



MEDIA CENTER

INNOVATING WITH
DISTANCE LEARNING
IN AMAZONAS, BRAZIL

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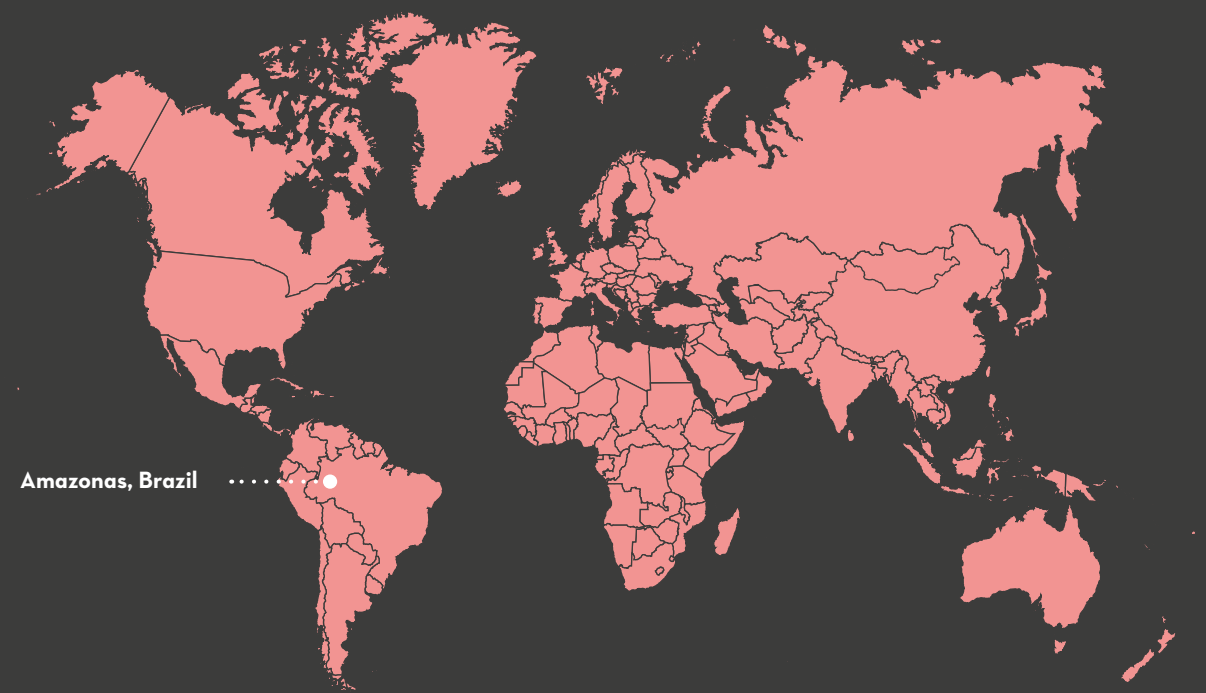
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**Priscila Cruz, Flavia Goulart, Christina Kwauk,
and Jenny Perlman Robinson**

Media Center at a glance

EDUCATION LEVEL:

Secondary



LOCATION:

Amazonas, Brazil

FOCUS OF INTERVENTION:

Distance learning program for difficult-to-reach populations along the Amazon River

INTERVENTION OVERVIEW:

The Amazonas Government's Media Center initiative (2007-present) is a locally developed, formal secondary school model seeking to address the disparity in education access between Amazonas' urban and rural areas. It uses multipoint videoconferencing technology to broadcast lessons live via satellite television from a Media Center studio in Manaus, Amazonas' capital city, to up to 1,000 classrooms, with 5 to 25 students each, located throughout the Amazon's riverside communities. The cornerstone innovation of the Media Center's model is its bidirectional interactivity, where students not only view lectures from the teacher in the studio, but their interventions are streamed as well. Teachers have two roles: As specialized "lecturing teachers" located in the studio, and as generalist "tutoring teachers" on-site, one per classroom. The studio teacher are free to develop their own lesson plans—within state guidelines—and the tutoring teacher helps students pay attention and provide assistance with difficult parts of the classwork, which is aligned with the national curriculum but adapted to the local context and taught on a block schedule.

TYPE OF LEARNING MEASURED:

Literacy, numeracy, and science mastery, as indicated by the Education Development Index Score, a national-level measure, and the Exame Nacional do Ensino Médio, a Brazilian national examination

COST:

Annual budget of \$14 million, excluding student transportation and equipment upgrades. Financing provided by the Amazonas government and later supported by loans from international organizations, including the Inter-American Development Bank.

SIZE:

Direct reach—50,000 students in 2015 (or approximately 23 percent of secondary school students enrolled outside Manaus) and 300,000 students since 2007. *Indirect reach*—1,300 schools in 6,000 communities, 60 lecturing teachers, and 2,200 tutoring teachers since 2007.

IMPACT:

Access to education—Approximately 23 percent of students enrolled outside Manaus are now able to access postprimary learning opportunities. *Progression and dropout rates*—High school progression rates increased 16 percent between 2007 and 2011; dropouts decreased by almost half between 2008 and 2011. *Expansion*—Demand to expand the Media Center beyond the high school level led to the inclusion of middle school and youth and adult education. The Media Center learning model has been replicated in seven other states with poor and/or difficult-to-reach populations. Nationwide efforts to improve Internet connectivity to schools will provide increased infrastructure to further scale up the model.

Background

Filipe is a teenager living in one of the thousands of small communities located along an Amazonian waterway. His village of 78 people has only 20 families. In 2015, Filipe and another villager were the only two students in their community attending grade 11.¹ A decade ago, the pair would have been faced with two options upon reaching high school: move to Manaus (the capital of Amazonas); or stop studying altogether. Instead, he and his fellow villager, along with 19 other students who used to commute by boat from other riverside communities, gathered together in the evenings in a municipal classroom to receive live-streamed lessons from a teacher in the Media Center, hundreds of miles away in Manaus.

Before the Media Center began broadcasting in 2007, daunting challenges confronted anyone trying to access to postprimary education in Amazonas. Most of the state, which is about 4.5 times the size of Germany, is covered by jungle. About 21 percent of the population is scattered across 6,100 riverside and inland communities. Traveling to these communities from Manaus is measured in days, sometimes even weeks, by boat. Only 6 of the 62 municipalities are connected to the capital by roads. Air transportation is expensive and limited. Though boats are the most realistic form of transportation, the level of rivers varies, depending on the season, making transportation routes and river landscapes difficult to navigate. Together, the state's population distribution, the extensive distances between communities, and the Amazon River Basin rain forest's geographical features have meant

delivering education to the state's entire school-age population, within reasonable costs, has inevitably presented many logistical and infrastructural challenges. In many cases, communities like Filipe's have so few students that they cannot justify opening a school. If a school did exist, hiring, training, and posting qualified high school teachers in subjects such as mathematics or science would be cost prohibitive—not to mention the difficulties of convincing teachers to move to such remote communities.

These factors have left Amazonas with low levels of enrollment, completion, and progression, and also high dropout rates. In 2010, a few years after improvements in access to education had been observed by Media Center officials, the secondary school net enrollment rate in Amazonas was still at 39 percent—compared with 69 percent nationally; half of those students enrolled in Amazonas were over-age. In fact, 50 percent of 16-year-olds in Amazonas have completed elementary education, compared with 63 percent nationally; only 36 percent of 19-year-olds have completed high school, compared with 50 percent nationally. In learning achievement, according to the 2009 Prova Brasil (a national language and mathematics assessment), about 8 percent of grade 8 students in Amazonas were proficient in math, compared with about 15 percent of grade 8 students nationwide.

So, what has made it possible for Filipe and 50,000 other students under similar circumstances in Amazonas to follow such

a different educational path in 2015 and to have more than the two educational choices offered by their predecessors? Some would say it was the changes passed into law in 2009 that made high school education a right of all Brazilians and an obligation to be fulfilled by all Brazilian states by 2016. Others would point to the outcome of several bold decisions initiated in 2004 by a group of public servants from the Amazonas State Secretariat of Education (Secretaria de Estado de Educação do

Amazonas, SEDUC) concerned with the inequality gap between Amazonas' urban and rural students. Determined to take on the challenges of improving rural students' school achievement, increasing their options for accessing high school, and completing their basic education,² these SEDUC officials set out to develop the Media Center, an education model that employs distance learning technologies to deliver education to the Amazon rain forest's sparsely populated areas.

Innovating distance learning

When the Media Center idea first emerged, distance learning was far from a new idea in Brazil. In the early 2000s, Brazil's Ministry of Education (Ministério da Educação, MEC) had already invited Amazonas to participate in existing distance learning programs, including some that had been implemented at scale across other parts of Brazil. Given the state's infrastructure and logistical challenges, SEDUC officials recognized that distance learning made sense—they had been implementing a successful Internet-based distance learning teacher-training program of their own, called Proformar, since 2002. But they saw that MEC's existing models had shortcomings that would prevent any of them from taking off. For instance, existing models were too standardized and lacked the human components of education. Students were expected to sit passively and watch teachers lecturing them via television. In addition, traditional distance learning models threatened to replace teachers and the classroom experience with technology. Based on these observations, SEDUC officials

decided not to accept any of the existing offerings and instead opted to develop their own local model from scratch.

Aware of the potential of education technology to eliminate geographic obstacles, SEDUC officials envisioned a model that would allow students from distant communities to interact, converse with teachers, and participate in lessons in real-time. Based on a belief that technology should help mediate these learning processes, not replace them, SEDUC developed and integrated multipoint videoconferencing technology into the Media Center learning model, allowing for bidirectional interactivity between "lecturing" teachers in the Manaus studios and students in more than 1,000 classrooms across the state. This innovation in distance learning was never before offered in other states.

Although bidirectional interactivity helped ensure that Amazonas students would have as close an experience as possible to the traditional classroom, this particular innovation alone would not

have guaranteed success. The anxieties and negative perceptions held by teachers and teachers' unions regarding the role of teachers in technology-mediated classrooms also needed to be countered. According to the Amazonas Secretary of education, Rossieli Soares da Silva, the Media Center was never imagined to be "a perfect substitution to the full classroom interaction between teachers and their students" (Rossieli Soares da Silva, interview by Flavia Goulart, April 9, 2015). However, teacher shortages in Amazonas meant that proponents of distance learning could easily have viewed the Media Center as a strategy for addressing teacher shortages and ignoring issues germane to teachers' unions. For instance, resources allocated to develop and implement the Media Center could have been seen as diverting the state's scarce resources away from long-term strategies in recruiting and training new teachers and "upgrading" the skills and content knowledge of teachers already in the system.

Instead, SEDUC and Media Center officials designed and implemented new adapted roles for teachers under the Media Center learning model. Specifically, the Media Center deployed two different and complementary teacher figures: the "lecturing teacher," who gives the lecture remotely from the Manaus studio; and the "tutoring teacher," who facilitates the learning process and supports students in-person in the classroom.

In this model, the lecturing teacher is a specialist who pairs with another lecturing teacher to research and develop novel content in their shared area of expertise.³ Although content is aligned with the national curriculum,⁴ lecturing teachers

are given the latitude to be creative and localize content so that lessons are unique for that specific day and class. The Media Center's pedagogical staff reviews and approves the content, and then works with the teachers to help convert class content into digital format. The final product may include, for example, animations and cartoons to help translate abstract concepts into real life examples, short video clips of a large street protest or a congressional session, or other audio-visual resources that complement lecturing teachers' live presentations. These in-class resources are a particularly important pedagogical feature for lecturing teachers in the Media Center, especially considering how the costs and logistics of bringing such technology to rural students in remote regions of the Amazon rain forest would have been otherwise very challenging. In the words of one teacher, "Contrary to what many would think, the use of technology to mediate learning has made things more (not less) concrete than in the regular classroom: The virtual world opened many new possibilities in the ways we transfer knowledge to our students" (Media Center teacher, interview by Flavia Goulart, April 9, 2015).

The tutoring teacher in the Media Center learning model is more of a generalist, despite having a graduate-level teaching degree. With one tutoring teacher assigned per classroom, the tutor plays a key role in connecting students, technology, and content, having previewed the day's learning materials and activities before each class. Although they are not responsible for the primary teaching and do not need to have deep knowledge of any specific subject, they are responsible for the educational development of students. During classroom activities and

interactions, they identify when students do not understand content and ask the lecturing teacher for specific support or more detailed explanations as needed. Thus, the tutor's role is critical for enabling the Media Center learning model to create the conditions for a full classroom experience. Furthermore, because tutoring teachers are generalists, SEDUC and the Media Center are able to deploy one teacher per classroom rather than one teacher per subject, enabling them to employ more teachers at the high school level across the state, despite how small the community, remote the location, or severe the lack of teachers.

These two complementary teacher roles were unprecedented in Brazil's educational context. Additionally, the model enables SEDUC to maximize its pool of teacher candidates, providing students with access to curricular content such as physics,

even if their community does not have a physics teacher available.⁵ The Media Center also regularly demonstrates how it values teachers by encouraging them to continuously advance their own knowledge and specializations. Not only do lecturing teachers feel challenged to improve their classes and to innovate; they are also rewarded and recognized for doing so. For example, lecturing teachers are all encouraged to work on advanced degrees (master's or doctorate level), if they do not already hold these titles. Their salaries are higher than regular teachers—although they also work more hours—and their careers are more competitive. Every year, 10 percent of low-performing teachers are replaced with new teachers. Also, after broadcasting their lectures live from a studio to hundreds of students at a time, they have been elevated to "celebrity teacher" status, increasing the prestige of the teaching profession in Brazilian society.

Impact and evidence of success

Because detailed metrics on academic performance and overall impact have not been rigorously monitored or published yet—the results of a comprehensive impact evaluation are expected to be released by the end of 2016—growing enrollment numbers and demand for expansion have been the main metrics of success for the Media Center and SEDUC officials.

In its first year, 2007, the program enrolled about 10,000 students across 242 communities in grade 10. By year two, municipalities across the state began requesting Media Center classrooms in their communities. Since most Media Center classrooms were installed in

existing municipal schools or community centers, there was no need to build new schools, so connecting new classrooms to the Media Center broadcasts is relatively simple and scalable process. In about 2014, the Media Center's high school program enrollment stabilized at about 8,000 students per grade, or 24,000 students per year.

After tackling the demand for high school education, the secretary of education soon realized that a bottleneck also existed for middle school students. With nearly 700,000 students in state- and municipal-run elementary and middle schools, SEDUC enrollment figures for

2012 indicated that only 166,000 students were enrolled in high school. Not only were middle school students not making the transition to high school, their low levels of academic preparedness, combined with poverty and the physical challenges of getting to school, were leading to high dropout rates. In an effort to help students master the minimum content and be better prepared for high school, in 2009, the Media Center began transmitting programming to middle school students (grades 6 to 9). The center's first middle school class graduated in 2012.

Demand for Media Center learning opportunities also emerged among Amazonas' adult and young adult population. Once high school center's transmissions began in 2007, in many communities, parents and grandparents started attending lessons with younger family members. They themselves had not had the opportunity to access high school in their teenage years and wanted to do so now. The center began offering young adult and adult education (*ensino de jovens e adultos*, or EJA) transmissions in 2012 to allow high school students and adult learners space to study separately.

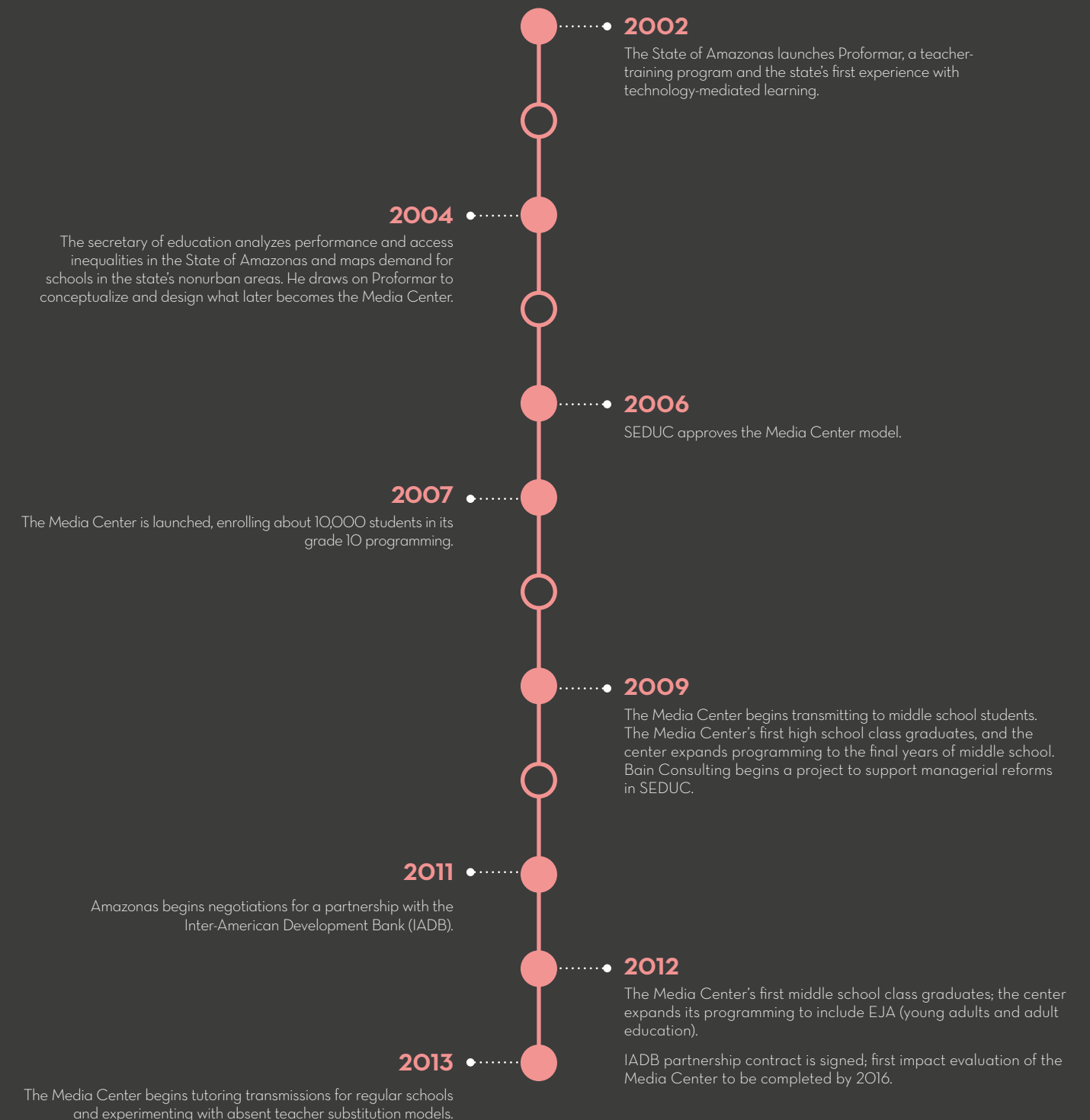
Today, the Media Center's seven studios are running at capacity. In the afternoons, when municipal school facilities hosting center classrooms finish running regular in-person middle school classes, four studios remotely broadcast middle school content for grades six to nine. In the evening, all seven studios broadcast classes for the three high school grades and an additional four EJA grades. In 2015, there were more than 50,000 students across 6,000 communities

enrolled in the center's grades 6 to 12 and adult education programs (roughly 23 percent of all secondary school students enrolled outside Manaus). These students gathered in more than 2,000 classrooms, interacted with over 60 lecturing teachers, and engaged with over 2,200 tutoring teachers.

Since 2007, the Media Center has provided more than 300,000 students with access to postprimary education from their communities along the rivers as well as to inland parts of the Amazon River Basin rain forest. According to the Amazonas secretary of education, Rossieli Soares da Silva, "the Media Center is everything where there is nothing, and it can be a complement where there is something," meaning that for children who would have stopped studying, the center is the best alternative (Rossieli Soares da Silva, interview by Flavia Goulart, April 9, 2015). The implications of having such an alternative option is further reflected in the increase in secondary school progression rates in the state from 67 percent in 2007 to 83 percent in 2011, and in the reduction in dropout rates by almost 50 percent between 2008 and 2011.

The Media Center model has been adapted by six other Brazilian states with poor and/or difficult-to-reach populations in the Amazon region. National efforts to improve Internet connectivity to schools, including a project supplying 300 new antennas to new center classrooms in four years and another project laying more than 8,000 kilometers of fiber optic cables across the Amazon River system, will no doubt allow further scaling up in the future (Magalhães 2015).

Timeline of key events



Key drivers behind scaling impact

How did the Media Center improve educational access for thousands of students located in the sparsely populated areas of the Amazon River Basin rain forest? Moreover, how has the model been able to grow the number of students reached by 30

percent per year? Though much of the success rests on the model's unique innovations with distance learning, the other half of the story lies in the coming together of a series of key political drivers, organizational characteristics, and approaches to change.

Developing an enabling policy environment

New legislation in Brazil and educational reforms instituted in Amazonas in 2009 were vital in creating and sustaining a political environment conducive to the Media Center's educational innovations. First, the mandate holding states responsible for guaranteeing the right to high school education as well as legislation supporting universal secondary education provided the political impetus for SEDUC to continue supporting the Media Center learning model, especially because nearly a quarter of secondary school-age students in Amazonas' difficult-to-reach areas were still not enrolled in school. Second, managerial reforms led by the Amazonas secretary of education, in partnership with Bain Consulting (2009-12), helped to streamline internal processes and optimize the structure of SEDUC and the state's school system. For example, these reforms developed better teacher recruiting, on-boarding, and training programs, as well as Amazonas' first teacher evaluation system and incentive plan. Teachers became eligible for performance bonuses to teachers based on student performance; there were efforts to identify waste or possible efficiency gains that could free up

funding for new programs and policies (especially the Media Center) that merited expansion.

These positive reforms were made possible by Amazonas' relatively stable and continuous political leadership. For instance, the long tenures of Governor Eduardo Braga (2003-10) and his successor, Governor Omar Aziz (2010-present), allowed for important policy and leadership within SEDUC. In addition, the education secretary who was in office at the time of the Media Center's rollout oversaw SEDUC for seven years (2004-11). The current education secretary, Soares da Silva, took office in 2012, but had been working with the previous secretary for five years. This longevity is particularly unique in Brazil, where, in many other states, of leadership in education departments occur almost every year, causing considerable disruption and discontinuity.

Additionally, during the time of the Media Center's incubation, Governor Braga led the State of Amazonas while enjoying high approval ratings (about 80 percent), majority support in the legislative branch, and alignment

within his own cabinet. This smoothed the way for essential planning, finance, productivity, and coordination across

multiple departments—something that was foundational to the state's approach to developing the Media Center.

Supporting an entrepreneurial spirit

Along with administrative continuity as well as political support for education policy reforms, SEDUC's entrepreneurial spirit enabled the State of Amazonas to tackle the problem of inequitable education access and achievement head on, with state officials actively embracing change rather than waiting for off-the-shelf solutions from the federal government. With this mindset, they were able to assess where previous solutions fell short, reject solutions that did not fit the local context, and innovate in ways that suited local conditions. In short, officials' pioneering attitude enabled them to build a unique education delivery model despite the odds and in the face of the state's daunting geography and educational circumstances.

The open-mindedness of the secretary of education as well as his staff was critical to the development of the Media Center model. In the absence of such entrepreneurial spirit, long-standing negative attitudes toward traditional distance learning models (i.e., its potential to replace teachers) would likely have resulted in local officials and education consultants overlooking potential innovative uses for distance learning. Through the secretary's lead, SEDUC remained open to taking informed risks, which ultimately enabled SEDUC to avoid getting stuck when innovation and experimentation did not lead to perfect outcomes or desired

results at the outset. This ability to pivot and learn from both positive and negative feedback was vital in sustaining and scaling up the Media Center's impact.

SEDUC and Media Center officials soon began to notice that the teachers' unions were responding favorably to its distance learning and educational technology innovations. Given Brazil's highly unionized and rigid teacher context, SEDUC and Media Center officials took great risks by reconceptualizing the teaching and learning process, especially teachers' roles. As soon as SEDUC recognized that the teachers' unions were not challenging their model, SEDUC began approaching teachers and teachers' unions as active stakeholders and partners in delivering education to rural Amazonian communities. SEDUC leveraged this more positive relationship with the teachers' unions by prioritizing teachers as part of a series of educational system reforms carried out by the secretary of education and Bain Consulting from 2009 to 2012. These reforms included improving and streamlining teacher recruiting, training, evaluation, and motivation. Though several other Brazilian states faced extended teacher strikes in the late 2000s, the relationship between SEDUC and the teachers' unions in Amazonas remained stable and productive.

An entrepreneurial approach emboldened the state to push forward alone at times. For instance, in many conversations with MEC, SEDUC officials were unwilling to accept distance learning solutions offered by the federal government, for it was clear that they would fall short in tackling the problem of educational access in the Amazonian context. However, this also meant that the state was not in a position to accept financial resources from Brazil's

Leveraging the private sector's assets

Every Media Center classroom in Amazonas is equipped with a computer, TV screen, webcam, microphone, printer, and high-speed satellite Internet. Power is needed to operate all this, but in most communities, electricity runs on diesel generators. Students need to be transported daily from their neighboring communities to classrooms on a revolving basis. In terms of human capital, teachers are hired, trained, and allocated to classrooms or the studio. Lessons are developed daily, then converted by animators and pedagogical specialists into digital format or supplemental learning material or resources. Lectures by lecturing teachers in the studio are recorded by studio operators across multiple media devices and broadcast live into classrooms, where tutoring teachers help to bridge content to students and students' questions are relayed to the studio.

To orchestrate this, the Media Center model required significant coordination and division of labor across both hard and soft infrastructure. Given limited state resources, SEDUC and Media Center officials outsourced those

federal government and MEC. As a result, the state made the decision to invest its own resources in the Media Center from the very beginning—a decision that ultimately granted center officials the space in which to experiment and innovate. However, for a state with limited resources and budget like Amazonas, it took considerable courage to turn down support and funding from MEC and pursue an independent path.

services that they could not provide, tapping key private sector service providers and leveraging their assets. This private sector involvement was key to making distance education in Amazonas a viable solution to the state's education delivery problems. Without the studio operators or the satellite service providers, for example, the Media Center model could not possibly have thrived.

But even with this successful business-like approach, the Media Center continues to face logistical challenges. Disruptions are frequent—from Internet links that do not work, to technical support that cannot reach a school sooner than 10 or even 30 days of travel, to antennas that are submerged by floods during the rainy season, to unreliable satellite connections. Media Center officials expect that on any given day, between 5 and 15 percent of classrooms are not connected to the live stream. In some cases, classrooms can be offline due to damaged equipment for weeks at a time. Where no private sector actor exists to outsource a vital service, the Media Center has struggled. For instance, with

no transportation provider—largely due to the shifting nature of Amazonas' rivers during its unpredictable periods of floods and drought—the Media Center has struggled to identify a reliable and cost-effective way of transporting students or

for shuttling technicians to communities in need of service or troubleshooting. As a result, transportation continues to be the highest cost (about 50 percent of the program's per capita cost) and the least scalable component of the program.

Identifying solutions tailored to the local context

A key to the Media Center's success was to combine an entrepreneurial approach was a willingness (shared by SEDUC) to actively seek out, adapt, and adjust traditional distance learning models in ways that fit the reality of Amazonas and the Brazilian education context. After all, distance learning was not new in Brazil; universities, state governments, and media conglomerates were already employing distance learning to reach school-age populations across the country (Trucano 2014). In particular, SEDUC and Media Center officials developed components such as bidirectional interactivity that traditional distance learning models lacked and rejected solutions such as a single lecturing teacher model that would harm relationships with key stakeholders such as the teachers' unions. Indeed, according to the secretary, Soares da Silva, without the presence of tutoring teachers in each classroom, the Media Center learning model would have been weaker and would not have earned such wide acclaim among Amazonas municipal officials, teachers, and students.

Leveraging a peripheral status

According to the Harvard University professor Clayton Christensen,

Additionally, the Media Center model overcame specific obstacles faced by the state in delivering education to remote areas of the Amazon rain forest. These included teacher shortages and the cost of training and placing up to 15 teachers in each community. By allocating one generalist (the tutoring teacher) per community and then using the specialist (the lecturing teacher) at scale via satellite broadcast, the model enabled SEDUC to provide lectures in geography or chemistry (or any other high school subject) using two specialists in Manaus, rather than hiring and allocating hundreds of subject-specific teachers to communities sometimes so small, like Filipe's, where there may not even be a single student every school year.

What made it possible to transform distance learning was SEDUC and Media Center officials' diligent attention to local limitations, constraints, and opportunities. Being open to experimentation and using critical thinking to fully understand the specificities and circumstances of the Amazonas context ultimately allowed SEDUC and the Media Center to be a force for positive change.

innovation and disruption have better chances of success and achieving a high

impact if they emerge at the periphery without posing a direct threat to the status quo (Christensen, Johnson, and Horn 2008). Indeed, much of the state's entrepreneurialism can be attributed to the fact that the State of Amazonas is geographically distant and relatively isolated from Brazil's mainstream. Rather than be further encumbered by its geographic isolation—the source of the state's education delivery challenges—SEDUC and Media Center officials took advantage of their peripheral status in the northern region of Brazil. That is, being away from the spotlight allowed them more room for innovation and experimentation, as well as less scrutiny and criticism when a certain program component was being pilot tested or needed modification. Geographic isolation was thus an unexpected catalyst for innovation.

Maintaining a peripheral status also enabled the Media Center to experiment with its model where it was not threatening, especially in relation to the state's teachers union. Traditionally, teachers and teachers unions were skeptical about the kind of solution that the Media Center model represented, because it potentially threatened their established role. But, a fortunate

by-product of the center's teaching innovations was the increased prestige of teachers in Amazonian society. Lecturing to hundreds of students across the state, for example, the center raised the status of teachers to "celebrity teachers." Together with the center's higher teacher salaries and its creative ways of recognizing talented teachers, the status of teachers within the learning model began to ripple outward, improving their status in the larger society, leading more students to enter the profession, and inspiring some teachers to even run for public office. SEDUC officials think the Media Center's transformational role has been helping to ease the state's teacher shortage.

By not drawing attention to themselves in the beginning, the Media Center was able to reframe the relationship between technology and teachers under the radar. By the time teachers unions were noticed, Media Center lessons had already reached tens of thousands of rural students, and it had proven that there was no other viable way to offer formal education to the state's remote areas. Furthermore, the model demonstrated that teachers held a significant role in the learning process that was equally, if not more important than, technology's role in delivering education to Amazonas' remote areas.

Pacing the scaling-up process

The pacing of the scaling-up process was critical to success. Offering only grade 10 in 2007, and then expanding to grade 11 in 2008 and grade 12 in 2009, allowed the Media Center to evolve with its first graduating class of about 10,000 students in 2009. Starting at scale but with a limited

student cohort provided important lessons and feedback, on the basis of which leaders could quickly make mid-course corrections, such as reducing the duration of interactivity windows and sending more instructions and materials to tutoring teachers in advance.

Although innovation and content development form a continuous process of creativity and learning in the Manaus studios, once the key design and logistical features of the Media Center classroom were developed, the model became fairly simple to replicate and scale up, requiring three basic steps: First, deploy the equipment for broadcasting and interactivity. Second, assign a tutoring teacher to be in charge of that classroom. Third, set up transportation to bring students back and forth from their neighboring

communities to the Media Center classroom.

The Media Center has been able to scale up to reach more high school students every year, and it has expanded its programming offerings as well. Following success at the high school level, the center expanded to include middle school, followed by an adult and young adult program. Plans are in store to transmit tutoring lessons to regular schools lacking designated teachers, plus archived lessons will be broadcast to classrooms with absent teachers.

Lessons learned

- The stability of Amazonas' leadership and a series of education reforms contributed to the state's *political prioritization* of and *commitment to continuous support* of the Media Center. This was especially important given that the center would enable the State of Amazonas to fulfill its obligation to provide quality secondary education.
 - SEDUC's *entrepreneurial spirit* enabled officials to focus on the problem, to actively approach change rather than wait to adapt existing solutions, and to innovate where previous solutions fell short—or reject solutions that did not fit the local context. This spirit led them to identify, coordinate, and leverage key service providers in the private sector, to rely on their own resources in lieu of federal support, and to “pivot” when needed.
 - Geographic isolation conferred a *peripheral status* upon the state, allowing officials to take risks and depart from entrenched ideas and national trends that did not fit the local context. Being on the periphery enabled the state to try prototypes of unique solutions that were more compatible with the state's reality.
 - By *focusing on the problem*, SEDUC officials, Media Center personnel, and the teachers' unions were able to cast aside prejudices against traditional distance learning models and identify key areas for experimentation, ultimately innovating key features of the center's learning model, such as bidirectional interactivity and new roles for teachers. This allowed leaders to tailor center innovations to specific challenges and circumstances unique to Amazonas.
 - The Media Center model of distance learning *leveraged technology as a compliment to, not replacement for, teachers*. This helped raise the status of “celebrity teachers,” with the possibility of increasing the prestige of teaching overall. Teachers and teachers' unions became more favorably inclined toward distance learning once they realized that the center's adoption of new and adapted roles for lecturing and tutoring was a boost for the profession.
- Offering lecturing teachers the flexibility and autonomy to design their own lesson plans allowed Media Center content to be *tailored to the context*. Giving tutoring teachers the responsibility for the educational development of students and connecting them to lecturing teachers enabled this distance learning model to provide students with a *full classroom experience*.
 - The Media Center's strategic *pacing of the scaling-up process* enabled program officials to focus on getting content right before moving on to new demands.

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Endnotes

1. Primary education in Brazil covers nine years of schooling (ages 6 to 14) and is divided into two cycles: *ensino fundamental 1o ciclo*, grades 1 to 5, herein called elementary school; and *ensino fundamental 2o ciclo*, grades 6 to 9, herein called middle school. Secondary school, or *ensinomédio* (grades 10 to 12), herein called high school, covers three years of schooling (ages 15 to 18) and is broken into regular and vocational tracks. Primary education is the responsibility of municipalities, and secondary education is the state's responsibility.
2. Basic education includes early childhood education, as well as elementary, middle, and high school.
3. Lecturing teachers work pairs so that they can support each other, explore new resources and approaches, and eventually curate higher quality content than if they were working alone. During the live broadcasting, only one teacher presents, while the other answers questions and facilitates discussion.
4. While there is no national or state curriculum in Brazil, national exams like Prova Brasil force local administration to pursue a certain level of standardized content. The Media Center's pedagogical staff is tasked specifically with ensuring content developed by lecturing teachers is aligned with curriculum guidelines developed by the State to help prepare students for these national exams.
5. Tutoring teachers must have a university degree and are chosen through a state exam. Eighty percent of tutoring teachers hold two year, renewable contracts, and the remaining 20 percent are public servants. Lecturing teachers hold advanced degrees in the areas that they teach and are hired to dedicate their time exclusively (40 hours per week) to developing curricular content and delivering lessons. They are selected through two phases: first, a written examination; and second, a studio test to assess their abilities in front of the camera. Once hired, lecturing teachers participate in ongoing training in both technical and pedagogical skills. Technical trainings cover posture, speech, screenplay, and other effective behaviors in front of the camera. Pedagogical trainings cover feedback from pedagogical coordinators regarding observations made during lectures and student participation during chats.

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