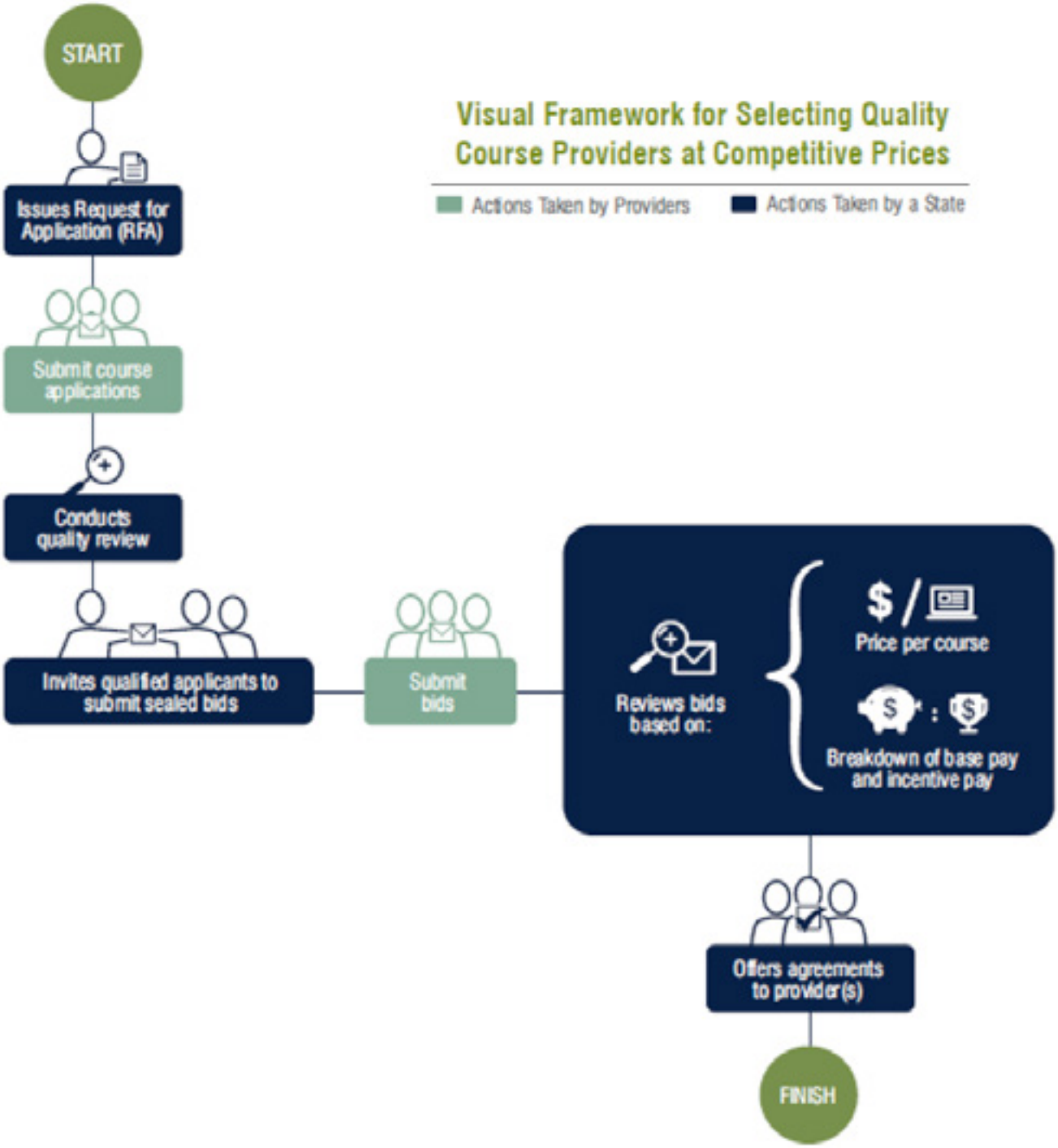
A Framework for Selecting Quality Course Providers at Competitive Prices

Paige Gonye
Adeeb Sahar
Kyle Vandenberg
Scott Ferron
Stanford University

Abstract This paper develops a coherent payment mechanism for supplemental courses that incentivizes quality student outcomes and forms the basis for practical and adaptive state level policy.

In coordination with the Stanford University Public Policy Program and Digital Learning Now, an initiative of ExcelinEd


START
Visual Framework for Selecting Quality Course Providers at Competitive Prices
Actions Taken by Providers
Actions Taken by a State
Issues Request for Application (RFA)
Submit course applications
Conducts quality review
Invites qualified applicants to submit sealed bids
Submit bids
Reviews bids based on:
$ /
Price per course
Breakdown of base pay and incentive pay
Offers agreements to provider(s)
FINISH

Executive Summary

Educational systems face new opportunities and challenges in the 21st century. Technology and new models of learning allow students to receive instruction increasingly personalized to their interests, tailored to their pace and available without restrictions on geography and time. At the same time, these systems are under mounting pressure to reduce costs while maintaining or improving student outcomes. To improve educational productivity, many school districts and states are turning to online learning. However, an emerging problem confronting state policymakers and education leaders is determining what states should pay for a specific course as part of an offering of supplemental courses. Traditionally, this figure is established without any rigorous analysis or rationale. The funding mechanism often creates a market structure that compensates providers with a fee-for-service rather than pay-for-performance model. As a result, some providers are priced out of serving students and others face pressure to maximize their price to capture as much of the funding subsidy as possible. Recognizing this tension, we have created a framework using a sealed bid auction to identify quality providers at competitive prices and to reward providers that promote student success.

The framework is formed on the basis of recommendations by leaders in academia, including Professor Alvin Roth, a Stanford Professor of Economics and Nobel Laureate, leaders in the online education field, and state officials responsible for implementing course choice programs.

This paper presents the framework for selecting online providers in a visual form, breaks down the visual step by step, highlights its benefits, and acknowledges the remaining components of an online education system that a state must consider (e.g. student enrollment, logistics of provider compensation, and provider assessments). It is meant to inform state policy by introducing a framework that is adaptable across states, which may be considering different factors when implementing online education policy. There are still areas for further research, and this framework is not intended to answer all of the many questions that face the nascent online education field. It is, however, intended to offer states a coherent process that they can use to select quality online course providers and pay competitive prices for their products while encouraging student success.

Framework Explained

1. State Issues Request for Application

The framework for provider selection starts with a state issuance of a Request for Application (RFA), alerting providers of the opportunity to submit course applications for quality review. The state can decide whether to request either subject-specific or general provider applications. Subject-specific applications would allow states to specify which subjects it would allow for online course enrollment and accordingly receive applications only from providers who offer those subjects. On the other hand, general applications would allow providers to submit course offerings in any subject.

2. Providers Submit Course Applications

Next, providers interested in offering online courses would respond to the state's RFA with a completed application. Provider applications should include information on course curriculum, initial cost proposal, as well as other basic information that allows decision-makers to form a judgment on the course quality of the applicants.

3. State Conducts Quality Review

The next step is for the state to conduct a quality review. The purpose of this screening is twofold: 1) to screen out low-quality providers and 2) to identify high-quality providers that have

the greatest potential to improve student learning.

An important focus of our process is on ensuring quality online courses. The Internaional Association for K-12 Online Learning (iNACOL) has offered a list of quality standards by which providers and courses could be evaluated. Organizations such as Quality Matters offer detailed rubrics operationalizing several quality standards. States, such as Louisiana, are offering more substantive review processes that led to the selection of only 41 out of an initial 94 provider applicants.

In particular, we recommend that states closely emulate Louisiana's four-step process for assessing and approving course providers. In Louisiana, the state first reviews provider applications, and might even consider allowing rejected applicants to revise and resubmit applications for reconsideration. To improve outcomes, primary application readers may consult with content experts and/or a secondary reader to help ensure that readers fully understand the specific merits of each application.

Next, qualified volunteers from the state Education Department staff members or independent subject-matter experts conduct interviews of prospective providers. Using clear and effective criteria to evaluate course providers, the state can greatly improve its understanding of providers' course offerings and course designs during this interview process.

After provider interviews are performed, independent expert panels review applications. We recommend that the expert panels operate similar to those in Louisiana. There, appropriately-qualified, independent experts volunteer to conduct a close review of applications which have made it to that point in the quality review process. Utilizing volunteers rather than outsourcing to third-party experts reduces costs and leverages the capabilities of talented community stakeholders.

In the final step, the state gives its final approval to providers recommended by the independent panels. The quality review should be thorough enough that nearly all providers approved by the independent panels are quickly approved by the state and invited to participate in the silent bid auction.

4. State Invites Qualified Applicants to Submit Sealed Bids

When soliciting the bids from the qualified applicants, the state faces a choice. It can decide to set a price ceiling for each course it chooses to offer and communicate the price to providers, or it can wait to receive the bids and decide how much it is willing to pay based on the numbers it receives. A state that values simplifying the bid review process and ensuring savings may choose the former option, but the latter option allows for more flexibility. This will be explained in Step 6 when the state reviews the bids.

The sealed bids will take the following format. Each provider will be asked to provide a total price per course for each course it wishes to offer. The state asks each provider to submit a bid that allocates that price between two factors: 1) the requested base pay, or the amount the provider expects to be paid per student enrolled in the course regardless of performance, and 2) the requested incentive pay, or the amount the provider expects to be paid per student enrolled in the course based upon "successful" completion of the course.

5. Qualified Providers Submit Bids

In response to a state's solicitation of bids, the qualified providers submit their bids for each course. When submitting these bids, they will be competing for state contracts based on 1) the price per course and 2) the portion of that price allocated to base pay and to incentive pay. If the state has communicated a price ceiling, providers may choose to compete more on incentive pay allocation since the range of price competition is more limited. If the state has not communicated

a price ceiling, providers' bids may demonstrate a wider variety of total price per course bids.

6. State Reviews Bids

In this step, the state reviews the bids offered by the qualified providers. There are two criteria used: the total price per course bid and the breakdown of this price into base pay and incentive pay.

Price per Course

The state will examine the total price per course of each bid. If it has chosen a price ceiling before the bid process, it can eliminate any bids above this ceiling. The state may also choose to decide on how much it is willing to pay after it has received the bids, using the bid amounts as additional data points. How much a state relies on total price as a criterion will likely be determined by the amount of money a state is willing or able to allocate to these courses.

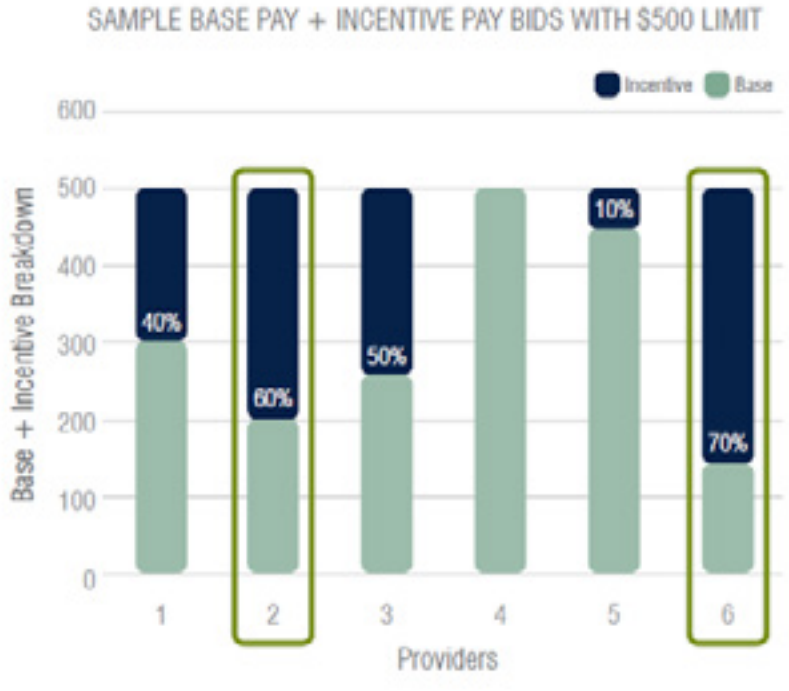
By having providers compete on total price for contracts, the state ensures that it is paying competitive prices for the courses it offers its students.

Breakdown of Base and Incentive Pay

The other primary criterion used by the state to evaluate bids is the portion of the price bid allocated to incentive pay. This portion of the providers' payment is contingent on the successful administration of the course. States may use different quality metrics in determining what constitutes successful completion. We provide one example of a possible system in Appendix A. While states may differ in how they evaluate the quality of a course, the incentive payment allocation will ensure that some of the providers' payment is tied to whether or not they meet selected quality metrics.

The following graph demonstrates how a state might evaluate 6 similar bids using the incentive pay allocation. In this example a state communicated a price ceiling of $500 and received 6 bids at that level and wants to choose 2 providers to offer contracts. For simplicity, each total price per course bid was $500, although in practice the price per course may vary. Each provider also submits a proposed base pay and proposed incentive pay, totaling $500 per student. If the state is selecting the top two bids, it would choose providers 6 and 2, who bid incentive allocations of 70% and 60% respectively.

By selecting the providers that have the largest amount of their potential revenue tied to their performance, the state encourages providers to accurately assess their own ability to provide quality courses. By having providers to compete for contracts, the state encourages



providers to actually bid at the levels that correspond to their ability to provide these courses.

Using Both Criteria

Combining these criteria gives a great degree of adaptability for each state. A state may want to focus more on cost reductions and weight its evaluation more heavily on total price. That kind of state might choose to offer contracts to providers that bid lower prices per course but are less concerned with high allocation to incentive pay. Alternatively, a state might choose to weight its evaluation more heavily on incentive payment allocation, signaling that it is willing to pay higher prices as long as they guarantee quality courses. A final option is that a state might choose to diversify its portfolio, selecting a mix of providers who offer bids with lower prices and lower incentive allocations and providers who offered bids with higher prices but more of the payment tied to quality.

Re-Bidding

States may want to allow the option for renegotiations to occur if they believe the initial set of bids does not represent what it believes to be a fair value for the course. If, for example, a state had decided an algebra course was worth around $600 but only received bids greater than $1000, it might choose to communicate that price ceiling to providers and ask them to submit new bids.

7. State Offers Agreements to Provider(s)

Once a state has reviewed the bids and evaluated them based on the aforementioned selection criteria, it will decide which providers to choose and offer them agreements. While the selected providers have won an opportunity to teach a course in the state, however, the competition is not over. They have already competed on price to be selected as a provider; they will now compete on perceived quality to maximize their enrollment. This could involve factors such as differentiated curricula, instructional styles, amounts of feedback, or other academic variables.

To ensure that providers continue to compete solely on course quality, states should hold them accountable to a code of conduct that makes clear a firm policy of no improper gratuities or inducements from providers to students.

Framework Benefits

Equity of Access.

Increasing the availability of courses that have been vetted and held accountable will increase access to high-quality courses, for example for students at a school that does not offer an AP course or the honors version of a core subject.

Targeted Approach.

We expect that, in order to maximize their incentive pay, course providers will engage students and incorporate formative assessments to determine whether students are on track to perform well in the course.

Quality Incentives.

The model alters online education from fee-for-service to pay-for-performance, encouraging course providers to cater to the students in most need and greatly accelerate their learning because increased growth brings increased profits.

Educational Accountability.

Rewarding for performance at the level of each individual student avoids the problem in which schools that reach a certain threshold of proficiency holistically among their student body no longer have to worry about any students who

remain below proficient (as far as legal mandates go). Evaluating course providers on how each individual student is served rather than on how the cohort as a whole performs sidesteps this problem.

Cost Savings

The bidding and incentive payment create cost savings, which could be passed on to districts, invested in technology upgrades, or put towards another beneficial education initiative.

Adaptability

States can adopt the model, and then make their own value judgments at different steps in implementation (e.g. setting course prices) to fit its own policy and political needs.

Districts Benefit

Districts can use online courses to fill instructional gaps in hard-to-staff subjects (e.g. language, AP, STEM, career and technical). Schools could also bring their workforces into the modern, digital world through supporting teachers who team together to put together their own homegrown online offerings and become competitive providers themselves.

Looking Ahead

While this framework represents a significant step forward in advancing online courses with a focus on student success, there remain topics for consideration. Each state will need to determine how to enroll students across online courses, how to assess a provider's impact on student learning, and how to allocate the incentive pay to providers based on their bids. We offer an in-depth example of such an assessment and incentive payment allocation system in Appendix A.

The incentive pay aspect holds course providers accountable for promoting student success in order to profit. However, the delay in such a large part of the providers' payment could pose a barrier to entry for new, innovative providers who lack the capital reserves of larger, already-established players. In addition, it often takes a matter of months to collect and analyze academic data, and this lag in assessment may result in the state having to decide whether or not to renew the agreements of providers for Year 2 before they have full knowledge of the results of Year 1. These issues are similar to those faced by current state-level online course choice programs, such as those in Utah and Louisiana. Incorporating contemporaneous measures, for example student engagement levels, could be one way to balance the need to assess student success with practical timing needs. These problems do not have easy or immediate answers, but the framework outlined in this paper offers a solid foundation for policymakers to address them. It is adaptable while allowing for dynamic growth, and it offers coherence that current online education payment mechanisms lack.

Acknowledgements

Team Description

Scott Ferron, Paige Gonye, Adeeb Sahar, and Kyle Vandenberg are seniors at Stanford University majoring in Public Policy. The paper originated during their Senior Practicum in September 2013 and has undergone numerous iterations since then. Now, the seniors are pursuing public policy work in the online education field as an independent study under the guidance of Professor Keith Hennessey and leaders at Digital Learning Now, an initiative of ExcelinEd.

List of Advisors

Professor Alvin Roth (Stanford Economics, Nobel Laureate)
Professor John Shoven (Stanford Economics)
Professor Mark Tendall (Stanford Economics)
Professor Andrzej Skrzypacz (Stanford Economics)
John Bailey (Digital Learning Now)
Nathan Martin (Digital Learning Now)

Dave Lefkowith (Louisiana Course Choice Program)
Michael Horn (Clayton Christensen Institute for Disruptive Innovation)
Dr. Susan Patrick (iNACOL)
Matt Wicks (formerly with iNACOL)
John Watson (Evergreen Education Group)
Robyn Bagley (Parents for Choice in Education)
Holly Sagues (Florida Virtual School)

Appendix A: An Example of Possible Pay Allocation System[1]

The implementation of a base pay and incentive pay system requires the state to have a mechanism for determining how much of the incentive pay to award to each course provider. A state could go about this is by 1) selecting a number of performance measures of student success, 2) assessing how well students perform on those measures compared to an external standard and compared to students in other providers' courses, and 3) determining how much to weight each measure when calculating incentive pay to award to each provider per student in each course.

Selecting Performance Measures

There are a number of possible measures of student success, and states should use a variety in order to capture different aspects of the learning experience. The four measures highlighted below offer one such possible combination.

Completion. Rewarding course completion can encourage providers to avoid a growing pain of the online education industry: too few students finishing courses.

Proficiency. Including a proficiency measure supports states' goals of helping students meet or surpass a certain bar of achievement.

Growth. Incorporating growth recognizes that bringing a student who is three years behind grade level up to one year behind grade level is at least as laudable as boosting an already near-proficient student just above the proficiency bar. A growth measure can also motivate providers to target students who will benefit the most from their course(s).

Student Surveys. Student satisfaction is the most important factor in whether a student chooses to take and benefit from other online courses. A significant and growing body of research, including a recent study from the MET Project, supports the validity of student surveys as accurate assessments of a instructional effectiveness.

Assesing Student Performance

Policymakers would weight their selected performance measures based on value judgments of the relative importance of these measures, allocating from a total of 100 percentage points. Then, policymakers would determine how much to weight performance compared to an external standard ("year-on-year improvement") and performance compared to other providers ("competitive comparison"), again allocating from a total of 100 percentage points.

Determining Calculation of Incentive Pay

Once a state determines how much to weight each measure and collects the necessary data on student performance, it will calculate how much in incentive pay to award each provider for each student in each course. The following is an example calculation:

- For a particular course the state determined a maximum $150 payment per student
- This provider's winning bid split it $50 base pay, $100 possible incentive pay per student
- The state weights 75% year-on-year self-improvement, 25% competitive comparison
- The state weights 10% proficiency, 10% completion, 40% growth, 40% surveys

[1] Note: Like education, health care is a sector that integrates public and private players, and prioritizes both quality and cost. The features of the healthcare market correspond closely with those of the online education market: quality improvements correspond to better cost-structures, market entry is marked by high levels of initial investment, and provider performance is a function of quality and cost. The following pay-for-performance example is based on two Medicare programs: the Hospital Readmissions Reduction Pro-gram, which ties funding to hospitals' performance on patient readmission rates, and the Hospital Value-Based Purchasing Program, which funds hospitals based on their performance relative to that of other hospitals as well as relative to their own prior performance.

In this example, a particular student in this course:
•Completed and passed the course
•Had a moderate growth rate relative to last year
•Gave the course a high rating in a post-course survey

And that on average students in this course:
•Passed at a lower rate compared to students in competitors' courses
•Achieved a moderate growth rate compared to students in competitors' courses
•Completed the course at high rates compared to students in competitors' courses
•Rated the course comparably in surveys compared to students in competitors' courses

Thus, the incentive pay for this student in this course offered by this provider would be calculated as such in the table below, keeping in mind that each of the eight separate dollar amounts is arrived at by multiplying the weight of the measure, the weight of the year-on-year or competitive improvement, and how the student performed on that measure:

		10%	40%	10%	40%
		Proficiency Rates (% pass)	Student Growth Rates (Average student growth)	Course Completion Rates (% Complete)	Student Survey Scores (Average rating score)
75%	Year-on-Year Improvement (% Change)	$7.50 out of possible $7.50 *(passed)*	$15 out of possible $30 *(moderate)*	$7.50 out of possible $7.50 *(completed)*	$30 out of possible $30 *(high)*
25%	Improvement Relative to Competition (% change in the quality distribution)	$0 out of possible $2.50 *(low average pass rate)*	$5 out of possible $10 *(moderate average growth rate)*	$2.50 out of possible $2.50 *(high pass rate)*	$5 out of possible $10 *(comparable scores)*

(total: $72.50 out of max per-student incentive pay of $100)

References:

"10 Elements of High Quality Digital Learning." Digital Learning Now. (2010). Web. 4 Nov. 2013.

"Building a Bold Agenda." Roadmap for Reform. (2010). Web. 11 Nov. 2013.

"Culminating Findings from the MET Project's Three-Year Study." Ensuring Fair and Reliable Measures of Effective Teaching. (2013). Web. 11 Nov. 2013.

Hackbarth, Glenn M. Report to Congress: Plan to Implement a Medicare Hospital Value-Based Purchasing Pro gram. Rep. Web. 4 Nov. 2013.

Louisiana. Department of Education. Course Choice Year 1 Evaluation Report. Louisiana: 2013. Print.

Patrick, Susan, David Edwards, and Matthew Wicks. "Measuring Quality From Inputs to Outcomes: Creating Stu dent Learning Performance Metrics and Quality Assurance for Online Schools." (2012). Web. 4 Nov. 2013.

Richardson, John. "Hospital Value-Based Purchasing: Summary of CMS Report to Congress." Medpac.gov. MedPac. Web.

United States. Centers for Medicare & Medicaid Services. Centers for Medicare & Medicaid Services. Web. 11 Nov. 2013.

United States. Centers for Medicare & Medicaid Services. MediCare "Pay for Performance (P4P)" Initiatives. Web. 11 Nov. 2013.

United States. MediCare.gov. Linking Quality to Payment. Web. 11 Nov. 2013.

Watson, Jon, Amy Murin, et al. "Keeping Pace with K-12 Online and Blended Learning."(2013). Web. 4 Nov. 2013.

Finance

In this section: