

How Do **Disruptive Innovators**

Prepare Today's Students
to Be Tomorrow's Workforce?

**DEEP LEARNING:
TRANSFORMING SYSTEMS
TO PREPARE TOMORROW'S
CITIZENS**

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About New Pedagogies for Deep Learning™(NPDL)

New Pedagogies for Deep Learning (NPDL) is a Global Partnership dedicated to transforming learning so that all students contribute to the common good, address global challenges and develop the Global Competencies needed to flourish in a complex world. Educators from across the globe are collaborating to activate powerful, student centered, real-world learning by fostering six Global Competencies. The Deep Learning framework provides a comprehensive solution to reimagining learning and includes a set of tools, measures and planning processes that enables schools, municipalities and systems to shift practice and impact well-being and equity. www.npdglobal

Abstract

Disruptive innovators take advantage of unique opportunities. Prior to COVID-19 progress in Latin America and the Caribbean for integrating technology, learning, and system change has been exceedingly slow. In this paper we first offer a general framework for transforming education. The framework focuses on the provision of technology, innovative ideas in learning and well-being, and what we call 'systemness' which are favorable change factors at the local, middle/regional, and policy levels.

We then take up the matter of system reform in Latin America and the Caribbean noting problems and potential. Then, we turn to a specific model in system change that we have developed called New Pedagogies for Deep Learning, a model developed in partnerships with groups of schools in ten countries since 2014. The model consists of three main components: 6 Global Competences (character, citizenship, collaboration, communication, creativity, and critical thinking), Four Learning Design Elements (pedagogy, learning partnerships, learning environments, leveraging digital), and three system conditions (school culture, district/regional culture, and system policy).

We offer a case study of relative success based on Uruguay with whom we have been working since 2014. Finally, we identify steps and recommendations for next steps in Latin America for taking action on system reform in the next period—a time that we consider critical for taking advantage of the current pandemic disruption. The next few years will be crucial for either attaining positive breakthroughs or slipping backwards into a reinforced status quo.



Education systems around the world were in big trouble before COVID-19. The pandemic has essentially revealed the fault lines and turned the tables, creating an opportunity to re-think the role of education in societal development.

In a matter of weeks beginning in March 2020, COVID-19 disrupted all facets of life. The two big questions now before us are ‘what can we do to cope’; and ‘is it possible to use the opportunity to build a system that provides quality learning and equity for all’? This paper will explore these questions in the current context and in terms of what it takes for systems to change.

Long before the pandemic, students were losing interest or otherwise becoming alienated from regular schooling as they moved up the grades into secondary school; stress and anxiety were on the rise among youth worldwide. Societal conditions, especially for climatological catastrophes and extreme inequality, were worsening (Fullan & Gallagher 2020). Across the world, there was a feeling of stagnation or decline. Andreas Schleicher, Director of Organization and Skills, and the Head of the Programme for International Student Assessment (PISA), expressed the situation in the following words:

“Over the past decade, there has been virtually no improvement in the learning outcomes of students in the Western world even though expenditure on schooling rose by 20% during this period” (Schleicher, 2018, p. 13).

In Latin America, the 17 countries that participated in PISA achieved low results. One observer concluded that ‘Latin America is facing a learning crisis’ (Di Gropello, et al 2019). A few countries or regions had improved, but many had stood still. PISA, of course, is not the only test that counts, but overall, we think it is accurate to conclude that as of January 2020, most education systems around the world were in decline or stalled.

This paper focuses on how systems change and what might be potential positive responses post-COVID. It is organized into five sections. First, we present the framework for system change co-developed in our work with education systems since 2003. Second, we examine the disruption period arising from the COVID-19 pandemic. Third, we take up future education reform in Latin America and the Caribbean considering what could go wrong, thereby making matters worse or becoming stalled in the status quo. Fourth, we describe the Deep Learning Model and solutions. Fifth, we provide an example of a System Transformation solution using highlights of transformation in Uruguay. Lastly, we make a recommendation for next steps that could represent significant progress for transforming education systems in the region.

1. Framework for Transforming Education Systems

First, we present a framework that will guide our analysis, and especially our proposed solution. The three overall essential characteristics for any model of system transformation are:

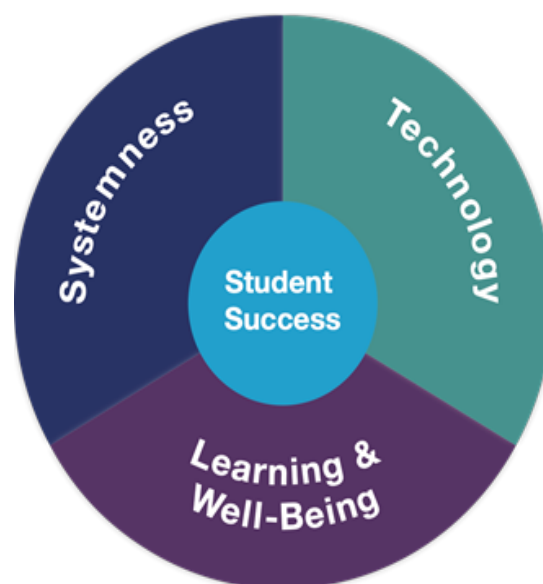
- The model must be comprehensive and identify the smallest number of key factors.
- The model must mobilize and leverage the forces for change at the local, and middle(region) levels in relation to system policy and strategy change.
- The elements of the model must operate as a system.

Much of the potential for system reform in our new thinking is bottom-up – harnessing the untapped desires and motivation of those at the local level as ‘change-makers’ concerning system change.

In complex system terms, the main components of effective systems must have a degree of autonomy from each other, combined with continuous mutual interaction. We describe such a dynamic system as being characterized by connected autonomy. Finally, all our recommendations arise from our applied work with education systems around the world. How systems change is the focus of this paper.

Figure 1 displays the system transformation model driven by three interactive forces: **Technology, Learning and Well-being, and Systemness**. The three forces work in combination to impact Student Success.

Figure 1. Sysrem Transformation Following COVID-19



Fullan & Quinn, 2020

Student Success is the centerpiece of the model. We define student success as proficiency in the Global Competencies or 6Cs of character, citizenship, collaboration, communication, creativity, and critical thinking. The competencies apply equally to academic learning and well-being, including mental and physical health and social intelligence. Included within this set is a sense of purpose, meaning, belongingness, teamwork, and contribution to the world. A second critical dimension consists of equity—the degree to which students succeed independent of race, gender, socio-economic status, and other relevant categories.

Technology refers to all things digital. It is about devices, connectivity, platforms, access to ideas and information, learning-related curricula, Artificial Intelligence, and other innovations.

Learning and Well-being include factors related to becoming good at learning and good at life. This includes learning approaches and models designed to improve students' knowledge, skills, and efficacy for living, coping with, and flourishing in complex societies.

Systemness is vital to success. Systemness is the degree to which key elements of the system are connected, and the degree to which many people at all levels of the system feel that they are part of a system on the move, and are correspondingly aware that they have a responsibility to contribute to and learn from the system.

The main components of systemness are listed in figure 2. They include the system's qualities that enable it to work better, especially with how technology, learning, and well-being interact and the degree to which people at all levels build the capacity and awareness that they are engaged in system improvement.

Figure 2. Systemness Elements

1. **Awareness and valuing** of each of three levels in the system: Top, Middle, Local.
2. Focus on a **small number** of key goals.
3. Investment in **capacity building and ownership of the priorities** with respect to Deep Learning, Well-being and Equity.
4. Investment in **technology and its role as an accelerator** for learning and well-being.
5. **Ongoing feedback and use of data** primarily for improvement, and secondarily for accountability relative to performance and equity.
6. **Attention to the interrelationship and synergy of the three core components** of the model: Technology, Learning/Well-being, and Systemness including fostering a public sense of societal commitment to transforming education for all.
7. **Tapping into and harnessing bottom-up forces** and motivation for system change with links to the middle and policy levels.

Next, we look at how systems have responded to the pandemic and its aftermath. Then, we look at how this connects to the system transformation model.

2. Disruption and its immediate aftermath

Countries have experienced the disruption differently. Our NPDL team examined the different ways systems responded to the global emergency (NPDL, 2020). We observed three zones that both individuals and systems experienced as they navigated the disruption – the Unsettled Zone, Learning Zone, Growth Zone. (figure 3) During initial disruption, students and teachers were shut out of schools almost overnight, coping with unpredictable circumstances, identifying elements of practices that could improve learning, and getting ready to return to the school. During these phases, various forms of hybrid learning have emerged. We now see the return to school as an unpredictable phenomenon that could take us well into 2021. The zones are not finite or sequential but offer a way for systems to reflect on what has been learned during the time and to identify insights that may be useful as they move forward.

Figure 3. Navigating the disruption



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We will not try to summarize the experiences of all students, especially in Latin America and the Caribbean, during the disruption, but various reports indicate that it represents a range of situations depending on the circumstances, including:

- Hunger, safety, sickness, and other negative effects;
- Social isolation with more time spent alone, more screen time, less physical activity, and less contact with others;
- Appreciation of the freedom from the drudgery of school with corresponding time spent on personal learning
- Working to contribute to the well-being of family and community;
- Others attempting to keep up with schoolwork under trying conditions.

One thing that stands out, almost unexpectedly, has been the realization on the part of parents of how important schooling is in their daily lives. Such realization ranges from how critical schooling is as a safe place for students to go, to how difficult it is to look after children daily, let alone teach them.

The access to technology, connectivity, and digital resources was insufficient in Latin America and the Caribbean as the pandemic began. Rieble-Auborg and Viteri (2020) found that Uruguay is the only country in the region that has basic digital conditions to support learning (connectivity, digital platforms, virtual tutoring, digital resource packages, and a central digital warehouse). By contrast, overall in Latin America and the Caribbean, only 33% of schools have adequate bandwidth. In more vulnerable (poorer) areas, less than 20% have sufficient bandwidth. Moreover, in most countries, less than 15% of rural schools have access to sufficient bandwidth. Lastly, 36% of schools overall have “suitable software and computing power.” Data from the PISA 2018 study shows that most students globally do not have the digital resources to learn from home. In short, the findings are that inequity of access and corresponding low results prevail. In other words, gaps that were already very wide before the COVID-19 pandemic became more prominent as people became dependent on remote access.



3. Education Reform in Latin America and Problems

Traditional content-driven education systems are becoming obsolete, and societal changes demand a new kind of learning. This movement, away from prescribed knowledge to entrepreneurship, creativity, and problem-solving skills, requires a new set of competencies if students are to thrive in this accelerating world. The urgency exposed by the pandemic has reinforced the need to shift thinking about what is worth learning, the best processes for learning, how to measure progress, and how to make learning equitable for all. The rapid switch to remote learning illuminated the need for interactive, meaningful experiences that engage learners through purpose and relevance. Continuing to push traditional approaches will further alienate youth, leaving them unprepared for the dynamic world they will face. As well, we risk losing students forever. For example, in a recent survey in Brazil 30% of high school students said they do not intend to return to school after the pandemic.

Such a massive transformation from traditional content-driven approaches to competency-based learning calls for a new model. The model needs to build the capacity of teachers and leaders at every level of the system. The model also needs to develop learning methods that put students at the center as co-designers and owners of their learning and to be actionable at a sustainable scale.



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The rush to digital platforms has been universal in response to the pandemic despite the inequities of access to devices, connectivity, and quality use. Quality digital devices and corresponding high-quality connectivity should be a fundamental priority in a comprehensive approach moving forward. We endorse that, but the fear that technology can easily become the only action, stands out. Countries often choose the wrong drivers for whole system reform (Fullan, 2011). One wrong driver is technology, while the other three wrong drivers were: negative accountability,

individualism, and ad hoc initiatives. Investing in technology is an attractive proposition, because there is a high need, it is a visible, and thereby an attractive political proposition. However, the trouble is that it is an incomplete solution in the absence of developing a strong learning system and its associated teaching and learning pedagogies. Technology by itself will result in superficial and uneven change.

In terms of the System Transformation model (Figure 1), technology will only be valuable if integrated with the equally fundamental factors, including systemness, and learning and well-being. Fullan (2011) noted that “pedagogy is the driver; technology is the accelerator” (p.15). COVID-19 is demanding a rapid solution for students who are out of school. Politicians may see technology as a quick structural fix to give an impression that a solution is being implemented. Yet, because it is driven by market forces and politics, technology will inevitably become more prominent with a life of its own. Still, it takes special effort to develop the other two forces in our model: learning and well-being; and systemness. These are vital factors to success. Any viable reform must integrate the three components of technology, learning and well-being, and systemness. The third component, systemness, requires the involvement of all three levels of the functioning system (local, middle, and top) to realize students’ success.

Before we move to recommend next steps, we highlight Latin America’s characteristics related to system change in education.



1. There is a history of top-down approaches to reform. This does not fit well with what we now know about how change happens in complex systems. More and more, it is clear that system change can be led by the center but must leave room for partnership with the other levels, especially local entities. In our work, we are more and more concluding that system change must, to a degree, be jointly determined through interaction across the levels (Fullan & Gallagher, 2020; Fullan & Quinn 2016).



2. Ministries of education tend to be bureaucratic. They often fail to gain influential rapport at the middle and local levels of the system.



3. Good ideas and innovations have come from outside the government, but these initiatives have remained marginal. Only in a few cases and for relatively short periods have widespread pedagogical innovations been supported by Ministries of Education (such as Escuela Nueva in Colombia, and Tutorial Networks in Mexico)



4. There are huge numbers of multi-grade schools in remote communities across the region. These sites could offer fertile ground for innovation and success, drawing upon resources in the local community and a history of cooperation and commitment to the greater good. Multi-age groups could be seen as an advantage rather than a liability. Cross-age tutoring with students can be developed as a major resource. Such social strengths could be leveraged with new, coordinated national and regional strategies for system reform.



5. Instead of seeing devices as the solution, digital can be positioned as an interactive tool to enhance learning, mutual problem solving, innovation, and as a way to build on the strengths of local cultures and national development.

4. The Deep Learning Model as a Solution

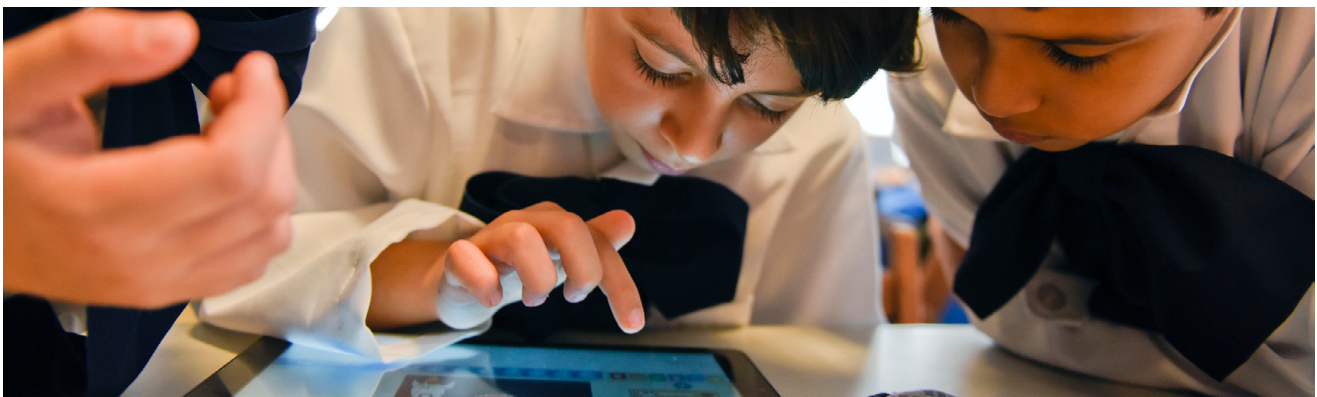
We propose that Deep Learning will prepare students with the Global Competencies needed to deal with the complex and turbulent world, allowing them to flourish and influence the future. We know that the best way to learn in challenging, rapidly changing times is to build learners who can innovate, apply thinking to new situations and contribute to humanity's betterment. Moreover, this must be mobilized for 100 percent of students. Many ideas are coming together across the globe. We are about connecting the dots – about synergizing those efforts. The challenge is putting these ideas into practice and how to do it at enough scale that it changes the world.

One transformative approach that does indeed meet the System Transformation criteria described in the first section of this paper (Figure1) is emerging through a global partnership we are leading, New Pedagogies for Deep Learning™ (NPDL). This living laboratory is working in partnership with systems around the world to build knowledge of the practices that deepen learning and the conditions that foster deep change in whole systems (www.npdl.global). The NPDL model has been developed and refined since 2014 with Uruguay and seven other countries. Deep Learning is now impacting thousands of schools in ten countries; Australia, Canada, Finland, Hong Kong, Japan, New Zealand, Netherlands, Taiwan, United States, and Uruguay creating a social movement for the transformation of learning. We are learning a lot and causing a significant shift in practice.

The New Pedagogies for Deep Learning Model

NPDL helps systems focus on achieving equity, quality learning, and well-being for the entire system— all schools, all students. NPDL's approach to bringing fundamental change is about the whole system and working jointly with all system levels, including local schools and communities, municipalities, and governments, to re-culture systems.

NPDL created a framework and set of tools that develop clarity of learning outcomes and increase precision in the pedagogies that will foster the new outcomes. NPDL also identified organizational conditions needed to support Deep Learning and shift practice from the status quo. The model and resources have been proven through practice over the past seven years, so that insights can be diffused globally. Deep Learning is not a project or initiative but a way of changing the process of learning. Thus, it is positioned as the core work of the schools and systems. This increases sustainability and scaling. Schools, municipalities and governments act as lead change agents for broader system diffusion by building lateral relationships as a key enabler of change.



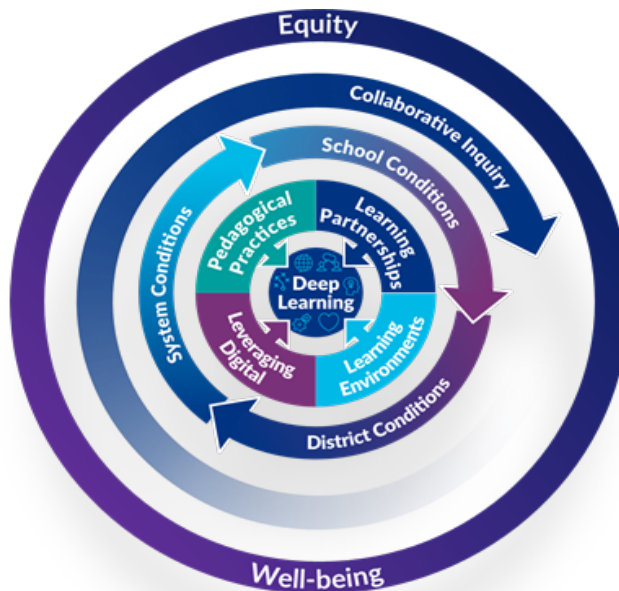
The Deep Learning Framework

The Deep Learning Framework enables the design of deep learning experiences steeped in creating new knowledge and solving real-life problems. It includes a comprehensive set of tools and processes that develop a system's capacity to rapidly spread deep learning and is easily adapted to the context at each system level.

The Deep Learning Framework consists of three core components (Figure 4). First, there must be clarity about the learning goals and what it means to be a deep learner; specifically, to become proficient in the Global Competencies (6Cs). Second, Deep Learning is fostered when four learning design elements are intentionally integrated. These learning design elements are Learning Partnerships, Learning Environments, Leveraging Digital and Pedagogical Practices. Third, it will happen in whole schools and systems when the conditions for innovation, growth, and a culture of learning for all are created. These conditions, as displayed in Figure 4, include school culture, district or regional qualities, and system policies especially related to vision, goals, and investment in the system.

Surrounding the model, the reflective process of collaborative inquiry permeates each component and ensures continuous improvement. When these layers work in concert, they impact well-being and equity, as depicted in the outer ring (see Fullan et al., 2018; Quinn et al., 2020; see npdl.global for additional resources,).

Figure 4. Deep Learning Framework



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5. System Transformation Model in Uruguay: An Example

Uruguay provides one example of relatively successful system transformation in Latin America and the Caribbean, focusing on technology, system change, and learning. In this section, we examine next how Uruguay was able to transform their systems. From a systems perspective, Uruguay has accomplished what only few other systems have been able to do, such as:

1. Spread technology universally throughout the country in the service of learning.
2. Involve the schools in determining the nature of innovations and their use - what we call 'jointly determining' innovation.
3. Establish rapport with local towns and communities throughout the country.
4. Develop and maintain support and a shared sense of ownership with the National Administration of Public Education (ANEP).
5. Maintain the political support of the President and political sectors.

In 2007, Uruguay established CEIBAL, a new national agency, to lead the introduction of small-scale computers (called Xos) for all students and teachers as a first step in altering learning in its schools. By 2009, teachers and students in virtually all primary schools had received their Xos.



The first phase (2009-2013) was about access and ease of use. By 2012, over 570,000 laptops were distributed with impressive speed and low cost of universal implementation. However, it was not just dissemination of technology. In addition to the Xos distribution, teacher training was provided using a cascade model. In other words, teachers trained other teachers, and online support supplemented them. There was widespread support for what we can justifiably call a system-wide reform.

Still, the universal digital strategy was not expected to bring immediate results. It was seen as a first step. Beginning in 2014, Uruguay experienced a crucial parallel development consisting of two strands: direct support to schools and establishing relationships with other agencies. First, the direct support to schools consisted of the CEIBAL staff supporting schools in developing and sharing innovative examples of learning according to the NPD model. A growing number of schools created small scale innovations, which were shared with other schools and celebrated in periodic learning forums regionally and nationally, starting with 100 schools and rapidly expanding to 600 schools.

Also, establishing relationships with other agencies was essential. While CEIBAL had the mandate to innovate, it also saw its role as developing close relationships with the existing bureaucracy. In addition to fostering teacher, parent and community support a strong rapport was developed with the Ministry of Education and Culture and ANEP. Joint sessions were held to share information and hold work-related demonstrations (e.g., with the large group of inspectors over 400 in the Ministry of Education). Annual celebrations were held featuring officials from both the Ministry and CEIBAL. In this same period, a new platform was built with ongoing assessment capability, and strategy to foster and spread promising innovations, including joint projects and digital video-based examples.



In 2014, through ANEP and CEIBAL, Uruguay became one of the founding member countries of our New Pedagogies for Deep Learning global partnership. Today, with over 600 schools engaged as members, Uruguay has continued to develop innovations and build widespread support across the country. This system shift and increasing impact on student learning and teacher capacity resulted from strategic support that became more specific and contextualized as it evolved after joining NPDL in 2014. In this period of development, we have identified six key strategies:

- 1.** Capacity Building. The core Deep Learning Team was expanded to embrace more coaches, who spent significant time in the field, taking the capacity building to teachers across the country. In 2017, the team provided six days of capacity building across the network of 100 schools growing this to impact more than 600 schools in 2019.
- 2.** Vertical and Horizontal Coherence. The team explicitly focused on working across all layers of the system, from students, to teachers, Principals, and Inspectors. The team engaged with stakeholders at the top, middle, and bottom levels.
- 3.** Accountability. Success was celebrated at every opportunity, including publishing a volume of teachers' best work from across the network annually.
- 4.** Teacher Engagement. Teachers responded to the opportunities to learn and measure impact with enthusiasm resulting in over 1600 teachers submitting examples of practice in 2019. This exceeded the numbers submitted by all other countries in the partnership.
- 5.** Student Engagement. Summer school programs for students in the most remote and underserved regions focused on innovation and Deep Learning to address the rural and marginalized communities' inequities. Student choice and voice was evident in the design of learning as captured on videos used to share practices.
- 6.** System Celebration and Diffusion of Innovation. Celebrations of deep learning were used strategically to showcase new approaches and highlight the collaboration across all levels of the education system and regions annually. The most recent event in May 2019 brought together over 5,000 educators from all regions of the country and all government levels to celebrate the successes and commit to further expansion of the work across all primary schools. Events were then made accessible through a full range of digital options for all educators, families, and communities to deepen the awareness and understanding of the change's scope. Video was used extensively to document shifts in practice and diffuse those examples broadly.



Uruguay's Responses During COVID-19

Uruguay's investment in capacity building focused on Deep Learning and system changes at all levels, has continued during the COVID-19 pandemic. As COVID-19 hit, the Core Deep Learning Team was able to leverage the strong communication links and digital infrastructure already established with teachers, to continue communicating, teaching, and learning with agility.

Low bandwidth was combatted by using phones and WhatsApp. Television was activated as a daily medium to continue to connect, teach, and learn. The notion of "Momentos de Aprendizaje Profundo" (Deep Learning Moments) was established to stay true to the principles of deep learning, while easing the pressure on teachers to think in terms of smaller innovations. They posed the question, "In all we do in our teaching, however large or small, how do we continue to plan and generate those small opportunities for deep learning to occur?"

Such responses can be attributed to the technology-based capacity linked to new pedagogical practices that Uruguay developed especially since 2014. We identify four factors in particular:

- 1.** Their vision for Deep Learning remained crystal clear and widely embraced at multiple levels;
- 2.** Learning was enabled, via adapting the use of digital, continued connection and established practices;
- 3.** They were able to rapidly adapt expectations to suit the various country contexts; and
- 4.** During the crisis they were able to leverage the strong capacity they had built across the entire system in a planned and explicit manner.



Uruguay's Impact on Vulnerable Populations

The Deep Learning approach simultaneously impacts well-being and equity, while it develops the competencies that students need to succeed in life. We call this the 'equity hypothesis.' The equity hypothesis proposes that, while all students benefit from deep learning, it is even more impactful for those who have been disadvantaged.

A recent study in Uruguay found significant positive associations between the use of pedagogical practices of deep learning and students' motivation and engagement. The study used the NPDL framework that describes the three new roles of teachers as activators, culture builders and collaborators, to develop a "teacher-as-an-activator-index." The index assesses the degree to which teachers promote students' voice, clearly communicate success criteria, and promote active use of technology. It also observed students' engagement and assesses student motivation for learning.

The study collected data from students through two questionnaires in different moments of time, and compared the students' perceptions and opinions with the methodology of a panel. In the first year, middle school students from different cities were asked about the pedagogical practices of their History, Biology, and Geography teachers. The surveys contained questions related to the four elements of the Deep Learning approach that characterizes a teacher's role as "an activator." Specific behaviors of activators include promoting students' voice and choice, collaborative work among students, and fostering projects across school subjects. Data was also collected to determine students' level of engagement towards those school subjects and their intrinsic motivation.

In addition to the significant positive association between the use of the pedagogical practices of deep learning and student motivation and engagement, the study found that there is a tendency for this association to be stronger in students starting with lower levels of intrinsic motivation, thus confirming the equity hypothesis (*Red Global de Aprendizajes, Plan Ceibal, 2019*).



Since the initial stages of Plan Ceibal, the focus has been on equity to give primary and secondary school students access to a device and connectivity for education to bridge the digital gap. Plan Ceibal offers digital programs and platforms for teachers and students on Math, English, and computational thinking, as well as a vast digital library and other programs. A recent study also explored the impact of the use of the Math digital platform in the students' learning. The study showed that all children benefit from using the Math platform, especially when teachers integrate its use to their practice. The analysis also showed that the positive impact is greater in children coming from unprivileged context (Perera & Aboal, 2017).

The examples cited are evidence that the New Pedagogies for Deep Learning approach used in Uruguay may be useful in transforming learning for vulnerable populations across Latin America and the Caribbean. The Uruguay case demonstrates that comprehensive impact is possible with vulnerable populations in just a few years when:

- The focus is clear;
- The components of system transformation are in place;
- The comprehensive Deep Learning Framework is utilized.

Uruguay has built strong internal capacity and processes that have impacted more than 600 schools at the primary, middle and secondary levels. Teachers, leaders, and students' capacities have helped them cope during the pandemic better than their neighbors. They articulate clearly what they have learned during this crisis and how they will use this knowledge to support the vulnerable and marginalized moving forward. This case demonstrates that scalability and sustainability become possible by using a robust framework and resources to build internal capacity and leadership. As we have noted, local forces and motivation for system change must be linked to strategies at the middle and policy levels.

We acknowledge that Uruguay's case is only one example from a relatively small country. We use it as an illustration of what can be done. In larger countries, like Brazil with a 209 million population, the middle, such as cities, provinces, regions, become crucial, and they can serve as the 'system unit' in their own right. However, Uruguay's investment in capacity building focused on Deep Learning and system change at all levels has enabled the country to navigate the disruption of a pandemic with more agility and success than many neighbors. Their investment may also have helped Uruguay position itself for continued innovation and impact in the future.



6. Next Steps and Recommendation

Transforming systems is complex and depends on the integration of the three components, technology, learning and well-being, and systemness, introduced in Figure 1. The model is well illustrated in Uruguay, where it has successfully provided devices, connectivity, and a support platform to most schools. We also have observed that it has successfully supported, enabled, and liberated children and teachers to develop and spread local innovations. It was not only the deep learning framework and tools that directly caused innovation, but rather the opportunity to work together within the framework to develop, test, and spread ideas that fit the context and priorities of local educators guided by the framework. The key combination is the interaction of external support integrated with internal choice and ideas. This recognition of the need for both external frameworks and support combined with strong internal choice and development leads to our key recommendation.

In this paper, we have suggested four interrelated requirements for system transformation that could be integrated to take advantage of post COVID-19:

- First, the strategy must encompass all three components: technology; learning/well-being; and systemness, while synthesizing their interrelationships.
- Second, the model must continually address the ideas, concerns, and ownership of people/groups at all three levels of the system (local, middle, and top) with special attention to stimulating the ideas and energies of those at the local school and community levels.
- Third, the strategy must continually be refined and iterated. Complex system change generates new problems, and new ideas/opportunities that must be accommodated and leveraged.
- Fourth, all efforts must focus on the core goal: enhancing student learning and outcomes, assessing progress, and celebrating successes.



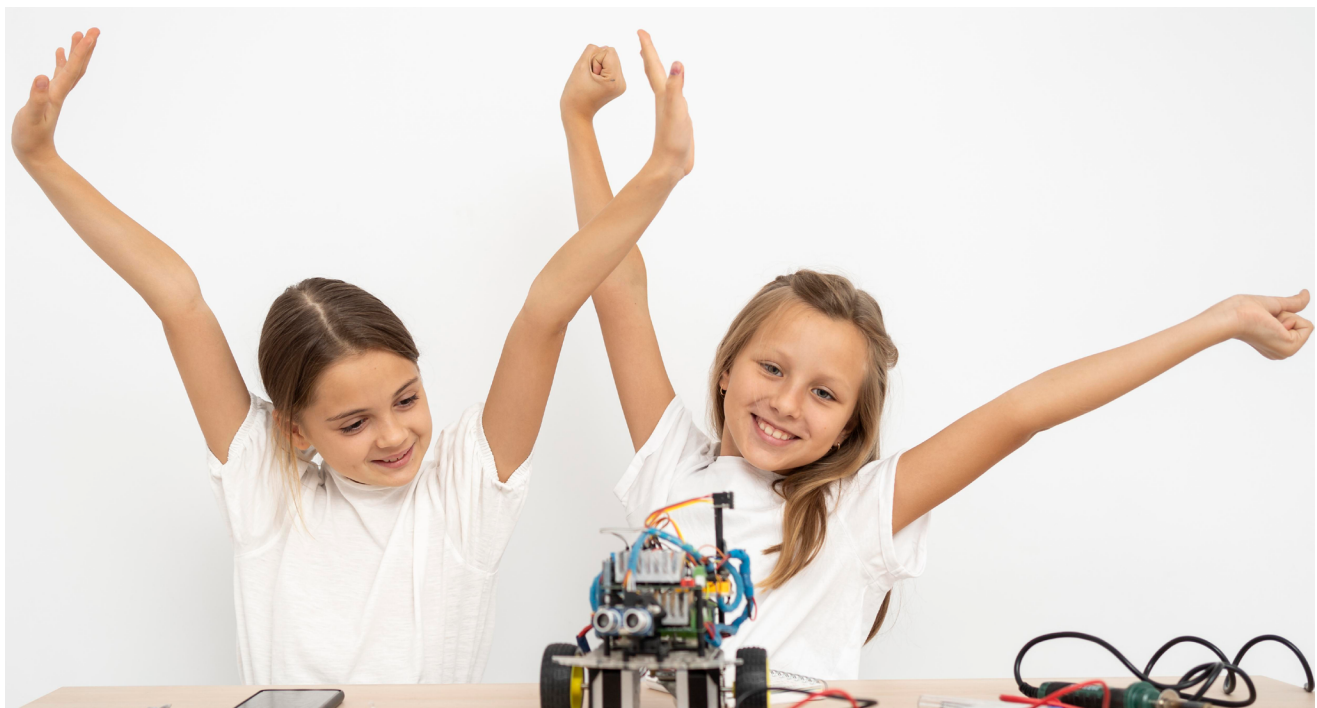
Knowledge of system change and progress is best developed by countries engaging in ‘learning by doing’ informed by existing ideas. Therefore, our main recommendation is that interested Latin American countries or subsystems within countries should join in deliberative efforts to improve learning in their systems using ideas identified in this paper. Careful front-end planning would be required including forms of assistance necessary to launch and support such work. Networks or other mechanisms should be established whereby such systems can learn from others and contribute to others’ learning. As we have said, COVID-19 presents a critical time. It represents a major disruption that could lead to either positive or negative outcomes depending on the actions taken.

Deep Learning provides a viable strategy for countries to prepare students with the Global Competencies needed to flourish and to influence the future. The approach is highly aligned with the culture and context and has been proven scalable, as shown in the Uruguay case.

In sum, our concern is that, without a strong learning focus and direct and enabling support, the path of least resistance will lead many systems to invest in the relatively easy solution of loading up on technology as the modern way to move forward post COVID-19. Using technology may look like progress and digitization of the future. However, without strong pedagogy it will be a step backward with superficial learning prevailing.

The more challenging, rewarding, and exciting choice is to use the opportunity to leapfrog into the future, drawing on some of the natural talents and conditions in one’s own culture and country. COVID-19 may have uncovered new opportunities. We are at an inflection point, and indeed, a choice point. Facing us may be the best new opportunity for education system transformation to come along in this century.

In the next year choices will be made that influence the next generation of children and youth in Latin America and the Caribbean. It is vital that these decisions be informed by the ideas that we have outlined in this paper.



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