of public schooling. This challenge has elicited widespread resistance from among the entrenched interest groups most closely tied to traditional public schools — especially teacher unions.

These “opponents to education reform,” as they are called by Sonya Horsford, have responded with their own slate of proposals for changing public education. At the forefront of this counter-reformation-style policy agenda have been statewide mandates for class-size reduction,⁷⁵ full-day kindergarten,⁷⁶ and universal preschool.⁷⁷

While this policy agenda is frequently conflated with the “education reform” movement developed by academics, it is instead a competing agenda that seeks to grow and expand further the traditional structures of public schooling. In lieu of fundamental changes to how children and families receive education, the counter-reformation aims to double down on the traditional approach by hiring more teachers, building more classrooms and ushering additional populations of students into traditional public schools.

This agenda carries obvious benefits for its primary advocates — such as the need to hire additional union-dues-paying teachers — but no serious scholar can blithely dismiss the potential merits of such an agenda based solely on that observation. Just as with the school reform movement, the ideas of this counter-reformation have produced a rich scholarship, and this literature is worthy of careful consideration by any scholar or policymaker serious about improving students’ chances for success in life.

Advocates of the counter-reformation have successfully lobbied to pass the key planks of their policy agenda in several states. This experience has provided the data necessary to conduct in-depth empirical analysis on the effectiveness of counter-reformation policies. In general, the empirical

research finds that counter-reformation policies have also elevated student achievement, at least for temporary periods. However, many of the gains demonstrated from these policies are not lasting and are far less cost-effective than the gains available from reform policies.

Class-size reduction

At least 24 states have adopted statewide class-size restrictions since the first large-scale experiment with class-size reduction was launched in Tennessee in the late 1980s.⁷⁸ Of these, the Tennessee experiment has been the most widely studied and data is now available tracking the first cohort of students who participated well into adulthood.

Beginning with the 1985-86 school year, entering kindergartners were randomly assigned into classes of either 13 to 17 students or 22 to 25 students. Due to the program's high cost and uncertainty about its likelihood of success, Tennessee lawmakers authorized the four-year experiment to track the progress of entering students through the end of third grade before committing additional funds.

In separate analyses, Princeton statistician Frederick Mosteller⁷⁹ and Princeton economist Alan Krueger⁸⁰ determined that students in the reduced class sizes performed about one-fourth of a standard deviation higher on standardized testing than students in larger classes. For low-income and minority students, the effects were about twice as large as for other students. However, the higher performance began to dissipate once students moved on to fourth and fifth grades.

In 2010, a team of economists from Harvard, Northwestern and UC-Berkeley analyzed tax records of the students who had participated in the Tennessee experience decades earlier to determine what effect smaller class sizes held over lifetime earning. They found that students in the smaller classes were about 2 percent more likely to be enrolled in college by age 20, but could find no visible impact on earnings by age 27. Interestingly, though, the authors find that students who received more experienced and higher quality teachers did have higher earnings at age 27.⁸¹

One of the largest experiments with class-size reduction occurred in California after lawmakers there enacted class-size restrictions beginning in 1996. The program would reduce average class size by 10 pupils — from 30 to 20. This statewide shrinkage of class size required public school districts to hire 25,000 additional teachers within the program's first two years.

Along with Amherst College economist Steven Rivkin, University of Kentucky economist Christopher Jepsen examined the impact of California's experiment with class-size reduction on student achievement in 2009. They observed that many of the new teachers hired to make the program workable were inexperienced or of only marginal quality and that students who received these teachers suffered by about the same amount as they benefitted from the reduced class size.⁸²

Considering the increased likelihood that students would receive an inexperienced teacher, then, the net impact of class-size reduction on student achievement may only be negligible, despite the program's high costs.

In fact, that criticism of class-size reduction resonates throughout the academic literature: Any positive impact of smaller class size on student achievement appears to be disproportionate to the program's high costs. A parallel theme that echoes throughout the academic literature is that teacher quality has a far greater impact on student achievement than class size. Harvard scholars Ludger Wobmann and

[W]hile differences between large and small classes in early elementary school had no long-term effects on the earning power of adults, differences in classroom quality did.

Martin West, for instance, review international data and find that lower class size is associated with higher student achievement only in classes with relatively new or ineffective teachers. They suggest that highly skilled teachers are able to deliver effective instruction regardless of class size.⁸³

Rivkin, Hanushek and Kain show that even a large, 10-student reduction in class size would not increase student achievement as much as an improvement in teacher quality of one standard deviation.⁸⁴

These observations have prompted education scholars from across the political spectrum to become critical of class-size reduction as a policy tool for improving student achievement. Writing on behalf of the Brookings Institution, education scholars Matthew Chingos and Grover Whitehurst warn:

Assuming even the largest class-size effects, such as the [Tennessee] STAR results, class-size mandates must still be considered in the context of alternative uses of tax dollars for education. There is no research from the U.S. that directly compares CSR to specific alternative investments, but one careful analysis of several educational interventions found CSR to be the least cost effective of those studied.⁸⁵

Chingos and Whitehurst recommend that policymakers focus on methods of improving teacher quality rather than reducing class size, such as by increasing pay levels for talented educators. In their words:

The tradeoff between class size and teacher salaries needs to be very carefully considered. Effects on student achievement related to differences in teacher quality are very large. The same data from the Tennessee STAR study that demonstrates long-term effects for class-size reduction produces estimates of much larger effects for variation in teacher quality within schools. Thus, for example, while differences between large and small classes in early elementary school had no long-term effects on the earning power of adults, differences in classroom quality did. With fixed or reduced state budgets to support K-12 education, maintaining class-size limits means a larger pool of teachers with lower salaries. It means that funds that might be devoted to raising teacher salaries across the board or selectively in hard to fill positions or for highly effective teachers will be limited. By one estimate, an increase in average class size by 5 students would result in an across the board increase of 34 percent in teacher salaries if all the savings were devoted to that purpose. Higher salaries would likely draw more qualified people into the teaching profession, and keep them there.⁸⁶

In a world of unlimited resources and an abundance of quality teachers, smaller classes could have a beneficial impact on student achievement. The question though is whether class-size reduction is the best strategy to follow when education resources are limited, as they always are, and when potential high-quality teachers have other career options. As the left-leaning Center for American Progress points out:

Large-scale CSR policies clearly fail any cost-benefit test because they entail steep costs and produce benefits that are modest at best. There are certainly many policies that might be proposed as cost-effective alternatives to CSR, but one set of policies that stand out are those aimed at improving teacher quality. Researchers agree that teacher quality is the single most

important in-school determinant of how much students learn ... Investing less in CSR would free up resources that could be used to recruit and retain highly effective teachers.

School finances are — and always will be — finite, so the right way to think about every dollar spent is not “will it have any positive effect?” but “is this the best possible way to spend this dollar?” A hugely expensive policy has to produce very impressive results in order for it to be preferable to all of the other potential uses for those resources. Class-size reduction almost always fails this test because it is too expensive to justify even benefits as large as those suggested by the Tennessee STAR study.

Changing the nature of the teaching profession to make it more responsive to quality would come at a cost. Teachers would need to be paid more to compensate them for the loss of job security. Providing bonuses to teachers in high-need subjects and schools would also consume resources. If these policies are more cost-effective than reducing class size, then increasing class size in order to pursue them would increase student achievement. Rigid across-the-board CSR policies make it impossible for schools to pursue such policies by tying up valuable educational resources.⁸⁷

As these opinions make clear, there is an emerging consensus among education scholars that while class-size reduction *can* have a positive effect on student learning, it is among the least cost-effective options for improving student achievement and, therefore, should be among the last options to be considered.

Full-day kindergarten

Forty-four states and the District of Columbia today require public school districts to provide kindergarten classes, although most schools offer kindergarten even where it is not required.⁸⁸ In only 11 states, however, are schools required to offer full-day kindergarten to all children free of charge.⁸⁹ Still, about 75 percent of kindergartners nationwide attend a full-day curriculum — roughly triple the rate of the early 1990s.⁹⁰ That impressive growth rate is indicative of the successful advocacy efforts of counter-reformation supporters in promoting that movement’s agenda.

The growth of full-day kindergarten also provides researchers with an empirical record to examine its effectiveness, relative to half-day kindergarten, in bolstering student achievement. Several major research efforts have examined this record and scholars have generally concluded that students who enroll in full-day kindergarten show small advantages in cognitive development by the end of the kindergarten year, but that these advantages soon dissipate.

In 1998, the U.S. Department of Education launched a longitudinal study tracking 22,782 children entering kindergarten that year across 1,277 different schools to examine how full-day kindergartners fared compared to half-day kindergartners. By the end of the kindergarten year, full-day kindergartners had increased their reading ability 32 percent of a standard deviation faster than half-day kindergartners and increased their math skills 22 percent of a standard deviation faster.⁹¹ When the study was completed after grade three, however, researchers could find no difference in achievement between the two groups. “Children’s reading and mathematics gains over the first 4 years of school did not differ substantively,” conclude the authors, “by their sex or the type of school or kindergarten program they attended.”⁹²

Researchers from the RAND Corporation subsequently reviewed the data from the U.S. Department

of Education's longitudinal study and drew similar conclusions, saying "full-time kindergarten programs may not enhance achievement in the long term."⁹³

In 2008, the Nevada Legislature asked a team of researchers from WestEd to review the existing scholarship on the relationship between full-day kindergarten and student achievement. The researchers responded with a review of 11 reports, more than half of which utilized data from the U.S. Department of Education's longitudinal study. The reviewers conclude:

With regard to reading, the research reports published in the last decade are consistent in suggesting a relationship between attendance in full-day kindergarten and higher levels of early reading skills (e.g., phonemic awareness, letter-sound correspondence). *Studies that examined reading achievement at higher grades (e.g., reading comprehension) did not find the same association with the kindergarten program.*

With regard to mathematics, the research conducted in the past decade does not provide sufficient information from which to draw conclusions about the relationship between student achievement and attendance in full-day kindergarten.⁹⁴ (Emphasis added.)

No known study has ever identified any lasting benefit to student achievement of enrollment in full-day kindergarten, relative to half-day kindergarten. However, while multiple half-day kindergarten classes can be accommodated by a single teacher and classroom space, full-day kindergarten entails significant additional expense, as each class requires a separate teacher and classroom. Empirical research makes it difficult to justify this additional expense, since all evidence indicates that full-day kindergarten produces no lasting benefit for students.

Universal Preschool

As with full-day kindergarten, counter-reformation advocates have enjoyed a high degree of success in recent decades prompting state lawmakers to enact requirements for public school districts to offer universal preschool programs free of charge to parents. And, as with full-day kindergarten, the empirical research into the effectiveness of these programs has shown that, despite their cost, they have not produced lasting gains in student achievement.

In support of universal preschool requirements, counter-reformation scholars typically refer to an experiment conducted in Michigan during the 1960s called the Perry Preschool Project. For that experiment, 58 black children were selected to participate in an intensive, multi-year intervention program that included home visitation as well as preschool instruction. Their experience was contrasted with a control group of 65 children who had no preschool services available to them. As these children have grown into adulthood, those who participated in the program have been found to graduate high school at greater rates, commit fewer crimes and experience higher earnings.⁹⁵

However, it is not possible to extrapolate the results of this small experiment in Michigan 50 years ago to draw conclusions about its relevance to modern-day programs of universal preschool. The sample size is too small to draw meaningful conclusions, the program was incomparable to modern preschool offerings and the socioeconomic context facing poor and middle-class families today is vastly different from 50 years ago.

[A]ll evidence indicates that full-day kindergarten produces no lasting benefit for students.

In Oklahoma, reading scores among fourth-grade students have actually declined since students began to participate in universal preschool programs.

As Brookings Institution education scholar Grover Whitehurst puts it:

The Perry findings demonstrate the likely return on investment of widely deployed state pre-K programs for four-year-olds in the 21st century to about the same degree that the svelte TV spokesperson providing a testimonial for Weight Watchers demonstrates the expected impact of joining a diet plan.⁹⁶

In light of the fact that ample data is available from states that have implemented universal preschool programs over the past two decades, the experiences of children in these states provide a much clearer picture of what impact a universal preschool program is likely to deliver.

The earliest states to require school districts to offer universal preschool were Georgia, in 1996, and Oklahoma in 1998. Stanford economist Maria Fitzpatrick reviewed the fourth-grade performance of students in Georgia before and after universal preschool became available and found minimal differences among the student cohorts.⁹⁷ A longitudinal evaluation of the program conducted at Georgia State University helps to explain why. It concludes that students who participated in the preschool program showed an early advantage in letter and word recognition, but that the advantage dissipated by the end of first grade.

By the end of first grade, students who had participated in Georgia's preschool program were indistinguishable from those who did not.⁹⁸

In Oklahoma, reading scores among fourth-grade students have actually *declined* since students began to participate in universal preschool programs. In fact, Oklahoma is the *only* state to have experienced a decline in fourth-grade reading scores over this time period, despite having the highest preschool participation rate in the nation, at 70 percent, and spending more than \$7,400 per four-year-old enrolled in the program.⁹⁹

Some of the most credible research in favor of preschools seems to indicate that preschool offers the greatest benefit to low-income and otherwise disadvantaged children.¹⁰⁰ However, even when preschool programs have been targeted specifically to low-income populations, such as the federal Head Start program, research has shown that the results are not lasting. At an annual cost of \$8 billion, Head Start is the nation's largest preschool program, and repeated evaluations of the program's effectiveness have concluded that any gains experienced by participants tend to disappear by the end of third grade. The latest evaluation — a 2012 report released by the Obama Administration — concludes:

There were initial positive impacts from having access to Head Start, but by the end of 3rd grade there were very few impacts found for either cohort in any of the four domains of cognitive, social-emotional, health and parenting practices. The few impacts that were found did not show a clear pattern of favorable or unfavorable impacts for children.¹⁰¹

As with full-day kindergarten, the empirical evidence on universal preschool consistently finds that these programs fail to provide a lasting benefit to children, as researchers can find no difference among children who did and did not participate in these programs within just a few short years.

Counter-reformation policies offer little return on investment

Given the fact that education resources will always be limited, it seems clear that large, expensive programs that provide minimal benefit to students over their lifetime should be among the lowest priorities for policymakers.

When put into practice, counter-reformation policies have failed to produce lasting benefits for children in any cost-effective manner. Among the major initiatives pursued by counter-reformation supporters, only class-size reduction has been associated with any lasting gains in student achievement, and even those gains have proven to be inconsistent, minimal and extremely cost-*ineffective*.

Based on this empirical record, activists and policymakers who are sincere in their desire to prepare children for success in life would be wise to discard these policies in favor of a reform agenda that has a proven record of success.

A cost-effective agenda to prepare Nevada's children for success

The goal of improving the educational experience of Nevada's schoolchildren is universal.

However, taxpayers who have devoted rapidly increasing sums to support public schools should expect to see a return on that investment. Sadly, they have not.

The growing expenditure on public schools comes at a cost to Nevada households of other opportunities foregone. Every dollar dedicated to support public schools is a dollar unavailable for parents to purchase alternative education services, groceries, family vacations, to make business investments or pay utility bills. While the education of Nevada's next generation is a high priority for all Nevadans, the costs of these forgone opportunities must not go overlooked. Weighing these tradeoffs is a delicate balance and this reality makes it even more incumbent upon education advocates to ensure that existing education dollars are spent in the most cost-effective manner.

Academic studies examining the relationship of various educational strategies to student achievement abound, but remarkably few place this analysis in the context of cost-effectiveness in order to determine which strategies deliver the greatest return on investment. In a world that will forever be constrained by the reality of limited resources, the usefulness of academic work that does not consider the relative cost-effectiveness of different approaches is extremely limited.

Among the few studies available that do examine the cost-effectiveness of different approaches to education, University of Minnesota professor Stuart Yeh's 2010 analysis figures prominently. Yeh determined that rapid assessment — a method of testing students' knowledge and providing immediate feedback — is the most cost-effective strategy for boosting student achievement. Next

come comprehensive school reform and computer-assisted instruction.

Yeh also notes that raising teachers' salary and experience levels are cost-effective means of improving student achievement. Relatively less cost-effective strategies, according to Yeh's findings, include class-size reduction, full-day kindergarten, strict licensure requirements for teachers and various forms of preschool.¹⁰² It is noteworthy that Yeh's findings mirror closely the conclusions developed in this analysis.

This analysis proceeds by outlining 33 policy reforms that would increase the cost-effectiveness of Nevada's education spending, based on evidence available in the academic literature and from the experiences of other states.

Of necessity, improving the cost-effectiveness of Nevada's education spending will imply a disruptive reallocation of resources in order to align spending with the factors that truly impact student achievement. Many large, ineffective programs must be eliminated so that resources can be shifted to more cost-effective solutions.

Inevitably, such a transformative change in education policy will encounter resistance from the state's large education bureaucracy and entrenched interest groups.

Nevada's children, however, can no longer afford to see their opportunities for success in life limited by the *quid pro quo* arrangements of calculating political actors. It is for Nevada's children that NPRI developed the following menu of policy reforms.

Attract and retain a talented workforce

Reform #1: Implement a longitudinal data tracking system. The first step to improving public education in the Silver State is to generate the information needed to make critical decisions about which educators or pedagogical practices are the most effective. Former Nevada Superintendent of Public Instruction James Guthrie estimated that a longitudinal data tracking system similar to Tennessee's Value-Added Assessment can be implemented in Nevada at a cost of only \$3.75 per student.¹⁰³

Legislation passed in 2011 instructed the Nevada Department of Education to create a longitudinal data tracking system to become operational for the 2013-14 school year. Subsequent legislation passed in 2013, however, delayed implementation for most school districts by at least one year and possibly longer, depending on the findings of a study to be commissioned by the Department of Education.¹⁰⁴

Reform #2: Create an exclusive system of merit pay for the top 10 percent of teachers. In order to attract top talent to the classroom, schools need to offer compensation packages that are competitive with other professional fields such as law or accounting for the top tier of talent. True merit pay would help influence ambitious college students to pursue a career in teaching in lieu of other professions that are currently more lucrative.

Research shows that merit pay is most effective when it is offered as a bonus only to a narrow segment of top-performing teachers, such as the top 5 or 10 percent.¹⁰⁵ The Nevada Policy Research Institute has designed a revenue-neutral system of true merit pay that would recognize the top 10 percent of Nevada teachers as "Master Teachers" and reward those teachers with \$200,000 in

total compensation in exchange for working a longer school year in at-risk schools and training other teachers.¹⁰⁶

Reform #3: Allow individual educators to negotiate compensation privately.

The Center for American Progress has rightly recommended that public schools use a more flexible wage structure in order to attract and retain better educators — just as private and charter schools do.¹⁰⁷ In the Silver State, that recommendation is salient for many reasons.

First, the rigid salary structures typical in Nevada public schools — offering only low entry-level pay while rewarding teachers primarily for years on the job — are not only unattractive for talented young professionals but have little to do with student performance. Further, teacher pay has increasingly fallen out of line with pay offered in other professions. A recent OECD analysis of teacher pay shows that teachers during the 1970s earned, on average, 93 percent as much as similarly qualified nonteachers. By the 2000s, however, that figure had fallen to 81 percent. In the United States today the salary gap between teachers and nonteachers is, on average, roughly twice as large as the OECD average.¹⁰⁸ For the most talented young professionals, these facts make teaching a less attractive occupation. Allowing young aspiring teachers to negotiate their own salary terms — as other professions allow — could make teaching far more attractive.

Second, individuals place significantly different values on deferred-compensation and other benefits relative to salary. Research suggests that many teachers are far more sensitive to changes in current compensation than in deferred-compensation schemes. Education scholars Robert Costrell and Josh McGee found in 2010 that a \$10,000 increase in one year accrual of pension benefits would persuade only 0.6 percent of teachers who are considering leaving the classroom to stay on for an additional year. However, a mere \$1,000 increase in current compensation decreases the likelihood of exit by 5 percent.¹⁰⁹ In spite of this clear signal that teachers tend to place a higher value on current compensation, one-size-fits-all union contracts give teachers limited control over how they are compensated.

Reform #4: Allow educators to opt into a defined-contribution pension. Nevada's teachers are automatically enrolled into a defined-benefits pension through the Public Employees' Retirement System. However, defined-benefits pensions provide benefits to retirees according to a formula that considers the number of years on the job and compensation levels at the end of a career. Further, teachers receive no benefits until they have been on the job long enough for the pension to "vest" and they have no claim to money deposited into the pension system on their behalf for the first several years of employment.

As a result, defined-benefits pensions offer little value to talented professionals who might wish to spend a few years in the classroom at the beginning of their career or who transition into the classroom mid-career. Yet, research shows that today's generation of young professionals value job portability and do not want or expect to stay in one occupation for their entire career.¹¹⁰ This means that a defined-contribution pension over which employees have immediate control and can transfer from one job to the next would be more attractive in today's labor market.

The Nevada Policy Research Institute has designed a revenue-neutral system of true merit pay that would recognize the top 10 percent of Nevada teachers as "Master Teachers" and reward those teachers with \$200,000 in total compensation.

Tenure protections for public school teachers are intrinsically counter-productive for administrators who wish to improve student achievement by employing highly effective teachers.

Reform #5: Offer greater pay for teachers at low-performing schools or in academic disciplines with talent shortages. Another shortcoming of inflexible salary schedules is that they fail to address the market realities facing many schools in their search for teaching talent. Teachers with expertise in science or math, for instance, tend to have more career opportunities available to them than teachers with expertise in other fields, and so school administrators should be free to pay more to attract teachers for academic disciplines that are in higher demand.

Research also shows that schools with large numbers of low-performing or low-income students find it harder to attract high-quality teachers.¹¹¹ Yet, experiments in North Carolina¹¹² and California¹¹³ demonstrate that higher pay or bonuses for teaching in these schools is an effective way to lure high-quality teachers.

Reform #6: Eliminate experience-based step increases after three years. Research shows that experience in the classroom is one of the greatest predictors of teacher effectiveness — up to a point. Teachers rapidly increase their effectiveness within the first three years of teaching, but the benefit of additional experience beyond that point is negligible.¹¹⁴ Yet, current salary structures offer premiums for additional experience well beyond the first three years. As authors from the Brookings Institution point out, this experience-based compensation system is not aligned with the factors that influence student achievement.¹¹⁵

Reform #7: Eliminate teacher tenure. Tenure protections for public school teachers are intrinsically counter-productive for administrators who wish to improve student achievement by employing highly effective teachers. While 2011 legislation extended the “probationary” period for teachers before tenure is awarded from one to three years in Nevada,¹¹⁶ “this short time clock limits opportunities to use performance measures to inform tenure decisions,” in the words of Brookings Institution education scholars.¹¹⁷

Thus, rather than being linked to student achievement, teacher tenure tends to have the effect of protecting ineffective teachers from dismissal and keeping them in the classroom.

Reform #8: Remove the bottom 5 percent of educators. Identifying and removing ineffective teachers is equally as important to improving student outcomes as identifying and retaining highly effective teachers. Ineffective teachers hamper the academic development of their students and, consequently, impede students’ chances for success in life.

Stanford economist Eric Hanushek estimates that removing the bottom 5 percent of teachers nationwide and replacing them with teachers of merely average quality would have such a pronounced impact on student achievement that the present value of future economic output would increase nationally by around \$100 trillion.¹¹⁸

Reform #9: Aggressively expand programs of alternative teacher certification. Traditional teacher licensure requirements have been shown to add no value to a teacher’s ability to improve student performance.¹¹⁹ As such, these requirements act primarily as an artificial barrier to entry into the teaching profession, making it unnecessarily difficult for talented, mid-career professionals to

transition into the classroom. In order to broaden the talent pool available to school administrators, alternative routes to licensure must be made pervasive and free of encumbering requirements. As Brookings Institution scholars write, “Evidence suggests that schools should recruit as widely as possible and not use measures that are costly to potential recruits, such as teaching certificates.”¹²⁰

Although Nevada nominally offers an alternative path to teacher licensure, the requirements for obtaining this licensure can take nearly as long to complete as the traditional path to licensure. Legislation passed in 2011 instructs licensing authorities to “significantly limit the amount of coursework required,” but the alternative path can still take two full years to complete.¹²¹ Prospective teachers seeking lateral entry into the classroom should be given an option to have coursework requirements waived if they can achieve a certain score on a subject-matter test.

Reform #10: Recognize teaching credentials gained in other states. The majority of states have reciprocity agreements that recognize teaching credentials gained in any other state. However, while Nevada offers reciprocity agreements with a majority of states, credentials gained in certain states are not recognized in Nevada.¹²² In order to draw from the largest teaching talent pool, Nevada should recognize credentials gained anywhere in the United States.

Reform #11: Expand Teach for America program. Nevada school districts should actively recruit educators from the Teach for America program. These recruits come from the top tier of college graduates and bypass traditional teacher certification requirements and on-the-job training in order to accept full-time teaching positions. Research shows that Teach for America graduates have demonstrated a higher rate of success in promoting student achievement than other teachers.¹²³ Scholars at Harvard, Columbia and Dartmouth have shown that the effectiveness of Teach for America participants is large enough to more than compensate for relatively high turnover rates.¹²⁴

Reform #12: Make reduction-in-force decisions based on educator effectiveness. Personnel decisions should always be made bearing in mind their impact on student achievement. When it becomes necessary for school administrators to make layoffs, the lowest performing teachers should be the first to face dismissal. Yet, Nevada law allows school districts to protect more senior teachers from dismissal regardless of whether these teachers are promoting student achievement.¹²⁵

In 2012, the Clark County School District announced plans to lay off a teacher it had recognized as a “New Teacher of the Year” just months earlier.¹²⁶ Such policies are obviously counter-productive to the goal of keeping the most talented educators in the classroom.

Reform #13: Minimize teacher reassessments to maximize teachers’ effectiveness. Emerging evidence suggests that specialization is an extremely important aspect to help teachers improve their effectiveness. Teacher effectiveness tends to improve rapidly during a teacher’s first three years, but this progress is arrested when teachers are reassigned to teach different grades.

Cornell economist Ben Ost has shown that teachers who receive the same grade assignment from year to year tend to improve about 50 percent faster than teachers who never repeat a grade assignment. Ost shows that continuity of assignments is especially vital for teachers working with English language learners.¹²⁷

School administrators must provide teachers with the environment to succeed, and research suggests that a key component of that environment is a continuity of assignments.

Keep teachers in the classroom

During the 2009-2010 school year, 31.4 percent of Nevada's teachers missed more than 10 days of school.¹²⁸ Nationwide figures reveal that teachers are absent from work at a rate 77 percent higher than the average for full-time salaried workers.¹²⁹

This chronic teacher absence imposes steep costs in both financial terms and on student achievement. The financial costs associated with teacher absences primarily include substitute teacher salaries and additional administrative costs. These are not insignificant, as some studies indicate that these costs may reach more than \$25 billion nationwide.¹³⁰

Even more important, however, may be the impact of teacher absenteeism on student achievement. Research teams at both Harvard and Duke Universities have shown that students in classrooms where a teacher is absent more than 10 days achieve at significantly lower rates.¹³¹

Worse yet, there is evidence to suggest that a large proportion of teacher absenteeism is discretionary. Teachers are absent most frequently on Mondays and Fridays, indicating a desire to enjoy longer blocks of leisure time.¹³² Further, a majority of teacher absences have been shown to be of a duration just short of the length that would require a doctor's note.¹³³

Reform #14: Limit availability of leave-time provisions. Teacher absenteeism has been positively associated with the generosity of leave provisions.¹³⁴ As a result, leave-time provisions must remain limited in order to keep teachers in the classroom while also balancing the needs of teachers who have legitimate reasons for absence.

According to the National Council on Teacher Quality, Clark County teachers are awarded 15 general leave days per school year, which is among the most generous in the country. Other large school districts in California, Florida, Louisiana, Texas and New York award only 10 general leave days per school year.¹³⁵ If this amount is appropriate in Los Angeles, New York City, San Francisco and other large, urban school districts, it should also be sufficient for Nevada school districts.

Reform #15: Offer bonuses for perfect attendance at work. One successful method of encouraging teachers to remain frugal with the use of leave time is to provide financial incentives for high rates of attendance. An incentive program developed in Florida during the late 1980s that paid bonuses to teachers with perfect or near-perfect attendance led to a 20 percent reduction in teacher absenteeism.¹³⁶

Reform #16: Require teachers to call their principal prior to any absence. While many school districts have realized an administrative efficiency by allowing teachers to report absences to a centralized reporting center or a school-based messaging machine, research suggests that these methods of indirect reporting only encourage teacher absenteeism. By contrast, when teachers are required to report absences directly to their principal by telephone, absenteeism declines precipitously.¹³⁷ The improved attendance rates that result from this practice have benefits that far outweigh any administrative savings related to indirect reporting mechanisms.

Divert funding from programs that have limited impact on student achievement

Reform #17: Redirect funding from the class-size reduction program.

As previously discussed, scholars from across the political spectrum agree that class-size reduction programs are among the least cost-effective means for improving student achievement. Yet, Nevadans will spend \$328 million on this program during the 2013-2015 budget cycle.¹³⁸ This money can be spent much more effectively if reallocated toward teacher merit pay or other programs that have a more direct impact on student achievement.

Reform #18: Redirect funding from full-day kindergarten. Scholars agree that full-day kindergarten fails to help students achieve at higher rates over their lifetime. Yet, Nevada taxpayers will spend \$81 million during the 2013-2015 budget cycle to support and expand a full-day kindergarten program that began in 2005.¹³⁹

Reform #19: Redirect state funding for preschool. Research shows that modern preschool programs do not result in lasting or cost-effective gains in student achievement. While current legislative appropriations for Nevada's Early Childhood Education program are modest relative to other cost-ineffective uses of education dollars, the \$6.6 million Nevadans will spend on this program during the 2013-2015 budget cycle could be used more effectively elsewhere.¹⁴⁰

Reform #20: Stop paying prevailing wages for school construction. Facilities construction and maintenance is a major expense for public school districts and this cost is inflated by state regulations that effectively require public contractors to pay union wages on all school-construction projects.¹⁴¹ In 1997, Ohio lawmakers exempted public-school construction from that state's prevailing-wage laws with the passage of Senate Bill 102.¹⁴² Five years later, legislative staff reviewed the bill's fiscal impact on school districts and revealed that the change had reduced construction costs by 10.7 percent with no apparent difference in the quality of construction. As a result, public school districts had saved \$487.9 million over the span of five years.¹⁴³

An equivalent rate of savings in Nevada would have left public school districts with an additional \$72.6 million during the 2009-10 and 2010-11 school years.¹⁴⁴

Reform #21: Redirect premium pay for advanced degrees. Research shows that outside of math and science, teachers who earn advanced degrees are no more effective at educating students than teachers without such degrees.¹⁴⁵ Yet, Nevada's teacher compensation system awards salary bonuses to teachers who obtain master's degrees regardless of the quality of the program from which they acquire the degree. This practice simply inflates the demand for graduate degrees and promotes a proliferation of graduate programs of questionable quality without conferring additional benefits to students.

Scholars agree that full-day kindergarten fails to help students achieve at higher rates over their lifetime.

Estimated Biennial Savings Available From Elimination of Ineffective Programs

Class-size reduction	\$328 million
Full-day kindergarten	\$81 million
Preschool	\$7 million
Prevailing wage	\$73 million
Premium pay for advanced degrees	\$161 million
Total	\$650 million

Nationwide, 90 percent of teachers who earn master's degrees do not obtain those degrees in content fields such as math or science, but in education. During the 2007-08 school year, 59 percent of Nevada's teachers received additional compensation for holding a master's degree, causing school districts to pay an additional \$80.4 million in compensation. Over a two-year budget cycle, that cost would reach about \$161 million.

Education scholars from across the political spectrum agree that offering premium pay to teachers simply for obtaining an advanced degree is an ineffective use of limited education dollars. The left-leaning Center for American Progress, for instance, derides "the disconnect between the goal of improving student achievement and the tradition of paying teachers extra simply for holding post-baccalaureate sheepskin."¹⁴⁶

Inject market forces into public education

The evidence that school choice is among the most cost-effective strategies for elevating student outcomes, discussed previously, grows by the day. In particular, school choice tends to benefit minority students and students from low-income households. No serious academic study has ever found that school choice harms any group of students.

Still, there are many ways to structure a program of private-school choice and many states have implemented multiple school choice structures simultaneously. Charter schools also operate as schools of choice and variations in state charter school laws can have huge impacts on the extent of choice available.

The options for increasing the degree of parental choice outlined here are not mutually exclusive; they can be implemented individually or simultaneously.

Further, it should be noted that while school choice programs have the greatest benefit when eligibility for participation is broadest, some states have created school choice programs that narrow eligibility only to specific subsets of the student population. These include programs targeted for special needs students, low-income students, students assigned to failing or over-crowded schools and students who are English language learners.

Reform #22: Create a tax-credit scholarship program. The Nevada Policy Research Institute has designed a scholarship program for parents who would like to send their children to schools other than their assigned district-run school. The scholarships would be funded by corporate donations against which firms could declare a credit on state tax liabilities. Scholarships could be awarded in amounts up to \$8,500, although the median private school tuition in Nevada was estimated at around \$6,000.¹⁴⁷

While allowing families to receive the benefits of school choice, the program would also result in a sizable cost savings for public school districts because the maximum scholarship amount is less than the cost of educating a child in public schools. As a result, the per-pupil funding of children who choose to remain at public schools increases in the presence of such a scholarship program.¹⁴⁸

The tax-credit scholarship program is estimated to save public school districts \$30 million during the first two years of operation. That amount would increase sharply in ensuing years as participation rates in the scholarship program increase. By year 10, the *annual* savings attributable to the scholarship program would approach \$230 million.¹⁴⁹

[T]he conversion of failing public schools into successful charter schools ... has led to significant gains in student achievement...

Reform #23: Create Education Savings Accounts. Parents on the other side of Nevada's southern border not only can take advantage of tax-credit scholarship programs to send their children to schools of choice, they also can also ask the state to deposit money into a unique account on their child's behalf to finance qualified educational expenses.

First enacted in 2011, education savings accounts are the newest innovation on school-choice vehicles. As structured in Arizona, new participation each year is limited to 0.5 percent of the total population enrolled in public and charter schools the previous year. Initially, eligibility has also been restricted to students with special needs, students enrolled in failing schools and youth adopted from the state's foster care system.¹⁵⁰

Beneficiaries are eligible to have 90 percent of the charter school per-student base funding deposited into their education savings account and that money can be used for statutorily defined purposes, including private-school tuition, online education, or private tutoring. A key benefit to education savings accounts is that they promote frugality among beneficiaries because any money not used in a given year remains in the beneficiary's account and can later be applied toward college tuition costs.¹⁵¹

Reform #24: Implement school vouchers. Vouchers are publicly funded grants that follow students to the schools of their choice and pay tuition costs, in whole or in part. Since first being implemented in Milwaukee, voucher programs have expanded to Colorado, Florida, Indiana, Louisiana, Mississippi, North Carolina, Ohio, Utah, Vermont and the District of Columbia. As with other choice programs, some have been targeted specifically to students with disabilities or students from low-income households.¹⁵² Random-assignment longitudinal analyses have consistently found that vouchers lead to higher student achievement.

Reform #25: Create a parent trigger. In 2010, California state Sen. Gloria Romero (D-Los Angeles) crafted and shepherded landmark legislation into law that would allow parents to force changes at failing public schools if a majority of the parents sign a petition demanding such changes. The law would allow parents to force removal of ineffective teachers or administrators, close the school and relocate their children to better performing schools nearby or to convert the failing school into a charter school.¹⁵³

Within just two years, the so-called "parent trigger" laws were passed in Connecticut, Indiana, Louisiana, Mississippi, Ohio and Texas, sponsored primarily by Democrat state lawmakers.¹⁵⁴ During Nevada's 2013 legislative session, three separate proposals would have established a parent trigger law in Nevada, giving parents some method of recourse when their children are assigned to a failing public school.¹⁵⁵

Reform #26: Improve charter school laws. Nevada's charter school laws have improved dramatically since 2011 as a result of the State Public Charter School Authority's creation and other charterschool-related legislation. However, according to the National Alliance for Public Charter Schools, two key areas in which the state's charter school laws could improve include (1) allowing conversions of existing public schools into charters and (2) allowing multi-school charter contracts.¹⁵⁶

While parent-trigger laws allow for one form of parent-initiated public school conversion, Nevada lawmakers should also consider a more comprehensive conversion approach. Louisiana lawmakers, for instance, created the "Recovery School District," which is administered by the

[T]hird-grade literacy is of such great importance to student achievement that moneys currently spent on programs of lesser value, ... should be redirected to implement a “Read by 3” program.

state education department to oversee the conversion of failing public schools into successful charter schools. Tulane University research shows that this approach has led to significant gains in student achievement — particularly in the New Orleans area.¹⁵⁷

Secondly, allowing charter contracts to cover multiple branches of a single charter model provides students in different neighborhoods greater access to the most successful charter schools. High Tech High, for instance, is a charter school with multiple branches operating in California and Texas which are consistently ranked among the top high schools in the nation.¹⁵⁸

Leverage technology to help students learn

Reform #27: Encourage high-poverty and low-performing schools to implement “flipped classroom” model. As seen at Clintondale High School near Detroit, and other high-poverty schools that have experimented with the “flipped classroom” model, this pedagogical technique has been proven to help students overcome certain disadvantages, such as parental disengagement. Nevada lawmakers should create a large-scale pilot program to experiment with the “flipped classroom” model at Nevada’s high-poverty and low-performing schools.

Reform #28: Require all public-school students to take at least one online course. After experiencing tremendous success with the Florida Virtual School,

Florida lawmakers decided in 2011 to make completion of at least one online course a requirement for high school graduation in Florida. Research into the effectiveness of online schooling in promoting student interest and achievement suggests that this policy will benefit Florida students while also improving the cost-effectiveness of that state’s public school system. Nevada lawmakers should enact similar requirements with the recognition that the state needn’t first develop its own state-run virtual school. Instead, Nevada students should be free to enroll in courses offered by third-party providers, including the Florida Virtual School.

Additional reforms

Reform #29: End social promotion. According to the editors of *Education Week*, “social promotion is the practice of passing students along from grade to grade with their peers even if the students have not satisfied academic requirements or met performance standards at key grades.”¹⁵⁹ When students are awarded social promotion to the next grade, it is usually done in the perceived psychological interest of the child.

However, research by the U.S. Department of Education concludes that social promotion results in unacceptably high dropout rates, especially for minority and low-income students.¹⁶⁰ As the study’s title suggests — “Taking Responsibility for Ending Social Promotion” — the practice is extremely detrimental to the long-term development of the child. Nevada lawmakers should act quickly to prohibit this practice.

Reform #30: Require students to “Read by 3.” Research shows that students who are not proficient in reading by the end of third grade become far less likely to succeed in school from that point on. A 2012 study by City University of New York Professor Donald Hernandez shows that children who are

not reading proficiently before moving on to the fourth grade are four times less likely to graduate high school by age 19.¹⁶¹ As Hernandez says, “We teach reading for the first three grades and then after that children are not so much learning to read but using their reading skills to learn other topics.”¹⁶²

During Nevada’s 2013 legislative session, lawmakers heard a proposal to implement a “Read by 3” program, but decided not to pass the bill out of the Assembly Ways and Means Committee after learning that the program could cost more than \$100 million to implement at public schools over the first two years.¹⁶³ Competitive pressures created by the expansion of charter and private-school alternatives envisioned here should hold down that cost. However, research shows that third-grade literacy is of such great importance to student achievement that moneys currently spent on programs of lesser value, such as full-day kindergarten, should be redirected to implement a “Read by 3” program.

Reform #31: Pay for student incentives. Empirical evidence shows that students, like other individuals, respond to incentives. In a 2011 study, Harvard economist Roland Fryer and Bradley Allan of Education Innovation Laboratory examined the impact of providing modest financial incentives to students in 250 low-performing, urban schools and concluded that incentives lead to highly cost-effective improvements in student outcomes.¹⁶⁴

The authors note that incentives are most effective when they reward inputs, such as reading books or completing homework assignments, rather than outputs, such as comprehensive test scores. Students appear to respond best to incentives for tasks with more immediate time horizons. For instance, the authors find that paying students \$2 per book they read or per mathematical concept they master leads to significantly faster academic progress. When given incentives to master mathematical concepts, for instance, Fryer and Allan find that students mastered 125 percent more objectives than students not given incentives.¹⁶⁵

Contrary to the concerns of critics, Fryer and Allan find that incentives do not destroy the intrinsic value of learning. Instead, the learning habits that students acquire in pursuit of incentives tend to persist long after the incentives are removed. They suggest that schools begin implementing modest financial incentives for the completion of short-term objectives and allow students to earn up to a predetermined maximum each year.¹⁶⁶

Reform #32: Experiment with later school-day start times. There is strong evidence that students are better prepared to learn when schools start later in the day. A team of researchers at the University of Minnesota recently completed a multi-site study tracking more than 9,000 high school students before and after their schools shifted to later start times. The research team found that students in high schools with a start time of 8:30 or later were far more likely to get at least eight hours of sleep. These students displayed better attendance rates and academic performance. Tardiness rates also declined, along with car crashes involving teenage drivers.¹⁶⁷

While this body of research is very new, the documented benefits of later school-day start times could mean that this rather simple change could be among the most cost-effective means for improving student performance.

Reform #33: Change grade configurations of school facilities. Another emerging body of research suggests that the grade configurations used by most public school districts are counter-productive to student achievement. When students leave elementary schools to attend middle schools or junior high schools, they tend to experience a high degree of social anxiety. This observation might warrant

concern on its own, but new evidence suggests that the increased levels of social anxiety are harmful to student achievement.

Economist Jonah Rockoff and Benjamin Lockwood of Columbia and Harvard Universities, respectively, examined longitudinal data on students attending middle schools and compared it to data on students attending K-8 schools. The researchers found that, on the whole, students who transitioned into middle schools tend to display significantly more absences from school and lower academic achievement.¹⁶⁸

They note that the cost of educating students in a K-8 setting is roughly the same as educating students in separate elementary and middle school facilities, but that students perform far better in K-8 settings. Thus, a change in grade configurations at school facilities could substantially improve the cost-effectiveness of public spending on education.

Conclusion

No parent or policymaker can be satisfied with the performance of Nevada's schools. Nevada's public school districts have been unable to translate financial resources into improved student performance precisely because those resources have been committed to programs that have only a marginal impact on student achievement.

In a world constrained by limited resources, the public's ability to spend on education will always remain limited. Nevertheless, at \$9,650 per student,¹⁶⁹ Nevada taxpayers contribute more to support the state's public education system than taxpayers in a majority of neighboring states.¹⁷⁰ Despite this relatively heavy commitment from Silver State taxpayers, children in Nevada tend to graduate high school less frequently and do not perform as well on standardized tests.¹⁷¹ This shows the need for a fundamental restructuring of Nevada's education spending that is informed by solid evidence about the relative cost-effectiveness of different approaches.

Fortunately, a large and growing body of academic literature and empirical evidence provides much clarity to this debate. The academic community has long been concerned with declining quality in American schools and has spent the past few decades producing a menu of reform policies that would make Nevada's spending on public education much more cost-effective.

Many of these proposals directly challenge the traditional methods of public schooling and have encountered resistance from entrenched bureaucrats, union officials and other special interests. These interest groups have spearheaded an intellectual counter-reformation that advocates further expansion of traditional education practices.

When researchers have examined the empirical results of counter-reformation proposals as implemented, however, those proposals have been found to *not* cost-effectively improve student achievement. A broad consensus from across the political spectrum has emerged about the need to discard the counter-reformation and implement a slate of reform policies.

For Nevada children, the significance of the academic literature reviewed here cannot be overstated: It reveals a reform agenda that would deploy existing education spending more effectively so that the next generation of Nevadans is well prepared to succeed in life.

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