

Leveraging market-creating innovations to solve Brazil's Education Paradox

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Executive Summary

Brazil spends more money, and a higher percentage of its Gross Domestic Product (GDP), on education than other Latin American countries. However, many of the outcomes of the country's education system are worse than its peer countries. We call this mismatch Brazil's Education Paradox.

One of the primary reasons for Brazil's Education Paradox is the country's decentralized education system. Municipal, state, and federal governments handle different parts of the education system with little to no coordination among them.

Although the Brazilian government is aware of this and working hard to rectify the situation, much of the government's efforts are hampered by political, social, and economic setbacks. For instance, since 2013, the government has been working on enacting a law that would create a National Education System to improve coordination among the different levels of education. But the government's plans are still mired in heated debates and disagreements.

Thankfully, market-creating innovations can play a significant role in helping Brazil improve its education system. These innovations are unique for their ability to transform complicated and expensive products into simple and affordable ones—thereby making the products accessible to more people in society. Education-focused market-creating innovations are spreading across Brazil and improving learning outcomes despite the government's inability to rapidly solve its Education Paradox.

This paper highlights the work that four market-creating innovators—Mind Lab, eduK, Descomplica, and Árvore Educação—are doing to improve learning outcomes in Brazil. In addition to working to create a national education system in Brazil, the government should invest in market-creating innovations that have the potential to create significant impact on the economy. By doing so, Brazil can, once and for all, solve its Education Paradox.



Introduction: Brazil's Education Paradox

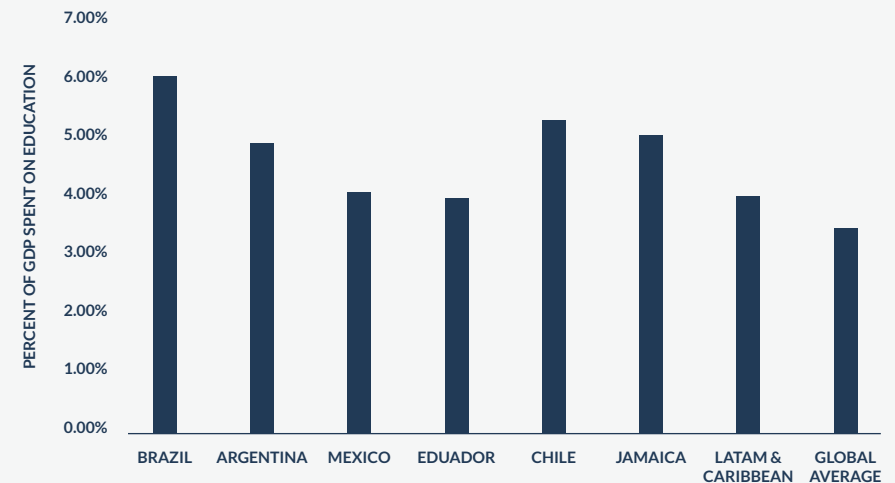
Brazil currently spends more than \$88 billion or approximately 6% of its gross domestic product (GDP) on education; that's two percentage points more than its Latin American neighbors.¹ Yet, not only are Brazil's learning outcomes lower than its Latin American peers, but its schooling infrastructure, teacher satisfaction, and graduation rates are also worse.²

FIGURE 1. Brazil at a glance

Brazil at a Glance	
Population	214 million
Gross domestic product (GDP)	\$1.44 trillion
GDP per capita (PPP)	\$14,835.42
Government expenditure on education (% of GDP)	6.1%
Number of students in Brazil's basic education system	47.9 million
Unemployment rate	13.67%

Sources: "Brazil: Total Population from 2016 to 2026," Statista, accessed March 14, 2022, <https://www.statista.com/statistics/263763/total-population-of-brazil/>; "GDP," The World Bank, accessed April 14, 2022, <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>; "GDP per Capita, PPP (current international \$) - Brazil," The World Bank, accessed April 14, 2022, <https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?locations=BR>; "Government Expenditure on Education, Total (% of GDP)," The World Bank, accessed March 14, 2022, <https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS>; "Chapter 1: The Brazilian Education System," in *Education in Brazil: An International Perspective*, OECD iLibrary, June 30, 2021, <https://www.oecdilibrary.org/sites/60a66717-en/1/3/1/index.html?itemId=/content/publication/60a66717-en&csp=ec786a197173ee6cbbf14e60dbc8c743&itemGO=oe.cd&itemContentType=book#sectiond1e2439>; "Brazil: Unemployment Rate from 1999 to 2020," Statista, accessed March 14, 2022, <https://www.statista.com/statistics/263711/unemployment-rate-in-brazil/>.

FIGURE 2. Percent of GDP spent on education



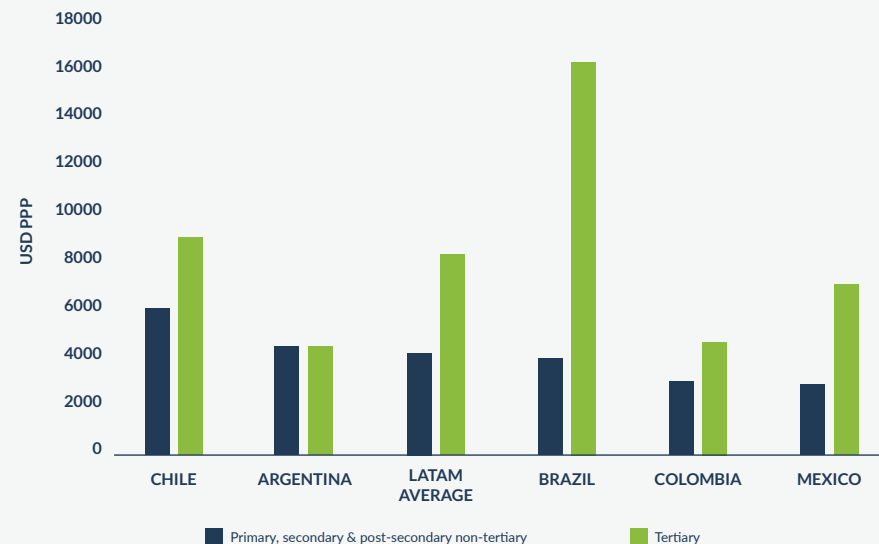
Sources: "Government Expenditure on Education, total (% of GDP)," The World Bank, accessed March 14, 2022, <https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS>.

Introduction: Brazil's Education Paradox (continued)

For example, Brazil lags behind other Latin American countries when it comes to net enrollment in secondary school, tertiary education attainment rates, grade repetition, and several other education metrics.³

We call this Brazil's Education Paradox: despite the country's comparatively high spending relative to its peers, it achieves low-performance outcomes. To be clear, when compared with OECD countries, Brazil spends significantly less on education and should increase its education investments. However, this paper focuses on the efficacy of Brazil's education expenditure relative to its

FIGURE 3. Government direct expenditure on public educational institutions per full-time equivalent student in USD PPP by education level, 2017



Sources: Reprinted from "Chapter 4: Funding and Resources for Education" in *Education in Brazil: An International Perspective*, https://www.oecd-ilibrary.org/sites/60a667f7-en/1/3/4/index.html?itemId=/content/publication/60a667f7-en&csp_=ec786a197173ee6cbf14e60dbc8c743&itemGO=oeecd&itemContentType=book#figure-d1e15147.

Latin American peers. Brazil's relatively underwhelming results (relative to its peers) and its low investments (relative to OECD countries) further underscores the importance of leveraging a more innovative strategy (see *A Better Strategy with Market-Creating Innovations*).

Although Brazil has increased enrollment in primary and secondary school over the past few decades, actual learning is straggling. Since 2009, for instance, Brazil's test scores for reading, mathematics, and science haven't increased much, especially when compared with the Organization for Economic Co-operation and Development (OECD) average.

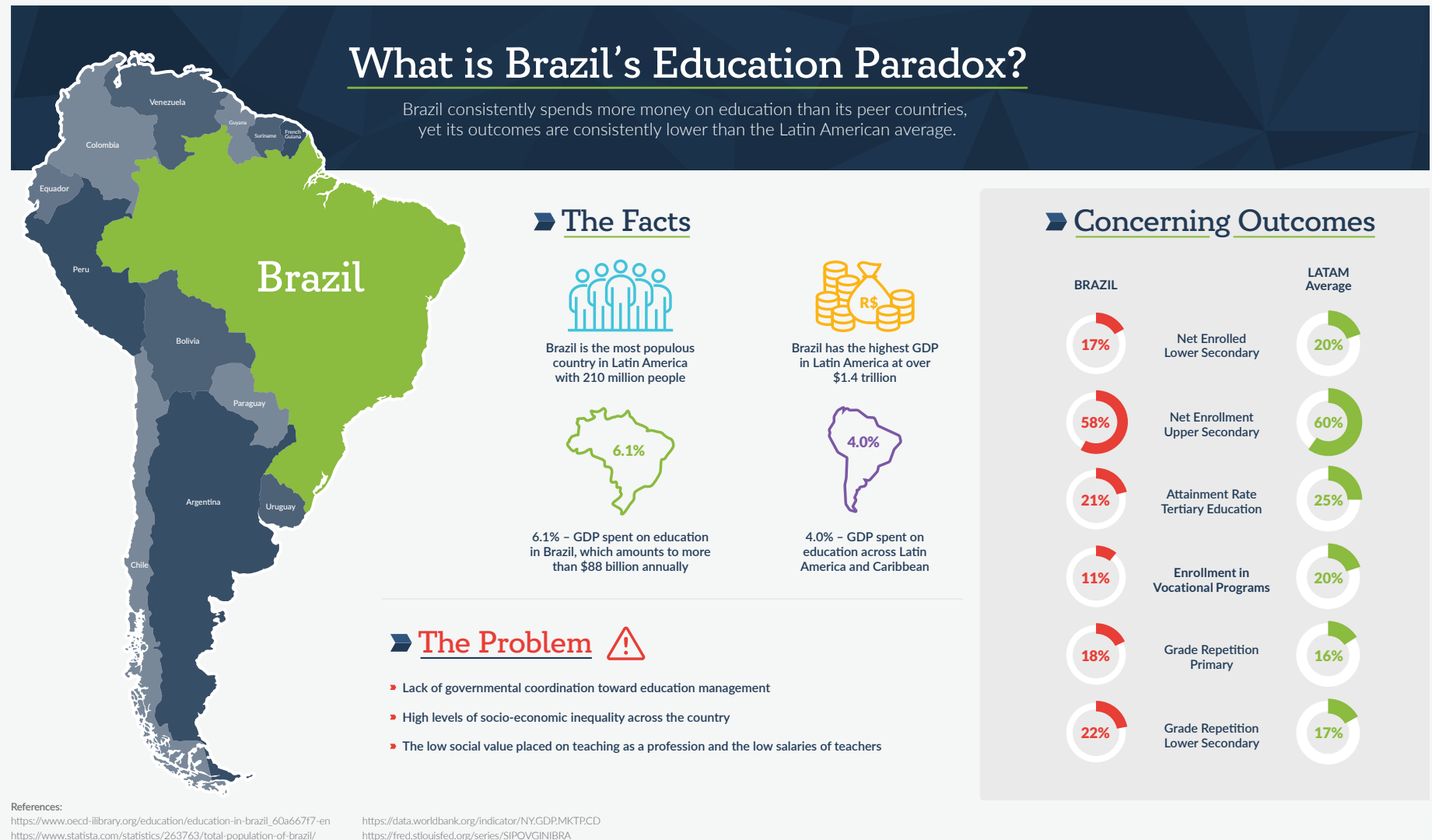
The consequences of Brazil's Education Paradox are severe. Not only does the country fail to get an appropriate return on its education investment, but it also diminishes the perceived value of education. Almost 30% of students fail to transition from elementary to high school due to a lack of interest, and 25% of Brazilians aged 15 to 24 are neither in school nor employed.⁴

Poor education attainment rates across the country are perhaps the most significant contributing factors to its economic turmoil. Since 2012, unemployment in Brazil has more than doubled from about 6% to 14%. Worse is the fact that almost 6 million people have given up looking for a job because they didn't believe they could find one. These factors have resulted in the continuous decline of Brazil's productivity. Today, approximately 55% of Brazilians earn below the minimum wage.⁵ These numbers are unsustainable as the country continues to deal with the economic and social fallout from the COVID-19 pandemic.

Brazil's education, employment, and subsequent economic woes are not for lack of effort, however. In the country's constitution, education is free at all levels and the government consistently prioritizes schooling. Yet, progress remains slow.

Introduction: Brazil's Education Paradox (continued)

FIGURE 4. Brazil's Education Paradox



Diagnosing Brazil's Education Paradox: Modular Solutions for an Interdependent Problem

The design of Brazil's education system is a major contributor to its Education Paradox. To illustrate, we must first explain Modularity Theory.

Modularity Theory is a framework for understanding how to piece together different elements of a system in order to achieve different goals.

A system can be modular when there are no unpredictable interfaces between the elements in it. In other words, different elements of the system fit and work together in crisp and well-understood ways. In such systems, the connecting interfaces between elements are specifiable, verifiable, and predictable, which enables different elements to plug and play.

In contrast, an interdependent system is one where a change to one element in the system affects or necessitates a change to the entire system. Interdependent systems are required when the performance of a product or service isn't yet good enough for the majority of users.

For example, in the infancy of the mainframe computing industry, mainstream customers were not satisfied with the functionality and reliability of the products on the market. In addition, there were no predefined standards that connected one component to another—operating system to hardware design, for instance.

As a result, most companies who wanted to compete couldn't simply choose to design or manufacture just one or two components. In their book, *The Innovator's Solution: Creating and Sustaining Successful Growth*, late Harvard professor Clayton Christensen and Deloitte managing director Michael Raynor put it this way, "You could not have existed as an independent supplier of

operating systems, core memory, or logic circuitry to the mainframe industry because these key subsystems had to be interdependently and iteratively designed."⁶

To be successful in this market, companies had to wrap their arms around, or integrate, multiple components—operating system, hardware design, assembly, product design, and so on.

The cycle repeated itself with minicomputers and personal computers. The companies that dominated those industries in their infancy—Digital Equipment Corporation for minicomputers and Apple for personal computers—developed proprietary and interdependent architectures that were designed to maximize performance.



Diagnosing Brazil's Education Paradox: Modular Solutions for an Interdependent Problem (continued)

This wasn't simply a computer industry phenomenon, however. The same thing happened in the automobile industry. Ford and General Motors dominated for decades in the auto industry because they developed integrated systems. Ford, for instance, built and managed steel mills, iron ore mines, glass and paint factories, and even invested in distribution to get the Model T car to mainstream customers.⁷

These industry examples help illustrate that when performance—typically reliability and functionality—isn't good enough, organizations should build interdependent systems. By integrating to solve a particular problem, they can increase the coordination necessary to improve the performance of the product or service.

The performance of Brazil's education system is currently not good enough, especially when compared with its Latin American peers, even though the system is designed in a highly modular manner.

According to an OECD report on the Brazilian education system, "Brazil has a complex governance structure, reflecting in part its size and diversity. ...Brazil still lacks a national system that clearly outlines and harmonizes the roles and responsibilities of the different levels of government, laying out the ways in which they should work together to deliver education policy. ...This lack of coordination often leads to overlap or duplication of work, inefficiencies, and gaps in education provision."⁸

In essence, Brazil has divided its education system into different components, and authorities at different levels of government manage unique aspects of the system without a clearly defined collaborative interface. Municipalities,

for instance, are responsible for early childhood and primary education, while the states are responsible for secondary education. As a result, there's little coordination among the many agencies and entities in charge of the system.⁹

However, leaders in Brazil are aware of the nation's Education Paradox and are working hard to solve it. Since 2014, education stakeholders, including legislators, advocacy groups, and nongovernment organizations, have been working on enacting a law that would create a National Education System to solve the coordination problem.

Some of the objectives of the National Education System are to "promote common educational guidelines throughout the national territory...define and guarantee common educational purposes...and to reinforce the federal government's role in promoting articulation, standardization, coordination, and regulation of public and private national education."¹⁰

Yet, this goal of creating a national coordinating interface to standardize many of the activities in the education system has been difficult to realize. To this day, many of the core ideas proposed by the National Education System haven't been implemented and still elicit "heated debates between government entities, civil society, and the general public."¹¹ The political, economic, and social obstacles to implementing a national education system in Brazil are proving difficult to overcome for Brazil's leaders.



Shifting the Paradigm: Push Versus Pull Strategies

Many government programs—especially those in education, health, infrastructure, and social services—implement what researchers at the Christensen Institute call a push strategy.

Push strategies are often driven by the priorities of their originators, typically experts in a particular field of development, and generate solutions that are recommended to communities that lack access to a particular resource such as schools, hospitals, etc. It's important to note that many of the resources pushed are designed to be helpful and are often welcomed by communities.

Unfortunately, they're usually pushed into a context that isn't quite ready to absorb them. And that can quickly turn what started out as a good thing into something profoundly disappointing. For example, to solve India's sanitation problem, the government created a Clean India initiative to build tens of millions of toilets across the country. By 2015, the government had built more than 10 million toilets, and an additional 60 million would be added by 2019. By mid-2015 however, the government found that a majority of the toilets were not being used and it had to come up with ways to incentivize people to use the free toilets.

Brazil's planned National Education System is also a perfect example of this strategy in action. It is incredibly well-meaning, but difficult to execute considering the country's political and economic context.

By contrast, pull strategies are originated by people on the ground—often innovators—who are responding to the struggles of everyday people experiencing specific problems. As the innovators on the ground design and develop their solutions, they pull in the appropriate resources needed to bring these solutions to the community. Because these solutions take into consideration the local context, they are more relevant to those for whom they are designed.

Shifting the Paradigm: Push Versus Pull Strategies (continued)

Consider how Matias Recchia's IguanaFix approached the problem of formalization of businesses in Latin America. According to the International Labor Organization, more than 130 million workers in Latin America are part of the informal sector.¹² These workers neither have access to social protection nor workers' rights. In addition, most of them are unable to access financial services to invest in their businesses.

Providers of home and office improvement services, such as plumbers, carpenters, electricians, and other specialists are examples of professions that have largely remained informal despite government programs and existing laws that mandate people to register their business, pay taxes, and abide by various regulations. For years, governments executed programs designed to get small businesses and independent workers to formalize. Most largely failed as they were pushed by experts who didn't understand the context of many small businesses.

In 2013, Matias Recchia founded IguanaFix, a marketplace for home and office improvement providers. Joining the platform meant providers could get access to bigger jobs and lines of credit that would ordinarily not be available to them. As a result, tens of thousands of home and office improvement workers who had never found a reason to register (or formalize) their businesses joined a waiting list for IguanaFix.

Although his goal was not to solve the formalization problem per se, in order to join the platform, users had to formalize their businesses. Recchia and his team understood the struggles of people on the ground and pulled in the necessary resources to create a solution for them. Their solution was more effective than the many government programs pushing the concept of formalization on citizens.

A similar approach that leverages the power of innovators on the ground could help Brazil overcome its Education Paradox. However compelling the idea of creating a National Education System to help Brazil better manage its schools, teachers, and students might seem, the reality of implementing it in the context of a complex democracy is challenging. In the meantime, schools, municipalities, and states can leverage innovations to help improve the performance of their respective education systems.

More specifically, market-creating innovations, which are focused on increasing access to quality education and improving learning outcomes, can play a significant role in solving Brazil's Education Paradox.



A Better Strategy with Market-Creating Innovations

Market-creating innovations transform complicated and expensive products into products that are simple and affordable, making them accessible to a whole new segment of people for whom there was always underlying demand, but no adequate solution on the market. This segment of the population is referred to as nonconsumers.

In many growth economies, the population of nonconsumers for most products and services—like quality education, healthcare, food, housing, and so on—far surpasses that of consumers. As a result, when market-creating innovations democratize access to a much-needed product or service, the societal impact is immense.¹³

More specifically, market-creating innovations are unique in their impact because they have the following results. First, they create new jobs to make, market, distribute, and sell the products to the vast new market. Second, the profits from the innovations generate a new source of tax revenue for governments. These profits can be used to build infrastructure, develop better institutions, and improve education. And third, as other innovators join the new market and see firsthand the benefits of targeting nonconsumers, a culture of innovation and entrepreneurship ensues, creating a virtuous cycle that leads to more innovation and economic progress.

For example, in the late 1990s, fewer than 5% of people in Africa had access to mobile phones. They were deemed too expensive and complicated for a majority of people on the continent. But in 1998, Mo Ibrahim built Celtel and developed a business model that made inexpensive mobile phones and telecommunications accessible to millions of people in several African countries. In just six years, Celtel was able to build operations in 13 African countries and gained 5.2 million customers. By 2004, revenues had reached \$614 million. In 2005 when Ibrahim decided to sell the company, he did so for a handsome \$3.4 billion. But Celtel was just the tip of the iceberg.



A Better Strategy with Market-Creating Innovations (continued)

The market Ibrahim and other innovators created triggered the growth of a vast and far-reaching mobile telecommunications industry in Africa. From just a handful of mobile telecommunications operators in Africa a couple of decades ago, today there are more than a hundred.

In addition to supporting more than 3 million jobs, the sector now generates almost \$15 billion in taxes annually and adds an estimated \$130 billion of economic value to the continent.¹⁴

Attributes of Market-Creating Innovations

1. Business models that target nonconsumption—A majority of the innovations and business models that exist today are targeted at existing consumption. Nonconsumption is characterized by struggle—it's the inability of an entity (person or organization) to purchase and use (consume) a product or service.

2. An enabling technology—An enabling technology provides improving levels of performance at a progressively lower cost. A technology, according to Clayton Christensen, is any process that converts inputs of lower value into outputs of greater value. Enabling technologies such as the Internet, smartphones, and even changes in organizational processes can help make products more accessible to nonconsumers.

3. A new value network—A value network is the context in which a company defines its cost structure. Because most businesses are targeted at existing consumers, their cost structures prevent them from targeting nonconsumers. Creating a new value network enables companies to redefine their cost structure so that their products can be afforded by nonconsumers.

4. An interdependent architecture—At their onset, market-creating innovations tend to have more of an interdependent architecture. Whenever an unpredictable interface exists between two components in a company's business model, the company should develop an interdependent architecture in order to provide a solution that fits the needs of its customers.

5. An emergent strategy—When targeting nonconsumption, innovators tend to employ an emergent strategy because they are going after markets that are undefined. Deliberate strategies are typically used when companies know the needs of the market. Managers and entrepreneurs must be willing to learn and modify their intended strategies based on the feedback they get from the market.

6. Executive support—Organizations that target nonconsumption are often unpopular because they usually start out at lower margins, require capital, and target undefined markets. These sorts of businesses, therefore, require support from the CEO or someone high up in the executive team in order to keep them alive, as the typical organization's resource allocation process will not prioritize nonconsumption.

Across Latin America, market-creating innovations are emerging in different sectors. In Brazil, for instance, Nubank is creating access to financial services for tens of millions of people. By providing online banking services built on the ubiquitous mobile phone, the company has been able to provide access to almost 50 million people.¹⁵

In Mexico, Clínicas del Azúcar is making it possible for hundreds of thousands of people to access diabetes treatment. By creating an affordable, one-stop-shop diabetes clinic, Clínicas has developed a new model that has resulted in more than half a billion dollars for the healthcare system.¹⁶

One of the ways leaders in Brazil can increase access to quality education and improve learning outcomes for students is by leveraging market-creating innovations. Indeed, innovators across Brazil and Latin America are already developing homegrown innovations that are solving problems in the education sector. There is a thriving ecosystem of education technology (edtech) companies in the region, and post-COVID, it's expected to keep growing. (See the sidebar, "The Rise of Edtech in Latin America," on page 13.)

The Rise of Edtech in Latin America

Over the past decade, the edtech sector in Latin America has grown significantly. According to *Education Technology in Latin America and the Caribbean*, an Inter-American Development Bank and Holon IQ report on the state of edtech in the region, the “[edtech] ecosystem has grown to more than 1,500 EdTech companies creating over 4,500 jobs and attracting \$1 billion in investment over the last 10 years in 500 fundraising rounds.”

Although the COVID-19 pandemic exacerbated poor learning outcomes as tens of millions of students were out of school, it exposed a need, and opportunity, for investing in the sector. Edtech venture funding skyrocketed from \$83 million in 2020 to more than \$496 million in 2021, an increase of almost 600%.

The four main categories of funding are pre-K (0.9%), K-12 (41.6%), higher education (28.3%), and workforce (29.2%). Within these categories, innovators build companies that focus on improving the online learning experience, management systems, language learning, and others.

Although education is seen as one of the primary jobs of government, it remains difficult to improve quality as governments often don't have the financial, technical, and managerial resources necessary to make their education systems better. As such, leveraging innovations from edtech companies can play a significant role as governments seek to improve learning outcomes.

FIGURE 5. Snapshot of edtech organizations across the region

Name of Company	Category	Founded	Headquarters	Internet Required?	Primary Platform
1. Kinedu	Early Childhood	2013	Mexico	Yes	Smartphone
2. Papumba	Early Childhood	2016	Argentina	No	Smartphone
3. Slang	Language Learning	2013	Colombia, Brazil, Mexico	Yes	Smartphone
4. Poliglota	Language Learning	2016	Chile	No	Smartphone & Computer
5. Colegium	Management Systems	2000	Chile	No	Smartphone & Computer
6. Moi Aprendizaje Social	Management Systems	2017	Ecuador	No	Smartphone
7. Silabuz	Online Learning	2017	Peru	Yes	Smartphone & Computer
8. Processim Labs	Online Learning	2016	Costa Rica	Yes	Smartphone
9. Griky	Upskilling	2018	Colombia	Yes	Smartphone & Computer
10. Education Journey	Upskilling	2020	Brazil	Yes	Computer

Sources: *Education Technology in Latin America and the Caribbean*, Inter-American Development Bank, IDB Lab, and Holon IQ, December 2021. <https://publications.iadb.org/publications/english/document/Education-Technology-in-Latin-America-and-the-Caribbean.pdf>.

By supporting the growth of companies that are increasing access to nonconsumers of quality education, leaders in Brazil have a chance to improve the country's education outcomes and help solve its Education Paradox.



How Four Market-Creating Innovators Are Tackling the Education Paradox

Brazil's edtech scene is vibrant. Of the more than 1,500 edtech companies in Latin America and the Caribbean, close to 900 are based in Brazil.¹⁷ Edtech investments in the country reached \$474 million, or 60% of all Latin American edtech funding over the last decade. And a vast majority of the edtech companies are developing innovations to solve problems in K-12, higher education, and workforce development.

Let's consider how four of these edtech companies—Mind Lab, Descomplica, Árvore Educação, and eduK—are working to improve education in Brazil. These four case studies were chosen based both on their relative popularity in the edtech space as well as their initial, promising outcomes data. While not a comprehensive snapshot, for the purpose of this report, these companies' business models and performance metrics are indicative of the innovation at play in the Brazilian edtech market.



How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

1. Mind Lab

Mind Lab researches, designs, and deploys innovative educational technologies for the development of cognitive, social, emotional, and ethical skills and competencies. The core of the organization's mission is to improve learning outcomes, regardless of socioeconomic background. The company has developed a service that schools can more easily integrate into their existing infrastructure.

The organization leverages digital technologies where it makes sense and where its users have access to devices and the Internet. In circumstances where users don't, Mind Lab has created other ways to engage with students and users.

Mind Lab's foundation is called the MentelNovadora Program—an integrated model that has been shown to improve learning outcomes for students across different schools in Brazil. The program involves students, parents, and teachers and is based on three pillars—reasoning games, metacognitive methods, and learning mediation, which integrate into the students' lives and the existing schooling infrastructure.¹⁸ Each of these components is designed to help students develop critical skills, such as teamwork, creative thinking, and problem-solving.



How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

1. Mind Lab

How it works

When a school signs up for the Mind Lab program, students, families, and teachers get a box with materials. Each box contains a family book, student books, and a game library (a book that contains all the Mind Lab games). The program also provides digital assets such as online games, digital versions of the books, and socioemotional tests.

School teachers at participating schools get trained on the Mind Lab methodology, a process that takes a total of roughly 32 hours. Teachers, however, can begin using the Mind Lab methodology after just five hours of training. Coupled with the fact that teachers face significant obstacles in participating in career and professional development programs in Brazil, this fastpaced training can help amplify the value of learning the Mind Lab methodology for teachers.¹⁹

For one class period during the school week, teachers teach the students using the Mind Lab methodology. After learning the methodology, many teachers choose to use it in other classes such as mathematics and Portuguese. The learning also continues when students get home as their parents are integrated into their learning experience. Parents are provided with resources to help support their children's learning.

The model is available for all grades in the basic education system in Brazil.

The impact

Several studies have been conducted on the impact of the Mind Lab methodology. A 2004 Yale University study showed that Mind Lab improved reading and math proficiency.²⁰ Since then, more than 10 other studies have shown the efficacy of the model and how it aids learning.²¹

The benefits of the cognitive activation approach in learning, especially in mathematics, have long been recognized.²² The OECD report on education in Brazil suggests that the country should invest in training teachers to teach using this method, but also highlights the challenging and time-consuming nature of the process.²³

To date, more than 10,000 schools and 5.6 million students and families have used Mind Lab in Brazil.

FIGURE 6. Mind Lab at a glance

YEAR FOUNDED: 2003; 2006 in Brazil

MISSION: Mind Lab is an integrated model that has been shown to improve learning outcomes for students across different schools in Brazil.

SECTOR: K-12

PARTNERS: Accel, Fitpart, Imaginable Futures (Omidyar), Inter-American Development Bank, Meritech, Monashees, Península, Stanford University (endowment)

IMPACT: Across Brazil, Mind Lab has reached more than 5.6 million students in 10,000 schools and has empowered more than 185,000 teachers.

How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

2. Descomplica

With a Gini coefficient of 48.9, Brazil ranks as one of the countries with the most wealth inequality in Latin America and the Caribbean.²⁴ Education is often considered a great equalizer, but in Brazil it actually accentuates inequality. The richest states in the country spend up to four times more on education per student than some of the poorest ones.²⁵

This is especially important in Brazil because of the Exame Nacional do Ensino Médio (National High School Exam, or ENEM for short). More than 8 million students take the test annually to determine the chances of getting into a federal university and most of the top-tier higher education institutions—a gateway to a good job. It also serves as a certification for a high school diploma and is used as selection criteria for a federal scholarship program.

In short, doing well on the ENEM can change the trajectory of the life of a student from a low-income family. But chances of a low-income student doing well on the test and attending university are slim. That's one of the problems Descomplica aims to solve.

FIGURE 7. Median ENEM grades by monthly family income (in R\$)

Monthly Family Income (in R\$)	Mathematics	Natural Sciences	Languages	Social Sciences	Essay
0	450	440	490	460	530
5000	558	535	550	580	650
10000	648	554	560	648	700
15000	660	558	570	655	748
20000	670	560	580	670	748
25000	680	562	590	680	750
30000	690	568	595	695	755

Sources: "How Do Disruptive Innovators Prepare Today's Students to Be Tomorrow's Workforce?," Inter-American Development Bank, 2020, <https://publications.iadb.org/publications/english/document/How-Disruptive-Innovators-Prepare-Todays-Students-to-Be-Tomorrows-Workforce-Descomplica-and-Effective-Remote-Learning.pdf>

How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

2. Descomplica

How it works

Founded in 2011, Descomplica seeks to “democratize access to education at all stages of life.”²⁶ It started out by offering preparatory classes for the ENEM to help level the playing field for socioeconomically disadvantaged students. High ENEM test scores are correlated with higher income and, before Descomplica, test prep courses were expensive. These courses were largely available to the wealthy and, because of how important they are to university admission and getting a good job, they simply bred more inequality.

Descomplica developed an affordable online solution that adapts to students' lifestyles. The organization offers live classes throughout the day to accommodate students' schedules, more than 15,000 online videos, and private tutoring for specific problems.

The organization offers a free model through its social media channels and a paid subscription model. The cost of its paid subscription model is around \$5 a month. Similar prep courses, most of which are designed to serve the wealthy, often range from \$370 to \$1,150 a month.²⁷

The impact

Descomplica's learning management system has been shown to increase students' test scores by as much as 31%. Almost 90% of Descomplica students are from families with monthly incomes lower than \$1,000 (about half the Brazilian population).

In 2020, Descomplica launched Descomplica College, a fully online university offering undergraduate and postgraduate degrees. The organization's goal is to attract 1 million students across Brazil by leveraging technology to scale its existing model.

FIGURE 8. Descomplica at a glance

YEAR FOUNDED: 2011

MISSION: Descomplica is a provider of an online educational platform designed to prepare students for college entrance exams.

SECTOR: K-12 and higher education

PARTNERS: Invus, Softbank, Amadeus, Valor Capital

IMPACT: Students achieve, on average, 8% to 31% higher scores by preparing with Descomplica; 87% of Descomplica students live in families with monthly incomes lower than \$1,000. In the essay portion of Exame Nacional do Ensino Médio (ENEM), they achieve a score seen, on average, only in families with income higher than \$6,000.

Sources: Education Technology in Latin America and the Caribbean, Inter-American Development Bank, December 2021, 101, <https://publications.iadb.org/publications/english/document/Education-Technology-in-Latin-America-and-the-Caribbean.pdf>.

How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

3. Árvore Educação

Brazil's reading and literacy statistics are at once impressive and disheartening.

Although Brazil's literacy rate surpasses 90%, only 8% of the country's "economically active population," or those participating in the workforce, can read and interpret a complex text, according to Danielle Brants, founder of Árvore Educação.²⁸ More than 55% of Brazilian schools don't have access to a library.

Árvore is working to change that by offering students access to a myriad of books, news articles, and English language content through its reading platform.



How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

3. Árvore Educação

How it works

Instead of building tens of thousands of libraries across Brazil, schools can adopt the organization's reading platform—the Tree—and get access to digitized content with language that is written at their students' reading level. Schools and government agencies can get access to its digital library for a subscription.

The impact

Before the COVID-19 pandemic, Árvore served 200,000 students in 400 schools. After the pandemic sent millions of students home and further exposed Brazil's inequalities in education, Árvore scaled its operations. Today, the organization serves more than 1 million students across the country.

FIGURE 9. Árvore Educação at a glance

YEAR FOUNDED: 2014

MISSION: Árvore Educação aids students' reading education by combining technology with a collection of thousands of books and journalistic content for all school segments.

SECTOR: K-12

PARTNERS: Imaginable Futures (Omidyar), MSW Capital, Potencia Ventures

IMPACT: Árvore serves more than 1 million students across every state of Brazil. Its platform is deployed in more than 3,000 schools. Students in schools where the platform is deployed read an average of 4.2 books in 2021, almost double the national average.

Sources: *Education Technology in Latin America and the Caribbean*, Inter-American Development Bank, December 2021, 99, <https://publications.iadb.org/publications/english/document/Education-Technology-in-Latin-America-and-the-Caribbean.pdf>.

How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

4. eduK

All three market-creating innovations so far have focused on improving Brazil's education system by plugging into the existing education infrastructure. And although they increase learning outcomes and the odds of a graduate advancing and getting a job or building a company, it is all too possible in today's Brazil to go through the education system—especially through high school and some college—and still not find employment. That's why eduK serves as an important complement to education innovations that are focused on improving learning outcomes.

Since 2012, unemployment in Brazil has more than doubled from about 6% to 14%. Worse is the fact that almost 6 million people gave up looking for work because they didn't believe they could find a job.

The eduK platform, which is part of the Mind Lab group, is designed to reverse this trend as a one-stop shop for income generation, especially for Brazilians who are currently unemployed or underemployed. One of the goals of the platform is to “structure the unstructured,” according to Ivan Pereira, a vice president at Mind Lab.

The platform offers professional courses using a methodology that helps people learn fast. Learning fast is important because a majority of people who sign up for eduK's courses don't have the luxury of spending years of their lives in expensive universities to get a degree that may not lead to a job.

According to eduK, for many people, training courses may not necessarily be the factor limiting them from employment or income generation. So, the company built a connecting service into its platform. For example, a plumber, delivery driver, or electrician can join the platform and receive help to offer their services.

The platform currently hosts 3,200 courses, 1,100 experts, and more than 8 million subscribers. The service costs around \$50 for an annual subscription. Although the \$50 annual subscription might seem affordable, especially when compared with what the platform offers, approximately 75% of people still pay in installments. This realization has prompted the organization to offer access to affordable financing options for subscribers in order to reduce the cost barrier even further.

FIGURE 10. eduK at a glance

YEAR FOUNDED: 2013

MISSION: eduK is a one-stop shop for income generation, especially for Brazilians who are currently unemployed or underemployed.

SECTOR: Workforce

PARTNERS: Accel, Fitpart, Imaginable Futures (Omidyar), Inter-American Development Bank, Meritech, Monashees, Península, Stanford University (endowment)

IMPACT: eduK serves more than 100,000 people with 40 companies on the platform. The average income of users on the platform is \$220/month, which is more than the Brazilian minimum wage (\$190/month).

How Four Market-Creating Innovators are Tackling the Education Paradox (continued)

4. eduK

How it works

In designing the platform, eduK made sure to try to answer some of the questions those who are unemployed may typically ask. For example, “Where do I begin searching?”; “What am I good at?”; and “What skills do I have, and which ones can I learn?” are central to how the platform works.

When users join the platform, they choose from several work options for how they'd like to generate income. For those who need it, the platform recommends courses to help them acquire the skills necessary to do work in the area they've picked.

Once a person is connected to a job (also applicable if the person is self-employed), eduK works with them to create a guided path that helps them acquire more skills so they can advance in their career. For example, say Thiago gets a job as a delivery driver, but someday wants to own his own distribution and logistics company. eduK empowers him with the skills to help him achieve his goals.

The impact

To date, more than 100,000 people have learned on eduK's platform, with over 22,000 getting access to new sources of income.

To further increase its reach and impact, eduK has signed up almost 40 companies seeking to fill job openings. In any given month, there are approximately 15,000 new job opportunities on eduK's platform.

Though eduK has significantly reduced the cost barrier to its service, another barrier preventing Brazilians from generating income is acquiring the financing necessary to start and grow a business. To solve this problem, eduK is experimenting with a loan program for subscribers who want to start or grow their businesses.

FIGURE 11. Market-creating innovations' impact

Organization	Category	What It Does	Reach
Mind Lab	K-12	Integrated model focused on social and emotional development that improves learning outcomes for students across different schools, grades, and socioeconomic backgrounds.	5.6 million Students
Descomplica	K-12, Higher education	Online test prep for Brazil's national high school exam. Also launched a fully digital online university.	250,000 Students
Árvore Educação	K-12	Provides access to a digital library of books and articles.	1 million Students
eduK	Workforce Development	Provides a platform for the unemployed and underemployed to find work or take courses to help them generate income.	100,000 People

Conclusion

One of the main reasons for Brazil's Education Paradox is the severe lack of coordination between the government bodies that manage the different school systems in the country.

Modularity Theory acts as a lens to better understand how, when the performance of a product or service isn't good enough, like Brazil's education system, a more interdependent architecture is preferred. Brazil's government, to its credit, has been working to fix the education system for close to a decade, but progress has been slow due to political, social, and economic limitations. That's because many proposed solutions utilize push strategies that don't take into account specific contexts.

But market-creating innovations, which utilize pull strategies, can perhaps offer more effective solutions in solving the paradox. Consider how each of the organizations discussed can improve the performance of different components of Brazil's education system.

From a learning standpoint, Mind Lab is already showing that its methodology can integrate into all levels of the existing school system and increase students' performance. By increasing learning outcomes for students in different schools managed by different government entities, the learning methodology could serve as a coordinating interface across schools. It helps maintain a level of consistency for students even as they go through a modular education system managed by different governing bodies.

For its part, Descomplica exposes students—particularly those from disadvantaged socioeconomic backgrounds—to higher education opportunities. The organization has shown that it is able to increase test scores for students from poorer backgrounds, thereby giving them a chance to compete for a coveted spot in Brazil's universities.

Árvore's digital library is making access to content available for students across the country without schools needing to build and manage physical libraries. Wealthier schools currently have access to better resources, including libraries. Almost half the schools in Brazil are nonconsumers of libraries. By leveraging a platform that introduces students to myriad content, Árvore helps ensure that no student or school gets left behind.

Finally, for Brazilians who find themselves outside the education system, all hope is not lost as eduK not only connects them to income-generation opportunities, but also provides courses to upskill them for better-paying jobs. This is critical because the existing education system is struggling to prepare students for work.

The consequences of Brazil's Education Paradox are dire. Millions of students struggle to learn and the economy suffers for it. But market-creating innovations can provide a more effective path forward toward prosperity. Now is the time for Brazil's leaders to leverage the power of these context-cognizant innovations and the ingenuity of its innovators.

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About the Institute

The Clayton Christensen Institute for Disruptive Innovation is a nonprofit, nonpartisan think tank dedicated to improving the world through Disruptive Innovation. Founded on the theories of Harvard professor Clayton M. Christensen, the Institute offers a unique framework for understanding many of society's most pressing problems. Its mission is ambitious but clear: work to shape and elevate the conversation surrounding these issues through rigorous research and public outreach.

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