Brazil Human Capital Review
Investing in People

Executive Summary
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João has lived on the streets for as long as he can recall. Throughout his childhood, he never went to school, never had a proper roof over his head, nor anyone to call family: “Streets are my classroom, my shelter, and my comfort.” The generosity of strangers sometimes brings relief to his hunger, but only sometimes. The rest of the time, João uses his talent as a means to survive. Using half-broken materials in his usual strategic spot, he needs to be perfect: the portrait must be ready precisely when his unwitting model is walking past; a few seconds too late and all is lost. Alert, curious, and resilient, João never misses a detail. “This looks exactly like me!” says an old pedestrian beholding his new portrait. “But where does all this skill come from?” João is constantly asked. “From an empty belly,” is his typical answer. “Imagine if you had the opportunity to develop this talent, child…”

Not far away, Bela leaves her fourth job interview with a disappointing response. Once again, she is left with the same feeling: “I could have contributed so much!” The first of her family to go to college, the last to leave the study room, Bela was the most talented student of her cohort. She had excellent grades, glowing references, and even learned a foreign language on her own. “It seems so easy for others.” At home, she is the role model for her two little brothers. At school, she proved to her classmates that a Black woman can be an engineer. But when looking for jobs, she hears, “You do not have the profile we are looking for.” Flexible, Bela does not mind working long hours or travelling if necessary, but still she finds nothing. Sometimes she wonders if she should be listening to advice of others, “Maybe this is not for you, Bela.” But she has difficulty accepting this, “What if you are all wrong?”

The Brazil Human Capital Review (BHCR) is a story about lost talent in Brazil. It discusses the anecdotal “ifs” in the lives of João and Bela by analyzing the circumstances in which children are unable to realize their full potential. It poses the question: what would happen to labor productivity if Brazil were to offer quality education and health to every child, in every part of the country? It also asks: how can the gap between ideal circumstances and what is actually achieved be reconciled?
The BHCR was undertaken as a part of the Human Capital Project, a global initiative of the World Bank Group that aims to alert governments to the importance of investing in people. Evidence justifies this approach. For example, shocks in human capital a century ago due to settlement policies continue to have significant impacts on current development in Brazil. Analyzing trends in human capital accumulation also helps to explain why income inequality is historically high and points to why the average Brazilian remains in poverty over multiple generations.¹

The HCI estimates the future productivity of the next generation of workers. Measurement as a first step of action. The story of lost talent starts by using a new indicator to track progress towards human capital accumulation in Brazil at the municipal level: the Human Capital Index (HCI). The HCI estimates the expected productivity of a child born today by the age of 18 in a context where education and health conditions remain the same. This framework contributes to policy dialogue in fundamental ways. First, the HCI is a prospective measure. It calculates the expected productivity of the next generation of workers if current circumstances persist. Higher HCIs today mean higher labor productivity in the future. Secondly, it is straightforward: only key aspects of skills formation are considered. Third, the HCI has a clear narrative around lifecycle: at birth, children need to survive; during childhood, they need to be well-nourished; at school age, they must complete all schooling and active adequate learning levels; and in adulthood, they need to stay in good health. Fourth, the HCI is output-oriented. It combines mortality and stunting rates, expected years of school (EYS), harmonized learning outcomes (HLO),² and adult survival rates in a single index to emphasize outputs rather than inputs. Fifth, the HCI has a clear and simple objective. It does not intend to measure social welfare or to summarize any intrinsic value in human life, but rather proposes an estimate of future productivity if current conditions persist.

![Figure ES.1 The Human Capital Index](image)

The estimates produce a simple final result: the HCI ranges between 0 and 1. A location where an average child has no risk of being stunted or dying before the age of five, receives high-quality education, and becomes a healthy adult, would have an HCI close to 1. Conversely, when the risk of being ill-nourished or prematurely dying is high, access to education is limited, and quality of learning is low, the HCI would approach zero. Measurement as a first step of action. The first key message of this report is that an average Brazilian born in 2019 achieved 60 percent (HCI of 0.60) of their potential human capital by the age 18. Forty percent of all talent in Brazil is undeveloped and invisible to society.

¹ Rocha et al., 2017; Souza, 2018; Hanushek, Ludger, and Woessmann, 2012; OECD, 2018.
² The expected years of school (EYS) is the expected number of years in school that a child achieves by age 18 if repetition and dropout rates remain unaltered across basic education. The harmonized learning outcomes (HLO) averages the fraction of students scoring above advanced thresholds in mathematics and Portuguese using Sistema de Avaliação da Educação Básica (SAEB) data.
**Many Brazils.** However, the national average only tells us a minor part of the whole story. An HCI equal to 60 percent hides local and regional inequalities in human capital accumulation. Disaggregating the HCI at the municipal level reveals a second key message: *many Brazils coexist inside Brazil*. Mapping the HCIs produces a clear snapshot of regional inequality in Brazil: children born in municipalities in North and Northeast Brazil develop approximately half of their full potential talent – or 10 percentage points (0.1 HCI points) less than an average child in a municipality in the Southeast.³

One illustration of "many Brazils" can be found in Rio Grande do Sul (South). In this state, 250 kilometers and 0.3 HCI points separate Santa Tereza (HCI 0.767) and Engenho Velho (HCI 0.472). **Relatively close geographically but far apart in terms of human capital formation.** Similarly, in the Northeast, the city of Ibirataia in Bahia has an HCI equivalent to Gabon, while Cocal dos Alves (HCI 0.74) in Piauí topped the national rank 2019 with an HCI comparable to Italy. The education component explains two-thirds of this variation in municipal HCIs. 77.3 percent only in the Northeast.

![Many Brazils](image)

**Figure ES.2 Many Brazils**

**Better but Unequal.** While the idea of "many Brazils" captures the disparities in future productivity at a given point in time, a missing part of our story relates to the evolution of human capital formation in Brazil. Investigating this aspect brings us to the BHCR’s third key message, which is that even if the HCI of Brazil continues on the same trajectory of growth seen between 2007 and 2019, it would take 60 years to reach the 2019 HCI scores of developed countries. **There is no time to waste.** Data shows

³ In 2007, the expected years of schooling was the main factor explaining HCI variation, losing importance to harmonized learning outcomes in the following years (2013-2019).
that human capital progress has been slow, unbalanced, and unequal. This leaves the question: does the map of “many Brazils” represent an improvement or deterioration of human capital in recent years? The following three questions expand the issue in an attempt to map the characteristics of HCI growth in Brazil.

Are low-performing regions catching up to regions with higher HCI levels? The short answer is, in general, no. Gains have been limited, and regional inequality persists. For example, the average 2019 HCI in the North and Northeast regions is similar to the average 2007 HCI in the South, Southeast, and Center-West, which represents a 12-year regional gap. Better but unequal. At the municipal level, the situation is slightly better. Municipalities that were originally behind in 2007 tended to improve more quickly. To be precise, an HCI score that was one percent lower in 2007 correlated with a 0.5 percent higher gain in HCI between 2007 and 2019. This pattern was also found in state capitals. State capitals at the bottom of HCI rankings in 2007 tended to have higher gains in the following 12 years compared to those that were ranked at the top. Starting behind but improving faster.

Better but Unequal
Human Capital Indexes by Region from 2007 to 2019

Figure ES.3 Better but Unequal

Are these HCI gains in Figure ES.3 geographically concentrated? The most notable HCI growth was concentrated among municipalities in the Northeast, particularly in the states of Pernambuco (25.6 percent gain), Alagoas (20.9 percent gain), and Ceará (20.9 percent gain). Very few areas in the South and Southeast witnessed similar growth. The North was the lowest performer, and municipalities located in Amapá, Roraima, and Tocantins in particular showed the lowest improvements in HCI scores. Children in the North are not only behind but are accumulating human capital at a slower pace.
Do top-ranking municipalities remain at the top 12 years later? The last question addresses HCI mobility. Data shows that at least 40 percent of all 5,570 municipalities in Brazil stayed in the same HCI quintile between 2007 and 2019. Additionally, less than 0.5 percent of the municipalities climbed from the bottom to the top or fell from the top to the bottom quintiles. Once at the top, almost always at the top. Of all the municipalities, 11.3 percent (of a 20 percent maximum) of those in the top quintile in 2007 remained at the top in 2019. Similarly, 10.9 percent of the municipalities (of a 20 percent maximum) that were in the lowest quintile in 2007 remained at the bottom in 2019. These results indicate that most of the human capital mobility in Brazil occurs in the middle of the HCI distribution.

Many Inequalities. Geography and time give a rough outline of the face of the “many Brazils.” Understanding the underlying barriers to human capital formation in Brazil requires further investigation. Therefore, the next part of the BHCR looks at gender, race, and race–gender inequality. Many Inequalities. The positive trajectory in HCI accumulation loses significance if the opportunities to flourish are significantly unequal among different groups of people and if inequalities are widening over time.

The first inequality examined is gender. Here, the key message is that women accumulate more human capital than men by the age of 18. On average, women’s HCI is 7 percentage points higher than men’s (0.60 vs. 0.53). While men’s expected productivity at age 18 in 2017 was 54 percent of their full potential, women’s HCI had already reached 56 percent ten years earlier (2007). Women are at least a decade ahead of men. This is not an isolated finding: women have higher HCIs than men in virtually all municipalities in Brazil. Not just better, better everywhere.

Women reach the labor market with higher human capital than men.
The second inequality investigated is race. A narrative about unshared prosperity breaks racial HCI disparities into three parts. Part 1 measures the racial differences in HCI levels between 2007 and 2019. The expected productivity of an Afro-descendant child born in 2019 was found to be 56 percent of their full potential, or 7 percentage points less than a white child (63 percent) on average. For the Indigenous population, the HCI was even lower at 52 percent in 2019.

Part 2 relates to the rate of HCI gains. The fourth key finding of the BHCR is that the Human Capital Index for white people increased at a faster pace than for any other race group in Brazil. **Unshared Prosperity.** The average increase in HCI for white people between 2007 and 2019 reached 14.6 percent. The improvements among Afro-descendants and Indigenous, on the other hand, were substantially less pronounced. Black people’s HCI increased by 10.2 percent and Indigenous’ remained virtually unchanged with a slight growth rate of 0.97 percent over the same period. **While white people continue to prosper, Black and Indigenous people are falling behind.**

The different baseline levels and diverging improvements lead this narrative to Part 3: the overall widening of HCI inequality. The HCI gap between white and Black people, which was 0.04 HCI points, almost doubled in size 12 years later. Gaps that were already large are becoming larger. This was not the most critical finding, however. Between white and Indigenous people, the HCI gap nearly tripled over the same period, representing a gap that increased by 0.06 HCI points every year. This three-part narrative of unshared prosperity should transform into a narrative of successful inclusion.

**Talent at Work.** The story of human capital begins a new phase when it reaches the labor market where it is utilized, put into action, and absorbed. The Utilized Human Capital Index (UHCI) is an adjusted index that weights the HCI by employment rates in the formal and informal labor markets. The goal is to show how much human capital is actually utilized by the labor market. **White-Black HCI inequality doubled from 2007 to 2019.**

The UHCI in 2019 was estimated at 38 percent in Brazil. In other words: Brazil loses 22 percentage points of all productivity achieved when human capital reaches the labor market.
The labor market deepens the inequalities observed in HCl. Geographic disparities enlarge, intensifying many Brazils. In the North and Northeast regions, two-thirds of all accumulated potential is unutilized after weighting the HCl by employment rates. Gender gaps also expand, and the many inequalities widen. The fifth key finding of the BHCR relates to gender gaps: the seven-point HCl advantage for women becomes an eight-point advantage for men in the UHCI. The labor market reverses women’s advantage over men in human capital formation. In this context, Afro-descendant women are penalized twice due to their gender and their race. Afro-descendant women score 15.7 percentage points lower in the UHCI than white men. The labor market has a significant negative effect on human capital utilization, especially for Afro-descendant women.

“Today, February 26th, 2020, Brazil confirms its first case of COVID-19...” João sneaked into a TV shop to hear about the new virus everyone was talking about. “An unknown virus has arrived...” He only fully understood the news when the effects of the virus became visible to him: “there are no people on the streets,” he thought to himself. As his usual spot for drawing was now deserted, João felt for the very first time, hopeless. “At least I am not alone.” João met Raoni at a traffic light holding a sign that said, “Hungry.” Since then, João holds one that says, “Me too.” Unconfident, unmotivated, and insecure, Raoni barely speaks. All João knows is that Raoni’s mother and older brother left home coughing and never returned. “I feel invisible, like the virus,” Raoni once said. Always together, the two come up with the perfect plan that will solve all their problems: when the traffic light turns red, João will reveal his most profound drawing that reads, “Use it!” while Raoni distributes donated masks to all drivers that pass by for free.

When schools closed, Bela made a decision: she would never let the pandemic interrupt the education of her little brothers. “Studying is the only option they have for a better life,” she thought. Bela is a dedicated sister: she used all of the teaching materials she could find, prepared creative classes on her
own, and searched for extra exercises. Determined, she crafted new toys, used her own phone for their online classes, and tried innovative ways to engage her brothers. "But schools have been closed for so long..." Bela said to herself. One brother does not want to return to school and the other is uninterested, never opening his books by himself. He turned 10 last month and is still unable to read a simple paragraph without her help. "If nothing is done, this pandemic will have long-lasting consequences on their lives."

An Interrupted Story. The story of human capital accumulation in Brazil stops abruptly in 2020. The ongoing COVID-19 pandemic has had devastating impacts at every stage of skills formation. The future outlook of HCI in Brazil is beyond alarming. In terms of child health for example, more 3.5 out of 10,000 children did not survive to the age of five in 2021 compared to 2019 in Southeast Brazil. In the Northeast, the child survival rates are now stagnant whereas before the pandemic they had been the fastest growing. Additionally, about 80,000 children might become stunted in Brazil.

In terms of education, schools remained closed for 78 weeks during the pandemic, which was one of the longest closures in the world. Consequently, the proportion of children who do not read and write jumped 15 percentage points between 2019 and 2021. It is estimated that nearly one million more children do not have basic literacy skills in Brazil. Scores on state tests have also suffered. In the state of São Paulo, the 2021 scores of fifth graders in Portuguese and math were equivalent to test scores recorded 10 and 14 years ago, respectively. School dropout is yet another major area of concern as it is expected to increase by 365 percent (Lichand, 2020). Significant impacts for an entire generation.

The Lost Decade. In two years, the COVID-19 pandemic reversed a decade’s worth of HCI progress in Brazil. According to simulations, the Brazilian human capital index fell from 60 to 54 percent between 2019 and 2021, which is equivalent to pre-2009 HCI levels. The Lost Decade. The two largest contributing factors to this setback were: (i) education, as 50 percent of this decrease was related to expected years
of school; and (ii) adult health, as another 30 percent was due to decreases in adult survival rates. These impacts varied per region. The worst decreases were estimated in Roraima, Goiás, São Paulo, and Pernambuco where the HCI fell by 11 percent, and 13 states (out of 27) in Brazil returned to their 2007 HCI levels. Shocks in employment rates inflicted by the pandemic have aggravated this already concerning situation. The national UHCI fell from 0.38 in 2019 to 0.32 in 2021, which is a drop of more than 17 percent. These effects were even greater for Afro-descendants and women. \textit{Many inequalities, many pandemics.}

\begin{figure}[h]
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\includegraphics[width=\textwidth]{images/figure_ES8.png}
\caption{The Lost Decade}
\end{figure}

\textbf{The Lost Decade}

\textit{Estimated Impacts of COVID-19 Pandemic on the HCI in Brazil}

There is a long road to recovery. If the pre-pandemic rate of HCI growth were to be maintained, it would take Brazil 10 to 13 years to return to 2019 HCI levels. In other words, Brazil would only reach the 2019 HCI level in 2035. \textit{Action, more than ever, cannot be postponed.} In the short-term, current human capital policies that have proven to be effective should be revisited, adapted, and strengthened to recover from this crisis. Brazil’s national health service (\textit{Sistema Único de Saúde}, SUS), for example, must shield children and teenagers from health and socioemotional consequences of the pandemic. Because preexisting inequalities have tended to worsen with the pandemic, the Brazilian conditional cash transfer program, known to be one of the most successful in the world, should be strengthened to support the groups of people who were more heavily affected by the COVID-19 pandemic.\textsuperscript{4} Recent national reforms in education financing\textsuperscript{5} and in the curriculum\textsuperscript{6} should be maintained and reinforced. \textit{Successful policies must be leveraged.}

\begin{itemize}
\item \textsuperscript{4} The BHCR shows that conditional cash transfer programs can play a significant role in improving expected years of school and not-stunting rates.
\item \textsuperscript{5} Fundo Nacional de Desenvolvimento da Educação Básica (FUNDEB)
\item \textsuperscript{6} Base Nacional Curricular Comum (BNCC) and Novo Ensino Médio.
\end{itemize}

\textbf{If the pre-pandemic HCI growth rate were to be maintained, Brazil would need 10 to 13 years to return to 2019 HCI levels.}
If the impacts of COVID-19 on human capital in Brazil have been largely through education, learning recovery and acceleration should be a priority in the coming years. First, and foremost, all students must return to school. For that, Brazil should take advantage of its rich administrative data available to: (i) monitor missing students that dropped out during the pandemic, (ii) provide scholarships to entice students to return to school, and (iii) expand active search programs to bring students back to school. Because vulnerable children are more likely to drop out again, schools can implement early warning systems in order to identify high-risk students and undertake preventive measures while they are still at school.

Learning recovery and acceleration should be the highest priority in the coming years.

Once back in school, students must (re)learn effectively. Learning recovery and acceleration should be the highest priority. Evidence has shown that personalized tutoring and adaptive learning platforms are strong short-term strategies for a solid recovery. However, the legacy of the COVID-19 pandemic has an extra element: students’ and teachers’ mental health. Unmotivated students rarely learn well or stay in school for long. For this reason, socioemotional strategies should be articulated at the school-network level as they produce benefits for students, families, and teachers alike. Finally, strengthening hybrid learning, expanding internet connectivity, providing computing devices for vulnerable students, and enhancing digital skills should be on the same list of priorities.

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<tr>
<th>Table ES.1 Areas That Need Special Attention in Education</th>
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<tr>
<td><strong>Short-Term Recovery</strong></td>
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<td>Student active search: Active search of missing students</td>
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<tr>
<td>Early warning system: Identifying students at high risk of dropping out</td>
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<td>Conditional cash transfer programs: Immediate poverty relief</td>
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<td><strong>Long-Term Recovery</strong></td>
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<td>FUNDEB: Education financing with focus on equity</td>
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<td>Family health strategy: Primary healthcare provision</td>
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<td><strong>Equitable Recovery</strong></td>
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<tr>
<td>Geographic focus: Most vulnerable areas (North and Northeast)</td>
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<td>Group focus: Afro-descendent women and people with disability</td>
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<tr>
<td>Inclusion: Access to internet and computing devices; inclusive education</td>
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<td>Labor market: Access for women, Afro-descendants</td>
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<td><strong>Replicating Successful Cases</strong></td>
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<td>Collaborative planning</td>
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<td>Government and team engagement</td>
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Some interventions have the potential to improve human capital in the mid and long term. To identify policy drivers associated with human capital accumulation across years, the BHCR analyzed municipal HCIs in relation to their local characteristics and policies. Policies that expanded full-time schooling and reduced teenage pregnancy seemed to be associated with higher education component scores in the HCI. Likewise, anti-violence policies, particularly those focused on reducing homicide rates, seem to be a promising means of improving adult survival rates. Moreover, the exercise showed that adult educational attainment is linked to improvements in child health indicators and learning outcomes.

To emerge stronger from this human capital crisis, Brazil needs to learn from itself. Solid long-term recovery entails replicating good practices. “Many Brazils” can be seen as an opportunity to identify different means of promoting human capital as municipalities have a level of autonomy to pursue their own solutions for improvement. Understanding why some municipalities have been consistently improving human capital and attempting to replicate their success will be vital in the following years. The state of Ceará⁷ and the municipality of Sobral⁸ are well-known examples of success in primary and lower secondary education. Pernambuco and Cocal dos Alves are yet another two models for upper secondary education policies. Brazil should take advantage of the diversity of effective policies among states and municipalities.

Sustainable recovery and acceleration require resilient public systems. Governments must always be prepared to overcome unexpected challenges or face upcoming health and climate crises. Resilient public systems are able to quickly adapt their programs, design better policies, and make better-informed decisions. With this idea in mind, the BHCR surveyed positive outliers among Brazilian municipalities to screen for cost-effective interventions. This survey identified five good practices at the local level. First, these municipalities all used collaborative planning with working groups or thematic councils to address local problems. Second, public consultations were used to monitor and follow-up on activities that were planned over multiple years. Third, staff were hired for data entry and monitoring. Fourth, governments established and widely disseminated clear goals on health, education among others. Fifth, there was a wide implementation of federal programs that contributed to monitoring service delivery.

Human capital is the engine for change. It is the key that unlocks equitable and inclusive prosperity. The BHCR is a story in which children are the protagonists. João and Raoni in the streets and Bela and her brothers at home exemplify the enormous amount talent that has been historically undeveloped and unutilized in Brazil. Many Brazils, unshared prosperity, many inequalities, and talent at work are parts of this story that Brazil cannot afford to ignore. Mitigating the effects of the lost decade must be a priority in the political agenda and should be seen as an opportunity to make Brazil an equal and prosperous country. This will be a whole-of-government endeavor and society must be on the same page so that immediate progress can be made. The future starts today.


How much talent is lost in Brazil because of unideal education and health conditions? The Brazil Human Capital Review is part of the Human Capital Project, a global initiative of the World Bank Group that aims to raise attention on the importance of investing in people. Its focus relies on the conditions hindering children to flourish their potential labor productivity in Brazil. As a first step, this report proposes the Human Capital Index (HCI) to estimate the expected productivity of a child born today by the age of 18 when education and health conditions remain unaltered. Or simply, the HCI estimates the productivity level of the next generation of works. The results are alarming.

A Brazilian child born in 2019 was only able to achieve 60 percent of all their full potential. That is, forty percent of all talent remains invisible to Brazilian society. Disaggregating the national index shows that many Brazils coexist. In the North, children develop about half of their full productivity, 10 percentage points less than the Southeast. In the Northeast, some municipalities reach HCIs similar to developed countries while others are close to African countries. In general, women accumulate more human capital than man by the age of 18, white-black HCI differences are high and enlarging. After weighting the HCI by employment rates, Brazilians only achieve 38% of their full potential. The COVID-19 pandemic, in turn, made the human capital index to be 54 percent in 2021, a loss equivalent to a decade of progress. If the pre-pandemic pace is maintained, Brazil would only reach the 2019 HCI level by 2035.

How can Brazil recover from a decade lost in terms of human capital formation? Mitigating the effects of the pandemic should be a priority. In the short-term; Brazil should: (a) adapt and strengthen policies already in place that have proven effects on human capital; (b) use the national conditional cash transfer program to support those more heavily affected by the pandemic; and (c) set as utmost priority a learning recovery and acceleration plan for the coming years. This strategy might: (i) bring students back to school; (ii) guarantee that vulnerable students stay in school; (iii) relearn effectively; not forgetting (iv) socioemotional effects. Building resilient school networks and replicating its own cases of success seems good alternatives for Brazil. The future starts today.