

Systems Implications for Core Instructional Support Lessons from Sobral (Brazil), Puebla (Mexico), and Kenya

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As this note was being written in April and May 2020, the Coronavirus pandemic was sweeping the world. Children were out of school. Researchers around the world are now estimating a severe learning gap due to loss of school attendance. While the first priority is getting children back to school safely, the discussion in this note regarding foundational learning is all the more relevant, as it is this kind of learning that is likely most affected.

Introduction

In recent years, the expansion of education systems has led to unprecedented numbers of children attending school—nearly 90 percent of primary-school-aged children globally are enrolled in school, and in low- and lower-middle-income countries, as a whole, far more than half complete primary school.¹ However, there remains a learning crisis globally, and 6 out of 10 children and adolescents are not meeting minimum proficiency levels in reading and mathematics.² The scale of this crisis requires bold, transformative changes to education systems. While there have been advances in know-how on specific learning interventions, the challenge now is in moving crucial parts of education systems so that all young people, at a minimum, are literate and numerate by the time they leave primary school.

One reason education systems struggle to address the learning crisis is that the quality of the sub-systems (curricular design and lesson plans, textbook design, assessment tools, and teacher coaching and support) is often low, and in

Key Points

The case studies in this document highlight five tips that may be beneficial to other countries or situations:

- **Focus** on just a very few achievable indicators, foregrounding foundational learning, for a country emphasising learning.
- Use **data** to drive both initial “wake-up” and stock taking but also to support teaching as the process goes along.
- Emphasis on the **teaching** by the teachers who are already in place.
- Provide strong **motivation** through support that works.
- Use **tight management** so there is some degree of centralism and prescriptiveness as to pedagogy and other inputs, but after having iterated and adapted to context.

¹ <http://data.uis.unesco.org/>

² <http://uis.unesco.org/en/news/6-out-10-children-and-adolescents-are-not-learning-minimum-reading-and-math>

some cases missing altogether. Just as importantly, though, the coherence among these “core” sub-systems is often missing. They are typically overseen by different agencies or units within the same ministry, with varying priorities and varying degrees of success in coordination. Examples of such incoherence:

- A Grade 6 science lesson or assessment that might call for the use of algebra when the mathematics curriculum does not introduce it until Grade 8.
- There may be a system for rewarding teachers for results, but teachers do not have clear and tangible means of getting support on how to teach better, leading to demotivation and frustration.
- The Grade 1 reading textbook is much more ambitious than the lesson plans and does not follow the same scope and sequence. There is no clarity as to which should dominate.

In the context of these coherence and support challenges, there are several promising examples of how national and sub-national governments in low- and middle-income countries have aligned their sub-systems. These governments are either seeing rapid improvements in learning outcomes or are sustaining learning levels that are better than their peers. In December 2019, the Bill and Melinda Gates Foundation convened a workshop examining four education systems that have worked to build coherence across their systems, as viewed by “insiders” who played a significant role in carefully studying, designing, or maintaining the systems. The cases are the Sobral municipality in the state of Ceará, Brazil; the state of Puebla, in Mexico; and the countries of Chile and Kenya. In all of these cases, data suggest that the systems have improved performance relatively recently or have historically tended to perform above what one would expect based on context, or generally have a reputation for excellence and innovativeness in their country or region. The workshop was by invitation only, and invitees included individuals from implementing non-profits and NGOs, academia, and development agencies such as the World Bank, USAID, and UNICEF.

The presenters were:

- Laban Ayiro (Daystar University) - Kenya case study
- Ilona Becskehazy (Independent consultant, Exequi) - Sobral case study
- Gregory Elacqua (Inter-American Development Bank) - Chile case study
- Bernardo Naranjo (Proyecto Educativo SC [ProyEdu]) - Puebla case study

This information note summarises the knowledge shared at the workshop and was produced at the request of key stakeholders at the meeting. It is intended for the benefit of the participants and those who may be designing systems interventions or research, especially around the issue of the “instructional core” and the coherence among the various elements of the instructional core. The note is presented as an informal contribution. It does not pretend to be an original research paper or to possess academic rigor. (No academic bibliographic references are used other than implicitly to the four presentations and background materials developed by the presenters.) The note also does not attempt to evaluate or prescribe or attribute causality. For instance, below, that an intervention may have been prescriptive (or less so) could be causal of the result. But there were other factors as well. All materials presented are based on the presenters’ presentations and related information exchanges unless otherwise noted.

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The note presents informal narratives of the cases derived largely from the presenters’ presentations. Following those narratives, in an Annex that is somewhat detailed but we hope is worth looking at, is an analytical and comparative matrix that compares and explains some of the main features of the three cases (pedagogical methods used, whether there was a “wake-up assessment” that motivated the attention, etc.), using categories requested by the stakeholders at the December workshop. Because that matrix is a little long, a summary is provided here.

Summary

As preliminary information, the basic statistics on the three cases (all data refer to most recently available information and are rounded) are:

	Sobral Municipality, Ceará State, Brazil	Kenya	Puebla State, Mexico
Total population	209,000	49,700,000	6,200,000
Approximate GDP per capita (PPP, most recent)	US\$ 15,300	US\$ 3,300	US\$ 11,500
Number of primary schools	56	38,000	4,650
Number of primary school students	15,000	8,425,000	782,767

It is worthwhile to point out that while the gains in the cases noted here are impressive, there is still a lot of ground to cover. Even though Puebla is a state in a rather well-off country, compared to most lower-income and lower-middle-income countries, and even though Spanish is an easy language in which to learn to read, Puebla's children perform at about 0.6 standard deviations below the OECD, or at about the 20th percentile of the OECD distribution, in spite of recent improvements.³ In Sobral, 5th grade children seem to actually perform at somewhere around the 60th percentile of the better-performing 30 countries on the PIRLS.⁴ Kenyan children, after the intervention shown here, read at about half the fluency expected in the USA.⁵ So, to varying degrees (though much less so in Sobral given that they seem to be at OECD levels in reading in Grade 5—which makes the case study all the more interesting), there is still work to be done.⁶ Still, these results are all much better than their own baselines, and also much better than other localities in their own contexts.

To summarise the matrix in the Annex, these were features of the three efforts, though to varying degrees, and are also supported by the emerging literature from, in particular, early-grade literacy efforts. The case studies show five tips that may benefit other countries or situations. The five tips are described more fully below and can be read from the case studies and the long Annex table. They are:

1. **Focus** on just a very few achievable indicators, foregrounding foundational learning, for a country emphasising learning.
2. Use **data** to drive both initial “wake-up” and stock taking but also to support teaching as the process goes along.
3. Emphasis on the **teaching** by the teachers who are already in place. Use an evidence-based, structured pedagogy that meets children where they are. Support the teachers through coaching or some other form of in-service training. Ensure that related inputs (such as books) are tightly coordinated to exactly match the lesson plans and the assessments.
4. Provide strong **motivation** through support that works. Teachers are motivated through professional accountability to those who support them, if those who support them know what they are doing and what they suggest actually works. They are also more motivated to the extent that they co-design (Puebla). Provide a foundation of acceptable infrastructure and working conditions. Motivation is also provided by support from the highest political levels. In these cases, the flip side of professional accountability through the coaching and school leadership was trust that what the coaches and school leaders were promoting would actually help children learn better. Thus there is a tight feedback loop between being evidence-based and being able to build relations of accountability that are professional and built on trust.

³ Approximate, informal but more than back-of-the envelope data only using ENLACE to link to PISA.

⁴ Even more approximate, informal, but more than back-of-the envelope data using SAEBE data to link to PISA and PIRLS.

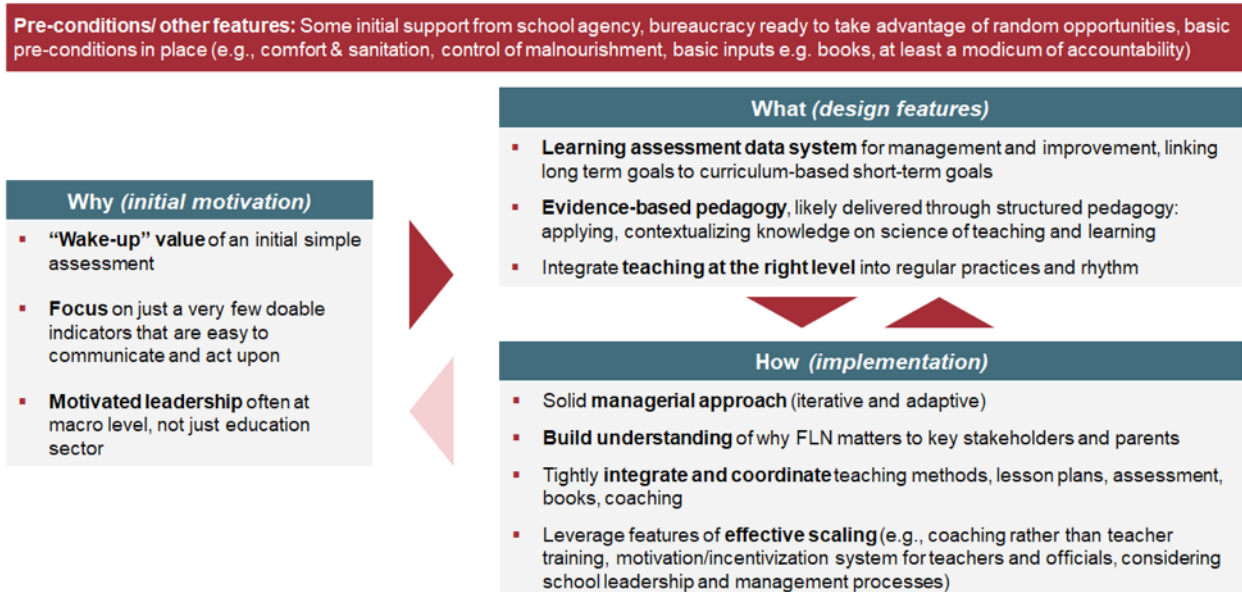
⁵ Fluency is used in many efforts as a goal or benchmark that is reasonably easy to explain and measure with reliability. Most experts would agree that the real goal should be comprehension. Some would argue that a good alternative proxy is accuracy of reading. (It is what is being used in UNICEF's MICS learning module.)

⁶ We understand that Sobral's relative performance at the secondary school level is much less noteworthy, which is understandable given that that is not where the efforts were directed.

5. **Tight management.** Some degree of centralism and prescriptiveness as to pedagogy and other inputs, but after having iterated and adapted to context. Structured pedagogy. Water-tight coordination between the lesson plans for teachers, the assessments, the learning materials (especially books) in terms of sequence over the year and pedagogical approach. Adapted and iterative management was key in all cases, and included items such as iterating the planned lessons taking stock of teacher use, adapting the assessment to make sure it links effectively to formative usage by teachers and coaches and more summative (but low-stakes) reporting up, and so on.

The graphic below summarises.

LESSONS FROM CASE STUDIES



Source: *Workshop on systems to support foundational teaching and learning, December 2019*

The graphic makes it clear, from the arrows, that there is a sequencing from the “Why” to the “What”, from the “What” to the “How,” and then also feedback and adaptation, especially from the “How” to the “What.” This creates a virtuous cycle that amplifies the effect over time, maybe a few years, but does not take too long if managed correctly. This was clear from the case studies. This sequencing and iteration are difficult to convey via lists such as the above, and the following, but are key to understanding how the change happened in the three case studies.

The lessons can be provided a bit more at length:

1. **Focus.** A relentless focus on just a very few doable indicators, avoiding abstraction, loftiness, over-complexity and over-ambition. Indicators that are easy to communicate, and act upon. Rather than more structural reforms such as pay scales, incentives schemes, or decentralisation, there was a sharp focus on the classroom and on teaching and learning reforms. For example, reading as a foundational skill in the early grades, and measured very specifically as in Sobral and Kenya. Puebla started with an Attendance-Completion-Learning (APA in Spanish) model, tracking those three factors. There were conscious choices to not do some things that are “good” because too many small aspects to the intervention meant that fewer schools would implement. Focusing the attention of key change agents on a smaller number of things by dropping the possibilities that would only have a small impact was key. Many primary school reforms or investment programmes do not realise just how relentless and militant the focus needs to be.
2. **Data for initial stock-taking, around the focus: learning and improving teaching.**
 - a. **“Wake-up value”** of an initial simple assessment, often from a party outside the Ministry. These often had to be set to a lower level than the customary assessments as the children could not even reach the base of the

customary assessment and were sometimes inspired by relative outsiders (e.g., a la Uwezo in East Africa or ASER in India). However, while outsiders can provide the impetus, the authorities have to be prepared for what might be found and be ready to own the results. Some countries carry out this “wake-up value” strategy at the beginning of a new government, not in the middle.

b. **Used for improving teaching, much less for accountability.** Measuring and tracking the indicators (including operational or process indicators) in real time and using them for essentially immediate feedback to the teachers and managers. Indicators sometimes measured in real time by the managers themselves. Used to provide better and more targeted coaching, for instance, to set goals for schools, and to report to higher authorities. The distinctive feature was the speed of turnaround and the link between the indicators and the pedagogical model being used.

3. **Teaching, with emphasis on the -ing.** That is, focus on supporting teachers already teaching, more than on who the teachers are.

a. **Evidence-based pedagogy.** Reliance on a clear pedagogical model or approach to reading (or other subjects but less so) that was either evidence-based and in line with the scientific evidence or iterative and producing its own evidence. This is key to a professional accountability, since teachers will feel more naturally accountable to professionals who are giving advice that actually works, with their children, in a palpable way (thus the link to simple relatively simple assessment). However, none of the cases started with a complex or more fundamental curricular reform or even serious tinkering.

b. **Ensuring other related inputs support the teaching.** Teaching and learning materials, structured lesson plans and sequential yearly programming (scope and sequence); devoting curricular space to reading as a skill rather than “language;” assessment that is linked to the teaching; review and improvement of books so they follow the same sequence as the lesson plans and are not out of cognitive reach for the children; and setting of goals. All with a focus on meeting children where they are, instructionally, rather than where one supposes they are.

c. **Attendance** of both teachers and learners. In the Puebla model this was explicit as one of the three indicators on their three-indicator, focused model.

4. **Motivation.** The three cases relied much more on support and professional accountability rather than bureaucratic accountability as motivators, though the latter also mattered. They also created an environment that legitimated a focus on, and pivot to, learning. Motivation can also help start the virtuous cycle noted above. Without it, teachers may give up early.

a. **Variety of motivations.** The approaches saw more of a reliance on professional pride, perhaps through accountability to coaches and supervisors, rather than just monetary rewards or bureaucratic accountability, though the latter were also used in some of the cases. Smart communication of goals and progress with public recognition of success, including (in some cases) allocation of resources and public recognition to persons and teams who made sustainable progress.

b. **Overall support and right preconditions.** This varied in degree, but in some models a focus on attendance, nutrition, and a modicum of decent infrastructure were also used. Support sometimes targeted to those struggling was used, including the selection/prioritisation of human and pedagogical resources for those in need. The fact that the suggestions made by coaches and supervisors to teachers were evidence-based, and visibly worked to improve learning outcomes, was to a significant degree what created a respect for coaches and supervisors, which in turn underpinned professional accountability. Resource dumps were not the answer. But having basic conditions right, such as 1:1 books: pupil ratio, at least a modicum of comfort and sanitation in the school for both teachers and students, school lunches, all can help, probably causally but, if nothing else, by making a pivot to learning feel more legitimate and as a matter of rights.

c. **Motivation at the political or high policy level.** Motivation from the highest levels of government (even though more local government in some cases) to shake things up was key. This motivation or pre-disposition pre-dated the wake-up value of an initial learning assessment but was abetted by that wake-up value.

- 5. Tight, clever management around the instructional core.** A central point in the system where the various threads of the intervention (coaching, lesson plans, books, assessment) could be orchestrated, using some creative combination of hierarchy and participation.
- a. **A bureaucracy that was ready to react to opportunity.** Luck in finding the right advisors or hearing of a reform done elsewhere played a role in all three cases. Luck cannot be replicated, but preparedness to use the luck can be. And supplying examples of successful cases can also be replicated. In all three cases luck played into bureaucracies that were well prepared to use that luck, were receptive and eager for change, worked with a non-education political context ready for change, and above all recognised the value of the external input that worked with the bureaucracy to kick-start the process.
 - b. **Some prescriptiveness and centralism.** Relatively prescriptive approaches (e.g., to structured pedagogy), without being too heavy-handed and in some cases providing some choice, as long as some clear structure was used, and results were produced. Selection of key educational materials was done centrally, based on clearly stated learning goals and consistent with the lesson plans or scope and sequence leaving room for feedback, innovation, and collaborative work from the classrooms.
 - c. **An iterative, adaptive approach.** Once honed to a sharp edge the approaches were deployed centrally, but process did not start pre-designed (though they did start with sufficient design to reflect the evidence base). They all adapted a great deal, for example, in fine-tuning the degree of centralism or prescriptiveness. Not necessarily to make the approach more or less prescriptive or structured, but to make sure that the type of prescriptiveness actually helps the teachers and students. Kenya went through six adaptations of some aspects of the approach. Some experts in at least one of the cases did note that had they had a more centralist approach to start with, from which to compromise as needed, they would have saved much time.
 - d. **Integration and coordination among the various “inputs”.** Tight coordination between the various inputs (book content, lesson plan content, assessment, coaching for the teachers) to the schools. Ensuring tight synergy among these was key. Approaches to these “inputs” were all aligned with other and had the same sequence over the year.
 - e. **Some initial support by an external “agency”.** An important role for external agents who in all cases were motivators and networkers, brought in scientific approaches, and ensured an initial ethos of integration among the inputs as per the point immediately above. However, those external agents were always “used” by a supportive bureaucracy and political leadership eager for improvement and who could provide passion and leadership. Over time the system absorbed the ethos and there has been less and less reliance on the external agents.
 - f. **Readiness to struggle.** In at least two of the cases, and in others in the literature, there were groups that resisted and those that actively fought back, so while luck was part of it, fighting the political fights was also part of it (and having factions that were supportive enough to enlist the fight against the opposing forces). Demonstrating that even less expensive books can be very effective might not be welcomed by the publishing industry, for example, and they may be powerful with a Ministry of Education.

Narrative description of the three cases

The three governments provide a case-oriented narrative that adds some nuance and chronology to the matrix above. Each case starts with a graphical summary of why the case is and should be of interest.

Sobral, Ceará, Brazil

Sobral is a municipality in the state of Ceará, with a population of just over 200,000. Sobral ranks number one out of approximately 5,700 municipalities in Brazil in the national basic education ranking, up from 1,366th place in 2005 as shown in Figure 1 (next page). This rise has come despite high poverty levels, a five-year drought in the region, and a national recession. Sobral’s scores are about 80 percent higher than would be expected given their education expenditure.

Figure 1. Performance on national assessment by municipal educational spending and parent SES, Brazil 2017

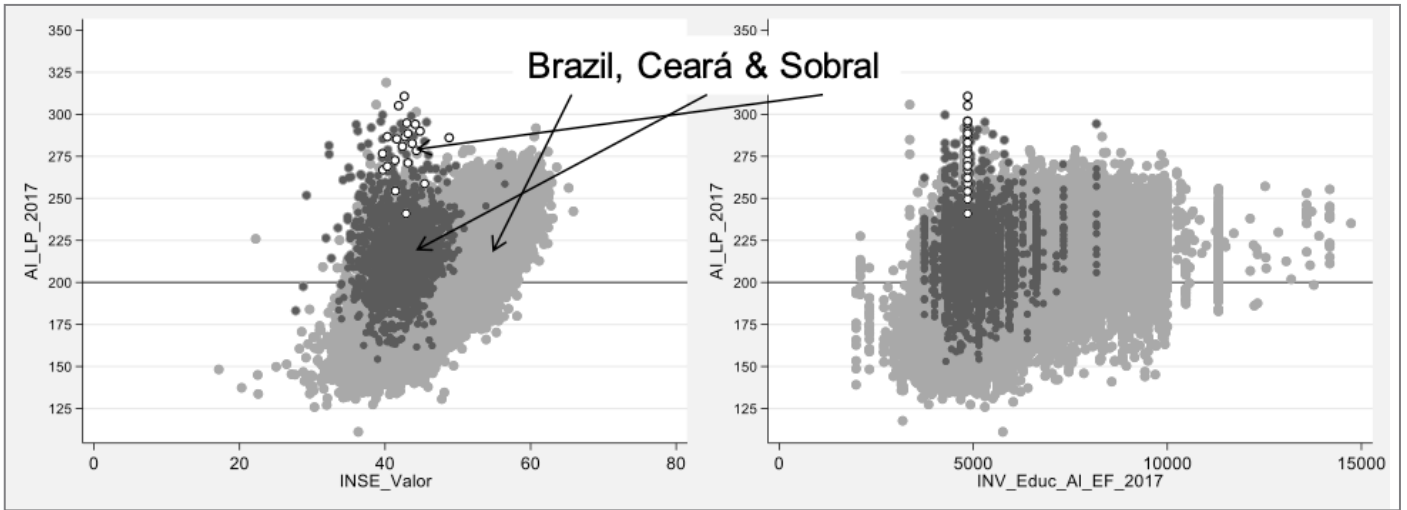
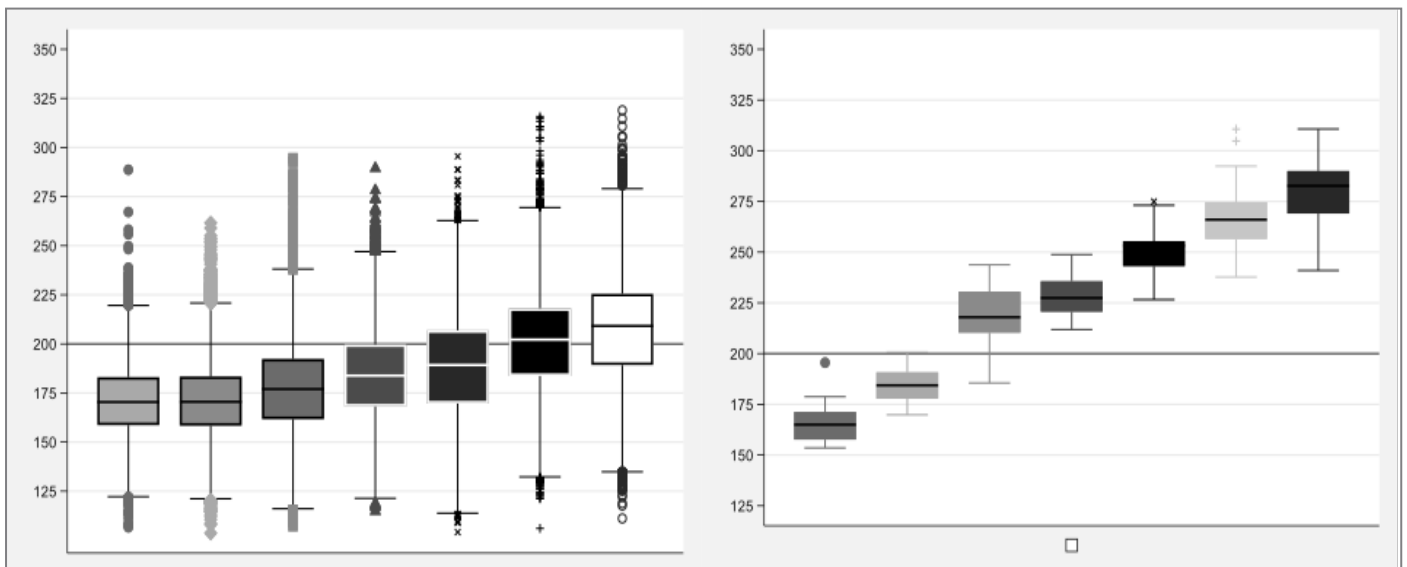


Figure 2. Performance on reading national assessment, Sobral and Brazil



The graphic above provides a static picture. The empty white dots are Sobral in the context of Ceara (solid black dots) and Brazil (grey dots).

The rapid transformation of Sobral in comparison with the rest of Brazil is noted in Figure 2 (for Grade 5). Sobral is on the right, Brazil as a whole on the left. Both Sobral and Brazil were at the same level in 2005. Since then, Sobral has improved much faster, to about 285 on a 350-point scale, as opposed to 210 for the rest of Brazil (the minimum expected level is 200, in a range of 200 to 275).

The transformation of Sobral’s education system began in 1997 with the election of Cid Gomes as Mayor. Coming from an influential local family, Mayor Gomes first instituted reforms to increase access, improve infrastructure, and mitigate over-age and dropout rates. When these reforms did not have the intended effect on student learning outcomes, Mayor Gomes introduced an additional set of reforms in his second term aimed at literacy, the professionalisation of teachers and staff, decentralisation of non-pedagogic activities, and school autonomy.

The core goals were already set out in 2001, but the specific focus on “alphabetisation at the right age” and the interventions that make the case interesting, and led to the improvements, did not start until 2004. In 2001 the following goals were set.

- Literacy for all 6- and 7-year-olds enrolled in 1st or 2nd grades.
- Remediating literacy of all students from 2nd to 6th grade who could not read.
- Streamlining of student flow by reducing grade failure.
- Reducing dropout rate to less than 5 percent.
- Reaching universalisation of childcare services of good quality.
- Restructuring the education system for ISCED 2.
- Providing literacy instruction for all young people and adults who were still illiterate.

These reforms started in 2001 but tended to emphasise the student flow issues, in reality. What changed in 2006 was that learning was not improving as markedly as was desired. This led to the introduction of a set of policies that could be summarised as (borrowing liberally and paraphrasing from interviews with Ilona Becskehazy, the analyst and presenter of the Sobral case, at <https://tinyurl.com/u7dmoew>):

1. Absolutely clear, numerical, precise teaching objectives (such as of reading fluency with accuracy and prosody).
2. A phonics-based method with clear sequence of lessons and smaller, step by step objectives.
3. Scripted lessons based on the method.
4. A data-based, numerical monitoring system that allows quick feedback for schools, teachers, and municipal management, that includes assessments linked to the teaching methods with 100 percent of children assessed twice per year.
5. Unified teaching materials (at least the basic, since teachers can, together with their coordinators, complement the didactic sequences of the textbooks and those that are prepared centrally).
6. Ongoing professional development based on those materials, in sequence.
7. Teacher motivation, including good communication, distribution of learning materials, substantial bonuses, awards, and public recognition events for high performing teachers and schools. Results-based rewards.

All these factors were integrated into a coherent whole. In addition, the basic principles derived from the “effective schools” literature were applied. These are well known and widely available so are not summarised here.

More recent interventions include fuller and better specification of the curriculum and a focus on reading comprehension, for example, in expository writing, by asking students to a) explain the specific theme and main idea of a passage and explain why that is the case, b) summarise the arguments and connections established between them to support main the thesis, as well as the flaws in the argument, through excerpts that prove them; c) the conclusion of the author of the text on the topic through excerpts that prove it; d) the hypothesis exposed by the author in a specific way; e) the counter-arguments presented by the author in a specific way. (From Ilona Becskehazy at <https://tinyurl.com/qsbo72c>.)

From a political point of view, it is essential to note the prominence of the Gomes family. Two brothers were both mayors of Sobral and/or governors or congressmen with some focus on education reform for at least 20 years. One brother was Chief of Staff for the other at least once. It is rare to have such championship for an education cause. Countries and development agencies may wish to explore how such championship could be induced.

School autonomy is important in Brazil, so to strike a balance, the terms are negotiated and agreed with the school level, and then the processes are fully monitored and controlled by the central team. In some sense, autonomy is more about operational matters than pedagogical matters, as the pedagogical changes were centralist. Since 2016, Sobral has had a detailed curriculum for language and mathematics. There are annual teaching plans that are detailed down to a

weekly basis at the central level, with school representatives participating in their development. Assessment is tightly linked to the lesson plans, as are the learning materials.

Teaching materials for the early years (pre-primary and 1st grade) are provided by an external vendor and are very prescriptive and detailed, including model lessons. Textbooks mainly come from the federal books programme and are complemented by locally produced, structured activities, but the schools (not the teachers) have some room to add materials and activities. Reading books are chosen and acquired centrally.

Though many aspects of the approach are prescriptive, the development was gradual and fairly organic, and came to be accepted, so in the end it may not “feel” all that prescriptive. There is some choice, for example, but the choices may not contain that much difference; they may conform to the same approach. At the same time, the political leadership was able to bring actors along so that the approach does not “feel” that centralist or prescriptive.

It is important to note that many of the reforms have the force of legislation. As elements succeed, they are formalized onto legislation or regulation.

As a last point, in Sobral, the schools in question are no-frills spaces but have all the basic elements for good pedagogy: infrastructure, books, teaching materials, absenteeism control, good and universal free meals in public schools (mandatory in all of Brazil, but better-implemented in Sobral), and playing areas. Having these features is not common in Brazilian schools.

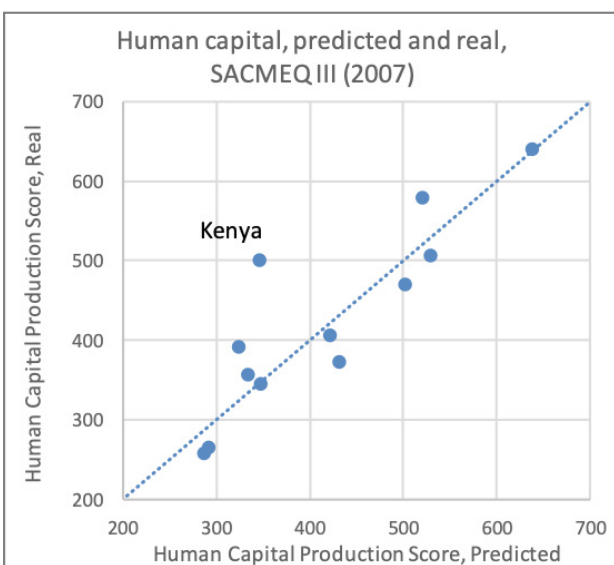
After showing success in Sobral, and with the Gomes family elected to the state government, the Sobral approach is being scaled to all of Ceará.

Kenya

Kenya has a population of almost 50 million and ranks 25th out of 54 African countries in GDP per capita. Kenya’s 2007 SACMEQ scores were much higher scores than other countries in the SACMEQ region, controlling for both expenditure and income per capita (Figure 3 below). Kenya performed about two standard deviations better than the expected value based on expenditure and GDP per capita.

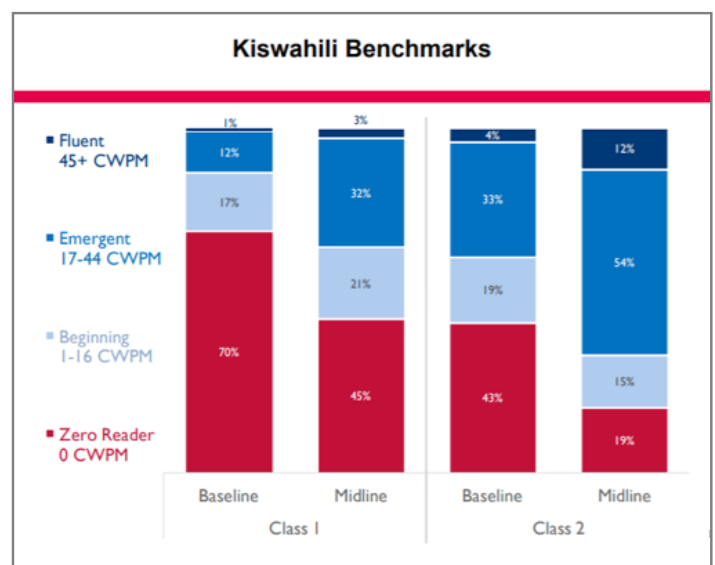
More recently, the Tusome experience in Kenya has produced remarkable results even by mid-line, as noted in Figure 4.

Figure 3. Human Capital Production, Predicted and Real, based on SACMEQ III (2007)



Source: Crouch, L. and U. Hoadley. (2018). “The transformation of South Africa’s system of basic education.” In Levy, Brian, Cameron, Robert, Hoadley, Ursula, & Naidoo, Vinothan (Eds.). *The Politics and Governance of Basic Education: A Tale of Two South African Provinces*. Oxford, UK: Oxford University Press.

Figure 4. Tusome results in Kiswahili



Source: Piper et al. at <https://tinyurl.com/upecmk3>

The dark blue color represents the percentage of pupils in either Grade 2 (right two columns) or Grade 1 (first two) reaching mastery at baseline and midline. The red color represents the percentage of students unable to read at all. To those familiar with learning impacts, it will be obvious that these are remarkable changes in just a year or two (but based on much prior refinement in PRIMR).

Since its independence in 1963, Kenya has had six commissions and several taskforces to reform its education system. Between roughly 1995 and 2010-2015, the emphasis of these reforms was on accountability, pay-for-performance, and measurement for accountability. Since 2010-2015, there has been a shifted focus to pedagogy, paying attention to the foundational grades of the education system, and having better books and lesson plans. There were additional reforms that were not necessarily part of these waves, such as reducing the role of double-shifting, moving to full-day schooling, and pro-poor funding.

In 2009-2012, several surveys of student learning, including the Uwezo citizen-led assessments and the baseline of literacy and numeracy through the USAID-funded Primary Math and Reading (PRIMR) pilot reading initiative, found that an alarming proportion of students could not read and write. Given Kenya's traditional concern with learning, these results were a bit of a wake-up call. Interventions through PRIMR led by the Ministry of Education and RTI resulted in relatively large increases in reading levels, which garnered attention within the ministry and among teachers and motivated key actors to try this approach at full national scale. Beginning in 2014, early pilots were scaled to all public primary schools and 1500 low-cost private schools through Tusome, meaning "let's read" in Kiswahili.

The Kenya case study is significant in that it is one of the few cases in the literature where the impact at scale-up (Tusome) has been equal to, or better than, the impact of the pilot, and also very quick. However, one should note that that impact would almost certainly not have been possible without the PRIMR pilot.

Since Tusome was to a large extent based on the features and success of PRIMR, it is worthwhile recalling the key lessons and components of PRIMR (borrowing liberally and literally from PRIMR's final evaluation at <https://tinyurl.com/wdzv9jk> [and especially circa p. 18]):

- Developing an experimental research design that included rigorous baseline, midterm, and endline assessments administered to randomly assigned treatment groups.
- Designing a clear, specific, year-long scope and sequence of curriculum-based content in Kiswahili, English, and mathematics.
- Preparing teachers' guides for Kiswahili, English, and mathematics for Classes 1 and 2.
- Specific, scripted lessons, though degree and type of scripting evolved. Training teachers and head teachers to implement PRIMR lessons and use teachers' guides.
- Supporting regular supervision and monitoring of teachers by coaches and supervisors/tutors.
- Providing literacy and mathematics books for pupils at a 1:1 ratio, matched and closely integrated with teachers' guides.
- Revising learning and teaching materials regularly, based on teachers' feedback, to make them more relevant and user-friendly. This resulted in significant improvements and refinements, specifically of the scripted lessons.
- Training teachers to employ continuous assessment methods.
- Using EGRA and EGMA results to revise and update programme materials.
- Carrying out policy studies to inform the MoEST on issues related to education quality and the policy reforms revisions needed to improve student outcomes.
- Actual training and classroom support to be done by existing government officers and research to be undertaken to understand whether and how these officers would be able to accommodate the PRIMR activities in their daily work.

Specific implementation features included:

- **Inexpensive books:** The project team made several decisions that would ensure savings on book purchases. For example, all elements of the literacy program—which for English and Kiswahili include phonics activities, illustrations, and decodable stories—were embedded in the books. The books had attractive illustrations, which were initially in black and white, but later were produced in color. The books utilized in the 2013 academic year cost US\$0.75 each. Prices at the national scale were somewhat lower than that, even when including delivery to each school in the country.
- **Basic instructional aids:** Tusome provided simple instructional aids, including an A3-sized pocket chart and a set of letter flashcards.
- **Self-contained teachers' guides:** The main resource for teachers was the teachers' guide. The final version of the Tusome teachers' guides included the entire program in one teachers' guide and one textbook for learners.
- **Modest initial teacher training:** Tusome decided to invest proportionally more resources in follow-up and observation than in traditional training, so the entire standard training program was only six days for the two subjects.
- **Focused observations:** Much of Tusome's attention and energy were spent in supporting coaches to visit schools and observe classrooms. Project funds reimbursed coaches' travel based on the proportion of teachers observed per month to ensure that coaches had an incentive to provide equal support to distant or remote schools. For much of the lifespan of Tusome, coaches were observing upwards of 20,000 classrooms per month and assessing more than 60,000 children monthly.
- **Setting expectations:** "Reading outcomes for Class 1, Class 2, and Class 3 pupils improved," according to measured numerical targets, was the ultimate objective, with two intermediate objectives: 1) improved supervision support and delivery of reading instruction to target pupils, and 2) improved government capacity in target directorates to sustainably improve reading outcomes.
- **Monitoring and holding schools accountable** for meeting those expectations.
- **Intervening to support the students and schools that are struggling** to meet expectations.
- **Holding the system accountable** for delivering that support.

Tusome clarified expectations for implementation of the curriculum and outcomes using national benchmarks for Kiswahili and English, and these expectations were communicated down to the school level. The initiative used functional, simple accountability, and feedback mechanisms to track performance against the benchmarks. These included regular assessments using the Early Grade Reading Assessment (EGRA). The data collected through the feedback mechanisms were used to inform instructional support at the county level. The effect sizes seen during the PRIMR pilot have been sustained, and in many cases strengthened, in the scale-up of Tusome.

The mid-term evaluation of Tusome (available here: <https://tinyurl.com/y3h7wczg>) concludes that the main features responsible for success and suggestions for ongoing and further improvement (borrowing literally and liberally from it, especially pp. 29, 53) were:

- Access to reading materials at home and in school.
- Access to a reading teacher's guide.
- Practice reading aloud and silently at school.
- Supervisor/tutor/coach observations and suggestions (coaching) and recording results. Focus on class activities and actions that research in Kenya and elsewhere (including PRIMR) has shown work.
- Accountability of coaches and supervisors.
- Frequency of lesson plans being reviewed.
- Full-day school shifts (in comparison to half-day).

- Classroom libraries.
- Pupils of the correct age range (5–9 years old).
- Female teacher or head teacher (obviously of limited replicability).
- Fidelity of implementation.
- Large scale use of data.
- Use of benchmarks as targets.

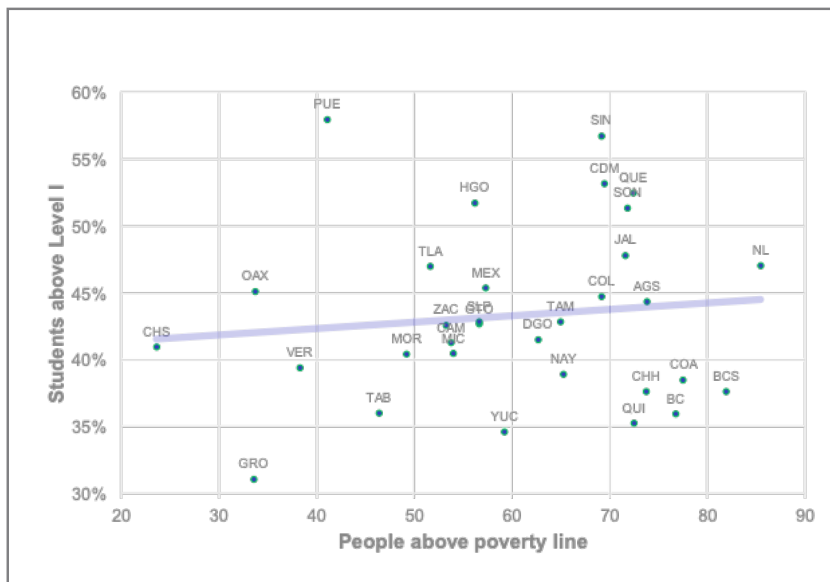
Puebla, Mexico

Puebla is the fifth most populous state in Mexico (6.2 million inhabitants; 1.8 million students K-12), and also ranked fifth highest in poverty levels out of 32 states. The state contains 14,000 schools (K-12). It has several native languages in addition to Spanish. In 2015, Puebla became the top state in Mexico at both the lower and upper secondary levels in the national Plan Nacional para la Evaluación de los Aprendizajes (PLANEA) assessment. Since then, Puebla has retained the 1st position in mathematics at the lower secondary levels in 2016, 2017, and 2019, and at the upper secondary level in 2016 and 2017. In language (Spanish), Puebla has ranked between 2nd and 3rd since 2015. When compared internationally, Puebla is one of the fastest improving education sectors participating in PISA. Between 2003 and 2012, the average performance of 15-year-olds increased by the equivalent of almost one full school year.⁷

This summary takes many points from the presenter’s (Bernardo Naranjo) inputs, including presentations, background writing, and subsequent information exchanges. Because the Puebla case was more iterative, consultative, and complex than the two others highlighted here, it also benefitted from other sources more so than the other cases.⁸

Two graphics explain why the Puebla case is so compelling, and what was achieved in such a short time. The first one shows Puebla to be a major outlier in terms of expected achievement conditional on income. The fact that the regression line is not very strong is immaterial. The point is that Puebla is very much on the edge of the scatter.

Figure 5. Basic knowledge in mathematics by GDP per capita, Mexican states (2019)



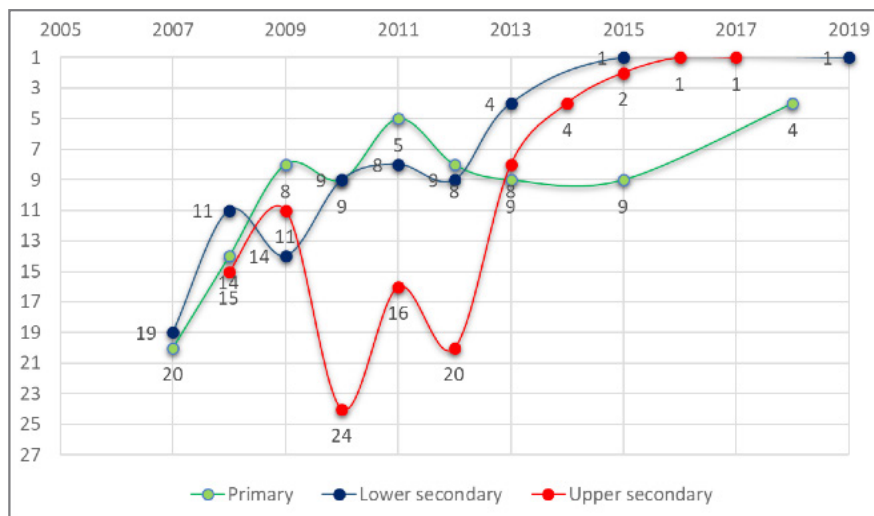
Source: Socioeconomic data from Coneval (2018) and academic data from PLANEA (SEP, 2019).

⁷ OECD. (2016). *Improving School Leadership and Evaluation in Mexico: A State-Level Perspective from Puebla*. Paris: OECD. <https://www.oecd.org/education/school/Improving-School-Leadership-and-Evaluation-in-Mexico-A-State-level-Perspective-from-Puebla.pdf>

⁸ A working paper by Rafael de Hoyos and Benardo Naranjo on the case, forthcoming in Xaber, an upcoming civil society portal with data and evidence on education in Mexico; personal communication for now. Another useful one is also a study by UNESCO/Mexico titled “Marco de la Política Educativa en el estado de Puebla.” An informative interview with the Secretary of Education for Puebla at the time of the reforms, Patricia Vasquez, can be found at: <https://www.inee.edu.mx/origen-recorrido-y-logros-del-modelo-educativo-poblano-asistencia-permanencia-y-aprendizaje/>.

Figure 6 below shows academic results over time.

Figure 6. Puebla's ranking relative to both rich and poor states



(It should be noted that results up to 2013 may be less reliable, for primary, than after.)

In 2011, a new administration was about to take office in Puebla for the 2011-2017 period. The state Secretary of Public Education (SEPP), a former senator not born in Puebla, immediately started a cultural change. Against a tradition of hiring local people only, he invited people from all over the country to work at the local Ministry.

The Secretary invited several external advisors to help him and requested help from the OECD to write policy recommendations for Puebla (this was the first time the OECD worked at the local level with a Mexican state). Most external advisors had to leave in 2013, when a very large budget cut also made it necessary to reduce staffing in the Ministry. The Puebla intervention survived after its results became known, and it helped that the advisors to that process were based on Puebla.

Initially at the upper secondary level, and by the end of 2013 in the entire K – 12 system, SEPP and “Proyecto Educativo”, a local group of advisors, developed a programme to improve the essential objectives of the education system. The Asistencia, Permanencia, Aprendizaje (APA) (Attendance, Completion, and Learning) model was developed with the following targets, and only three targets:

- **Asistencia (attendance).** Each person 3 – 17 years old attends school (about 250,000 out of 1.8M in the state did not attend in 2015)
- **Permanencia (persistence and completion).** Every student K-12 graduates from upper secondary school (currently, only about 61 percent of primary school new students will)
- **Aprendizaje (learning).** All students learn Spanish and mathematics above the minimum acceptable level in the national assessment (one third in Spanish and two thirds in mathematics do not achieve this goal in grade 12)

The SEPP and Proyecto Educativo referred to recommendations by international organizations and national specialists, but the strategy was entirely designed and implemented with local citizens. The model was adapted from an intervention in Ontario, Canada, in the early 2000's that sought to improve graduation rates and basic learning in English and mathematics.⁹

⁹ Some features of the Ontario model generalise what is noted for all three cases in this note; others do not. In common are: a limited number of goals (just three in Ontario, also three in Puebla: hence high focus), a focus on pedagogy rather than general management, province-wide assessment that was relatively low-stakes but thorough, using assessment to assess the system and approach, and help the teachers, rather than for accountability in a narrow sense, assessments that were criterion-reference (see benchmarks used by some of the efforts described in this note), and a province-wide achievement data set. Other features, perhaps more appropriate for a system that was already achieving at levels much higher than those found in Mexico, Brazil, or Kenya, included that the approach was much more teacher-led even in a technical sense, and worked less on teaching technique than on teacher reflection. See <https://internationalenews.com/2015/10/28/learning-from-successful-education-reforms-in-ontario/> for a short summary.

The strategies developed to implement the APA model included:

- **Targeting schools**, in a number small enough to guarantee a significant impact (between 100 and 200 per level). Criteria: lowest-performing schools, with 100+ students, willing to participate. Schools that were too small were not included as they required a lot of effort relative to impact on the total. Initially, 100 schools were chosen, but at some point there were 600 schools receiving special support.
- **Articulate/integrate efforts**, to make the most of available resources. Articulate across institutions, education levels, resources, and 'technical' interventions (measurement, learning materials, teacher capacity development etc.) Approach became increasingly coherent, within itself, over time.
- **Careful implementation and follow-up** to make sure everyone understands their role and identifies mistakes and opportunities to improve.

One of the first actions in 2011 was to revive the CEPPEMS (State Commission for Upper Secondary Education), a group that formally integrated all institutions at the upper secondary level. The group met weekly, and technical subgroups formed to work on specific issues (teacher training, information systems, evaluation, dropout prevention, supply-demand analysis). Targeted schools at the upper secondary level kept using the same curriculum and textbooks as the rest of the schools, but received help (teacher training, institutional support) from other schools

CEPPEMS decided on general strategies, and each subsystem was able to translate them into specific actions, but they all shared their experiences in the group. This allowed structure and creativity at the same time.

Interventions in the primary schools included:

- a. A summer course for 2nd graders to ensure basic literacy and numeracy. This allowed one to also detect and fix issues in the focus and materials design.
- b. A chosen method for beginning literacy, materials designed and distributed to the targeted schools.
- c. A new assessment for Grade 2 (mid-year) so schools have time to correct, and ongoing assessment in Grade 5.

The early-grades primary interventions were coordinated and designed to work together with preschools. Integrating the approach to these two levels was key. At the pre-school level, important steps included:

- a. Workbooks with prewriting and math skills, designed specifically as a prequel to the early-grades primary grades, by the same experts.
- b. Pre-school and early primary grade teachers to work as a team. In fact, in Puebla there was a recognition that even problems in secondary school arose in primary and problems in primary arose in pre-primary (or lack thereof) so there was a big emphasis put on "articulating" the whole system.
- c. Campaign to increase pre-school attendance. Attendance ratio increased five times faster than the national average.

A certain style of intervention was common to all levels. In training and teacher capacity building, it included:

- a. Emphasis on quality, not quantity. Training groups were limited to 25 teachers or less.
- b. Content designed by specialists centrally in order to address specific needs and opportunities.
- c. Facilitators recruited locally among the best teachers/principals/supervisors, and they received preparation to do so. External facilitators required a high profile.
- d. Courses were mostly face to face. Online resources were used as a complement only.
- e. Coordination with teachers and co-design with teachers, but working in a collective manner so that a unitary model emerges, rather than just letting each individual teacher figure things out.
- f. Getting teacher union leadership interested in pedagogical factors.

And in terms of systems management:

- a. Supervisors. Strategy to train all supervisors (950) on leadership skills and the APA Model. The best supervisors chosen as facilitators for ongoing teacher training (see above on “Facilitators”).
- b. The Academia Poblana de Supervisión (Puebla Supervision Academy) was created to give identity to facilitators. Positions in it were honorary. The aim was to recover the status and prestige of a somewhat forgotten role in the system, that of supervisors, as the key link between schools and the system.
- c. Servicio de Asistencia Técnica a la Escuela de Puebla (SATEP) (System of Technical Assistance to the Puebla School), to coordinate all training efforts statewide (and training to trainers). It included a renewed role of supervisors.
- d. Information distribution through the webpage (escuelapoblana.org) to have a common base for all schools and officials
- e. Reporte APA, a customized report identifying by name to every at-risk student in each school of the state, and critical areas in the last assessment results in mathematics and Spanish. Sent every two months through the existing systems.
- f. Unidad de Promoción del Derecho a la Educación (UNIPRODE) (Unit for Promotion of the Right to Education) created to coordinate statewide efforts to ensure enrollment and attendance, as the A and A in the APA model.

The following are lessons learned from the Puebla effort:

1. **Improvement is always possible**, even with the same resources. Improvement is about people and systems, not about money.
2. **School systems require to set up conditions to discuss academic issues, articulate efforts, and follow up on critical processes.** Academic Boards in Puebla were effective means as they had clear objectives, a good structure, and strong leadership.
3. **Targeting (on academic results) is essential: equity is a fair, efficient, and fast way** to increase quality in the whole system. One can also target on poverty but for other purposes and programs. Learning improvement is efficiently and equitably targeted through learning results.
4. **Let people at each level of the structure make some decisions.** Think about teachers as professionals, not just operators.
5. **Identity and pride can be more powerful than cash among teachers** when looking for additional effort from them. If they are convinced, they are likely to participate.
6. **Quality control mechanisms must include visits to schools** by decision-makers to be effective. Visits are not to evaluate those schools, but to evaluate the design and implementation processes.
7. **Massive provision of information** in many cases down to the child level is vital. Also, the information has to be tied to action items and has to have rapid feedback loops.
8. **Make the feedback cycle as short as one can** to monitor closely and generate faster gains. Remember that one has to deliver in a very clear manner before the top sector leadership that welcomed the change is replaced, as top-level leadership changes often.
9. **Keep legal arrangements as flexible as possible** in order to react in a timelier manner.
10. **Sustainability increases when permanent personnel (supervisors, principals) and external institutions get involved.** Private institutions, international organizations, and NGOs must be considered.
11. **To be transferred (level, region, country), strategies and actions need to be adapted** to people and circumstances. It is not about recipes and resources. Systems need to be adapted to local realities, and people may have different priors and motivation in circumstances beyond those of the first success.
12. **Give the most credit to local authorities and teachers.** Governments need political rewards, and teachers deserve recognition. Unless they decide otherwise, low profile work from external participants is more efficient.

Annex. Tabular Comparison of Cases

The following table captures some of the essential elements of the four cases. The table is based on the PowerPoint presentations made by three of the country experts at the December 2019 workshop but also on prior and ensuing discussions regarding each case. We do not present the Chile case here as it covers a complex set of policies developed over a few decades, in a context of already-high performance relative to the rest of Latin America, which has also improved over recent decades. The Chile case also did not describe a pedagogical focus on foundational literacy and numeracy, so a comparison of the Chile case with the other three cases was not possible. Following the summary table are narratives that provide the context and story for each case, after providing data on why the case is worthy of study.

In this table, the cases of Sobral and Puebla relate to fairly specific interventions that had a relatively clear beginning and specific development, and the Kenya case relates to a particular intervention with a clear starting point but in a context of historically good performance relative to peers. The table is organised in terms of the "what" (describing the approach or intervention), "why" (why that specific approach and what caused the government to embark upon it), and "how" (how the reforms were accomplished). Each of these three big themes has a set of sub-themes. The case of Puebla had different approaches for various levels; for this note we emphasize the primary or generic (all grades) interventions.

Table 1 What was the approach or intervention?

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
<p>What was the package of services or policies delivered?</p>	<ul style="list-style-type: none"> • Prescriptive lesson plans within an annual teaching plan that is centrally designed. • A set of teaching tools that can be modified and allow the family to follow. • Prescriptive learning materials integrated with the lessons. • Clear definition of and focus on fluency (number of words per minute with comprehension and prosody). This is/ was particularly the case in the early grades and early in the program. In later grades goals move towards comprehension. • Allocation of best teachers to initial (“literacy”) grades. • Assuring basic, non-luxurious infrastructure, but trying to make sure all elements are present in all schools. 	<ul style="list-style-type: none"> • Detailed year-long scope and sequence of lessons • Lesson plans • Textbooks • Appropriate assessment (EGRA) • Systematic visits to teachers by coaches • Tight coordination • Focus on specific indicators and targets such as fluency • Building capacity of teachers, curriculum support officers, country County-level directors <p>Approach was piloted first (PRIMR) and then scaled up (Tusome).</p>	<ul style="list-style-type: none"> • APA model (Asistencia, Permanencia, y Aprendizaje; Attendance, Completion, and Learning) with clear numerical targets. • Targeting based on learning, not poverty. • Optional participation, non-participants replaced. • Linkages and coherence of institutions, levels, and resources. • Specific reading method and materials (supplementary), re-design of materials based on results of initial assessment. • (New) assessment of 2nd graders. • Lots of information dissemination on performance. • “We were not talking about 21st C skills, good infrastructure, or more budget. We just wanted to ensure that kids attend, complete, and learn the basics.”

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Reading pedagogy	<ul style="list-style-type: none"> • In line with the evidence-based literature on the science of reading, lines up with, for instance, recommendations from the US National Reading Panel, as the original design by Professor Edgar Linhares was to a significant degree based on the NRP. • Phonics. Focus on fluency, accuracy, prosody, then comprehension. Assessment of reading is tightly linked to the pedagogical approach to reading and the lesson plans. • Clear scope and sequence for the lesson plans. • More complex texts in higher grades. 	<ul style="list-style-type: none"> • Phonics-based, “big five” more or less as in the US National Reading Panel (phonological awareness, alphabetic principle, fluency, etc.). Assessment is tightly linked to the approach, as are the lesson plans, the coaching, etc. • Clear scope and sequence for the lesson plans. 	<ul style="list-style-type: none"> • A locally-generated approach, highly focused on supplementary reading books, was designed when, based on a surprising initial learning assessment, the normal books were found to be out of reach for most students. A group of experts chose “palabra generadora” (generating word) as the method to teach reading in primary. The method has a specific scope and sequence and relies on everyday words to drive home syllabic abilities. • The approach, in the end, was largely embodied in the students’ learning materials and teacher guides. • There had been many changes in reading textbooks over the years, teachers felt confused, often hankered for a well-structured textbook from the past. The new materials were highly appreciated and were taken up. • Does not seem as clearly lined up with the standard literature on effective methods. • It seems that in Puebla, more than in the other two cases, the specific pedagogy used was not as much of a driver as was the overall managerial support and improvements, the focus on performance, based on data and assessment, as well as the overall APA model.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Level of prescription	<ul style="list-style-type: none"> Highly prescriptive in the sense that, while there is choice and there are alternatives, they are all based on the same basic pedagogical approach to reading (see row immediately above). In addition, the focus on achievement and assessment effectively limits the range of choices to those that deliver results. 	<ul style="list-style-type: none"> Prescriptive. 	<ul style="list-style-type: none"> At both preschool and primary levels, intervention was prescriptive (one method was chosen, and textbooks were designed after that). At the lower and upper secondary levels, schools were given academic information (analyzed standardized tests' results) and a general strategy, so they were able to decide about specific actions.
Goal setting	<ul style="list-style-type: none"> Ensuring a definition of literacy as starting with reading skills, not "language," grammar, etc. A few strong, measurable learning goals rather than many vague ones. (Starting with word reading, then connected text and then fluency). Fluency definition was a major breakthrough. Getting rid of school-generated illiteracy and persisting until 9th grade. Targets set in terms of specific assessment tools. Specific fluency standards in key grades. 	<ul style="list-style-type: none"> Ensuring a definition of literacy that is based on reading, but also included listening, speaking and writing. The emphasis was far less on grammar than in previous materials. Improve reading of Grade 1, 2, and eventually 3 students in English and Kiswahili. 	<ul style="list-style-type: none"> Ensuring a definition of literacy based on reading, not just language or grammar, and that was more specific and graspable than the national curriculum. Before the end of Grade 2 all students have learned to read, write, add, and subtract. Purpose-built assessment designed for Grade 2. In all Primary, Lower and Upper Secondary levels, the goal was to ensure that all students perform above Level I (the lowest) in PLANEA (the Mexican standardized test), which is applied to students in the last year of every level.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Curricular space	<ul style="list-style-type: none"> The approach included a very prescriptive set of activities specified in 15-minute chunks, enforcing 4 hours of teaching per day, and a minimum of 200 days per year (according to national law, but enforced). 	<ul style="list-style-type: none"> The existing national curriculum was not inimical to a basics-based and “big five” approach but the timetable did not focus specifically on time for reading as an actual skill and practice. All Kenyan schools had the same timetable, which included both English and Kiswahili as separate 30-minute lessons. PRIMR negotiated plans/methods to be used during these English and Kiswahili lessons. 	<ul style="list-style-type: none"> Teachers and students of preschool and primary schools were given workbooks and were asked to finish those, rather than mandate a certain amount of time.
What grades?	<ul style="list-style-type: none"> Early grades with support through primary school for children who fall behind. 	<ul style="list-style-type: none"> Early grades (1-3) 	<ul style="list-style-type: none"> Secondary at first, then moved to primary and preschool. The entire intervention focused on early grades of Primary and Secondary levels. Only in Preschool was the last grade targeted.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Focus on learning at the lowest levels	<ul style="list-style-type: none"> • Schools were not targeted. It was felt that any effort needed to start in all schools, but note that Sobral is quite small (only 56 schools in total). • Remediation for students is an ongoing strategy. It was a much greater challenge in the first years until the flow of students was finally streamlined. Schools that fall behind (identified through ever-improving evaluation criteria) receive support from the others and the central staff, not embarrassment. • The system can support the lowest-performing schools and lowest-performing students. This was a challenge until the student flow was streamlined. Schools that fall behind an ever-increasing set of evaluation criteria can receive extra support. Also, children that get past the first two years, and still struggle, receive extra support. 	<ul style="list-style-type: none"> • No specific targeting of poorest-performing or poorest schools. The pilot program (PRIMR) did not target poor counties in particular, and in fact, some of the counties such as Nairobi were somewhat wealthier than average. The scale-up (Tusome) is universal, implemented in all public schools as well as 1500 low-cost private schools 	<ul style="list-style-type: none"> • Targeted lowest-performing schools. Targeting based on performance only, not income or SES. Pedagogical targeting was an effective way to generate equity. • Targeted a small number at each level (100 Preschools, 200 Primary schools; 200 lower secondary schools, 100 upper secondary schools, from a total of 14,000 schools at these levels) during the entire strategy.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Pedagogical support	<ul style="list-style-type: none"> • Devoting 1/3 of teacher time to professional development, highly scripted lessons. The central training comes with highly specified plans and suggestions for activities. There is a national teaching books program, and all schools in Sobral have to select the same collection in order to facilitate training. • Teacher support and development to a large extent happens in schools. There was antipathy in the municipal administration to taking teachers out of the classroom too much. • In-school support is provided by “Pedagogical Coordinators” who have a high status within the school and work under the Principal. They serve a function similar to the coaches in Kenya (see to the right) but are based in the schools. They motivate, organize, help teachers plan the lessons and monitor progress. 	<ul style="list-style-type: none"> • Prescriptive lesson plans for all teachers. The materials were integrated in the sense that everything was included in one teachers’ guide for teachers and a student book for learners. • Extensive coaching to (somewhat) replace old-fashioned inspection by slightly re-purposing existing actors called Curriculum Support Officers who supported nearly 20 schools on average. • Teachers provided initial 4-day training prior to the first term and then 2- or 3-day training prior to subsequent terms. • Coaching was supplemented by cluster meetings, which were held at the cluster center of around 20 schools. This was probably not an essential part of the change practice. • Head teachers were also trained to support teachers, but their role was probably more important in encouraging teachers to implement Tusome than actually in giving teacher support. 	<ul style="list-style-type: none"> • Training and materials for teachers and principals. Training content centrally (state)-designed by specialists. Courses organized in different locations statewide. • External trainers for teachers. In the case of principals and supervisors, trainers were selected from among the best local ones. • The training was face to face with online as a supplement only. • Teacher support was not on site at the schools, but there were sites relatively near the targeted schools. • At the same time there was a Federal effort with supervisors to improve teacher support using the Stallings time-observation method, along with teacher-based student assessment.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Data and assessment	<ul style="list-style-type: none"> • A great deal of data from assessments, and against specified fluency and other early literacy standards. Very well-structured loop for carrying out the assessments, processing, feeding back to schools. • At least at first, the system required taping all students in Grades 1 and 2 and having them evaluated by experts. • Data was important in creating “wake-up value” from a simple initial assessment. 	<ul style="list-style-type: none"> • Observations once per month by the coaches, captured in tablets, uploaded to the cloud and provided in a dashboard. • “Mastery checks” of 3 students randomly selected after every classroom by the coaches. • Classroom observations and mastery checks were followed by feedback sessions between the coach and the teacher focused on particular areas of improvement for the teacher. • Baseline, midline, and end-line assessments based on EGRA. • Role of data in “wake-up value” in an initial reading assessment. 	<ul style="list-style-type: none"> • Data from national standardized assessments widely distributed among all schools, especially targeted ones, including general results but emphasizing the percentage of students in the lowest category (“Insufficient,” lowest among four possible categories). • Assessment and summer course for children who could not read. Specific new assessment was created for Grade 2, as none existed. The assessment was created to support the pedagogy and the support to teachers. • Role of data in “wake-up value” in an initial reading assessment.

Table 2 Why did the country (or province/state or municipality/district) embark on the reforms?

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Why did the intervention choose the particular approach chosen?	<ul style="list-style-type: none"> • Early grades were chosen as there was a focus on reading and continuing through lower secondary. In fact, the key insight (in part driven by previous reforms efforts at access) was that there was much school-generated illiteracy in the municipality. • In addition, there was no particular effective reading method being used at all by teachers. It was more or less chaotic. • The decision to tackle school-generated illiteracy came after a report that applied standardized tests to students in many municipalities that were participating in a different program—the national student flow correction effort, the highly troubling situation. The report caused surprise to the Mayor of Sobral and his brother (see elsewhere in this brief on the politics), who thought they were solving the quality problem by investing more in infrastructure. So, they decided to change strategy, and there was a World Bank project at hand to help change management. But the change in reading methods was messier and more random. Luck played a role in finding the right person to help. 	<ul style="list-style-type: none"> • National outcry over Uwezo and EGRA assessment results led to PRIMR. Officials, with foreign technical assistance, observed the implementation of PRIMR to determine whether it had an impact on learning in the 1400 schools where it was working. • Based on the PRIMR results, Tusome was implemented using USAID funding and the PRIEDE GPE program implemented the mathematics intervention. The focus was on foundational reading skills, so the early grades were chosen as focus years. 	<ul style="list-style-type: none"> • As noted elsewhere, the main motivator appears to have been an opportunity rather than a perceived crisis, in that a new administration and state Education Secretary (“Minister”) wanted to make a mark. • The administration took risks, but did things to minimize them: • Choosing the right people who have a good reputation was an important one. The initial success in upper secondary convinced the Ministry to expand the strategy to the K-9 levels.

Table 3 How was the approach or intervention carried out?

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Teacher motivation	<ul style="list-style-type: none"> • Ongoing professional development based on those materials, in sequence. • Evidence that the approach worked; teachers' inherent satisfaction with their children's learning. • Good communication, distribution of learning materials, substantial bonuses, awards and public recognition events for high performing teachers and schools. Results-based rewards. Schools take great pride in being selected for rewards; the function of the rewards may not be necessarily to incentivize behavior but to allow a public signaling around pride in achievement. 	<ul style="list-style-type: none"> • Teachers in Kenya have historically been rather more professional than in many other countries, parental involvement tends to demand performance, and there is a tradition of posting exam school results at schools. Teachers are motivated by esteem. Thus, when the program started showing noticeable and quick results, teachers were even more motivated. • It also became the norm to have a structured curriculum, as long as teachers felt valued and that the prescriptiveness helped them. • In Tusome, performance on the number of visits made to schools was part of how supervisors evaluated coaches using the Tusome dashboard. 	<ul style="list-style-type: none"> • Identity and pride were more important than bonuses. This was tied to ability of the approach to actually deliver results. • Involvement of teachers in designing the approach. • Recognition of expert panels: the Academia Poblana de Supervisores had the best-of-the-class chosen by neutral people. They participated in state-wide peer training for no extra salary. • Teachers welcomed professional development because skills-specific PD was nonexistent – they also welcomed the quality of training and materials. • School was accountable for performance, not teachers. Targeted schools were mostly happy with support received, but other schools did not want to become targeted.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Bureaucrat motivation	<ul style="list-style-type: none"> Led by influential Gomes family involved in multiple levels of municipal and state government. Mid-level motivation grew as results started to be obtained. 	<ul style="list-style-type: none"> Kenya has always tended to take an interest in learning, more so than other countries in the region. That provided an opening when results of Uwezo and EGRA came in. The bureaucrats tended to get on board as the results from the pilot, PRIMR, started to be highly visible not only in reports and presentations but also in their own visits to the schools. Then, very high-level interest, all the way to the President, helped. A key role was played by officials serving the role of coaches, as they are the link with the bureaucracy and were the first to notice that results were improving on the ground, thus legitimating the effort beyond written numerical evaluations. 	<ul style="list-style-type: none"> Initial opening by the Secretary. Mid-level motivation as results started to be obtained. This was key. One particular element was the participation of supervisors, who are the crucial link between schools and the central bureaucracy, and have been neglected in the past as a source of pedagogical leadership. Also, having a clear and shared view of policy (APA Model) added certainty about the educational goals of all efforts.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
<p>Coherence at instructional core: lessons, assessment, textbooks</p> <p>Also how does one organize so many people around a common goal and maintain momentum?</p>	<ul style="list-style-type: none"> • Many factors helped generate coherence. First, central control allows for easier coordination between sub-systems. Second, the coherence was generated through professionalism and realization by key actors of the importance of coordinating across sub-systems (assessment, lesson plans, texts, etc.); the key sub-systems were all accountable to the same top leadership and that leadership drove coordination even if it did not micro-manage; the need for coordination was also built into the workplans of those in charge of the sub-systems. • Driven from materials and top-down or central. Workbooks—not much room for creativity. • Organizing communication channels between central office and schools was also important. • However, the “tools” typical of each sub-system (assessments, lesson plans, etc.) and the coordination amongst them, were the most important way. 	<ul style="list-style-type: none"> • Instructional materials – 98% of teachers and 97% of children had teachers’ guides and textbooks, respectively, at a 1:1 ratio. • People – CSOs, and county officials were essential to having a coherent structure to support learning. The foreign partner and government were crucial for coherence. • Facilitation by an external service provider and a very focused development partner, USAID, played a key role. 	<ul style="list-style-type: none"> • Facilitation by an external service provider (Proyecto Educativo) was vital, as this helped centralize the vision and designed structures for actors to work together in a manner coordinated by this provider, with freedom to do so generated by the top leadership and the fact that results started to be obtained. The presence of an external advisor organization made possible the continuity of actions regardless of the continuous change in the formal leadership at the Ministry. Professionalism of key actors in each sub-system was also important. • A first step was to revive a dormant institution (from the secondary level), the State Commission for Upper Secondary Education, which was supposed to meet just three times per year and started meeting weekly. Technical sub-groups formed to work on each specific sub-system, and the coordination between them was provided to a large degree by the structures designed by the external agent. The approach eventually extended to all compulsory education, with two weekly gatherings. <ul style="list-style-type: none"> - The structure also coordinated between levels: schools, supervisors, and State. Some features:

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
<p>Coherence at instructional core: lessons, assessment, textbooks</p> <p>Also how does one organize so many people around a common goal and maintain momentum? con't</p>			<ul style="list-style-type: none"> • The minister needs to let the structure know the effort is important for the ministry. • Need an implementing body or “partnership,” a structure that allows one to preserve the sense of importance and high aspirations, e.g., coordinating structures do not allow substitutes or delegates to come to meetings, instead of intended ongoing participants. • The changes in ministers did not make a difference because of the strength of these bodies. • In short, the Minister provided the will (support), the means, and the aspirations. The external group proposed structures and strategies, as well as implementation and follow-up support. Boards were very useful to address academic issues, support decisions, and articulate efforts.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Role of serendipity ¹¹	<ul style="list-style-type: none"> The presenter noted: “One cannot fail to note the random character [of the starting point] - many other municipalities were exposed to the national and state context of the late 1990s and early decades of the 2000s, but perhaps few counted on the political will of their leaders enough to set a goal , in legislation, the eradication of school illiteracy in the 1st school year. Certainly, at least at the time of the beginning of the Sobral literacy program, only Sobral could count on the expertise of someone who studied literacy processes practiced in developed countries.” So, there was a role for luck, but in a context where the actors were ready to take advantage of it. For example, when the municipality felt unable to come up with an approach to reading, they reached out to a professor, Edgar Linhares, at the Federal University of 	<ul style="list-style-type: none"> Kenya has always been a fertile breeding ground for experimentation. However, even here luck helped. For instance, one of the specific inspirations for PRIMR and eventually Tusome came from a USAID officer who had become familiar with early grade reading improvement efforts (and above all the importance of foundational skills) funded by USAID in other contexts and presented at USAID education officers conferences. This was more or less coincident in time with the wake-up provided by Uwezo and EGRA. This officer tested two different approaches to improving learning, simultaneously and impact evaluation results reinforced the structured PRIMR approach as more effective. Similarly, the technical leader of PRIMR had carried out an evaluation of EGRA-Plus in Liberia, one of the early successes in the early-grade reading effort started in the mid-2000s. 	<ul style="list-style-type: none"> Serendipity played a role in Puebla as well. The opportunity created by a new government in 2011 coincided with the prior existence of a service provider NGO (Proyecto Educativo) based in Puebla since 2006 and with the fact that the public sector, in trying to be reformist, was open to outside influence in 2011 (e.g., Puebla invited OECD to carry out the first state-level work in Mexico). Other lucky strikes were knowing about a call for proposals from the federal ministry one day before its closure, in which Puebla received US\$1.5 Million to fund the Programa de Atención Intensiva (Intensive Care Program). Also, the invitation from OECD to know about the experience of Ontario regarding education policy, that was the inspiration for the APA model.

¹¹ This may seem an odd thing to think about, but it is important for how assistance from development partners is provided. If luck and serendipity played a role in some of these reforms, but one does not want to depend on that for obvious reasons, then one has to note that one can make up for luck through purposeful action, such as making sure that the information channels about what works are relatively saturated and are “on” continuously. As the saying goes, “luck favors the well-prepared.” Being well-prepared, for instance, allows actors to recognize true coincidences (of which there are many, but one may have to be on the lookout), to build on what appears to be coincidence, and take advantage of it. All this requires more than the occasional, casual donor-driven event or somewhat passive dissemination of a report and manuals.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Role of serendipity con't	<p>of Ceará, who happened to be knowledgeable about phonics, the US's National Reading Panel. Similarly, through an NGO, they came upon a World Bank manual on school effectiveness that summarized and made practical the literature on school effectiveness. There was also help from the Ayrton Senna Foundation in establishing some of the initial wake-up around reading levels.</p>		
Influencers/political capital	<ul style="list-style-type: none"> Influential Gomes family, key reformist politicians especially since the late 1990s and at many levels in the municipality and State. Many reformists in Sobral were educated in the same progressive secondary school since the 1930s. 	<ul style="list-style-type: none"> Kenya has always had a concern with learning performance, and this is “owned” at various levels, including teachers, district leadership, and parents “All for education” rather than “Education for all” seems to pervade. However, wake-ups provided by Uwezo and EGRA data were specific motivators that helped galvanize many layers in the system, not just a few leaders. Eventually, ownership came from highest levels. President of Kenya launched the program giving it a level of seriousness for implementation at the beginning. 	<ul style="list-style-type: none"> The incoming of a new administration and new Education Secretary created the influencing and political space. But this did not last that long. It was the fact that that initial period was capitalized by service providers and mid-level officials that kept the effort going after the initial opening up. The Secretary was very willing to bring in people from outside the state both to craft the approach but also for regular staffing, which was not usual. OECD was invited to provide the first state-level assessment of education in Mexico, think-tanks/NGOs were invited to the table and asked to take leadership/coordinating roles. This led to a change in the parameters of the discussion around basics, quality, and the aspirations for Puebla.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Integration and coherence of specific interventions	<ul style="list-style-type: none"> • Since the beginning, there was an effort at coherence, even at the legislative level. Teacher professional development is mandated to be aligned with the central planning of pedagogic activities. Prizes and recognition are given by law. Bonuses for teachers meeting goals are also ruled by legislation: an integration of rewards with standards. • The municipality also became more open to skilled general managers who applied better managerial techniques in the education sector. • In a manner similar to the other cases, the initial role of an external professional was key in driving a coordinated approach. Professor Linhares brought in a team of four or five young professions who were not so much pedagogical experts as good managers. But the Secretariat of Education was also ably organized and realized the importance of coordination among the various delivery vectors into the schools. Over time ownership by the Secretariat increased. 	<ul style="list-style-type: none"> • There was conscious bureaucratic and technical coordination to ensure a fit between all the components: assessment was linked to lesson plans, both were linked to the coaching and classroom observation scheme, etc. 	<ul style="list-style-type: none"> • The APA Model is key to understanding how different actors and actions followed the same objectives. Academic bodies were designed to ensure that efforts from different offices and institutions were complementary. The external group designed the APA Model, structures and strategies, and was present between 2011 and 2018 to ensure continuity and consistency.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Were feedback loops used?	<ul style="list-style-type: none"> Yes, extensively. Example: When the assessment results showed children were not learning and teachers did not get the bonus, they started getting interested in using the materials, especially after they saw, in the (disseminated) learning assessment results, that the children were learning better. 	<ul style="list-style-type: none"> Yes, extensively. Example: teacher coaches gather and report information on the teachers, but also use a tablet-based tool to immediately provide support based on observation of how a teacher is teaching the lessons that pertain to the approximate date of visit, according to the standard lesson plan. 	<ul style="list-style-type: none"> Extensive feedback and, in some cases, required new measurement, such as using a Grade 2 assessment in order to provide schools with information in time to prevent failure. Regular, intense meetings of key parties involved were also a way to provide very tight and fast feedback. Information distributed via the web, a report to each school identifying every single student at risk every two months. Decision-makers visit schools, not as a punitive measure, but to study and fine-tune the approach. See other rows in this matrix as examples of how feedback was used.

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Challenges, mistakes, and adaptations?	<ul style="list-style-type: none"> • Opposition from local schools of education within universities, who felt the approach teaches to the test and “dumbs down” the curriculum. Higher levels of teacher unions (that is, leadership and intellectuals more than rank-and-file teachers) espouse concerns around the top-down or centralist nature of the reforms. 	<ul style="list-style-type: none"> • Tusome is still seen to some degree as a USAID-inspired program relatively outside the system as opposed to other national programs more completely endogenous to the Ministry. • Approach is somewhat contradicted by current trends in Kenya, including the new “competency-based” curriculum, which is a more constructivist view of how children learn. It remains to be seen how much the gains of Tusome persist in the implementation of the new curriculum, which began in 2019. 	<ul style="list-style-type: none"> • A big challenge: Puebla had a culture of hiring local-only officials and setting the national average in most indicators as an acceptable standard for goals. • The approach was able to measure and self-correct. Bodies were used to identify and correct mistakes, but confidence from the Ministry was essential to create conditions for accepting them. E.g., initial materials were too high-level for children, 91% could not read, so adapted the next year to make them easier. • Some academics from top institutions decry the approach as too light, too non-academic, and simple. The rank and file teachers, principals, and supervisors are very welcoming.

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