CASE STUDY   C-011E

A Problem-Driven Approach to Education Reform: The Story of Sobral in Brazil

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INTRODUCTION

For more than two decades, the Brazilian municipality of Sobral has focused intensively on improving the quality of its public education system; the resulting success has been remarkable. In 2005, the Brazilian federal government started calculating a Basic Education Development Index (IDEB in Portuguese) which measures the quality of education in schools across the country.

In the inaugural results in 2005, 1,365 municipalities (out of a total of 5,570) had a better score for primary education than Sobral. By 2017, Sobral made national news by ranking number one in the entire country for both primary and lower secondary education.[1] These results are even more impressive when considering that Sobral is located within the northeastern state of Ceará, the fifth poorest state in Brazil in terms of GDP per capita.[2]

How has Sobral achieved such results? According to a 2020 interview with Ivo Gomes, the current Mayor of Sobral, "We have reached this position because this is a 23-year-old project that has surpassed changes in mayors and secretaries of education. People think it's magic and it's not. It is persistence and a lot of hard work."[3]

Understanding the success of Sobral requires understanding the full scope of reform efforts undertaken over two decades. In 1997, Cid Gomes, Ivo's brother and the newly elected Mayor of Sobral, implemented an initial set of reforms to improve the education system. While enrollment numbers and school buildings improved, many students were still not learning. A diagnostic assessment in 2000 revealed that

KEY POINTS

→ Between 1997-2000, the municipal government in Sobral invested heavily in school inputs and saw significant increases in student enrollment. Despite these efforts, a diagnostic assessment in 2000 revealed that nearly half of all second graders could not read.

→ These results, along with results from a follow-up assessment, marked a turning point in how the government approached education reform. In 2001, the government set a goal of 100% literacy for children by the end of the second year of primary school. Three years later, over 91% of students completing their second year could read text with ease.

→ The case of Sobral exhibits many elements that are similar to Problem Driven Iterative Adaptation (PDIA), an approach for solving complex problems. This paper explores the transformation of Sobral's education system through the lens of PDIA, with an emphasis on the reform period from 2000-2004.

48% of second graders in Sobral could not read. In early 2001, results from a second assessment of all second, third, and fourth graders also revealed poor outcomes.

The results were a wake-up call, illustrating a problem that the municipal leadership could not ignore. Instead of hiding the assessment results, the municipal government shared them widely with the community and announced a goal of 100% literacy for children by the end of the second year of primary school. Three years later, an assessment showed that over 91% of students completing their second year of primary school could read text with ease.

The municipal leadership made many important reforms that were key to this success, including:

→ Setting clear targets

→ Improving management both at the Secretariat-level and the school-level

→ Increasing school autonomy and responsibility

→ Introducing a new pedagogy

→ Training teachers

→ Increasing financial incentives for school staff

→ Introducing external assessments of all primary school students held twice a year

The data from these assessments combined with the other reforms resulted in an education system that was constantly learning, iterating, and identifying new ways to improve student literacy.

The process of education reform in Sobral exhibits many elements similar to Problem Driven Iterative Adaptation (PDIA), an approach wherein problems are key to driving change.[4] The PDIA approach relies on policymakers to identify problems that matter, break them down into their root causes, identify entry points, act, stop to reflect, and then iterate and adapt their way to a solution.[5] This process of constant feedback and experimentation by local actors allows for the development of a solution that truly fits the local context.

This case explores the transformation of Sobral's education system through the lens of PDIA,[6] drawing heavily on existing literature about this case and supplementing this information with interviews from key individuals who were either closely involved with the reform efforts or have studied them.[7] Following the narrative of the Sobral story starting in 1997, we articulate how PDIA is reflected in the process of these reform efforts. Lastly, we explain how the reform efforts grew and scaled over the years not only within Sobral, but also to other municipalities in Ceará and across Brazil.

Initial Reform Period: 1997-2000

In 1997, Cid Gomes began his first term as Mayor of Sobral and established education as one of the main priorities of his government. Gomes' administration inherited an education system where many principals and teachers were hired based on political interests rather than meritocracy. In response, some of the first reforms made by the municipal leadership included laying off 1,000 teachers who were hired without meeting the necessary technical requirements and subsequently passing a law[8] that defined technical criteria for hiring new teachers.[9]

Another important policy change that affected Sobral was the creation of FUNDEF, a federal education program which raised funds from federal, state, and municipal governments and redistributed them according to the number of student enrollment.[10] This gave an additional incentive to the municipality to increase enrollment; "between 1996 and 1999, student registration at the municipal network grew from 9,000 to 17,000."[11] 60% of the resulting funding was set aside for teachers, and the remaining funds were used for improving the infrastructure of the schools, uniforms, and school meals.[12]

During the first four years of Gomes' tenure as mayor, the municipal government built four new schools, expanded

another four, and renovated 26 of the largest schools in its network (Maia, 2006). In addition, the number of books and other teaching materials available at schools increased significantly.[13] In other words, the municipality invested heavily in school inputs and saw significant increases in enrollment during Gomes' first term in office. Despite such investments, Gomes would soon come to learn that students were still not learning.

Finding a problem that matters

In July 1999, a report commissioned by the Ayrton Senna Institute and authored by the Carlos Chagas Foundation revealed that a "substantial contingent" of students in the early years of elementary school in Sobral were not able to read words.[14] This news was surprising for the municipal leadership.

To get a better understanding of the problem, the Secretariat of Education (SOE) hired a team led by Edgar Linhares, a retired professor from the Federal University of Ceará and a specialist in literacy, to carry out a diagnostic assessment of the reading level of second graders in Sobral.[15] The assessment took place in 2000 and was based on a sample of 75% of students who were completing second grade. The result of this diagnostic revealed that 48% of second graders could not read.[16] For this assessment, inability to read was defined as follows: the student "cannot recognize any sound in the words, even if he/she recognizes the name of the letters."[17] After all the investments made in the schools and the improvements in enrollment, the municipal leadership was not expecting such a poor result.

In 2000, Cid Gomes was re-elected for a second term as Mayor of Sobral. Gomes decided to appoint his brother Ivo to be the new Secretary of Education in his cabinet. To grasp the full extent of the identified illiteracy problem, the municipal leadership asked Linhares' team to do a comprehensive reading assessment at the end of 2000. This time, they assessed all students entering second, third, and fourth grade, meaning "close to 12,000 students."[18] The results of this second assessment came out in early 2001 and showed that 60 percent of new second graders, 40 percent of new third graders, and 20 percent of new fourth graders did not know how to read.[19]

What had started as a surprising finding from a foundation's report had turned out to be a significant illiteracy problem backed by extensive and conclusive data. It was an undeniably important problem, as literacy is the foundation of learning. Without being able to read, students have difficulty advancing in other subjects. Illiteracy leads to higher dropout rates and a greater number of students being held back. Ultimately, this impacts students' future careers and quality of life. Andrews et al. (2015) call this type of problem that "motivates and drives change" a "good problem" as it "cannot be ignored and matters to key agents."

The 2000 and 2001 assessments marked a turning point. "Without this data, the managers responsible for conducting the municipality's educational policy believed that they were doing a good job, mainly because they increased teachers' salaries and built beautiful schools. From the assessment feedback, the policy entrepreneur started to face the illiteracy problem differently and began to act strongly to eradicate it."[20] The municipal leadership decided to make literacy a key issue of Gomes' second term. This was cemented by the government by setting two priority goals:[21]

→ Ensuring literacy for all students by the end of their second year (age seven)

→ Addressing remedial literacy for older students who had not yet learned to read

The municipal leadership knew that making change would require the support of teachers, principals, and parents. To convey the severity of the problem to these stakeholders, "the mayor in Sobral went on radio stations to communicate the results to all citizens. The message was clear: even though the school buildings were renovated, students were not learning. Everyone should know about this failure and should take responsibility for learning."[22] In addition to this, Secretary Ivo Gomes and the rest of the SOE held meetings with families to explain the problem

and gain support from parents to help their children learn. As described in one report on this case:

> *"During the meetings, it was common to see fathers and mothers claiming that the school was 'very good' or 'excellent'. Given these statements, the Municipal Secretary used to ask: 'how can the school be good if it's not teaching your children?' The meetings were not aimed at pinpointing the culprits. Nobody said, 'the problem is [the principal or the teacher], but 'everyone is responsible.' The idea was to reinforce the need for a transformation that would be possible only with the participation of everyone. This process encouraged community participation."[23]*

Problem construction is the first step in the PDIA process. In PDIA, "the focal problem needs to reflect on a performance deficiency that cannot be denied or ignored and that matters to key change agents."[24] This mirrors the case of Sobral.[25] The municipal leadership identified a problem – primary school students are not learning how to read – that was clearly important and could not be ignored. The student assessments were essential data for defining the extent of the problem, and the goal of ensuring every student can read by the second year of primary school was clear and easy to understand. Using the language of PDIA, it allowed everyone to understand what the problem would look like when it was solved.[26] The assessment data also allowed the leadership to build support from parents, teachers, and principals and get these key constituencies to care more about the problem.

PDIA PARALLEL: PROBLEM CONSTRUCTION FOR SOBRAL

Key questions are used in the PDIA problem construction process. Here's what that process could have looked like in Sobral in early 2001.

1. **What is the problem?** Primary school students are not learning how to read.

2. **Why does it matter?**
   - Literacy is the foundation of learning. A diagnostic assessment revealed that 48% of second graders are unable to read basic syllables, with a follow up study suggesting that number could be as high as 60%.
   - Without the ability to read, students will have difficulty advancing in other subjects. Illiteracy results in higher dropout rates and a greater number of students being held back.
   - When students do not learn, this can limit their future earnings, career options, and quality of life.
   - All children should have the right to learn, regardless of their socioeconomic status.

3. **To whom does it matter?** Students and the municipal government.

4. **Who needs to care more?** Teachers, principals, and parents.

5. **How do we get them to give it more attention? (How do we measure it or tell stories about it?)**
   Sharing results of the diagnostic with everyone, including going on the radio and meeting with families to explain the situation to them. Doing more assessments to better understand the problem at the school, classroom, and student levels.

6. **What will the problem look like when it is solved?** All students completing their second year will be able to read and all students struggling with literacy in older grades will get the support they need to learn how to read. By doing assessments every six months, we will be able to set targets for each school and monitor improvements.

Sources: Section 1 of the PDIA Toolkit; INEP, 2005; Maia, 2006
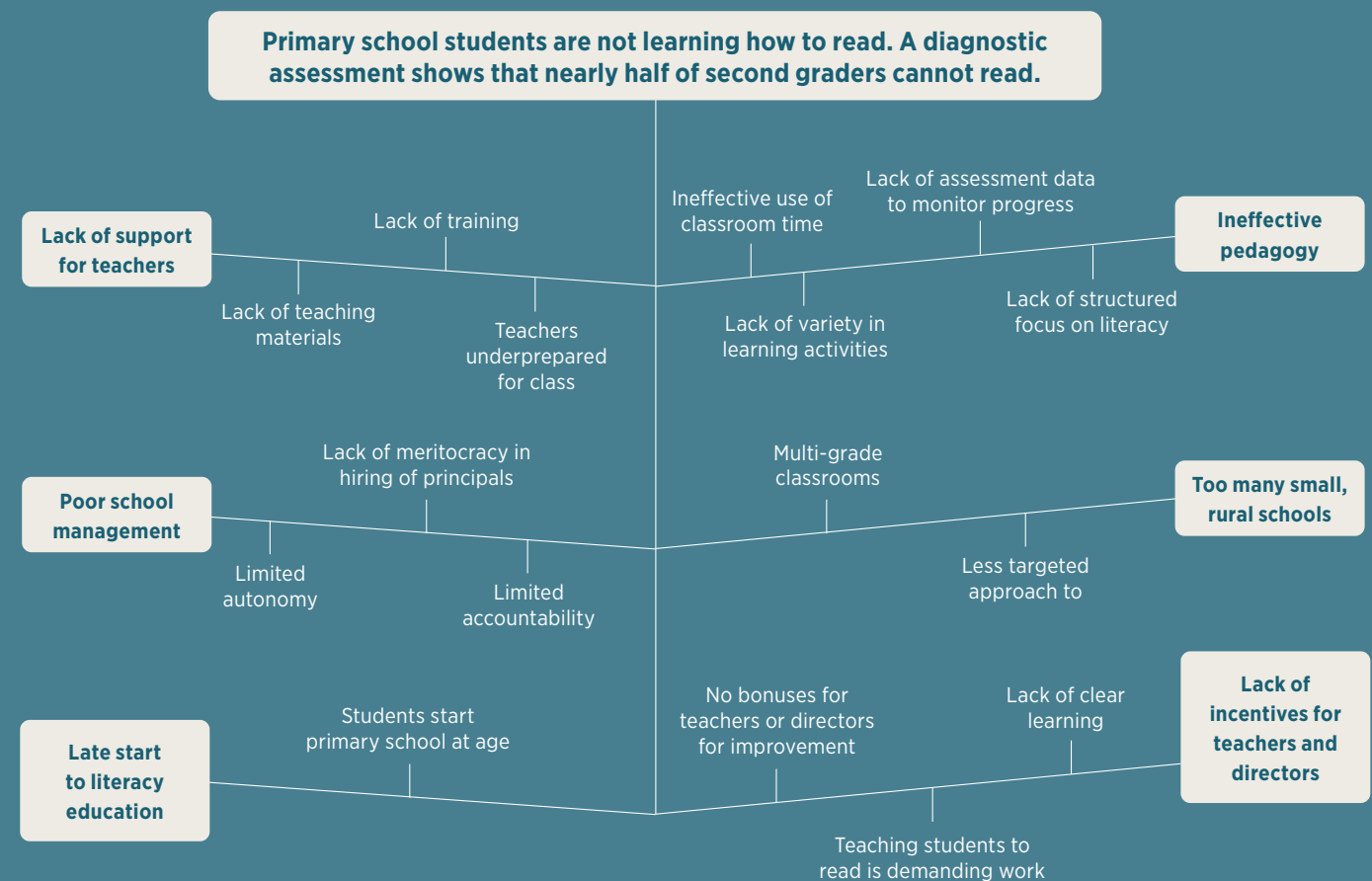
Breaking down the problem

To address the problem, the municipality formed a leadership team, including:

→ Ivo Gomes (Secretary of Education)

→ Izolda Cela (Undersecretary of Education)

→ Joan Edesson de Oliveira (initially Middle School Coordinator and later Superintendent)

→ Three area coordinators (Elementary Education, Early Childhood Education and Youth and Adult Education)

The team was advised by Edgar Linhares, who designed and implemented the diagnostic assessments. This team was responsible for defining strategies to overcome the literacy crisis and had strong political support from the mayor.

The second step in the PDIA process is problem deconstruction, which takes a complex problem and breaks it down into its root causes. This can turn a wicked problem "into smaller, manageable parts", which "empowers practical thinking about where real reform can begin in the short run."[27] One of the main tools used for this step is a fishbone diagram, which allows teams to visualize the problem together and create shared understandings of the problem, with each large "bone" representing an individual cause of the problem while the smaller bones depict sub-causes.

PDIA PARALLEL: PROBLEM DECONSTRUCTION OR FISHBONE DIAGRAM FOR SOBRAL

Primary school students are not learning how to read. A diagnostic assessment shows that nearly half of second graders cannot read.

Lack of support for teachers
- Lack of training
- Lack of teaching materials
- Teachers underprepared for class

Ineffective pedagogy
- Ineffective use of classroom time
- Lack of assessment data to monitor progress
- Lack of variety in learning activities
- Lack of structured focus on literacy

Poor school management
- Lack of meritocracy in hiring of principals
- Limited autonomy
- Limited accountability

Too many small, rural schools
- Multi-grade classrooms
- Less targeted approach to

Late start to literacy education
- Students start primary school at age

Lack of incentives for teachers and directors
- No bonuses for teachers or directors for improvement
- Lack of clear learning
- Teaching students to read is demanding work

Source: Synthesis of literature review, see section 2 of PDIA Toolkit

Identifying multiple entry points

The fishbone diagram highlights six main causes of the problem, with many underlying sub-causes. The third step of the PDIA process is Triple-A or change space analysis. Recognizing that "each cause and sub-case is essentially a separate – albeit connected – point of engagement," change space analysis is a way of evaluating where policymakers should start. Causes with large space are referred to as entry points in the terminology of PDIA. There are three factors that affect the "space for change" in each area:

→ **Authority**, which "refers to the support needed to effect reform or policy change or build state capability (political, legal, organizational, and personal)"

→ **Acceptance**, which "relates to the extent to which those who will be affected by the reform or policy change accept the need for change and the implications of change"

→ **Ability**, which "focuses on the practical side of reform or policy change, and the need for time, money, skills and the like to even start any kind of intervention"[28]

In early 2001, there were two causes that were immediately tackled by municipal leadership. The first was "late start to literacy education". Students in Sobral entered primary school at the age of seven; this is when literacy education began. In March 2001, Sobral Municipal Law 294 was passed to expand primary education to start at age six.[29]

The new first grade for six-year-olds was called "basic" first grade, while the grade for seven-year-olds was renamed "regular" first grade. This reform was essential, as it gave students and teachers an additional year to train to achieve literacy. In terms of the Triple-A analysis, this was an area that had:
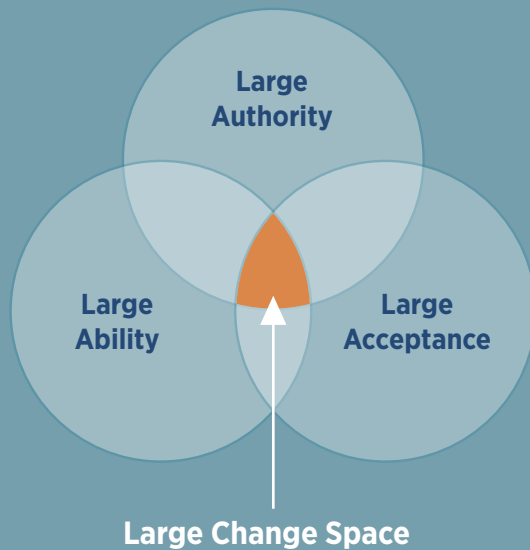
→ **Large authority:** There was a legal and political basis to act.

→ **Large acceptance:** Parents and teachers were relatively open to the change.

→ **Large ability:** The municipality had the money and staffing to implement the reform.

Given the large levels of authority, acceptance, and ability, the municipality was able to have what Andrews et al. (2015) refer to as a "quick win" for starting its literacy reform efforts.

The second cause that was immediately addressed was "too many small, rural schools." This issue had long been recognized by the Gomes administration, for these small, rural schools did not have sufficient resources to effectively teach the students. Students were placed in multi-grade classrooms and did not get the focused support they needed to effectively learn. With an organized network of larger schools, municipal leadership would be able to provide better infrastructure and a better learning environment for students with appropriate grade allocation.

Accordingly, "in early 2001, the number of municipal schools was reduced from 96 to 38."[30] While this reform had large levels of authority and ability, it initially had low acceptance. Many parents did not want their children to travel long distances to the new hub schools.[31] The municipality arranged transportation for the students and met with communities to explain the advantages of the new management. "When the results of the policy gained visibility and the population began to see an improvement in the quality of schools, the initial resistance was losing ground to acceptance and respect."[32] Change space analysis can also be used to identify weak points policymakers need to address in order to build the necessary change space to act on a particular entry point. In this case, reformers recognized that they needed to build acceptance for the new policy to be successful and thus undertook this strategy to get families on board.

CAUSE 1: Late start to literacy education

CAUSE 2: Too many small, rural schools

Large Authority

Large Ability

Large Acceptance

Large Change Space

Large Authority

Large Ability

Mid Acceptance

Small Change Space

Given the relatively large levels of authority, acceptance, and ability, the municipality was able to have what Andrews et al. (2015) refer to as a "quick win" by starting literacy education a year earlier in primary school.
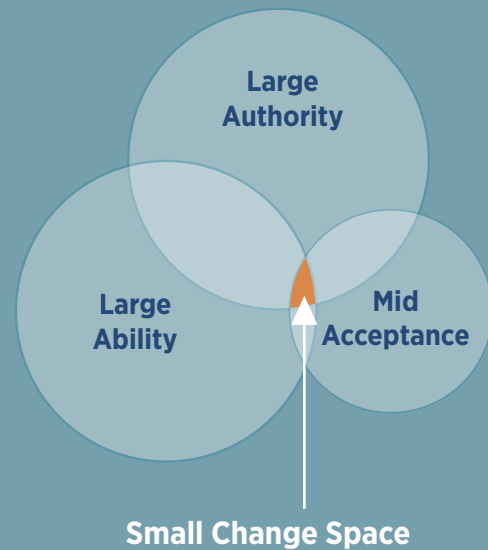
While there were initially low levels of acceptance from parents for consolidating the school network, the municipality arranged transportation for the students and met with the communities to explain the advantages of the new management. This created enough acceptance (illustrated as "mid acceptance") to begin the reform. As positive results came out, this helped build even more acceptance among the community.

Making Strategic Reforms Throughout the Entire System: 2001-2004

Experts conclude that "there was no silver bullet in the education reform in Sobral."[33] In other words, there was no single solution that was ultimately responsible for the improvement in the education system. Instead, numerous different policies were implemented over many years. Sumiya (2017) consolidates the key educational reforms made during 2001-2004 into four strategic fronts:

1. **Secretariat-Level Institutional Management**
2. **School Management**
3. **Pedagogy**
4. **Professional Incentives and Teacher Appreciation**

These reforms came together to build a system that was constantly learning, iterating, and adapting to meet the literacy goals of the municipality. Instead of attempting to solve a complex problem with a single "solution", the PDIA approach encourages an experimental and iterative process where "multiple solution ideas are identified and put into action."[34] We will briefly cover some of the key ideas and actions taken within each area that correspond with our identified root causes of the problem and greatly contributed to the quality and success of Sobral's education system.

1. Secretariat-Level Institutional Management

From 2001-2004, Sobral was one of 47 municipalities participating in an educational management program called Escola Campeã (Champion School), which was created by the Ayrton Senna Institute and the Bank of Brazil Foundation.[35] One of the requirements of the program was to create a "School Superintendence," a team within the SOE to serve as the main point of contact between the SOE and schools. The idea was for the School Superintendence team to visit each school at least twice a month to meet with the principal, monitor the progress of the school, and provide support. In 2002, Joan Edesson de Oliveira was made the Superintendent of the SOE in Sobral and visited all 38 schools himself. His team expanded over time, allowing the allocation of schools to specific team members and an increase in the number of visits overall. The Superintendence team used a set of indicators to monitor each school, including student and teacher attendance, functioning infrastructure (bathrooms, cafeteria, classrooms), teaching plans, and learning assessments, which created a "culture of monitoring results based on indicators."[36]

The other key institutional reform was the implementation of periodic external assessments of every student in Grades 1-4 in every school in Sobral. The assessments were initially held once a year but were later implemented every six months at the end of each semester.[37] This allowed schools to make mid-year course corrections and ensure teaching strategies met the needs of the students. The assessments also informed schools as to which teachers needed more support. Eventually, many schools developed monthly assessments to monitor the progress of their students more frequently.[38] This increase in assessment directly addresses the "lack of assessment data to monitor progress" entry point from Sobral's fishbone diagram. According to Joan Edesson de Oliveira, instead of blaming poor results on external problems (poverty, violence, lack of funds), the assessments helped shift the discussion towards what could be done within schools to help students learn.

> "We adopt our own assessment at the school. We have instruments that allow you to see what the student has learned each month. If he didn't learn, we take action. Our goal is to reach 95 percent of literate students. Next year, let's get better. Let's do a better job every year."
> —School Principal[39]

2. School Management

From 2001, there were three main reforms that strengthened school management. First, principals were now selected based on technical, not political criteria. In 2001, two-thirds of former principals were replaced to enforce these technical criteria.[40] Second, "pedagogical coordinators" were inserted directly into schools. They were also selected by merit, and each pedagogical coordinator would monitor the progress of students and assist teachers in delivering the curriculum. There was one pedagogical coordinator for every 350 students, and the school principal was allowed to select which pedagogical coordinators they wanted to work with from a list of approved professionals.[41] Finally, the schools were given more financial autonomy. Before, principals would have to make requests to the Secretary for every small expenditure, which took up a lot of the principal's time and resulted in delays.[42] This increase in autonomy was accompanied by an increased responsibility of school principals to produce results. All three of these reforms correspond to specific sub-causes of the larger literacy problem in Sobral.

3. Pedagogy

The SOE knew that it had to strengthen the teaching methodologies and learning materials used in the classroom, as these were key contributors to the problem. The previous textbooks were hardly used by teachers as they were at too difficult for the students.[43] The SOE hired the team of Edgar Linhares, who carried out the original diagnostic assessment in 2000, to prepare new learning materials for the teachers.[44] Linhares' team developed detailed literacy teaching material, set weekly and monthly learning goals, and provided eight hours of training to the teachers each month.[45] The trainings were originally held on the weekends, but the teachers were tired, so the SOE provided substitute teachers in order to offer the training during work hours. This allowed the teachers to go over what was done the previous month, what worked, what they were struggling with, and to plan for the next month. The iterative process of implementing these reforms to improve pedagogy reflects many of the key values of PDIA's "experimental iteration". This concept will be explored further in the following section.[46]

4. Professional Incentives and Teacher Appreciation

In Sobral, the SOE introduced financial incentives to further motivate professionals working in the schools, for the lack of such incentives was an important root cause of the literacy problem. The "Escola Alfabetizadora Prize" was created in 2001, "a monetary incentive for teachers, pedagogical coordinators, and school principals if the school achieves its learning goals."[47] In addition, literacy teachers were given a 30 percent salary bonus if they met their literacy goals. By 2003, the rules were changed so that the bonus could be reduced by 25 percent or 50 percent, depending on how far off student results were from the literacy target, but the teacher could receive the full bonus if he/she achieved the target the next year.[48]

> *"In 2001, I didn't have a satisfactory result, but the principal trusted me and, thank God, not only him, but the whole team, the coordination team, the management team, everyone, I got a great result in 2002. Today I feel happy, and I feel that I am cooperating, that I am helping to transform this country, because the children who are passing through our hands are the future of this country"* **—First Grade Teacher**[49]

Making Strategic Reforms Throughout the Entire System: 2001-2004

At the center of Sobral's education reform were the external student assessments. Conducted at the end of every semester, this data gave an objective view of how every school, teacher, and student was doing relative to the set targets. When the results of each new assessment were ready, the following meetings took place, in this order:

→ The SOE held meetings with all school principals to share the results of schools across the entire municipality.

→ Next, the School Superintendence team conducted visits to each school to help the principals understand and analyze the results of their school.

→ The principal then discussed the data with their pedagogical coordinators, identifying the main problems to be solved, which teachers need the most help, and where it was most necessary to make changes.

→ Finally, the principal and pedagogical coordinators held a meeting with all the teachers in the school. At this meeting, the pedagogical coordinator listened to the ideas of the teachers, and they co-created strategies to overcome learning gaps.[50]

Perhaps even more important than these meetings were the regular meetings that happened in between the assessments. These included the following:
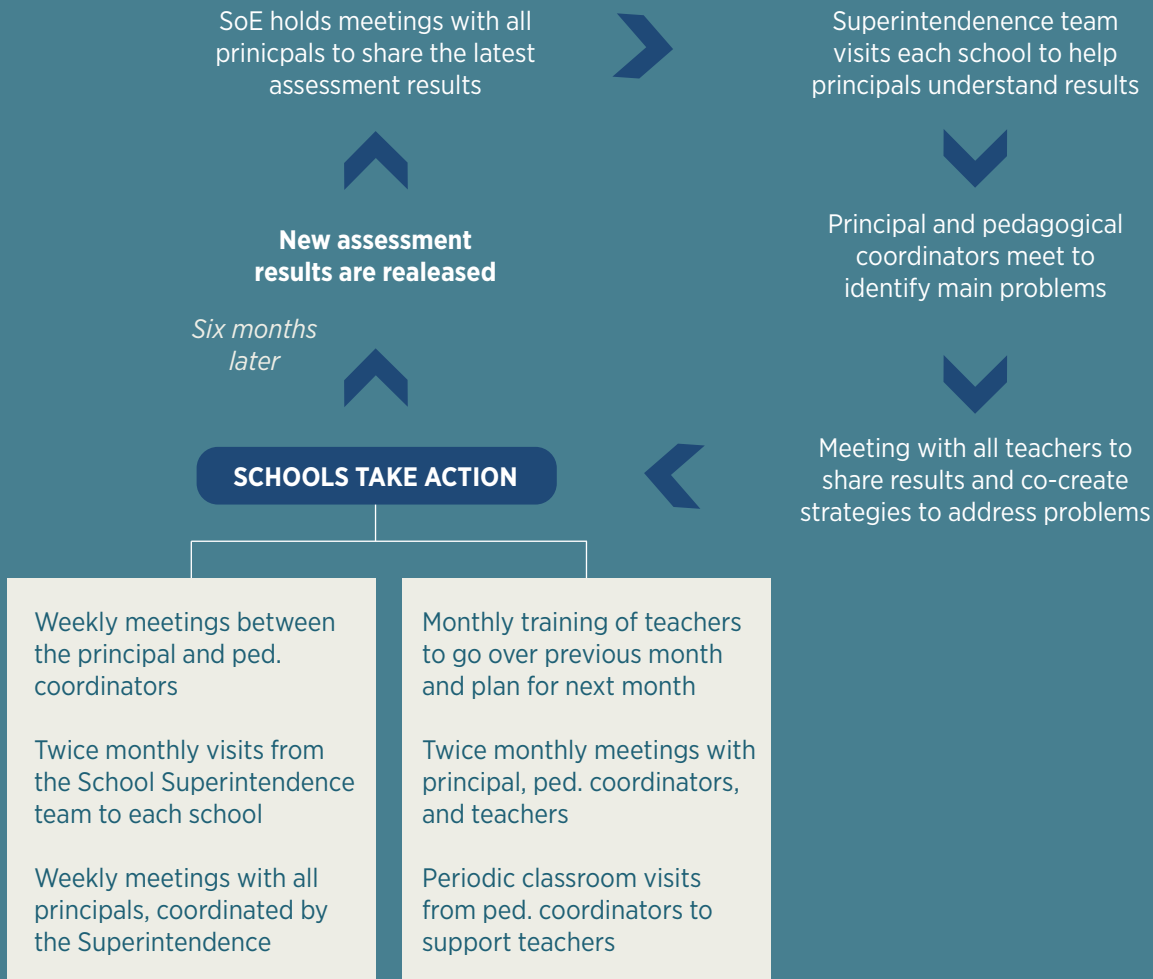
→ Weekly meetings between the principal and pedagogical coordinators and twice-monthly meetings between the principal, pedagogical coordinators, and teachers to monitor student learning and support teachers and administrators in their work throughout the year at each school

→ Monthly training of teachers to review what was taught the previous month, what worked, what they were struggling with, and to plan for the next month

→ Periodic visits of the pedagogical coordinators to classrooms to observe teachers and to provide support and suggestions for improvement

→ Weekly meetings between all school principals, coordinated by the School Superintendence team, to monitor progress of schools

→ Twice-monthly visits from the School Superintendence team to each school to meet with the principal, monitor progress, and offer support[51]

As noted previously, a key component of PDIA is "experimental iteration", "where policymakers and would-be reformers can try new ideas out, learn what works and why, adapt ideas, and repeat the process until a solution is found."[52] This type of approach works best with complex challenges, where there is a vision of what success looks like, but it is not clear how to achieve that result. After each iteration, teams stop to reflect and ask a few basic questions:

→ "What did we do?"

→ "What did we learn?"

→ "What are we struggling with?"

→ "What's next?"[53]

In the case of Sobral, the entire educational system revolved around reaching the literacy goals. They were clear targets that were easy to explain to everyone in the system. "The external assessment was configured as an essential management tool for monitoring and carrying out the necessary interventions for achieving the goals. The results (obtained through universal criteria, sufficiently objective and with a satisfactory level of control) went to the analysis table, where the construction (and deconstruction) of hypotheses culminated in the definition of strategies to face the challenges, both from the point of view of the network and of each school, each class, each student."[54] These meetings following the release of the assessment results were important for taking stock and giving everyone in the system the chance to reflect on what was done, what was working, where there were still challenges, and what to do next. Mid-year assessments allowed schools devise strategies to improve outcomes in the next semester. In between the assessments, there were many meetings taking place that allowed for reflection, iteration, and adaptation. Figure 1 illustrates the iterative system created in Sobral.[55]

FIGURE 1. CYCLE OF ITERATION, LEARNING, AND ACTION IN SOBRAL

SoE holds meetings with all prinicpals to share the latest assessment results

Superintendenence team visits each school to help principals understand results

New assessment results are realeased

Principal and pedagogical coordinators meet to identify main problems

Six months later

SCHOOLS TAKE ACTION

Meeting with all teachers to share results and co-create strategies to address problems

Weekly meetings between the principal and ped. coordinators

Twice monthly visits from the School Superintendence team to each school

Weekly meetings with all principals, coordinated by the Superintendence

Monthly training of teachers to go over previous month and plan for next month

Twice monthly meetings with principal, ped. coordinators, and teachers

Periodic classroom visits from ped. coordinators to support teachers

Source: Author's illustration, adapted from INEP, 2015.

The structure of the meetings might give the illusion that the reform efforts were entirely planned and controlled from the top down. However, the system encouraged idea sharing and experimentation all the way down to the classroom level so long as each actor in the system remained committed to achieving the overall literacy goals. For example, teachers were given very detailed lesson plans for each class. However, "what was found when analyzing and discussing the evaluation results with the school pedagogical teams is that the common trait of successful teachers was an attitude of acceptance of the proposed method, properly tempered with autonomy and creativity. Those who resisted the method but did not propose alternatives, and those who followed it as a rigid prescription had the poorest results."[56] Teachers were thus encouraged to use the lesson plans as a foundation but to incorporate their own unique talents and ideas into each classroom lesson.

As noted earlier, school directors were given more autonomy, but they were also held more accountable for results. In the beginning, the frequent visits from the Superintendence teams received some resistance from principals and teachers, as they felt they were being inspected. However, the principals soon realized that the Superintendence team was fundamental to helping the school monitor its progress and come up with solutions to various problems as they arose.[57] Joan Edesson de Oliveira, the first Superintendent of the SOE in Sobral, noted that there was a shared responsibility that developed between school principals and the School Superintendence team. The principals knew that they needed to deliver results, but they also knew that the Superintendence team was there to support them.

Problem Solved: Improving Literacy Rates

Figure 2 shows the evolution of literacy rates in Sobral from 2001-2004 for students in the first two years of primary school (basic first grade and regular first grade). In 2001, only 33.7% of six-year-olds could read sentences and by 2004, this number increased to 88.9%. For seven-year-olds, the percentage of students who could read text with ease increased from 49.1% in 2001 to 91.7% in 2004.

FIGURE 2. EVOLUTION OF LITERACY RATES IN SOBRAL – (2001-2004, PERCENTAGE)

Basic First Grade (6-year-olds)   Regular First Grade (7-year-olds)
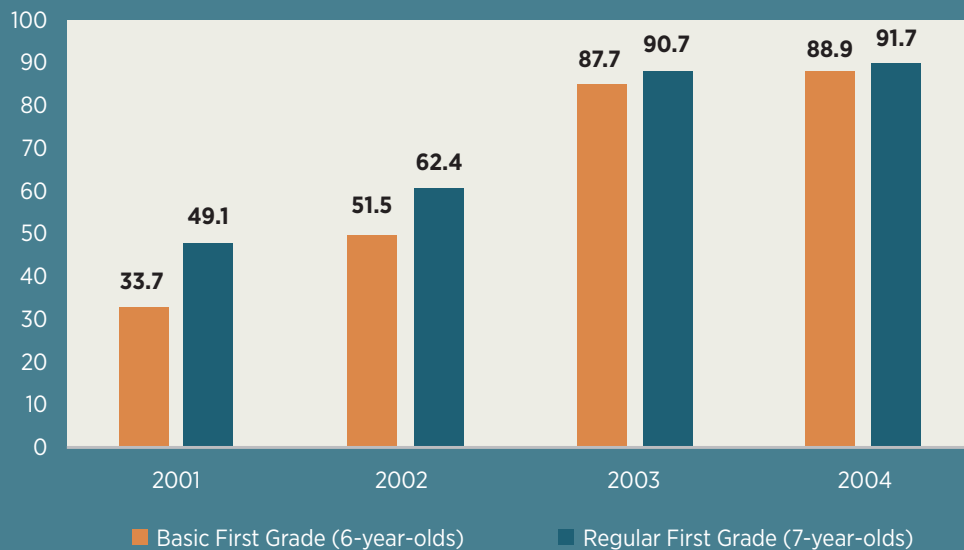
Source: Maia, "Aprendendo a marchar." For basic first grade, the "literacy rate" includes students who can read text or sentences with ease. For regular first grade, it only includes students who can read text with ease. For a complete breakdown, see Maia, "Aprendendo a marchar," 132.

Building Capabilities in Sobral and Beyond

The capabilities Sobral built during this time period allowed the municipality to become more ambitious with its goals and responsibilities. This is particularly salient with regard to external assessments. Between 2001-2004, external assessments were contracted out to an independent team. However, "from 2005 onwards, the municipality assumed the design and implementation of assessments and in 2009 it established an external unit (Casa da Avaliação) to manage all municipal evaluations."[58] While the municipality continued to assess literacy in early grades, the system has now expanded to test learning outcomes in mathematics and Portuguese.[59] Literacy is still seen as a foundational skill, but there is now more emphasis on promoting student learning in other subjects. The SOE has set its targets higher and now aims for Sobral's education network to be one of the best in Latin America.[60]

The story of Sobral's success has spread across Brazil and beyond. Andrews et al. (2016) sees this kind of success as positive deviance: "Ideas that are already being acted upon in the change context (they are thus possible), and that yield positive results (solving the problem, and thus being technically correct), but are not the norm (hence the idea of deviance)." As Sobral's success grew, many municipalities in Ceará began to view Sobral as a possible example of positive deviance. While no municipality in Ceará had the same initial conditions as Sobral, a municipality in Ceará likely has more in common with Sobral than a municipality in Finland or even in the south of Brazil.

Elements of Sobral's reform made their way to the state level in Ceará when Cid Gomes was elected governor in 2006. Starting in 2007, the state government under Gomes implemented "The Program to Achieving Literacy at the Right Age", which made literacy at Grade 2 a state-wide goal and provided new lesson materials and training to teachers to support this goal.[61] In addition, Ceará began implementing an annual literacy assessment of all second graders statewideanother policy which has roots in the experience of Sobral.[62] Ceará has also shown impressive improvement in its education results over the last two decades. As of 2020, Ceará's "combined reading and math outcomes adjusted for its economic status are the highest in the entire country at both the fifth and ninth grade levels."[63] In 2018, the Associação Bem Comum (Common Good Association) began a new program in partnership with the Lemann Foundation to support municipalities across Brazil to learn from and implement education management practices based on the experiences of Sobral and Ceará.[64]

Conclusion

Overall, the case of Sobral is an example of a reform that was truly problem-driven. The assessments in 2000 and 2001 drew attention to a significant literacy problem that received full attention from municipal leadership. By setting a clear literacy target for all second-year students, the entire education system understood the problem and what it would look like solved. The problem was then tackled deconstructing the issue into its root causes. A new pedagogy was developed, teachers were trained, principals were hired based on merit and given more autonomy, financial incentives were instituted, a Superintendence team was formed to monitor and support schools, and an external literacy assessment of all students twice per year was established.

The objective assessment data allowed all actors across the system to monitor their progress in addressing the problem. The many education reforms worked together to create a culture of experimentation, iteration, reflection, and accountability. Results were analyzed and ideas for improvement were shared between teachers and across schools. A spirit of shared responsibility developed between school staff and the SOE. And, by 2004, over 91% of second-year students could read text with ease. The goal of 100% literacy remained, but the SOE was now able to focus on other complex problems as well like low learning outcomes in Portuguese and mathematics. By addressing the illiteracy problem, Sobral's education system had built new capabilities and was now more capable than ever of working on solving future problems.

Acknowledgements

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Endnotes

1   Andre Loureiro and Louise Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions: The Case of Sobral in Brazil." (World Bank, 2020.) https://openknowledge.worldbank.org/handle/10986/34150.

2   Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

3   Sarah Johnson, "'People think it's magic': how one of Brazil's poorest cities gets its best school results." The Guardian. March 25, 2020. https://www.theguardian.com/world/2020/mar/25/people-think-its-magic-how-one-of-brazils-poorest-cities-gets-its-best-school-results

4   Matt Andrews, Lant Pritchett, and Michael Woolcock, "Doing Problem Driven Work." CID Working Paper No. 307. Center for International Development at Harvard University, 2015. https://bsc.cid.harvard.edu/files/bsc/files/doing_problem_driven_work_wp_307.pdf.

5   See PDIA Toolkit: https://bsc.cid.harvard.edu/PDIAtoolkit

6   See Samji and Kapoor (2022) for another case study on education reform told through the lens of PDIA.

7   For further reading about Sobral, see the following RISE Insight Note and blog.

8   Sobral Municipal Law 123, 1997

9   Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

10 Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

11 Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

12 Ilona Becskeházy, "Sobressaltos ou fortuna: As idas e vindas para tentar tirar a educação da idade das cavernas em uma terra desolada" ENAP. Casoteca de Gestão Pública, 2018b.

13 Maurício Holanda Maia, "Aprendendo a marchar: Os desafios da gestão municipal do ensino fundamental e da superação do analfabetismo escolar" 2006. 187f. Tese (Doutorado em Educação) – Universidade Federal do Ceará, Faculdade de Educação, Programa de Pós-graduação em Educação Brasileira, Fortaleza-CE, 2006. http://www.repositorio.ufc.br/handle/riufc/3652.

14 Ilona Becskeházy, "Institucionalização do Direito à Educação de Qualidade: O caso de Sobral CE" Universidade de São Paulo, 2018a; Becskeházy, "Sobressaltos ou fortuna."

15 Maia, "Aprendendo a marchar"; INEP, "Vencendo o desafio da aprendizagem nas séries iniciais: A experiência de Sobral/CE" (No 1; Projeto Boas Práticas na Educação). Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP), 2005.

16 Isolda Cela Arruda Coelho, "O excepcional modelo de educação da cidade de Sobral/ CE." UNDIME, 2005. https://undime.org.br/noticia/o-excepcional-modelo-de-educacao-da-cidade-de-sobral-ce

17 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais." The assessment also identified the reading level of students, starting with those that could read syllables, then words, then sentences, and finally full text. Research from Abadzi (2006) highlights that this process of recognizing sounds and reading words must be practiced and "automatized" before students can read for meaning. See RTI International (2015) for a further discussion on early grade reading assessments.

18   INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

19   INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

20   Lilia Asuca Sumiya, Maria Arlete Duarte de Araujo, and Hironobu Sano. "A Hora da Alfabetização no Ceará: O PAIC e suas Múltiplas Dinâmicas." Education Policy Analysis Archives/Archivos Analíticos de Políticas Educativas, vol. 25, pp.1-30. Redalyc. 2017. https://www.redalyc.org/articulo.oa?id=275050047029

21   See Maia (2006).

22   Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

23   INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

24   Andrews, Pritchett, and Woolcock, "Doing Problem Driven Work."

25   It is important to note that the authorities in Sobral only began this problem-driven approach as Gomes entered his second term as mayor. During his first term, the focus was largely on inputs (new schools, books, and teaching materials) and increased enrollment. It was only after it was clear that these efforts were not leading to improved learning outcomes that the authorities were open to trying a new, iterative approach.

26   Andrews, Pritchett, and Woolcock, "Doing Problem Driven Work."

27   Andrews, Pritchett, and Woolcock, "Doing Problem Driven Work."

28   Andrews, Pritchett, and Woolcock, "Doing Problem Driven Work."

29   Ilona Becskeházy and Paula Louzano. "Sobral: A case of educational success in the Semiarid Northeast" ComCiencia, 2019.

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40   Maia, "Aprendendo a marchar."

41   INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

42 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

43 Sumiya, de Araujo, and Sano, "A Hora da Alfabetização no Ceará."

44 Maia, "Aprendendo a marchar."

45 Sumiya, de Araujo, and Sano, "A Hora da Alfabetização no Ceará."

46 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

47 Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

48 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

49 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

50 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais," 45-46.

51 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

52 Andrews, Pritchett, and Woolcock. "Doing Iterative and Adaptive Work"

53 Center for International Development at Harvard University. "PDIA Toolkit," 2022. https://bsc.cid.harvard.edu/PDIAtoolkit.

54 Coelho, "O excepcional modelo de educação da cidade de Sobral/ CE."

55 See Muralidharan and Singh (2020) for an example of a school management program that failed in India. The paper shows that simply implementing assessments, action plans, and follow-up meetings does not guarantee success in learning outcomes. What might set the case of Sobral apart is that the reform started with a clear definition of the problem and a political commitment to change. The weekly meetings and classroom visits were also not seen as "checkbox" activities; there was substantial accountability for achieving results and corresponding incentives for staff.

56 Maia, "Aprendendo a marchar."

57 INEP, "Vencendo o desafio da aprendizagem nas séries iniciais."

58 Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

59 Loureiro and Cruz, "Achieving World-Class Education in Adverse Socioeconomic Conditions."

60 Lilia Asuca Sumiya, "Sobral e a garantia da aprendizagem de todas as crianças." São Paulo: Fundação Tide Setubal. 2019.

61 David Evans and Andre Loureiro. "Getting Education Right. State and Municipal Success in Reform for Universal Literacy in Brazil." World Bank Group, 2020.

62 Becskeházy, "Institucionalização do Direito à Educação de Qualidade."

63 Evans and Loureiro. "Getting Education Right."

64 See Aprimoramento na gestão educacional é foco de três programas and Programa Educar pra Valer