

The Hidden Value of Curriculum Reform

Do States and Districts Receive the Most Bang for Their Curriculum Buck?

By Ulrich Boser, Matthew Chingos, and Chelsea Straus

October 2015

Center for American Progress



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Introduction and summary

Curriculum plays an important role in how students are taught, and there is a strong body of evidence that shows that putting a high-quality curriculum in the hands of teachers can have significant positive impacts on student achievement. Furthermore, curriculum reform is typically inexpensive, and some of the highest-quality elementary school math curricula cost only around \$36 per student.¹ In short, curriculum reform is a low-cost, high-return educational investment.

To promote curriculum reform—and make better use of education dollars—this report provides new insight on how curricula are selected in every state across the country and examines the costs of those curricula. Throughout this report, the authors use “curriculum” to refer to the instructional materials such as textbooks, workbooks, and software used by teachers. In compiling this report, the authors conducted extensive research—including interviews with state and district officials, along with an examination of curricula price lists—which provides a detailed picture of how public schools could increase the return on investment, or ROI, of taxpayer dollars.

The report’s key findings include:

- **Higher-quality curriculum in elementary school math can come at a relatively low cost.** The authors analyzed six pairs of curricula, where each pair included a lower-quality and higher-quality version. The authors looked at how much it would cost for a school to switch from a lower-quality product to a higher-quality one in elementary school math and found there’s not much of a cost. In fact, the data that the authors collected from 19 states indicate that publishers tend to charge all states roughly the same price.² These findings mean that nearly all opportunities for boosting ROI are a matter of choosing the best product, not finding a better price.
- **More rigorous elementary school math curricula can deliver far more ROI than other reforms.** In compiling this report, the authors compared the cost-effectiveness ratio for each of six pairs of elementary math curricula that had been subject to a rigorous evaluation sponsored by the U.S. Department of Education.

Reviewing these data in light of an influential study by economist Doug Harris, the authors determined that switching to a higher quality curriculum has a huge ROI relative to other educational policies—in large part because curricula cost so little. There are other factors at play, of course, and gains in math, for instance, can be easier to achieve relative to other subjects. But what's clear is that the average cost-effectiveness ratio of switching curriculum was almost 40 times that of class-size reduction in a well-known randomized experiment.

- **When it comes to math curricula in the early grades, cost does not always equal quality.** There is little relationship between the cost and quality of instructional products. Prices do not vary widely across products, with the most expensive product in the same government-sponsored study costing only \$13 per student more than the least expensive product. If anything, the higher-quality products tend to cost less, and in some instances, the most expensive curriculum was among the least effective and the least expensive was among the most effective.
- **Policy decisions do not consider rigorous measures of curricula quality.** State adoption decisions are often based on limited assessments of quality and weak proxies for alignment to state standards.³ Furthermore, politics often dominate the discussion over the adoption of textbooks and other instructional material, and issues such as the teaching of evolution are often center stage. There is also a clear gap between the reality of which curricula are effective or aligned to state standards and the curricula that publishers advertise as such.

Many states are moving forward with implementing the new Common Core standards, and this process offers important opportunities for the creation of innovative, cost-effective instructional products. However, these new products will not add much value if schools cannot accurately separate the wheat from the chaff.

Thus, the authors recommend the following:

- **Invest in better product research.** It is hard for observers to judge curricula quality if there is little evaluation of most products' effectiveness. The federal government has a significant role to play in continuing to support this important research, including funding randomized experiments that clearly show which curricula produce the largest achievement gains. Just as it does with medicine, the federal government should fund comparative effectiveness research. State education agencies also have a role to play in collecting the necessary data and making them available for studies of curricula quality.

- **Improve the state textbook adoption process.** Nineteen states have a curriculum adoption process that produces a list of products that schools either must use or are encouraged to use.⁴ When hard evidence on curriculum quality is available, it should supersede the often vague impressions of stakeholder groups that frequently dominate the process. Additionally, states should replace their often limited approaches to measuring alignment to state standards by commissioning professional alignment studies of proposed curricula. States without an adoption process should consider creating one that provides actionable information to aid districts in selection decisions. Louisiana, for instance, allows districts to have complete autonomy over the selection of all their instructional materials, but the state provides districts with annotated reviews of instructional resources and groups materials into tiers based on their quality.⁵ All states should continue to allow schools to select the instructional products that are right for them but should also provide clear and accurate information about quality that obviates the need for every district to determine the effectiveness of instructional materials.
- **Improve the selection process in school districts.** For years, school districts have struggled to make informed curriculum decisions, in large part due to a lack of reliable information on product quality. Improving the adoption process at the state level will be an important step in the right direction; but districts still need to choose the right product from the list of options provided by the state, or another product when appropriate. One promising strategy currently used in some districts is to pilot new products alongside existing products in order to produce evidence on effectiveness before committing to the new product.⁶ Districts can also benefit by increasing information sharing across districts about experiences with different instructional products.
- **Create a competitive grant program devoted to creating high-quality curricula.** Although the Common Core presents an important opportunity to improve instructional materials, some publishers are making overly zealous claims about their materials' alignment to the standards.⁷ Philanthropists and other independent groups should spur the creation of high-quality textbooks and other instructional materials by creating a competitive grant program. Nonprofits, small publishing companies, and innovators would then be able to apply for grants to develop and scale-up promising high-quality, openly licensed, Common Core-aligned curricula. The grant program would reward innovation, scalability, and evidence-based research supporting the key components of each curriculum.

In education, it is rare for a reform to show strong outcomes and be relatively inexpensive. However, curriculum reform is both cost-effective and worthwhile and should become a more central part of the effort to improve the nation's schools.

Background

For the past several years, public schools in the United States have been under significant pressure to do more with less. In other words, policymakers and the public want schools to increase their productivity—the return on investment of taxpayer dollars.

Data showing wide gaps in productivity between similar school districts strongly suggest that increased productivity is, in fact, possible. Previous research by the Center for American Progress has shown that some districts produce more bang for their buck than others. According to a 2014 CAP analysis, “only slightly more than one-third of the districts in the top third in spending were also in the top third in achievement.”⁸

As education researchers Matthew Chingos and Grover (Russ) Whitehurst argued in a 2012 paper, curriculum reform is one of the best areas for productivity gains, since instructional materials can provide relatively high increases in student achievement for relatively low costs.⁹ Moreover, as most states are moving forward with implementing the Common Core standards, local leaders are already on the lookout for high-quality materials. This makes curriculum reform a logical place for schools and districts to look for gains in student outcomes.

Yet for too long, researchers, academics, and other education reformers have simply not focused on curriculum and its associated effectiveness. The most recent major study to take a national in-depth look at the policy issues surrounding textbooks and curriculum, for instance, was published in 2004.¹⁰ Plus most curricula have not been subject to rigorous impact evaluations, and data do not exist on the instructional products used in the vast majority of states. Some experts have called for data collection efforts that will enable more effectiveness studies so that states and districts can make better informed decisions.¹¹

Specifically, Chingos and Whitehurst propose that states begin by collecting data on the curricula adopted by all districts in the state. Not a single state currently conducts this practice. Knowing what products are used is the first step toward assessing curriculum effectiveness by linking the curriculum-use data to the longitudinal student-level databases that most states now have in place.¹²

While data collection efforts should certainly be undertaken, this report will address a related set of questions: How are curriculum adoption decisions made? How much do different instructional products cost, and do states pay different amounts for the same product? Is there any relationship between curriculum price and quality? How does the return on investment of adopting new curricula compare to that of other educational interventions?

States, school districts, and schools need answers to these questions if the results of curriculum effectiveness studies—both existing and new—are to leverage curriculum reform as a strategy to improve student learning in a cost-restrained environment.

Methodology

This report examines whether there is significant variation in how much different states pay for the same instructional materials as well as whether so-called recommend states and suggest states—which are defined in a subsequent section of this report—pay similar prices for the same textbooks. In order to determine the answers to these questions, the authors collected price data on adopted elementary math instructional materials from 19 states: Alabama, Arkansas, California, Florida, Georgia, Idaho, Kentucky, Mississippi, North Carolina, New Mexico, Nevada, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Virginia, and West Virginia.

The authors first compiled all of the readily available price data from textbook adoption lists that were posted on state education agencies', or SEA's, websites, and then recorded the product name; international standard book number, or ISBN; grade level; and year of adoption, for each primary instructional material listed on a state's adoption list. The authors decided not to include ancillary materials. If a price list for elementary math textbooks was not available on a textbook adoption state's website, then the authors sent an email to the state's listed contacts for curriculum and communications requesting a list of adopted elementary math instructional materials.

The authors then converted all prices to 2014 dollars and converted multi-student bundles into per-student prices by dividing the bundle price by the number of students. The authors focused on the 114 products that appear on the list of at least two states and matched products across states using their ISBN.

They also analyzed the relationship between price and quality by collecting price data for instructional materials included in the U.S. Department of Education's Institute of Education Sciences, or IES', randomized controlled trial on the effectiveness of instructional materials. Price data were collected from publishers' websites for the four curricula included in the RCT and then the authors compared the quality differences to the price differences for six pairs of products. They then compared the relative cost and benefit of switching to a new curriculum to other educational policies that were included in an influential paper by economist Doug Harris.

Limitations

This report provides new evidence on how curricula are selected across the country, as well as a comprehensive analysis of how schools could increase student achievement through curriculum reform. However, there are a few caveats that the authors believe are important to acknowledge. For one, the authors did not examine digital or other online curricula.

Also, due to the lack of high-quality studies on curriculum effectiveness, the authors relied on a single study for their analysis of the relationship between price and quality. Specifically, they looked at the Mathematica Policy Research and SRI International study, an RCT that was sponsored by the Institute of Education Sciences, or IES, and released in 2010. The study is a randomized controlled trial, which is often called the gold standard in education research because it allows researchers to isolate the causal effect of an intervention by ruling out all other possible confounding factors. This particular RCT study allows one to examine, for a limited set of products, whether there is any relationship between price and quality and what ROI schools may receive from investing in better products. There are a handful of high-quality non-experimental studies on curriculum effectiveness, but the authors did not include these studies in their analysis because these studies do not rule out the potential for bias to the same degree that RCTs do. In fact, it is not unusual for the findings of RCTs to contradict the findings of non-experimental studies.¹³

The IES study itself has some limitations. For instance, it only examined a particular group of students, who were from relatively disadvantaged families, at one point in time.¹⁴ Also, within the IES study, the same curricula had varying impact between first and second grade. For example, the Investigations in Number, Data, and Space curriculum had the same effect on first-grade achievement as the Scott Foresman-Addison Wesley Mathematics, or SFAW, curriculum, but second-grade students assigned to the Investigations curriculum performed .09 grade levels better at the end of the year than students taught using SFAW.¹⁵

These inconsistent results across grade levels and populations support the need for more research on curriculum effectiveness, as well as disaggregated effectiveness results by grade level and demographic factors. In other words, a curriculum that has a track record of success for first graders in Beverly Hills, California, will not necessarily yield the same positive student-achievement gains in a first-grade class in Los Angeles or even another grade within the Beverly Hills school district.

Studies on curriculum effectiveness have other caveats. There simply is not enough evidence to make clear conclusions about pedagogy, although some of the curricula do take different approaches to teaching math.¹⁶ It is also important to note that alignment between a curriculum and its assessment could affect estimates of curriculum effectiveness.¹⁷ Finally, because the manner in which teachers translate curricula into instruction unfolds in classrooms, that exact translation remains beyond the scope of this report.¹⁸

In terms of calculating the ROI of curricula and other educational interventions, there are other caveats. For instance, this report compares a low-cost intervention—buying new instructional materials—to many high-cost interventions. A school can easily spend \$1,000 per student on class-size reduction, for instance, but it would be very unlikely to spend that much on textbooks. However, the data make the case that switching to a higher-quality curriculum is a worthwhile reform to improve student achievement.

How curriculum decisions are made

The process of curriculum adoption varies widely. Across the country, 19 states have a state-level adoption process for instructional materials but leave the final selection decisions to individual districts.¹⁹ In most of the other states, districts select materials with no direct input from the state. Finally, there are states that defy easy categorization—such as Indiana, which recommends elementary reading primary textbooks but no other instructional materials.

While research suggests that the content included in textbooks shapes what is taught in classrooms, individual teachers ultimately determine how to implement selected materials.²⁰ Teachers determine which students use which materials and how these students use those materials. That issue, however, is outside the scope of this report.

This report first provides a comprehensive look at how states are involved—or not involved—in curriculum selection in each of the 50 states. Of the 19 states with any formal process, 9 compile a list of materials from which school districts are required or strongly encouraged to use when selecting a curriculum. States that use this process are called recommend states.²¹ For example, districts in South Carolina choose textbooks from a comprehensive state-approved list of materials and submit their textbook orders directly to the state.²² Florida requires districts to spend at least 50 percent of their instructional materials funding allocation from the state on approved materials unless districts opt to conduct their own adoption process.²³ And Alabama also has a state-approved list, but it allows districts to request permission to use other materials.²⁴

The other 10 states with some kind of formal process provide a list of materials but do not require that states choose from the list. States that follow this model are designated as suggest states. For example, the adoption process in Texas is often politically fraught, but districts are free to adopt any materials they prefer.²⁵ California has a similar policy for grades K-8, but the adoption of materials for grades 9-12 is left completely to districts.²⁶

The map below shows that, with some exceptions, recommend and suggest states are located largely in the South, with Northern states more likely to have so-called open adoption policies. In recent years, a number of states have decentralized their textbook adoption decisions by providing districts with more flexibility in selecting instructional materials. States such as California and Texas now allow districts to choose textbooks that have not been adopted by the state, and Arkansas decided to stop its adoption process altogether.²⁷

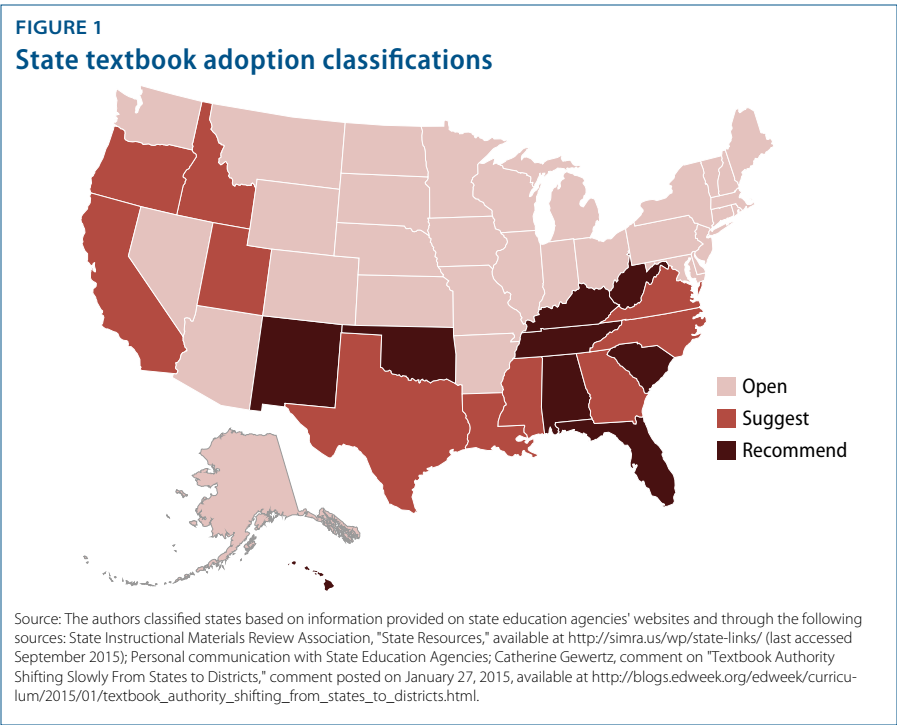


TABLE 1
Textbook adoption process classifications

Recommend state	Districts choose textbooks from a recommended list prepared by the state or request permission to select a textbook that is not on the state's adoption recommended list.
Suggest state	Districts choose textbooks from a recommended list prepared by the state education agency, or SEA, but local school boards can freely opt to use textbooks that are not approved by the SEA.
Open state	Textbook adoption decisions are made at the local level.

Source: The authors created the three textbook adoption process classifications based on an analysis of states' textbook adoption policies. The authors collected information on textbook adoption policies from state education agencies' websites and through the following sources: State Instructional Materials Review Association, "State Resources," available at <http://simra.us/wp/state-links/> (last accessed September 2015); Personal communication with State Education Agencies; Catherine Gewertz, comment on "Textbook Authority Shifting Slowly From States to Districts," comment posted on January 27, 2015, available at http://blogs.edweek.org/edweek/curriculum/2015/01/textbook_authority_shifting_from_states_to_districts.html.

The authors carried out case studies of the adoption process in three recommend states and two suggest states. The adoption processes in these five states are described in detail in Appendix B, but all follow a similar outline: States aim to adopt materials in specified subjects at semi-regular intervals, which range from five to eight years.

However, sometimes state funding issues can delay the adoption process. The state appoints reviewers responsible for evaluating the materials, which are usually submitted by publishers. The main criterion used by reviewers is a material's alignment to the state's standards. Each state's board of education or commissioner of education makes the final adoption decisions based on the reviewers' recommendations and the public's comments.

Although states do review curriculum materials, they typically rely on limited measures of quality. A number of states, for instance, evaluate alignment between the standards and the curriculum using a checklist-like approach rather than a deep evaluation.²⁸ Evaluators also often rely on material produced by the publishers themselves to judge alignment.²⁹ This means that there is often little reason for publishers to work hard to produce high-quality curriculum. However, publishers also have little incentive to exclude content that is only loosely related to the state standards, since alignment and quality measures generally do not penalize publishers for including extraneous content.³⁰

More broadly, a number of studies have shown that the adoption process does not sufficiently look at issues of effectiveness.³¹ Part of the issue is political, and when it comes to textbooks, what tends to make headlines are issues related to religion or hot-button science topics. In Texas, for instance, a recent adoption process focused on debates over whether or not Moses inspired America's Founding Fathers.³² There have also been debates over the role of evolution and climate change in textbooks.³³

Such heated political debates are a type of distraction, and states often fail to focus in any significant way on issues of effectiveness. Politics may also help explain why issues of alignment are often overlooked, and a number of recent studies show that the supposedly Common Core-aligned textbooks are not all that aligned.³⁴ Moreover, a few large states with highly politicized textbook adoption processes—such as Texas—often hold a lot of sway in the textbook business because of their “market clout.”³⁵

In open-adoption states, districts are responsible for selecting instructional materials without being provided a list of possibilities by the state. Previous research indicates that some open-adoption states take a more active role in selection decisions than others, but that in these states “one of the most trusted resources was data from ‘districts like us’—neighboring or demographically similar districts. Almost half of ... [district] curriculum leaders contacted colleagues in other districts to discover which programs they should be seriously considering.”³⁶

The authors of this report conducted case studies of eight districts located in five open-adoption states. (see Appendix B) As part of their analysis, they looked at districts in Alaska, Arizona, Nebraska, Iowa, and Illinois, and they found that the adoption process was largely the same across the districts. Specifically, the process generally begins with appointing a committee that includes some mix of stakeholders—such as teachers, administrators, school board members, parents, students, and community members. The committee either makes the final adoption decision or reviews materials and makes recommendations to the school board, which then makes the final decision.

Two exceptions stood out among the eight case studies. The first was Chicago Public Schools, which does not have a formal, districtwide adoption process for instructional materials. Instead, individual schools make these decisions and the district provides some schools with supplemental materials. However, the Chicago district is currently developing a formal process as part of Common Core implementation.³⁷

The second exception was Lincoln Public Schools in Nebraska, which conducts lengthy implementation studies before adopting new instructional materials. These studies involve identifying two sets of schools that are representative of the district’s student population and piloting two sets of instructional materials within the selected schools. The district then decides which program to adopt based on achievement data and feedback from teachers.³⁸

The example of Lincoln Public Schools highlights the fact that districts seeking relevant, evidence-based information on quality often need to produce it themselves. An official from the Lincoln district put it bluntly: “Every textbook company will say they’re 100 percent aligned to the standards, but they’re not.”³⁹ None of the case studies revealed examples of states or districts looking for objective, independent research on the relative quality of products. However, it is difficult to determine whether this results more from the dearth of such information or the lack of an interest in using it.

Spending on instructional materials

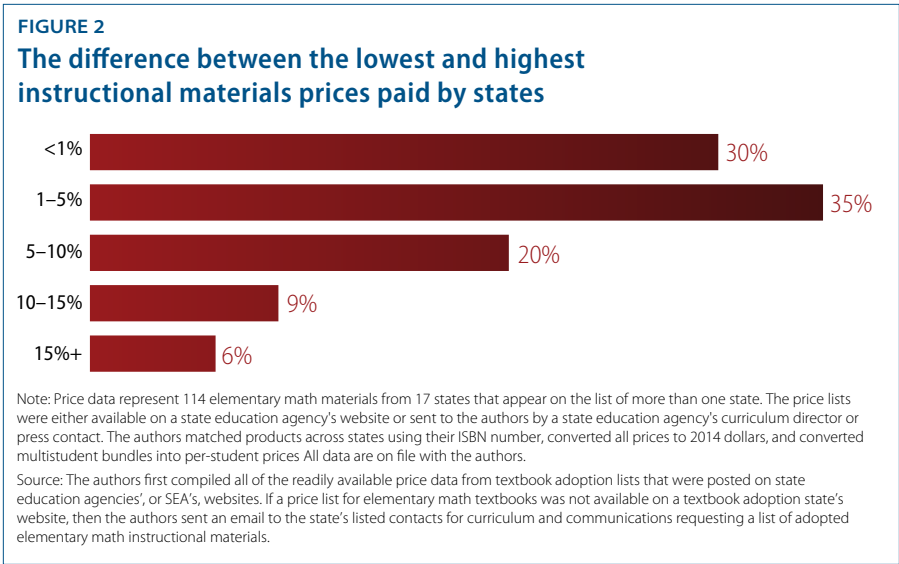
When it comes to instructional materials, there are two potential ways that school systems can increase the return on investment of public investments: choosing better products or negotiating better prices. In order to consider whether there is significant room for states to negotiate better prices, the authors examined whether there is significant variation in how much different states pay for the same instructional materials.

To make that determination, the authors collected price data for individual elementary math materials from 19 states: Alabama, Arkansas, California, Florida, Georgia, Idaho, Kentucky, Mississippi, North Carolina, New Mexico, Nevada, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Virginia, and West Virginia. All prices were converted to 2014 dollars and the authors converted multi-student bundles into per-student prices.⁴⁰ The authors focused on the 114 products from 17 states that appear on the list of more than one state and matched products across states using their International Standard Book Number.⁴¹ These products have an average price of \$34 per student or 0.32 percent of a school district's average spending per pupil.⁴²

However, the authors' calculations do not account for the digital components, ancillary materials, teacher professional development aligned to curricula, and teachers' editions used in classrooms. Given the lack of cost variation among primary instructional products, there is little reason to believe that the textbook supplements or digital offerings would vary significantly in terms of cost, although of course they can add to the overall cost. During the research for this report, the authors found a wide range of materials on state adoption lists. In some areas, the state provides a very long and detailed list of recommended items.⁴³

There is very little evidence that different states pay markedly different prices for the same product. The difference between the minimum and maximum paid for each product averaged \$1.47, or about 5 percent of the minimum price. It is important to note, however, that even a large difference in percentage terms

would still translate into a small difference in dollars, given how little is spent on instructional products. The figure below shows that the difference between the lowest and highest prices paid by states was less than 1 percent for 30 percent of products. The range in prices was less than 10 percent for 85 percent of products. This finding is consistent with evidence from the adoption case studies, where the authors found that many states require publishers to give them the lowest price available nationwide.⁴⁴



In their research, the authors tested an additional hypothesis that recommend states might be able to negotiate a better price than suggest states because districts are required to buy from a state-approved list in recommend states but not in suggest states. The report finds no correlation between recommend or suggest status and prices of instructional materials. For the 224 observations of 69 unique products sold in both a suggest state and a recommend state, on average, the price is \$0.12 lower in the recommend state, a small and statistically insignificant difference.

The relationship between price and quality

There is very little rigorous research on the quality of most instructional materials used in schools today, and that leaves review committees to rely on publishers' marketing and their own judgments. There is presently only one randomized experiment of the effectiveness of instructional materials, the previously mentioned Mathematica Policy Research and SRI International randomized controlled trial carried out for the Institute of Education Sciences.⁴⁵ This study found that classes randomly assigned to certain curricula fared much better on math tests at the end of first and second grade than classes randomly assigned to other curricula. The authors used this study to determine whether there is a relationship between price and quality of instructional materials.

Combining the average effects on math test scores in first and second grade, the worst product of the four was Scott Foresman-Addison Wesley Mathematics, or SFAW. Compared to classrooms using SFAW, classrooms using Investigations in Number, Data, and Space performed 0.05 grade levels better at the end of the year, those using Math Expressions did 0.12 grade levels better, and those using Saxon Math performed 0.13 grade levels better.⁴⁶

TABLE 2
The effectiveness of four early elementary school math curricula

Curriculum	First-grade effect	Second-grade effect
Investigations in Number, Data, and Space	0.00	0.09
Math Expressions	0.11	0.12
Saxon Math	0.07	0.17
Scott Foresman-Addison Wesley Mathematics	0.00	0.00

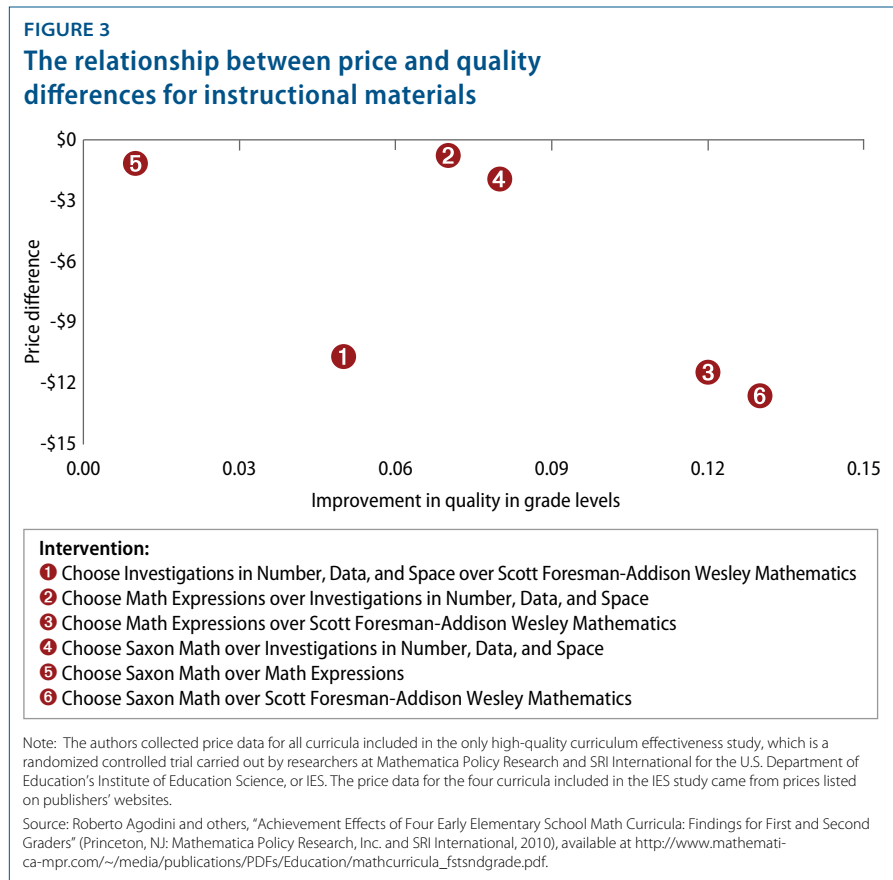
Note: Effects are calculated relative to the lowest-performing curriculum, which is assigned an effect of 0.00.

Source: Roberto Agodini and others, "Achievement Effects of Four Early Elementary School Math Curricula: Findings for First and Second Graders" (Princeton, NJ: Mathematica Policy Research, Inc. and SRI International, 2010), available at http://www.mathematica-mpr.com/~media/publications/PDFs/Education/mathcurricula_fstsdgrade.pdf.

For this report, the authors merged the effectiveness results from the RCT with curricula price data, using prices from publishers' websites.⁴⁷ The merged quality-price data were used to address three related questions:

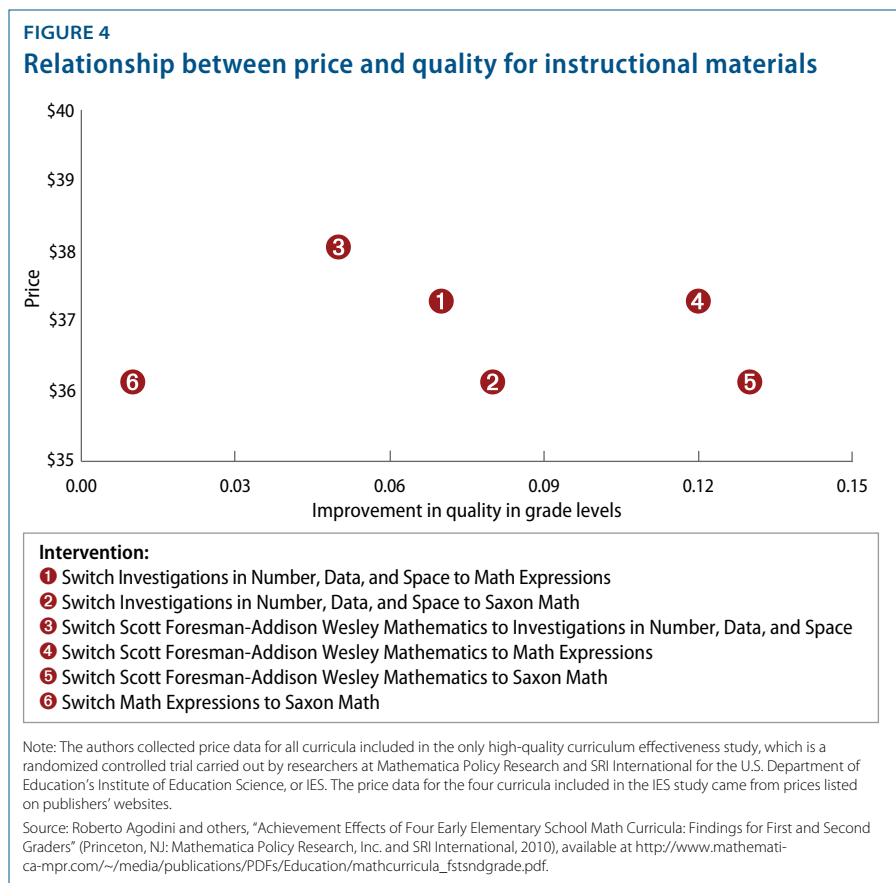
1. Is there a relationship between price and quality? In other words, do higher quality products cost more?
2. Is it a good use of resources for schools to throw out the current curriculum in order to buy a new curriculum? Does a larger improvement in quality cost more?
3. How does the return on investment of curriculum compare to the ROI of other educational interventions?

There are six pairs of products that can be compared to each other using the RCT. The figure below compares the quality differences to the price differences for all six pairs of products. For example, the left-most data point shows that, for the pair of products where Saxon Math is higher quality and Math Expressions is lower quality, Saxon Math produces student achievement 0.01 grade levels higher at a price that is \$1.16 lower per student.



Although there are only six data points in this study, there does not appear to be much of a relationship between price and quality. All of the differences in price are quite small—no more than \$13 per student. An increase in quality does not appear to translate into an increase in price. If anything, the higher-quality products tend to cost less, as shown by the fact that all of the price differences are negative.⁴⁸

A second approach is to ask whether it makes sense for schools to throw out the product they currently use in order to buy a higher-quality product. From this perspective, the school has to pay the full cost of the higher-quality product—not just the difference between the two products—because what it spent on the old product is a sunk cost. The figure below shows, for the same six pairs of products, how much it would cost to abandon the old product and buy a higher-quality product. For example, the left-most data point in the figure below is for the same two products cited above: Saxon Math and Math Expressions. A school considering switching to the better product—Saxon Math—would expect to gain 0.01 grade levels in student achievement and face the full per-student cost of Saxon Math, \$36.13.⁴⁹



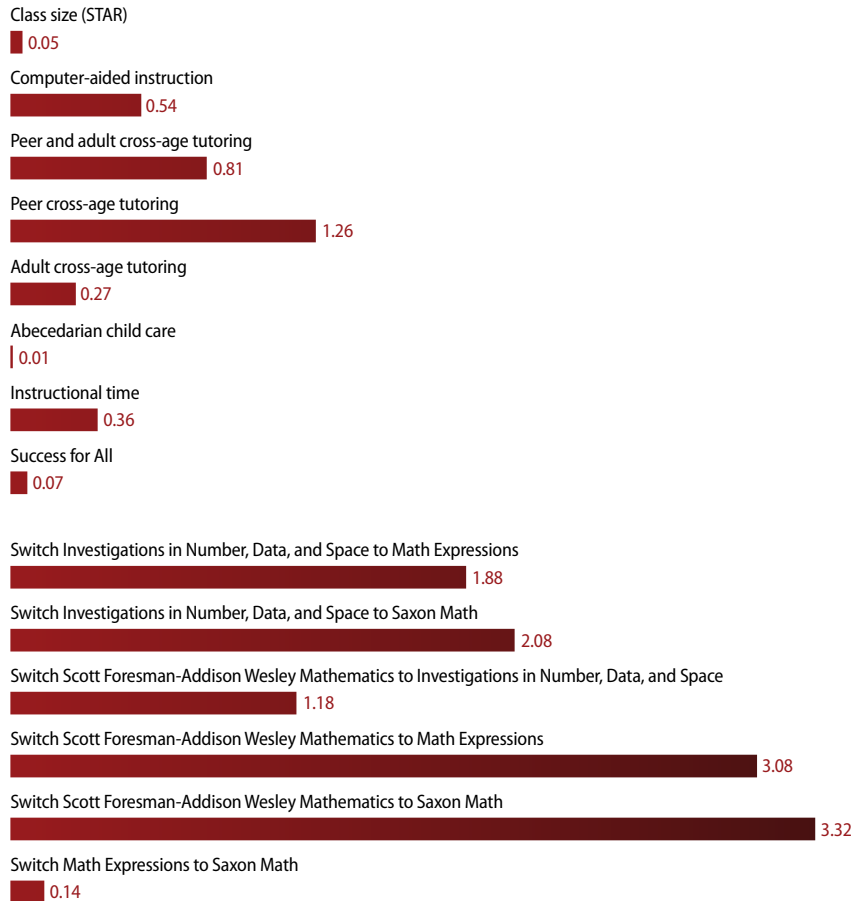
Once again, there is little relationship between price and quality. If anything, a larger improvement in quality may come at a slightly lower cost. However, it is important to note that there is not much opportunity for a substantively important relationship between price and quality given that there is not much variation in prices. These data also show that educationally meaningful improvements in quality of up to 0.13 grade levels can be achieved for a very modest cost: less than \$40 per student, or about 0.4 percent of average current spending per student.⁵⁰

Another way to think about this idea is that schools make financial tradeoffs among different possible uses of their money, and thus they should compare the expected impact of spending a dollar on a new curriculum to spending that same dollar on new technology, lower class sizes, or higher teacher salaries, to cite just a few possibilities. Consequently, schools must compare the costs and benefits of these competing alternatives.

The authors use their quality-price data on elementary math curricula included in the RCT to compare the relative costs and benefits of switching to a new curriculum to implementing other educational policies, drawing from an influential paper by economist Doug Harris.⁵¹ The figure below shows the ROI of switching to a higher-quality curriculum—as measured by the benefit-cost ratio—for the six curriculum comparisons and various other educational interventions, such as smaller class sizes. As noted above, the key issue here is that curriculum reform is much cheaper than other interventions. In other words, the authors are not arguing that states and districts should refrain from teacher reforms or preschool initiatives. Rather, they are simply arguing that curriculum reform can deliver good bang for the buck, and they find that switching to a higher-quality curriculum has a large ROI relative to other educational policies. Across the six curricula comparisons, the average cost-effectiveness ratio—also referred to here as ROI—is 1.95, which is 39 times the ROI of class-size reduction.⁵²

FIGURE 5
The return on investment of educational policies

Cost-effectiveness ratio



Note: The authors adjust all of the cost-effectiveness ratio—the measure referred to as ROI in this report—reported in Harris’ study by inflating costs to 2014 dollars. The authors collected price data for all curricula included in the only high-quality curriculum effectiveness study, which is a randomized controlled trial carried out by researchers at Mathematica Policy Research and SRI International for the U.S. Department of Education’s Institute of Education Sciences, or IES. The price data for the four curricula included in the IES study came from prices listed on publishers’ websites.

Source: Douglas N. Harris, “Toward Policy-Relevant Benchmarks for Interpreting Effect Sizes: Combining Effects With Costs,” *Education Evaluation and Policy Analysis* 31 (1) (2009): 3–29.

These data make a compelling case that if schools have access to objective and reliable information on curriculum quality, they should throw out a lower quality product and buy a higher quality product without hesitation. Similarly, investments into research on curriculum effectiveness also can produce a very high ROI by enabling schools to make such ROI-enhancing decisions.

Findings

This report investigates the current curricula landscape and determines whether curriculum reform is an effective and productive strategy to improve student achievement. Below are the report's major findings.

Higher-quality instructional materials in elementary school math can come at a relatively low cost

For the same six pairs of products, the authors looked at how much it would cost for a school to switch from a lower-quality product to a higher-quality one in elementary school math. The costs were relatively low for switching to a higher-quality product. For instance, the highest-quality elementary school math curriculum costs just \$36 per student.⁵³ Plus, publishers tend to charge all states roughly the same price for their materials.⁵⁴ This means that nearly all opportunities for boosting return on investment are a matter of choosing the best product, not finding a better price.

Another way to think about this idea is that switching curricula is a productive way for schools to experience substantial student-achievement gains for a small cost. If a school allots approximately 0.4 percent of the average current spending per student to purchase better instructional materials, the data suggest that the school will have significant improvements in student achievement.

More rigorous elementary school math curricula can deliver far more bang for the buck than other reforms

The authors compared the cost-effectiveness ratio for each of the six pairs of elementary math curricula that have been subject to a rigorous evaluation, and they found that switching to a higher-quality curriculum has a huge productivity boost. Across the six curricula comparisons included in a high-quality curriculum effectiveness study, the average cost-effectiveness ratio is almost 40 times the ROI in class-size reduction.⁵⁵

As part of their research, the authors also looked to see if ROI results would change significantly by using the findings from a different curriculum study that also looked at effects on student outcomes. Specifically, they analyzed the three curricula comparisons from a recent study in Indiana and found that the average cost-effectiveness ratio remains the same, around 40 times the ROI of class-size reduction.⁵⁶ In other words, the average ROI of the Indiana comparisons is very similar—even slightly higher—than the average cost-effectiveness ratio for the Institute of Education Sciences study. Both of these studies provide evidence that curriculum reform presents a cost-effective way to improve student achievement given its affordability and efficacy.

When it comes to math curriculum in the early grades,
you do not get what you pay for

There is little relationship between cost and quality of instructional products, with the most expensive product in the same government-sponsored study costing about \$13 per student more than the least expensive product. If anything, the higher-quality products tend to cost less, and in some cases, the most expensive curriculum was among the least effective and the least expensive was among the most effective.

Given that higher-quality products tend to cost less, it may be hard to understand why schools do not adopt more effective products. However, as noted earlier in this report, the issue with curriculum selection is not the cost of high-quality products, but the lack of research on curriculum effectiveness.

Policy decisions often do not consider rigorous
measures of curriculum quality

The discussion of the adoption of textbooks and other instructional material often seems to be dominated by politics rather than substance, and evaluators often do not appear to make use of the limited evidence base on curriculum quality that exists. Instead, adoption decisions are often based on limited assessments of quality and weak proxies for alignment to state standards. This report found, for instance, that textbooks in Texas need to cover only 50 percent of the

state's grade-level standards, and reviewers in the state don't consider whether or not the textbook contains extraneous material.⁵⁷ In other words, the state's textbooks can cover a lot of material that's not in the standards. In California, reviewers often rely on "standard maps" provided by the publisher themselves.⁵⁸

The result is that schools often use misaligned textbooks, and studies have shown that there is a clear gap between what publishers say is aligned to state standards or effective and what truly fits those criteria.⁵⁹ The authors' research for this report reveals another wrinkle to this research, and it appears that some districts are aware of the fact that publishers will exaggerate their textbooks' alignment to the state standards. However, district leaders also say that teachers with an in-depth understanding of the curriculum and standards are able to assess alignment of the standards to the curriculum.⁶⁰

Recommendations

Based on the analysis and findings of this report, the authors propose the following recommendations.

The federal government should invest in rigorous curriculum studies

It is hard for observers to judge the quality of curriculum if there is little evidence on the effectiveness of most products. While current law prohibits the federal government from exercising “any direction, supervision, or control over the curriculum,” the law does not preclude the federal government from researching curricula that are already available to states and districts.⁶¹ The federal government has a clear role to play in continuing to support this research through the Institute of Education Sciences. Randomized experiments—although expensive to conduct—can have large returns on investment since the results can immediately inform selection and purchasing decisions around effective instructional materials that benefit millions of students and thousands of districts.

The ROI of curriculum reform is many times that of investments in other policies. The fact that there has been only one federally funded RCT of curricular effectiveness is hard to justify in light of the evidence discussed above. The authors believe that the federal government should approach curricular studies similar to the way that the U.S. Food and Drug Administration vets products: by aggressively evaluating and publicizing their quality and research base. An RCT on curriculum effectiveness costs approximately \$10 million—or .01 percent of the Department of Education’s discretionary appropriations.⁶² A relatively small research investment can have a substantial ROI by providing states and districts with important information on the effectiveness of instructional materials—all while barely making a dent in the overall education budget.

State education agencies, or SEAs, also have a role to play in collecting and making available the data needed for studies of curriculum quality. However, effectiveness studies are only possible if there are data on which schools are using which products. States should enhance their longitudinal education databases to include this information in order to enable researchers to examine curricular effectiveness across a range of contexts and student populations.

Improve adoption processes at the state level

Nineteen states have a curriculum adoption process that yields a list of products that schools either must use to select instructional materials or are encouraged to use when adopting products. These processes follow a similar pattern across states, and in most places, they have been followed for decades. These processes overly emphasize impressionistic judgments of quality based on checklist approaches to measuring alignment. Moreover, many of the textbooks that are adopted are not actually aligned with standards; this is a long-standing problem that has been highlighted by the implementation of the new Common Core standards.⁶³

When hard evidence on curriculum quality is available in some areas, educators should use those data as opposed to making adoption decisions based on sales pitches and the prevailing political headwinds. Additionally, states should ditch their largely haphazard approaches to measuring alignment and instead commission professional alignment studies of proposed curricula. A model for this work is some of the research on the alignment between state tests and state content standards, which has found that only half of the content of state tests is part of the standards.⁶⁴ The cost of developing and implementing rigorous measures of curriculum alignment would be relatively small on a per-student basis, considering that adoption cycles run for several years.

In the substantial number of states that do not have an adoption process, individual districts have to evaluate instructional materials on their own. There would be significant efficiencies in creating a statewide process that would help districts narrow down the list of considered products and provide actionable information to aid in selection decisions. The authors recommend that every state become a suggest state, so that districts receive recommendations from the state but are free to ignore them. This, in fact, is why the authors do not endorse states becoming recommend states: Districts should have some flexibility when it comes to curriculum.

In this regard, Louisiana is a shining star. The state initially delayed its adoption process due to a lack of high-quality materials, as well as issues with Common Core alignment.⁶⁵ After resuming the process, Louisiana published annotated reviews of instructional materials and grouped materials into three tiers: exemplifies quality, approaching quality, and not representing quality.⁶⁶

Looking forward, all states should continue to allow schools to select the product that best serves its students' needs, but they must also provide clear and accurate information about quality that obviates the need for every district to figure this out on its own.

Improve selection decisions at the district level

School districts have long struggled to make informed curriculum decisions, in large part due to a lack of good information on quality. Improving the adoption process at the state level will be an important step in the right direction. But districts still need to choose the right product from the list of options provided by the state or another product when appropriate. The number of choices can be overwhelming, and given the flaws of existing adoption processes, it is difficult for districts to know whether to trust the recommendations embodied in the state's adoption decisions. And of course no such information is provided in open-adoption states.

One promising strategy currently in use in some districts is to pilot new products alongside existing products in order to produce evidence on effectiveness before committing to the new product.⁶⁷ If done well, pilot studies can measure how well the product works as implemented in a given district, which may be more relevant than evidence on how it worked someplace else. This approach is particularly attractive in larger districts that can pilot different products and have the internal capacity to evaluate the results.

Another promising practice is the development of rubrics. Achieve, a Washington, D.C., education reform organization, for instance, started the Educators Evaluating the Quality of Instructional Products, or EQuIP, initiative, which allows educators to evaluate Common Core instructional materials using the EQuIP rubrics.⁶⁸ The reform group Change the Equation has developed a rubric in the science, technology, engineering, and mathematics, or STEM, fields to evaluate "programs that are most likely to ... maximize the impact of their investments."⁶⁹ States and outside organizations could build on these programs and create rubrics specifically tailored to evaluating the efficacy of various curricula. In turn, these rubrics could be validated using student achievement data.

Given the current dearth of high-quality evidence on curriculum quality, districts can also improve their capacity to make well-informed curriculum adoption decisions by creating networks for sharing information across districts within a state. While judgments of quality by an individual district are likely to be somewhat impressionistic, aggregating information across multiple districts can increase its reliability. In any case, information based on experience using a product is likely to be superior to claims made by its publisher or a casual review of the printed or digital materials. State education agencies could publish district reviews of instructional materials on their websites so that the information is readily available for districts to utilize during the textbook adoption process.

Establish a competitive grant initiative for high-quality curricula

The Common Core presents an opportunity for districts and states to share instructional materials and identify promising curricula aligned to the standards. However, it is difficult for those making adoption decisions to determine which materials are both effective and aligned to the standards. Some publishers, for instance, claim their materials are Common Core-aligned when the substance of their textbooks deviates from the standards.⁷⁰

Independent groups such as philanthropies should implement a competitive grant program whereby nonprofits, small publishing companies, and other innovators could apply for funding to develop and scale-up promising and effective curricula. The grant program would increase the number of high-quality materials in the Common Core marketplace and provide states and districts with a wider array of options when selecting instructional materials.

The grant program should include substantial funds for rigorous evaluations and reward innovation, scalability, and evidence-based research. Districts would pilot these materials, and the results of all pilot programs would be available online for states and districts to review when making adoption decisions. The grant program could also fund randomized control trials, which would compare the effectiveness of different curricula.

Teachers, parents, and students could also have the option of both rating and posting reviews of these materials in order to ensure that stakeholders have access to relevant information before selecting instructional materials. This feature would be similar to the American Federation of Teachers' "Share My Lesson" website, where teachers are able to provide other educators with

classroom resources as well as rate instructional resources.⁷¹ Finally, the grant could require that the resulting documents be Common Core aligned, as well as openly licensed, which would help spark reform and drive down costs.

There have been some promising solutions in this space. The K-12 OER Collaborative is helping to create openly licensed, sample units aligned to the Common Core, for instance.⁷² The New York State Education Department helped create EngageNY, which provides high-quality curricula units that schools can make their own and eventually led to the Eureka Math curriculum.⁷³ Student Achievement Partners—a New York City nonprofit—launched Achieve the Core, an online bank of Common Core-aligned lessons.⁷⁴ Despite these examples, the authors believe that more needs to be done in the curriculum space, particularly around developing demonstratively effective textbooks, and a competitive program would help foster the creation of better instructional material.

Conclusion

The widespread adoption of the Common Core standards has created a national market for instructional materials. Publishers will no longer need to create products aligned to the standards of 50 different states, which will create opportunities to invest more significantly in the creation of new products and open up the market to smaller players who previously could not compete on a state-by-state basis.

Put simply, the need for high-quality research on curriculum quality has never been greater, and the federal government has a clear role to play in supporting gold-standard research. State governments can also make important contributions through data collection and information dissemination. Due to the near-universality of the Common Core, states, districts, and philanthropic organizations can invest in new tools for eliciting feedback from users and sharing evidence about materials' effectiveness.

Producing in-depth information on curriculum quality and using it to inform decisions that improve student learning might not get as much attention from policymakers as more visible reforms such as reforming teacher evaluation systems or expanding afterschool programs. However, policymakers who care about the U.S. education system would be remiss to pass up an opportunity to have meaningful impacts on educational quality at an affordable cost.

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Acknowledgments

The authors would like to thank Catherine Brown and Carmel Martin for their invaluable feedback and support. We would also like to thank the states and districts that talked to us about their textbook adoption processes and answered numerous questions. Morgan Polikoff, Jennifer Wolfe, Doug Harris, and Claus Von Zastrow also provided helpful feedback.

Appendix A

TABLE A1
State textbook adoption classifications

State	Classification	Notes
Alabama	Recommend	Local school districts can also request permission to adopt a textbook that is not on the state's adoption list, provided that the textbook is not on the rejected list.
Alaska	Open	
Arizona	Open	
Arkansas	Open	
California	Suggest	Textbooks are not adopted at the high school level.
Colorado	Open	
Connecticut	Open	
Delaware	Open	
Florida	Recommend	As much as 50 percent of annual textbook funding may be used for the purchase of instructional materials that are not included on the state's adopted list. Alternatively, districts may undertake their own adoption processes independent of the state's process. This option was added to the Florida statute in 2013 and expanded in 2014, but districts continue to use state-adopted materials.
Georgia	Suggest	
Hawaii	Recommend	Hawaii conducted a thorough statewide adoption process for Common Core instructional materials and selected a specific set of instructional materials for each grade level. However, schools may opt to use other materials by filing an exception request and outlining an implementation plan. There are no statewide adoption processes for non-Common Core subjects.
Idaho	Suggest	The state recommends—but does not require—that districts choose materials from the list of vetted and approved materials.
Illinois	Open	
Indiana	Open	Indiana only adopts materials for elementary school reading, which districts are required to use.
Iowa	Open	
Kansas	Open	

State	Classification	Notes
Kentucky	Recommend	Districts must complete a notification process in order to purchase materials that are not on a state list.
Louisiana	Suggest	In Louisiana, all districts are able to purchase instructional materials that are best for their local communities. In order to support districts with these decisions, the Louisiana Department of Education conducts an informal review of instructional materials.
Maine	Open	
Maryland	Open	
Massachusetts	Open	
Michigan	Open	
Minnesota	Open	
Mississippi	Suggest	
Missouri	Open	
Montana	Open	
Nebraska	Open	
Nevada	Open	Nevada does not actually conduct the adoption process; instead, it requires districts to submit textbooks to the state for approval and adoption.
New Hampshire	Open	
New Jersey	Open	
New Mexico	Recommend	A minimum of 50 percent of textbook funding may be spent on primary instructional materials that are included on the state's authorized adopted list.
New York	Open	
North Carolina	Suggest	
North Dakota	Open	
Ohio	Open	
Oklahoma	Recommend	As much as 20 percent of allocated textbook funds may be used for textbook repair or for student materials that are not adopted.
Oregon	Suggest	School districts may adopt and use textbooks or other instructional materials in place of or in addition to those adopted by the Oregon State Board of Education, provided they meet the state's guidelines and criteria.
Pennsylvania	Open	
Rhode Island	Open	
South Carolina	Recommend	
South Dakota	Open	
Tennessee	Recommend	Once the Tennessee State Board of Education approves the list of textbooks, school districts may choose to adopt a book from the state-approved list or apply for a waiver to use a different text.

State	Classification	Notes
Texas	Suggest	
Utah	Suggest	Districts are encouraged to use funds designated for state instructional materials to purchase materials on the recommended instructional materials list, or for advanced placement, International Baccalaureate, concurrent enrollment, and college-level course materials.
Vermont	Open	
Virginia	Suggest	Local school boards can use textbooks that are not approved by the Virginia Board of Education, but a local textbook review process must be conducted that includes components similar to the state-level review.
Washington	Open	
West Virginia	Recommend	
Wisconsin	Open	
Wyoming	Open	

Source: The authors classified states based on information provided on State Education Agencies', or SEAs', websites and through the following sources: State Instructional Materials Review Association, "State Resources," available at <http://simra.us/wp/state-links/> (last accessed September 2015); Personal communication with representatives from SEAs, see endnotes 22, 23, 28, 29, 71, 76, 78, 88, 97, 107, 112, 118, 125, 129, 134, 139, and 147; Catherine Gewertz, comment on "Textbook Authority Shifting Slowly From States to Districts," comment posted January 27, 2015, available at http://blogs.edweek.org/edweek/curriculum/2015/01/textbook_authority_shifting_from_states_to_districts.html (accessed February 19, 2015).

Appendix B: Case studies

State case studies

Alabama: Instructional materials adoption process in a recommend state

Overview

Textbooks in Alabama are adopted at the state level, but districts may request permission to use other instructional materials that the state did not adopt. However, districts may not use any textbook rejected by the state board of education.⁷⁵

Adoption process

Alabama typically adopts new textbooks in each subject area every six years. The adoption process starts in January with publishers receiving an “invitation to bid.” The state board of education appoints 14 educators and the governor nominates 9 members from across the state to serve on the 23-person State Textbook Committee. In the spring, State Textbook Committee members attend orientation and training. Publishers then submit textbooks, and the committee meets over the course of a few months to review submissions using a rubric to evaluate alignment to the state standards.⁷⁶

In July, the State Textbook Committee holds publisher hearings to gain information about the textbooks that are under consideration. After holding a public hearing in September, the State Textbook Committee votes and submits recommendations to the state superintendent of education. The state superintendent then makes a recommendation to the state board of education. These recommendations are publicly announced and the general public may submit comments on these materials. In December, the state board of education ultimately votes on which instructional materials to approve for the adoption.⁷⁷

Following the online publication of the state’s instructional materials adoption list, school districts create local committees to review adopted textbooks. Local committees must finish their adoption processes no later than April 30 and submit a local adoption report to the state within 30 days. If a district opts to adopt a textbook that is not on the state’s adoption list, the district must request a letter from the publisher with an explanation as to why the instructional material was not included in the state’s adoption process. The letter is then submitted to the state for review and approval. Classroom instructional materials must be adopted by the local board of education based on a local textbook committee’s recommendation.⁷⁸

Changes to adoption process

An internal task force is currently reviewing Alabama’s adoption process. According to Martin Dukes, education administrator for instructional services with the Alabama Department of Education, the state hopes to streamline the instructional materials review process in order to better serve local school districts.⁷⁹

When asked about future changes, Dukes explained that he does not foresee any immediate changes to Alabama’s textbook adoption process; however, he noted that it would be valuable to move toward an ongoing review process. Dukes mentioned that a “consumer guidebook” for instructional materials would allow states and districts to effectively move away from a formal adoption process where textbooks are only adopted in each subject area every six years.⁸⁰

California: Instructional materials adoption process in a suggest state

Overview

Textbooks in California are adopted at the state level in grades K-8, but districts are not required to purchase instructional materials from the state’s adoption list. In grades 9-12, districts are solely responsible for evaluating and adopting instructional materials.⁸¹

Adoption process

California aims to adopt textbooks in the primary curriculum subjects every eight years. However, the state suspended its adoption process in 2009 due to budget constraints.⁸² While the suspension lifts this year, the legislature previously approved the state to move forward with adopting math and English language arts, or ELA, Common Core-aligned materials.⁸³ The state adopted Common Core-aligned math instructional materials in January 2014 and plans to adopt Common Core-aligned English language arts, or ELA, instructional materials in November 2015.⁸⁴

The adoption process begins when the state board of education selects instructional materials reviewers, or IMRs, and content review experts, or CREs, and holds an invitation to submit meeting. IMRs are primarily teachers and school administrators, while CREs have the content expertise to serve as a resource for research-based questions. Both types of reviewers apply online and are selected by the state board of education. At the invitation to submit meeting, the State Board of Education walks publishers through the adoption process, answers any questions, and provides the publishers with all the necessary forms.⁸⁵

IMRs and CREs are then trained over four days and publishers present their submitted materials. Publishers distribute samples of their products and provide reviewers with completed standards maps demonstrating their products' alignment to California's standards. IMRs and CREs use these standards maps to evaluate whether an instructional material meets each standard. During this independent review period, the submitted materials are accessible for viewing at Learning Resource Display Centers throughout the state and the student materials are available for public viewing online. The California Department of Education website displays the links to where those student materials may be viewed for each program submission. These materials remain publicly available until the state board of education makes its adoption decisions.⁸⁶

Following the independent review period, IMRs and CREs meet for deliberations and assemble a report of their findings. Next, the Instructional Quality Commission, or IQC, conducts public hearings and makes final recommendations. The state board of education ultimately adopts materials based on IQC recommendations.⁸⁷

According to Cliff Rudnick, instructional resources unit administrator with the California Department of Education, the percentage of submitted materials that are ultimately adopted varies widely. During the previous adoption cycle, the state adopted 31 of 35 submitted math programs.⁸⁸ California Education Code specifies that the state must "adopt at least five basic instructional materials" in each subject area.⁸⁹ However, the state board of education only received three submissions during the 2002 adoption cycle for English Language Arts and adopted two of those submitted programs.⁹⁰

Changes to adoption process

In terms of future changes to the adoption process, Rudnick mentioned that publishers currently cannot alter materials once they are submitted.⁹¹ However, the state board of education proposed regulations that would allow publishers to update adopted materials through a process and schedule outlined in the California Code of Regulations.⁹² A public hearing and review of proposed regulations was held in May 2015, and the state board of education is expecting final approval from the Office of Administrative Law this fall.⁹³ Proposed regulation moved forward following the public hearing with only a minor change specifying that the updating process would be opened “at least” once every two years—as opposed to strictly being opened only once every two years.⁹⁴

Florida: Instructional materials adoption process in a recommend state

Overview

Textbooks in Florida are adopted at the state level and districts must spend at least 50 percent of their instructional materials allocation on state-approved curricula materials. However, districts have the option of conducting their own adoptions and those districts are exempt from the 50 percent rule.⁹⁵

Adoption process

Florida has a five-year adoption cycle. The process begins each fall when the Florida Department of Education sends publishers a list with subject areas for which the state is soliciting adoptions. In midwinter, publishers inform the state about materials they plan to submit, and they enter their final offerings before June 15. Publishers are required to provide Florida with the lowest price of that title from across the country.⁹⁶

Each submitted instructional material is then evaluated by two state-level content expert reviewers who are appointed by the commissioner of education and typically have at least a graduate degree and/or certification in the designated subject area. A third content expert will examine any piece of material where there is a discrepancy between the two reviewers. All publishers can record virtual presentations of their submitted materials in order to inform state-level reviewers' recommendations.⁹⁷

State-level reviewers then complete their reviews through an electronic evaluation system and are responsible for assessing the materials' alignment with Florida's content standards. Reviewers use the course-specific section of a two-part rubric to assess alignment to and coverage of the state standards. After this assessment, district-level reviewers evaluate the recommended materials. These reviewers are experienced teachers or supervisors with content-area expertise who are appointed by school district superintendents. Their district-level review consists of an electronic evaluation; it is less content-specific and instead focused on the instructional usability of materials. For a two-week period during this review, the public is invited to submit online evaluations of the materials.⁹⁸

The commissioner of education ultimately decides which materials to adopt based on these recommendations, and the Florida Department of Education, or FLDOE, assembles a list of adopted materials that is posted on its website and distributed to publishers. The state does not aim to adopt a predetermined number of materials in each subject area. According to Katrina Figgett, FLDOE director of instructional support, "Theoretically, everything could fail or everything could pass. ... We're looking for instructional materials that are correctly aligned. Sometimes that may be 12 books and sometimes that may be 2."⁹⁹

Florida's district-level selection of instructional materials

Districts have an instructional materials allocation provided by the state and at least half of these funds must be spent on materials adopted by the state. FLDOE does not help districts with selection decisions because it views its role as limited to "saying these are aligned materials ... districts should choose the materials that are best suited for their community, they may of course choose something that's not on the adopted list."¹⁰⁰

Changes to the adoption process

In 2013, Florida included the option for districts to conduct their own adoption processes. However, Figgett says that she does not know of any district that is implementing its own process.¹⁰¹

The start of the 2014-15 fiscal year marked a significant change to Florida's adoption process: Districts are now required to spend at least 50 percent of their instructional materials allocation on digital materials. These materials do not need to be from the state's list of adopted materials. However, starting in FY 2015-16 fiscal year, at least 50 percent of districts' annual textbook allocation must go toward digital materials adopted by the state.¹⁰²

Another reform, according to Figgett, is that the legislature “made it explicit that districts are responsible for their instructional materials choices. ... That’s something that’s always been implicit but this year they wanted to make it explicit with additional language in the statute.”¹⁰³ Although many districts already conducted public review and parental objection processes, Florida legislators made these processes mandatory for all districts in 2014.¹⁰⁴

South Carolina: Instructional materials adoption process in a recommend state

Overview

Textbooks in South Carolina are adopted at the state-level, and districts can choose textbooks from a comprehensive list of state-approved instructional materials.¹⁰⁵

Adoption process

The instructional materials adoption process starts with a meeting of the state’s Curriculum and Instructional Materials Advisory Committee to decide which subject areas should be included in the upcoming textbook adoption cycle. The Committee then recommends these subject areas to the state board of education. Textbooks are typically adopted every six years in each subject area. Contracts last six years, but there is the option to extend a contract for an additional year. However, South Carolina tends to adopt textbooks more frequently in the career and technical education areas: Ideally, these textbooks are updated every three years, but whether or not these updates happen depends on available funds.¹⁰⁶

After the State Board of Education approves subject areas that will get new textbooks, the Committee solicits candidates for each instructional materials review panel from the state board of education, district superintendents, and the South Carolina Department of Education, or SCDE. The state superintendent then issues a call for bids, which contains instructions and information for publishers and vendors participating in the adoption cycle. Afterwards, recommendations for Instructional Materials Review Panel members are made to the state board of education. A few days later, the SCDE opens publishers’ bids. Publishers are then scheduled to present in front of individual review panels and must send all materials to the SCDE and all review panel members. Following presentations, bid tabulations are distributed to panel members and available to publishers. South Carolina requires that publishers provide the state with the lowest price of that title from across the country, per specifications of the Most Favored Nation Clause of the South Carolina Code of Laws.¹⁰⁷

Instructional materials review panels then meet to make final recommendations on publishers' submitted materials. Panel members cast votes on each instructional material based on alignment to the state standards; instructional materials approved by two-thirds of panel members are included in the recommendations report that the panel facilitators submit to the adoption coordinator. The list of recommendations is then sent to publishers, and student editions of textbooks are shipped to public review sites whereby the public has 30 days to review recommended textbooks.¹⁰⁸

South Carolina sets up its public review sites at 23 to 30 private and public colleges that have approved teacher education programs, and the general public is invited to submit their comments online. The review panel's recommendations as well as a public review summary report are then sent to the state board of education for approval and adoption. The SCDE then posts a list of the newly approved instructional materials that the state board of education adopted; approximately two-thirds of instructional materials originally submitted by publishers end up on the final list of adopted materials.¹⁰⁹

Following the posting of adopted materials, SCDE facilitates what is dubbed the Instructional Materials Caravan, during which publishers present their materials to school and district staff across the state in order to provide them with relevant information on the newly adopted materials. The publishers fund the caravan and the SCDE manages the entire process as far as providing districts with necessary information, managing registration, and setting up all the sites. Each January, there are anywhere from 10 to 13 sites where publishers provide textbook samples and present their materials. Schools and districts then select and purchase instructional materials for the upcoming school year.¹¹⁰

Changes to the adoption process

South Carolina recently established a proviso for digital instructional materials whereby an extra pot of money is set aside for districts to use on instructional materials, devices, and Internet bandwidth. There are \$12 million available for the 2014-15 school year—as compared to \$4 million last year—and funds are allocated in a manner similar to a per-pupil allocation. Districts have up until January 15 to order materials and then they receive the remaining amount of money or full allocation to use toward devices and bandwidth. Last year, the bulk of money went straight to the districts for devices. These funds are supplementing the \$29 million that is available solely for technology purposes.¹¹¹

South Carolina’s instructional materials adoption coordinator, Kriss Stewart, said that the state is always searching for ways to improve the adoption process. “We’ll be looking more and more to streamline the process, reduce the timeline, and make sure districts have the flexibility that they need and the materials they need for their students,” Stewart explained.¹¹²

Texas: Instructional materials adoption process in a suggest state

Overview

Textbooks in Texas are adopted at the state level, but districts are not required to purchase instructional materials from the state’s adoption list.¹¹³

Adoption process

Texas adopts textbooks in the foundation curriculum areas—English language arts and reading, math, science, and social studies—every eight years or more depending on funding availability and whether there have been recent revisions to the Texas Essential Knowledge and Skills, or TEKS.¹¹⁴ Texas had not adopted new social studies instructional materials since 2003, but the state finally reviewed social studies textbooks in summer 2014 and adopted recommended instructional materials in November 2014.¹¹⁵ According to Kelly Callaway, division director of instructional materials and educational technology, the state hopes to develop a new process through which new TEKS would only be implemented when funding is available for instructional materials that meet those new standards.

The adoption process officially begins when the state board of education issues a proclamation requesting bids in particular subject areas and specifying content requirements. Publishers file a statement of intent to bid in order to indicate that they are planning to submit materials during the adoption cycle. Publishers then provide samples of submitted materials to the Texas Education Agency, or TEA, and the 20 regional education service centers.¹¹⁶

State Review Panels—composed of three to five people appointed by the TEA commissioner of education based on nominations—evaluate the materials that publishers submitted. The number of review panels per subject area depends on the number of submissions. Callaway said the state decides how many review panels to assemble based on the number needed to complete the review in a week of face-to-face meetings. Reviewers assess materials based on the extent to which materials cover the TEKS and English language proficiency standards

and the number of factual errors. Reviewers use an evaluation instrument to assess alignment to TEKS. For each expectation listed in the standards, reviewers record one example of coverage in the student text narrative and another example identified in a unit test, review, or activity.¹¹⁷

State review panels then submit their findings to the commissioner, who will ultimately recommend adopting those materials that cover at least 50 percent of the TEKS for a specific subject and grade level. Materials in the four foundation subject areas must also cover 100 percent of the English language proficiency standards in order to be considered for adoption. The commissioner also presents the state board of education with a report detailing all factual errors in submitted materials, as identified by reviewers, publishers, or the general public. Publishers are then tasked with fixing these errors.¹¹⁸

Texas's public comment period allows all Texas residents to have the opportunity to review materials and submit comments. In addition, Texas residents may attend a public hearing to provide oral testimony on submitted materials and representatives of publishers respond to the public's testimony.¹¹⁹

Ultimately, the state board of education makes adoption decisions based on recommendations and sends contracts to publishers. Publishers are required to provide Texas with a price for each title that is equivalent to or less than the lowest price paid by any other state, school, or school district.¹²⁰

Changes to adoption process

In 2011, the Texas state legislature passed a measure that changed the instructional materials adoption requirements from meeting 100 percent of the TEKS, to meeting at least 50 percent of the TEKS. As a result, Callaway noted there has been a “drastic change in the number of materials that have been submitted.” When asked about the impetus behind this change, Callaway said she believes it occurred “to open up opportunities for more materials for districts to choose from.”¹²¹

The same 2011 legislative session also changed the procedure of how districts purchase instructional materials. Previously, the state was responsible for buying the materials and thus owned all instructional materials.¹²² As a result of Texas Senate Bill 6, districts now receive an “instructional materials allotment” based on student enrollment, and districts use those funds to purchase their own instructional materials.¹²³ The state provides districts with the TEKS coverage information, but districts are able to purchase both adopted and non-adopted materials.¹²⁴

When it comes to future changes, Callaway noted that the state board of education is currently assessing the challenges districts encounter with managing their instructional materials allotment; the results of this investigation may lead to adoption cycle changes.

District case studies

Alaska: Instructional materials adoption process in an open adoption state

Overview

Textbooks in Alaska are adopted at the district level whereby districts select instructional materials without help from the state.¹²⁵

Kenai Peninsula Borough School District

Adoption process

The Kenai Peninsula Borough School District adopts instructional materials in each subject area every seven years. The district starts the process by assembling a committee of 12 to 22 people, including teachers, an administrator, a school board member, the curriculum coordinator, a student, and a community representative. The committee reviews the current curriculum while incorporating any new standards into the core curriculum document that the district implemented over the past seven years. Next, the curriculum is approved by the school board and the committee begins brainstorming criteria for adopting instructional materials.¹²⁶

The district then posts the criteria on its website and invites publishers to submit instructional materials. After receiving all submissions, the committee convenes to review samples and evaluate instructional materials using a rubric provided by either the state or a national educational organization and modified to meet the district's needs. The committee discusses the materials until they reach consensus then they present their recommendations to the school board.¹²⁷

However, the district does not always find materials that meet its adoption criteria. Melissa Linton, curriculum and assessment coordinator for the Kenai Peninsula Borough School District, explained that the district solicited adoption recommendations for science textbooks aligned to the Next Generation Science Standards. Publishers claimed that their textbooks were aligned to the new standards, but

Linton said “it’s like trying to fit a square peg into a round hole and saying they’re aligned.” Given that none of the submitted materials met the district’s alignment criteria, the Kenai Peninsula district opted not to purchase new science textbooks.¹²⁸

Changes to adoption process

The Kenai Peninsula Borough district recently reorganized its adoption timeline in part because of the high costs of shipping instructional materials to Alaska. According to Linton, “the tight ordering schedule drives some of the [materials adoption] work.” The district also incorporated additional time for feedback from teachers across the district. Linton did not anticipate any changes to the adoption process in the foreseeable future, as she put it, there “have been enough major changes for the last year and a half.”¹²⁹

Arizona: Instructional materials adoption process in an open adoption state

Overview

Textbooks in Arizona are adopted at the district level whereby districts select instructional materials without help from the state.¹³⁰

Deer Valley Unified Schools

Adoption process

The Deer Valley Unified School District is bound by statute when it comes to adopting instructional materials. The district aims to adopt materials in each subject area every seven years, but budget constraints often prevent this goal from becoming a reality. Gayle Galligan, associate superintendent of the Deer Valley Unified School District, noted that some instructional materials were last reviewed 12 years ago.¹³¹

The district begins the adoption process by posting information pertaining to the upcoming instructional materials selection on its website. Next, principals recommend teachers to serve on the adoption committee. The 20- to 30-person committee includes teachers, administrators, parents, a community member, representatives for special education and English Language Learners, or ELLs, and a financial representative.¹³²

Letters are then sent to publishers specifying adoption criteria. Publishers submit initial resources for the adoption committee’s review, and the committee selects which materials sufficiently meet its criteria. The committee contacts the publishers of the selected materials and requests that they present their products before the adoption committee.¹³³

The committee then evaluates these instructional materials using a rubric and selects a maximum of three resources to undergo a 60-day public review. The committee takes all feedback from the public review into account and uses it to inform their recommendation to the school board. Prices factor highly into the final adoption decision, and the adoption committee negotiates with the top two publishers to determine the bottom-line costs before making a recommendation to the school board. After determining program costs, the adoption committee presents the school board with a preview of the recommended resources, on which the board then convenes to vote. After the board makes its selections, the district moves forward with the ordering process and aims to distribute newly adopted materials to teachers before summer recess.¹³⁴

Changes to adoption process

While the adoption process itself has remained unchanged in recent years, Galligan noted that the district is adopting more digital instructional materials. Although digital instructional materials cost about the same as traditional textbooks, Galligan explained that they can transform student learning by providing students with “opportunities to think and learn in ways they wouldn’t be able to without technology.”¹³⁵

Illinois: Instructional materials adoption process in an open adoption state

Overview

Textbooks in Illinois are adopted at the local level, whereby schools and districts select instructional materials without help from the state.¹³⁶

Rockford Public Schools

Adoption process

Rockford Public Schools adopts instructional materials in each curriculum area every six years. The district starts the adoption process by convening a committee of teachers who represent the district’s schools. The district then hosts vendor fairs, during which these teachers evaluate the quality of the displayed products using a district-approved rubric. The adoption committee then votes on which programs they want to pilot; usually, the committee pilots two programs.¹³⁷

Each program pilot can last from eight weeks to four months, after which time the teachers who used the materials provide data and input on their experience to the committee. Next, the committee votes on which program to adopt and creates a proposal outlining their recommendation. Ultimately, the recommendation needs approval from the school board.¹³⁸

In terms of negotiating prices, the district uses its large size as a lever in the negotiation process. The district always tries to incorporate teacher training and support into the package so that teachers have guidance when implementing a new text in class.¹³⁹

Changes to adoption process

According to Heidi Dettman, director of secondary curriculum for Rockford Public Schools, the district is attempting to replicate a data-driven model where teachers have a larger role in the selection of instructional materials. As Dettman explained, the social studies curriculum dean set this precedent last year when he “went above and beyond to get teacher feedback and instituted more teacher surveys so that he could get a better feel for every content area within social studies and how teachers felt about their text.”¹⁴⁰

In terms of changes associated with implementing the Common Core, Dettman said the new standards “made us really step back and think about how we use texts as resources because Common Core requires us to do much more skill-building, so it may not be that we find everything we need in one textbook.”¹⁴¹

Other future changes to the district’s adoption process are dependent upon technology. Dettman noted that if the district ends up going one-to-one—meaning that every student will have an electronic device—then there will be many alterations to the instructional materials adoption process.¹⁴²

Chicago Public Schools

The Chicago Public Schools district does not currently have a formal, districtwide instructional materials adoption process. Schools have autonomy when it comes to purchasing decisions, and the district provides some schools with supplemental materials. However, the district is working on creating a formal process with the implementation of the Common Core.¹⁴³

The district attempted to adopt literacy instructional materials aligned to the Common Core in 2013, but failed to find products that met its adoption criteria. During the 2013 process, the district first gathered information to determine its needs and also brainstormed creative ways to repurpose current materials. Next, content area experts, teachers, and administrators developed a request for proposal that reflected the district’s criteria for instructional materials. Publishers submitted materials, and 70 teachers conducted an elaborate evaluation process over a one-week period. However, the reviewers did not find any materials that met the district’s needs, so they ultimately opted not to adopt any new instructional materials. According to Carisa Hubbard, instructional materials coordinator for Chicago Public Schools, “vendors were submitting materials that were in progress and not completely written.”¹⁴⁴

Following the 2013 literacy material adoption cycle, Chicago Public Schools decided to examine other districts' instructional materials selection processes in order to gather ideas for the next solicitation. Moving forward, the district's adoption process is still a work in progress, but the district hopes to adopt math and English language arts materials once the textbook market is better positioned to meet the district's needs.¹⁴⁵

Iowa: Instructional materials adoption process in an open adoption state

Overview

Textbooks in Iowa are adopted at the district level, whereby districts select instructional materials without help from the state.¹⁴⁶

Des Moines Public Schools

Adoption process

Des Moines Public Schools adopts instructional materials in each subject area every five to six years. The adoption process commences with the assembly of an adoption team consisting of 15 to 20 people, including a wide representation of teachers, support personnel from special programs, and administrators. The adoption team then determines the criteria for selecting instructional materials, during which time publishers may submit materials they believe align to the specified criteria.¹⁴⁷

Next, the adoption team reviews submitted materials using a scoring rubric that reflects the criteria for selection and measures important aspects such as alignment to the standards and support for English Language Learners. The team then selects textbooks that fulfill all desired components, and teachers on the team pilot these materials in their classrooms for a one-month period. Teachers use the rubric to formally assess each instructional material and present the leadership team with their top two choices. During the past adoption cycle, two out of six selected materials quickly rose to the top.¹⁴⁸

The adoption team then invites the publishers of the top two programs to present their instructional materials to the team. The district uses these materials to conduct a second pilot with the final two programs, and the adoption team votes on their final choice. The Des Moines school board of education then approves all purchases of more than \$100,000, and the district curriculum coordinator works with the publisher and the district's purchasing department to order the requisite instructional materials.¹⁴⁹

Changes to adoption process

According to Carlyn Cox, director of elementary teaching and learning for Des Moines Public Schools, the shift to digital curricula materials will alter the review process in the future. Cox noted that digital materials are much more cost-effective and it will be imperative that technology department representatives are part of the adoption team.¹⁵⁰

Iowa City Community Schools

Adoption process

Iowa City Community School District adopts instructional materials in each subject area every eight years. The district typically adopts instructional materials following an extensive review of a specific curricular area. The district sends three to four people to a national conference that features publishers' booths. These district representatives learn about all products currently on the market in the various subject areas during their interactions with the publishers present at the national conference. Representatives ultimately select four or five programs for the district to review in depth. A self-study committee—led by the curricular area coordinator and consisting of 15 to 25 teachers from various grade levels and/or subject areas—reviews selected instructional materials using a rubric to evaluate each textbook. The district displays these materials in its central office; teachers and parents can review the materials and submit feedback by completing the designated rubric. These instructional materials are often also sent to the district's two high schools and three middle schools for teachers to review.¹⁵¹

The designated review rubric assesses the following criteria: alignment to the state standards; reflection of curriculum; inclusion of embedded and summative assessments; teaching philosophy; level of multicultural and gender-fair instruction; and additional practical issues, such as, useable ancillary materials, overall user-friendliness, representative of federal regulations, support for ELL students, and quality of the binding and paper.¹⁵²

Following an in-depth review of materials, the committee typically chooses two or three programs to pilot. The district then pilots these programs simultaneously. The teachers who work with the materials during the pilot complete rubrics assessing these programs. Once the pilots are finished, the self-study convenes to reach consensus on which program the district should adopt.¹⁵³

Changes to adoption process

Iowa City Community School District has not made any recent changes to the actual adoption process. However, Pam Ehly, Director of Instruction for Iowa City Community School District, mentioned that there is a stronger emphasis on ensuring instructional materials align to assessments, which led the district to slightly modify its rubric.¹⁵⁴

Nebraska: Instructional materials adoption process in an open adoption state

Overview

Textbooks in Nebraska are adopted at the district level, whereby districts select instructional materials without help from the state.¹⁵⁵

Lincoln Public Schools

Adoption process for elementary reading

The components of Lincoln Public Schools' instructional materials adoption process are dependent upon the scale of implementation. The process for elementary reading, the largest adoption, starts with the assembly of a team of principals, teachers, curriculum specialists, and district office department representatives. The entire team is between 25 and 50 people in size, but some team members play a less active, advisory role. The team's first task is to define best practices related to reading instruction and curriculum, as well as student learning goals. Team members also familiarize themselves with Nebraska state standards and assessments.¹⁵⁶

The team turns this research into a proposal detailing what kinds of materials the district's adoption cycle seeks, and it sends this proposal out to publishers. Jodi Miller, Director of Professional Development for Lincoln Public Schools, said she has "yet to meet a publisher who doesn't think their program can meet everything you fill out for them or are requesting—but that is rarely true." For the most recent elementary reading adoption process, eight publishers presented instructional programs and a district steering committee comprised of Lincoln Public Schools district office staffers narrowed the options down to three programs.¹⁵⁷

As part of the adoption process, the full steering committee reviews the remaining three instructional programs and assesses their alignment to the standards in order to determine whether the materials meet best practices in reading instruction. Typically, the full committee selects two out of the three curricula to use in

a full implementation study the following year. However, there was a clear first choice during the elementary reading adoption cycle, so the district opted not to pilot both series. Instead, the district piloted the first choice reading series against a control group that used the existing curriculum.¹⁵⁸

The new curriculum proved to be very effective. However, Miller noted that if the study “was inconclusive or if there was anything less than overwhelming evidence that this program ... was the right choice, then there would have been additional studies and pilots.”¹⁵⁹

The steering committee shared its initial results with the Student Learning Committee. Next, the results and recommendation were presented to the full school board, and the board members approved the final selection. The district’s purchasing department then negotiated price with the publisher. Miller noted the district has “pretty good bargaining power” given its large size.¹⁶⁰

The district ordered the new materials in time to give teachers copies before the summer recess, and it scheduled extensive professional development sessions throughout the summer, as well as during the first-year of implementation.¹⁶¹

Role of the state

Although the Nebraska Department of Education does not directly help with the textbook adoption process, Lincoln Public Schools is constantly communicating with state education officials about current and future changes to state standards. The open line of communication between the state and district allows the district to effectively make decisions at the local level. According to Miller, the ongoing communication with the state means that, the district understands “what the science standards adoption process is going to look like, we know more about the timeline, and we have some ideas about what the committee is looking at.”¹⁶²

Kearney Public Schools

Adoption process

In the Kearney Public Schools, the instructional materials adoption process is part of the curriculum development process. The first year of the process entails developing or revising a written curriculum document that aligns to Nebraska’s state standards; each curriculum document is updated every eight years. Teachers then implement the revised curriculum the following year, and the district begins its search for aligned instructional materials.¹⁶³

The committee contacts vendors requesting samples of instructional materials for specified subject areas. The committee creates an evaluation rubric for submitted materials and invites teachers to review the materials using the designated rubric.¹⁶⁴

Once the committee gathers all relevant information on the submitted materials, the top three vendors receive invitations to present their curricula. The committee selects curricula based on consensus. The selected vendor then sends a proposal with price information. Dick Meyer, the district's curriculum and assessment advisor, noted that "prices don't vary a whole lot" between different publishers and series, which means that price is not a determining factor in the selection of instructional materials.¹⁶⁵

Changes to adoption process

In terms of future changes to the instructional materials adoption process, Meyer believed the process will remain virtually the same, but the district will most likely purchase more digital content going forward. Kearney Public Schools is currently close to fully implementing a one-to-one technology program at the elementary and middle school levels. However, teachers are reluctant to move away from paper materials altogether; therefore, Meyer anticipated that the district will continue to buy classroom textbook sets for the foreseeable future.

Endnotes

- 1 The authors collected price data for all curricula included in the only high-quality curriculum effectiveness study, which is a randomized controlled trial carried out by researchers at Mathematica Policy Research and SRI International for the U.S. Department of Education's Institute of Education Sciences, or IES. The price data for the four curricula included in the IES study came from prices listed on publishers' websites.
- 2 The authors compiled price data on adopted elementary math instructional materials from 19 states in order to determine if there is significant variation in how much different states pay for the same instructional materials and whether recommend states and suggest states pay similar prices for the same textbooks.
- 3 The authors used information from case study interviews to conclude that adoption decisions are based on impressionistic assessments of quality and weak proxies for alignment to state standards. The authors also analyzed the following rubrics used by states to measure alignment: Texas Education Agency, "Proclamation 2015 State Review Panel Evaluation Instrument: Teacher Material," on file with author; California Department of Education, "2014 Mathematics Instructional Materials Adoption (K-8)," available at <http://www.cde.ca.gov/ci/ma/im/> (last accessed March 2015).
- 4 The authors classified states based on information provided on state education agencies' websites and through the following sources: State Instructional Materials Review Association, "State Resources," available at <http://simra.us/wp/state-links/> (last accessed September 2015); Personal communication with State Education Agencies over an extended period of time, mostly in 2014, but with follow-up questions in winter 2015.
- 5 Louisiana Department of Education, "Curricular Resources Annotated Reviews," available at <http://www.louisianabelieves.com/academics/instructional-materials-review/curricular-resources-annotated-reviews> (last accessed August 2015).
- 6 Personal communication with Jadi Miller, director of curriculum, Lincoln Public Schools, October 28, 2014.
- 7 Morgan S. Polikoff, "How Well Aligned Are Textbooks to the Common Core Standards in Mathematics?" *American Educational Research Journal* (2015), available at <http://aer.sagepub.com/content/early/2015/05/05/0002831215584435.abstract>; Cory Turner, "The Common Core Curriculum Void," National Public Radio, June 3, 2014, available at <http://www.npr.org/sections/ed/2014/06/03/318228023/the-common-core-curriculum-void>.
- 8 Ulrich Boser, "Return on Educational Investment: 2014: A District-by-District Evaluation of U.S. Educational Productivity" (Washington: Center for American Progress, 2014), available at <https://www.americanprogress.org/issues/education/report/2014/07/09/93104/return-on-educational-investment-2/>.
- 9 Matthew M. Chingos and Grover J. Russ Whitehurst, "Choosing Blindly: Instructional Materials, Teacher Effectiveness, and the Common Core" (Washington: Brown Center on Education Policy at Brookings, 2012), available at http://www.brookings.edu/~media/research/files/reports/2012/4/10%20curriculum%20chingos%20whitehurst/0410_curriculum_chingos_whitehurst.pdf.
- 10 The Thomas B. Fordham Institute, "The Mad, Mad World of Textbook Adoption" (2004), available at <http://excellence.net/publications/madmadworld.html>.
- 11 Chingos and Whitehurst, "Choosing Blindly."
- 12 Ibid.
- 13 Institute of Education Sciences, "Identifying and Implementing Educational Practices Supported By Rigorous Evidence: A User Friendly Guide," available at http://ies.ed.gov/ncee/pubs/evidence_based/randomized.asp#14 (last accessed August 2015).
- 14 Roberto Agodini and others, "Achievement Effects of Four Early Elementary School Math Curricula: Findings for First and Second Graders" (U.S. Department of Education, 2010), available at http://www.mathematica-mpr.com/~media/publications/PDFs/Education/mathcurricula_fstnsdgrade.pdf.
- 15 Ibid.
- 16 Rachana Bhatt and Cory Koedel, "Large-Scale Evaluations of Curricular Effectiveness: The Case of Elementary Mathematics in Indiana," *Educational Evaluation and Policy Analysis* 34 (4) (2012): 391-412, available at <http://epa.sagepub.com/content/34/4/391.abstract>.
- 17 Agodini and others, "Achievement Effects of Four Early Elementary School Math Curricula."
- 18 Julie Koehler Zeringue and others, "Influences on Mathematics Textbook Selection: What Really Matters?" (Waltham, MA: Education Development Center, 2010), available at <http://www2.edc.org/mcc/pubs/Final%20Draft%20Research%20Preession%202010.pdf>.
- 19 The authors classified states based on information provided on state education agencies' websites and through the following sources: State Instructional Materials Review Association, "State Resources," available at <http://simra.us/wp/state-links/> (last accessed September 2015); Personal communication with State Education Agencies.
- 20 Zeringue and others, "Influences on Mathematics Textbook Selection: What Really Matters?"
- 21 The term "recommend state" was initially used in Fordham's report on textbook adoption, for more information, see: The Thomas B. Fordham Institute, "The Mad, Mad World of Textbook Adoption." The Fordham report defines a recommend state as a state where "districts choose textbooks from a 'recommended list' prepared by the state." For our report, we use the term "recommend state" to refer to states where "districts choose textbooks from a 'recommended list' prepared by the state or request permission to select a textbook not on the state's adoption list."
- 22 South Carolina State Department of Education, "Information and Updates for the South Carolina Instructional Materials Office," available at <http://textbooks.ed.sc.gov/> (last accessed March 2015).
- 23 Florida Department of Education, "Florida Statutes K-20 Education Code: Excerpts Pertaining to Instructional Materials" (2014), available at <http://www.fldoe.org/core/fileparse.php/5423/urlt/14IMS.pdf>; Note that the FLDOE does not know of any district currently undertaking its own adoption process, see personal communication with Katrina Figgitt, director of instructional support, Florida Department of Education, March 24, 2015.

- 24 Personal communication with Martin Dukes, education administrator for instructional services, Alabama Department of Education, August 29, 2014.
- 25 Zack Kopplin, "Was Moses a Founding Father?" *The Atlantic*, November 25, 2014, available at <http://www.theatlantic.com/education/archive/2014/11/was-moses-a-founding-father/383153/>; Personal communication with Kelly Callaway, director of K-12 foundation education, Curriculum Division of the Texas Education Agency, July 23, 2014.
- 26 Personal communication with Cliff Rudnick, administrator, Curriculum Frameworks and Instructional Resources Division of the California Department of Education, July 8, 2014.
- 27 Personal communication with Thomas Coy, public school program advisor, Curriculum and Instruction Office of the Arkansas Department of Education, January 8, 2015.
- 28 Texas Education Agency, "Proclamation 2015 State Review Panel Evaluation Instrument: Teacher Material," on file with author; California Department of Education, "2014 Mathematics Instructional Materials Adoption (K-8)," available at <http://www.cde.ca.gov/ci/ma/im/> (last accessed March 2015).
- 29 California Department of Education, "2014 Mathematics Instructional Materials Adoption (K-8)."
- 30 Texas Education Agency, "Proclamation 2015 State Review Panel Evaluation Instrument: Teacher Material."
- 31 Thomas B. Fordham Institute, "The Mad, Mad World of Textbook Adoption"; Beverlee Jobrack, *Tyranny of the Textbook: An Insider Exposes How Educational Materials Undermine Reforms* (Lanham, MD: Rowman & Littlefield Publishers, Inc., 2012).
- 32 Kopplin, "Was Moses a Founding Father?"
- 33 CBS News, "Rewriting history? Texas tackles textbook debate," September 16, 2014, available at <http://www.cbsnews.com/news/rewriting-history-texas-tackles-textbook-debate/>.
- 34 Polikoff, "How Well Aligned Are Textbooks to the Common Core Standards in Mathematics?"; Turner, "The Common Core Curriculum Void."
- 35 Tim Walker, "Don't Know Much About History," National Education Association, available at <http://www.nea.org/home/39060.htm> (last accessed September 2015).
- 36 Zeringue and others, "Influences on Mathematics Textbook Selection: What Really Matters?"
- 37 Personal communication with Carisa Hubbard, Instructional Materials Coordinator, September 8, 2014.
- 38 Personal communication with Jadi Miller, October 28, 2014.
- 39 Ibid.
- 40 Inflation to 2014 dollars is based on the first year the price went into effect. For example, a product priced in a state's instructional materials list at \$26 from 2009 to present would be inflated from 2009 dollars to 2014 dollars.
- 41 The authors also collected data from Florida and Texas, but no products on the lists for these states also appear on the price lists of other states.
- 42 The authors calculated the average price of products as a percentage of a school district's average spending per pupil based on the New America Foundation's data available at <http://febp.newamerica.net/background-analysis/school-finance> that school districts spend \$10,658 per student; Atlas, "PreK-12 Financing Overview," available at <http://febp.newamerica.net/background-analysis/school-finance> (last accessed April 2015).
- 43 Georgia, for instance, includes math instructional materials such as *Scaredy Cats* and *Muddy, Muddy Mess*. These instructional materials are part of the Big Books Year 1 series, which encompasses themed picture books covering a variety of math concepts; ORIGO Education, "ORIGO Big Books," available at <http://www.origoeducation.com/origo-big-books-year-1/> (last accessed August 2015).
- 44 The Most Favored Nation clause specifies that a publisher must provide a state with a price that "does not exceed the lowest price at which the publisher offers those same instructional materials for adoption or sale to any other state within, or territory of, the United States." For more information, see California Department of Education, "Information on Relevant California Education Code Sections and California Code of Regulations, Title 5," available at <http://www.cde.ca.gov/ci/cr/cf/publtredcodeinfo.asp> (last accessed September 2015).
- 45 Agodini and others, "Achievement Effects of Four Early Elementary School Math Curricula,"
- 46 The authors translated all effect sizes from the standard deviation units reported in the original research to the grade levels using the average annual gain in effect sizes reported in Howard Bloom and others, "Empirical Benchmarks for Interpreting Effect Sizes in Research," *Child Development Perspectives* 2 (3) (2008): 172-177, available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1750-8606.2008.00061.x/abstract> Specifically, the authors divided the RCT results by 0.96, which is the average annual gain for grades 1 and 2.
- 47 Pearson, "Investigations in Number, Data, and Space 2012," available at <http://www.pearsonschool.com/index.cfm?locator=PSZpOz&PMDBSOLUTIONID=6724&PMDBS ITEID=2781&PMDBCATEGORYID=806&PMDBSUBSOLUTIONID=&PMDBSUBJECTAREAID=&PMDBSUBCATEGORYID=&PMDBProgramID=74264> (last accessed March 2015); Houghton Mifflin Harcourt, "Math Expressions Common Core," available at http://www.hmhco.com/shop/education-curriculum/math/elementary-mathematics/math-expressions/shop-now/math-expressions?i=1;programId=PG0089;q1=1;segment=Components;x1=grade_dd (last accessed March 2015); Houghton Mifflin Harcourt, "Saxon Math," available at http://www.hmhco.com/shop/education-curriculum/math/saxon-math/buy-now?i=1;programId=PG0124;q1=1;segment=Components;x1=grade_dd (last accessed March 2015); Pearson, "Scott Foresman-Addison Wesley Mathematics," available at <http://www.pearsonschool.com/index.cfm?locator=PSZu6e&PMDBSOLUTIONID=6724&PMDBSITEID=2781&PMDBCATEGORYID=806&PMDBSUBSOLUTIONID=&PMDBSUBJECTAREAID=&PMDBSUBCATEGORYID=25741&PMDBProgramID=13524> (last accessed March 2015).
- 48 The authors conducted their price-quality analysis using price data from publishers' websites collected in September 2014 for the four curricula included in the randomized controlled trial carried out by researchers at Mathematica Policy Research and SRI International for the U.S. Department of Education's Institute of Education Sciences.
- 49 Houghton Mifflin Harcourt, "Saxon Math."

- 50 New America Foundation, "Federal, State, and Local K-12 School Finance Overview," available at <http://atlas.newamerica.org/school-finance> (last accessed September 2015).
- 51 Douglas N. Harris, "Toward Policy-Relevant Benchmarks for Interpreting Effect Sizes: Combining Effects With Costs," *Education Evaluation and Policy Analysis* 31 (1) (2009): 3-29. The authors adjusted all of the cost-effectiveness ratios—referred to as ROI in this report—included in Harris's study by inflating costs to 2014 dollars.
- 52 The Student-Teacher Achievement Ratio, or STAR, project was a study conducted to determine the effectiveness of class-size reduction on student learning. Frederick Mosteller, "The Tennessee Study of Class Size in the Early School Grades," *The Future of Children* 5 (2) (1995): 113-127, available at http://www.princeton.edu/futureofchildren/publications/docs/05_02_08.pdf.
- 53 The authors collected price data for all curricula included in the only high-quality curriculum effectiveness study, which is a randomized controlled trial carried out by researchers at Mathematica Policy Research and SRI International for the U.S. Department of Education's Institute of Education Sciences. The price data for the four curricula included in the IES study came from prices listed on publishers' websites.
- 54 The authors compiled price data on adopted elementary math instructional materials from 19 states in order to determine if there is significant variation in how much different states pay for the same instructional materials and whether so-called recommend states and suggest states pay similar prices for the same textbooks.
- 55 Harris, "Toward Policy-Relevant Benchmarks for Interpreting Effect Sizes." The authors adjusted all of the cost-effectiveness ratios included in Harris's study by inflating costs to 2014 dollars.
- 56 The authors collected price data for curricula included in the quasi-experimental Indiana curriculum effectiveness study. The price data came from the prices reported in the actual study and inflated to 2014 dollars. We translate all effect sizes from the standard deviation units reported in the original research to grade levels using the average annual gain in effect sizes reported in Howard Bloom and others, "Empirical Benchmarks for Interpreting Effect Sizes in Research." Specifically, the authors divided the Indiana results by 0.52 for grade 3.
- 57 Personal communication with Kelly Callaway, July 23, 2014.
- 58 California Department of Education, "2014 Mathematics Instructional Materials Adoption (K-8)."
- 59 Polikoff, "How Well Aligned Are Textbooks to the Common Core Standards in Mathematics?" Turner, "The Common Core Curriculum Void."
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