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Education Policy Brief

Latin America and the Caribbean

Four Key Elements to Make Hybrid Education a Reality

Education Division – Social Sector





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KEY POINTS

- The social distancing measures put in place as a result of the health crisis will make necessary the use of hybrid education models that combine learning in school and at home through technology, depending on the conditions in each community. As countries are able start reopening their schools, it is expected that hybrid education will be increasingly adopted. This will serve as a channel for the digital transformation of education systems and to promote an education with greater quality, inclusion, and flexibility.
- The pedagogical approach of hybrid models should be guided, to the extent possible, by “deep learning,” which is learning that involves student-based experiences, is individualized, relevant and engaging, and generates learning and skills that can be used throughout life.
- Given that the implementation of hybrid education models on a large scale is something completely new, and considering that there is little evidence as to its effectiveness, especially for early and primary education, it is important that the different interventions be monitored and evaluated so that education systems can make adjustments as needed.

1. Introduction



Only a few countries had connectivity or digital tools to support the learning process in the school context.

How has COVID-19 affected education?

Because of COVID-19, the school conceived as a physical exacto, and was transferred to households. Overnight, education systems had to develop a massive offering of distance education and emergency remote instruction. Although there are some examples of large-scale distance education in the region, such as Ceibal en Inglés in Uruguay and Telesecundaria in Mexico, the reality is that there have been few experiences with distance learning during the past 10 years that are comparable to the complete closing of schools caused by the health crisis.² Teachers had to become more flexible in their ways of teaching and communicating with students. A new dynamic was created in which parents had to take on a central role in their children's learning.

All of these changes have one element in common: they expanded and adapted forms

of communication between students, teachers, and parents with technology as the central tool. In this context, students who have parental support and a digital foundation have been able to take better advantage of the resources available, than students from households that lack such support. Against the digital divide, many countries made significant efforts to diversify the channels through which content was delivered to students.³ In Peru, for example, the multi-channel strategy Aprendo en Casa allowed to reach more than 90% of students.⁴ Uruguay, better prepared for distance learning, mitigated the effects of schools closures through the [Ceibal en Casa Program](#), which, in addition to providing access to content, features activities that help students, teachers, and families. The number of teachers and students who entered the system was multiplied by 4 with respect to before the pandemic; more than 75% of students and more than 84% of teachers connected to the platform.

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1. Introduction

In LAC, learning gaps were observed before the pandemic. Among third graders, 62% of the poorest students did not understand basic mathematics concepts, compared to 25% of the wealthiest students.⁵ Learning gaps also exist when comparing with other regions. In LAC, 52% of 15-year old students have low performance in reading, more than double the percentage in OECD countries (23%).⁶ Although there is little evidence on the impact of the pandemic on learning, it is estimated that the largest share of new dropouts will be from among poor and vulnerable middle income students.⁷ Azevedo et al. (2020) expect that the digital gap and the low effectiveness of television-radio programs can limit the capacity to mitigate the effects of the interruption of classes in low-income countries.⁸

Some of the challenges are explained by the lack of preparation of school systems when the pandemic hit. Table 1 presents the level of

development of Education Management and Information Systems (EMIS), in the region.⁹ It shows that very few countries had the digital connectivity and tools to support the learning process in the school context. We can classify the countries into four large groups according to the level of preparation of education systems for the digital transformation and, hence, for the transition to a hybrid education model:

The reopening of schools requires maintaining social distancing, which means reducing the number of students per classroom by approximately 30%.¹¹ In this situation, education systems will have to combine in-person and distance education mediated by technology, which is known as “hybrid education”. In this document we present a proposal for a hybrid education model along with some policy considerations.

Table 1.
Basic digital conditions for online learning in LAC

High	Medium high	Medium low	Low
Uruguay	Barbados	Jamaica	El Salvador
	Chile	Costa Rica	Paraguay
	Colombia	Ecuador	Guyana
	Argentina	Guatemala	Suriname
	Bahamas, The	Honduras	Belize
	Brazil	México	Nicaragua
	Perú	Panamá	Bolivia
		Dominican Republic	Haití
		Trinidad and Tobago	Venezuela

Source: Prepared by the authors based on Rieble-Aubourg and Viteri (2020).¹⁰

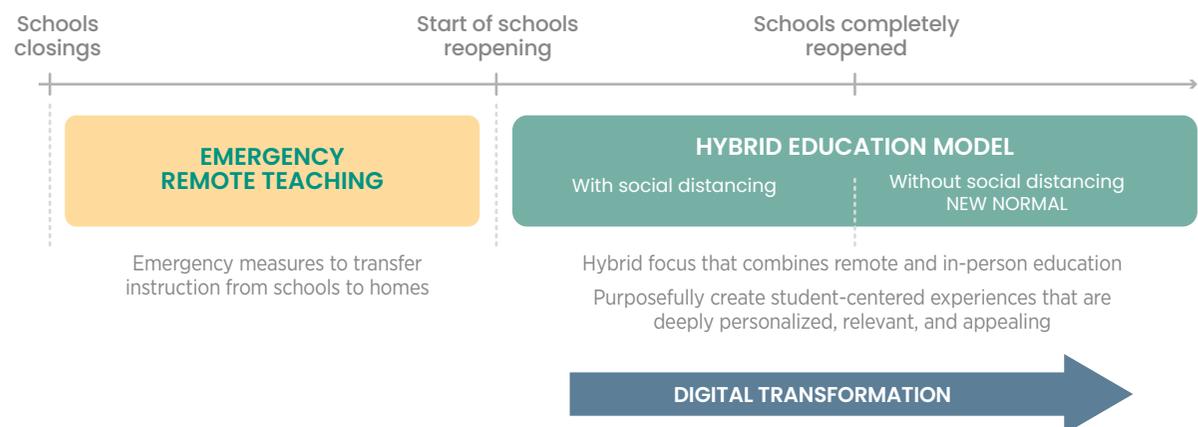
2. Towards a hybrid model of education

The hybrid education model should capture the attention and interest of the students for learning, and ensure significant and integrated interactions between the students and the content, their classmates and teachers.

The hybrid education model aims to respond to the immediate needs presented by social distancing, while at the same time pushing forward a process of digital transformation of education that can help to build education systems with greater quality, inclusion, and flexibility. The adoption of this model will have long-lasting effects even when schools are functioning. It is expected that the “new normal”

will emphasize student-centered experiences that are individualized, relevant, and appealing. In this context, individualized experiences are those where the students receive instruction and feedback in accordance with their learning pace.^{12, 13}

Figure 1. Phases of school reopenings and learning modalities



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2. Towards a hybrid model of education

The hybrid education model requires both distributing content between platforms and in-person classes, as well as developing teaching and learning models that capture the attention and interest of the students in order to learn. In addition, it should ensure significant and integrated interactions between the students and the content, their classmates and teachers, all of which are essential for the learning process. Countries in the region should learn from the recent experience and prepare schools, teachers, and students in order to maximize learning and mitigate the risks of students dropping out and exacerbating learning gaps by socioeconomic level. This requires rethinking education and the use of technologies so that they are used as a tool that helps to accelerate learning more than simply serving as a channel through which to transmit content (see **Table 2**).

Table 2.
Key concepts for technology-enabled learning

- **Online learning** refers to learning facilitated entirely through the use of digital tools.
- **Distance or remote learning** occurs when teachers, students, and classrooms are separated and a variety of approaches are used, including an on-line approach, generally at significant physical distance.
- **Emergency remote teaching** has been used to describe emergency methods to transfer instruction from physical schools to homes using online and non-online methods. The objective is not to re-create a robust educational ecosystem, but rather to provide temporary access to education. In-person education will then return once the emergency has eased. This has been the model implemented during the school closures.
- **Blended learning** refers to a combination of in-person and digital experiences that are generally delivered as part of a physical experience in a classroom.
- **Hybrid learning** is a hybrid approach that alternates between in-person education and distance education through technology. It is based on the successes of *blended learning*, which refers to emergency remote learning and distance and online learning purposefully designed to create student-centered experiences that are deeply personalized, relevant, and appealing.

Source: Adapted from Fullan et al. (2020)¹⁴ and Hodges et al. (2020)¹⁵

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2. Towards a hybrid model of education

There are no previous experiences of implementing hybrid education on a large scale throughout an entire education cycle. However, the existing evidence on other learning modalities that use technology, such as online courses or in-person teaching with technology, shows that a successful implementation of the hybrid education model is possible. A review of studies in developed countries shows that blended education can produce learning results similar to those of the in-person modality,¹⁶ which suggests that this could be a cost-effective approach to continue learning, particularly when complete in-person education is not an option. It is important to note that, for distance teaching to be of good quality, it needs to be the result of a careful design and a structured and defined class plan.¹⁷ For example, studies identify nine design dimensions, such

as the modality (100% online, more than 50%, 25%-50%), pedagogy (presentation, practice, exploration, or collaboration) or the role of the online instructor (high, low, or none), among others.

Another important lesson for the hybrid model is that the adaptive learning platforms (see Table 3) have been shown to be very promising to improve learning results, particularly in mathematics and reading.¹⁶ Therefore, the search for platforms should be guided towards specific material and with a defined time schedule.¹⁸ Finally, interventions that use technology for social psychology development (such as *growth mindset*) also have a positive effect on learning that, although it tends to be small, is cost-effective.

There are no previous experiences with hybrid education implemented on a large scale throughout an entire education cycle.

However, existing evidence on other learning modalities that use technology shows that these can be successful.

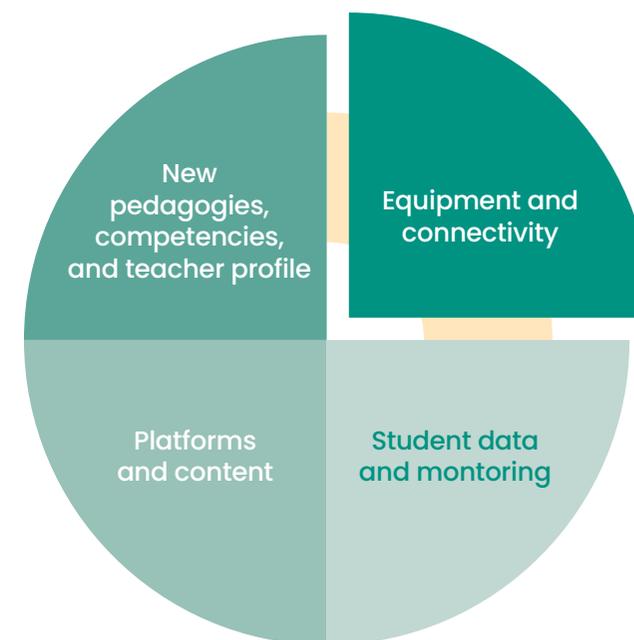
3. Four key elements of hybrid education

The design of the technological strategy to implement the hybrid model should be defined by the public entity responsible for the delivery of educational services and in coordination with the educational communities.

How is a hybrid model developed? There is no single model, and each education system should develop its own model adapted to its context. Although the level of in-person instruction required must be defined based on the sanitary conditions of each school district or school, the design of the technological strategy to implement the hybrid model should be defined by the public entity responsible for the delivery of educational services and in coordination with the educational communities. This is to avoid having different actors developing their own solutions and platforms with neither interoperability nor coordination, resulting in duplications and inefficiencies. It should also be mentioned that the combination of in-person and distance education should be adapted to each educational level.

Based on the evidence of other models and on the experiences of countries during the schools closing, four pillars have been identified for the development of hybrid education.

Figure 2.
The four pillars of hybrid education



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3. The four fundamental pillars of hybrid education

3.1 New pedagogies, competencies, and teacher profile: A new way to teach

New pedagogies

It is expected that, to maintain social distancing measures during the reopening of schools, students will attend less time to school in person. Therefore, it is key to optimize both in-person and remote instruction time to achieve an explicit interconnection between the two. An example is to dedicate part of the in-person time to addressing the doubts that come up during remote work. Multidisciplinary projects on certain topics or subjects are recommended. Under this format, students can work from home, either in

Since students are expected to spend less in-person time in school, it is key to optimize what to do in-person and remote instruction.

groups or individually, reinforcing their ability to learn autonomously. If possible, the pedagogical approach of hybrid models should be guided by models of “Deep learning” that are centered around students and their interests. The term “Deep learning” is understood in this document as experiences that produce learning and skills that are maintained through life.¹⁴ In addition, family should be involved in certain dynamics of the assignments,¹⁹ since it is known that the presence of the family is a significant factor for learning.¹⁰ In the case of children from lower socio-economic levels, additional support needs to be provided in this area, or their attendance at school needs to be prioritized.

New competencies

The pandemic made clear the importance of promoting self-learning, stimulating intrinsic motivation, and developing skills in the use of time in order to foster learning at home. All of these cross-cutting or 21st century skills are prioritized in the design of the new educational

model.²⁰ Fullan et al. (2020), for example, defined the pedagogical approach of the Deep learning model through the acquisition of six competencies (6Cs): (i) collaborative work, (ii) critical thinking, (iii) creativity, (iv) citizenship, (v) communications, and (vi) character. In order to promote the development of these competencies, schools could facilitate teacher collaboration and integrate different areas of knowledge through problem-solving projects.²¹ For example, under the Network of New Pedagogies for Deep Learning, schools in Canada, the United States, Finland, Australia, New Zealand, the Netherlands, Uruguay, and Hong Kong collaborate and share good practices. Their focus is to promote educational change in practice, with a systemic vision, offer tools to advance deep learning, and evaluate the development of competencies in students. There are examples of education systems that are attempting to introduce innovative teaching strategies on a large scale, such as the Global Learning Network (*Red Global de Aprendizajes*)

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in Uruguay and the Core Work, Research and Social Practices (*Núcleo de Trabalho, Pesquisa e Práticas Sociais*) for middle schools in the State of Ceará in Brazil. Education systems should promote the exchange of good practices for these models and foster the development of their own networks and communities of practice.

New teacher profile

Teachers must be trained in the new educational model, developing skills for hybrid teaching and for the use of technologies to accelerate learning. The teacher training strategy in Uruguay, for example, evolved from the instrumental use of digital tools in 2015 to their pedagogic use, enhancing innovative teaching practices. During school closures, teachers in the region made a big effort to maintain communication with students. Teacher training should give less priority to the use of ICT and focus more on pedagogies with evidence-based technologies. Platforms such as [Tu clase](#),

[tu país](#) and [Net Learning](#) offer a range of online courses on pedagogical innovation with the use of technology.

In this new hybrid education model, the role of teachers extends beyond the use of technology,¹⁴ and includes the development of students' socio-emotional skills, defined as those that help people to identify and manage their own emotions, such as commitment, empathy or teamwork.²² A recent study shows, for example, that the socio-emotional skills of teachers influence the socio-emotional development of students through (i) the quality of the student-teacher relationship, (ii) the management and organization of the classroom in adequate learning environments, and (iii) the example that teachers set in managing certain situations.²³ Therefore, for the hybrid model, teacher training programs must also include the development of their socio-emotional skills. Some online resources that address cross-cutting skills are [Comunidad Atenea](#) and [Teacher Training Videos](#).

The role of teachers includes the development of socio-emotional skills of students.

These skills help persons identify and manage their own emotions, such as commitment, empathy, and teamwork.



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3.2 Equipment and connectivity: Gaps and opportunities for creation and collaboration

Implementation of the new hybrid model must be adjusted to the digital conditions both in schools as well as households. It must also include actions to address equipment challenges, such as prioritizing access to technological material for students from vulnerable households, or delivering content through non-digital means (television, radio, printed materials). Even though nearly 84% of secondary schools have Internet access, only 33% have sufficient bandwidth for online learning, which is less than half of the OECD average (68%).¹⁰ In terms of digital conditions in households, 64% of the students do not have access to a computer at home to do schoolwork, with percentages that vary from 44% in the Dominican Republic up to 82% in Chile.¹⁰ Less than 30% of students

from vulnerable households have a computer at home to schoolwork.

Given the diversity of digital conditions between countries and between schools, different equipment and connectivity options are provided below for the design of hybrid models:

Makerspaces

Schools could have Makerspaces, where there are computers, tablets, programmable plates, and robotic and digital sensor kits, as well as other tools necessary to build, explore, and create objects. In Uruguay, the Ceilab Program, which has been in progress since 2018, equips schools with these types of laboratories for the development of computational thinking applied to problem-solving. Where it is not possible to build Makerspaces, shared mobile solutions are provided. The important thing is that this equipment is for students and for teachers

to incorporate it to the subjects, focusing on problem solving.

Devices for students

In addition, schools can also have devices available to lend to students, with an internet chip which cost can be covered by the educational system. The devices can be configured to access only educational material. An example is Universidad de Costa Rica, that has 1,750 tablets with internet connection to lend to their students. Through mobile Internet, students can access the university's platforms and services free of charge. In Uruguay, each school has a library of tablets and laptops that they lend to students.²⁴

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Systems for the management of digital services

These systems, which are key for the management of equipment, include a Customer Relationship Management (CRM) application to serve users, a system for the administration of devices, a technical service system for laptops, tablets, Wi-Fi networks, and a single, unified log-in to enter any platform.

Connectivity of schools

Education centers must optimize good-quality access to the Internet for pedagogical purposes in accordance with the following:

- a. In **urban centers**, it is key to have fiber-optic or cable internet, in order to reach a good speed and bandwidth. The use of servers in the school or in the cloud that is available in the countries will depend on the quality of the bandwidth.

- b. In **suburban and rural centers** where there is no access to cable or fiber, it will be necessary to come up with other solutions, such as physical links to the schools from telecommunications companies or LTE or 5G solutions with portable modems.
- c. In **remote rural centers** where there is no Internet access, bandwidth solutions will be needed, allowing both schools and students to be connected by satellite in order to update their platforms and applications.

Connectivity for teachers and students on their cell phones or in the home

Hybrid education requires fluid communication between teachers and students, which has a monetary cost. The countries could cover the costs that the telephone companies charge for access to these IPs or specific Internet sites, or they could contract a private national or local education network and pay the operators directly for the traffic on that network. In

households in the lowest income deciles, that cost could be absorbed by the state. An example is the Universal Household Plan (*Plan Universal Hogares*) in Uruguay of the National Telephone Administration (*Administración Nacional de Telecomunicaciones - ANTEL*). The plan takes advantage of the network of telephone lines to provide one free GB per month, with the cost of installation set at US\$10. As a temporary measure in response to COVID-19, the connection fee was waived from April until the end of July.²⁵ In those areas where there is not sufficient cable density, a solution can be a cellular hotspot with a chip to access a service similar to Basic Universal.

Free 5G connectivity for educational purposes

As education systems begin to stabilize, governments in the region could manage a 5G licensing process that allows for high-velocity wireless. It is important that clauses

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be established among the conditions for the provision of 5G regarding counterpart services and Internet delivery that require the companies to provide services to the country's schools and education systems and their students and teachers. This can be more economical than purchasing the services from these companies. A collective effort of education services should be to ensure that the educational platforms do not consume Internet usage when student or teachers are connected remotely.

3.3 Platforms and content: What and how do students learn?

What must/can students learn? With the closure of schools, educational systems were in the need to prioritize the curriculum. The new hybrid education model should do the same, focusing efforts on mathematics and reading/writing and on 21st century skills, particularly

those that have been most affected by the health crisis (autonomous or independent work, collaboration among students or work on projects, digital skills) and the economic crisis (resilience, innovation, or creativity). As mentioned earlier, an essential aspect of hybrid models is to define the activities and content to develop in each of the learning environments (in-person and remote) in order to optimize the experience.

How to deliver content, develop skills, maintain the link with the teacher, and monitor learning? There is a wide offering of platforms, software, and content that play distinct roles in the hybrid education model. These range from learning management system (LMS) platforms to monitor student activities and communicate with parents, to platforms for student learning and teacher training (Table 3). Most of the learning platforms use artificial intelligence models, since it allows to individualize the

learning experience. The content presented to the student is adapted according to their learning pace, which can help to better address individual needs.

It is important to point out that the delivery of content and the development of skills must include non-digital strategies, given the significant gaps in access to connectivity and devices between different socio-economic levels.¹⁰ During the school closures, most education systems in Latin America and the Caribbean facilitated content through different channels, such as educational portals, television, radio, and printed materials. In hybrid education, multi-channel strategies should be retained, without neglecting efforts to reduce the digital gap. Platforms that allow offline working and that synchronize advances when accessing the Internet can also be considered, such as, for example, the [Kolibri](#) open-source curated library.

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Table 3.
Platforms and content for schools

- **Learning Management Systems – LMS.** Schools should have a classroom management platform. These platforms allow for keeping groups or classes connected with the teacher. All of the groups stay enrolled in the LMS, and this allows for uploading work, uploading materials for students, exchanging opinions through forums, connecting via video conference, enabling parents to see what their children are doing, taking tests and exams, and many other activities. The features of the platform also are related to the school's access to the Internet. The LMS selected must be accessible via different devices (computer, cellphone, or tablet), and be able to function without Internet in order to enable widespread use in cases where connectivity is limited.
- **Learning platforms.** These tools provide support and allow for monitoring student learning. In general, they use artificial intelligence to offer an individualized learning experience. They usually specialize in certain subjects. It is preferable to select adaptable platforms, since they allow for individualizing the progress of student learning.
- **Communication platforms.** These are the diverse alternatives for remote communication between teachers and students. Some examples are Microsoft Teams, Google Hang Out, Zoom, Radix, and Webex, among others. These tools can also be integrated into LMS platforms.
- **Evaluation platforms.** These platforms are used to assess student learning, which facilitates much of the work of teachers. The platforms can include formative and summative assessments and have adaptable functionality, which allows for a better mapping of knowledge.
- **Teacher training platforms.** These platforms facilitate, expand, and deepen the training of the teaching force. In many cases, LMS platforms are used for these purposes, with content specific to training teachers. It is important for these platforms to be integrated into the training trajectory of the education systems in a way that allows for moving a teacher's functional career forward.
- **Curated content.** There is multiple curricular content in the region available for students. This content should be easily available through different channels, online or offline. In places with low Internet access where initiatives are under way to provide or lend devices, content can be uploaded on the devices before they are delivered to students. The activities can then be synchronized when the Internet is accessed and be retained in the LMS.

Source: Prepared by the authors.

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Some final considerations when the time comes to select platforms and content:

- **Have a medium-term vision:** Investments made under pressure that only take into account the pandemic must be avoided; it is better to look towards the sustainability of the resources and materials and to the education system's medium-term objectives. A short-term measure can be to coordinate with

providers to expand free access to educational platforms. Attention would need to be given to the conditions in terms of the registry and utilization of user data (see [Annex 1](#)). Ministries of education need to develop protocols for (i) the purchase of platforms and content (see [Annex 2](#)); and (ii) the protection and use of the data of minors.

- **Establish feedback mechanisms such as:**
 - » **Strengthening the monitoring and assessment of learning.** Education systems in general, and teachers, in particular, need to monitor student learning and well-being in order to be able to improve and/or adapt the content provided. Depending on the status of the education systems, the application and use of training evaluations should be considered. In places where learning platforms are combined with analog media such as television, radio, or printed material for the remote component, arrangements for the monitoring of learning should be guaranteed through alternative means such as text messages or telephone calls.
 - » **Using information on student performance.** For those systems with learning platforms, business Intelligence arrangements should be procured, and results should be presented in dashboards that are easily understandable for teachers.

Investments made by governments in the current context should be aimed at the sustainability of the resources and to the education system's medium-term objectives.



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3.4 Student data and monitoring: Where are they and how are they assisted?

The Education Management and Information Systems allows the unique identification of students throughout the entire education system. Regardless of the basic digital conditions of education systems, before undertaking investments in platforms there should be a comprehensive vision of the EMIS and of how the different applications should operate in order to ensure the efficient management of the education system. Any effort made should be oriented towards an integrated management platform. The urgency to put a hybrid model in place can lead to countries making investments under pressure that could result in duplications or inefficiencies. That said, there are two aspects in particular of a EMIS that should be developed in order to ensure an adequate functioning:

1. Management of students and learning

Only two out of three education systems in Latin America and the Caribbean have a student registry. Such registries are key to monitoring the individual trajectory of students and rapidly identifying those at risk of dropping out of school. Education systems must try to put such registries in place.

2. Management of digital content

The management of digital content for students and for teacher training is based on curricular demands and ensures access, regardless of where the beneficiary is located, to didactic resources online and on platforms. The potential of these tools lies in the fact that they store data on the usage and performance of users in real time, which is why they should be integrated with schools' automated management tools. Hybrid models supported by digital platforms

also need to consider strengthening the institutional capacity of ministries of education to design, adapt, and manage digital content aligned with the curriculum.



4. Conclusion

The medium-term vision: innovation, change management and governance

There is little discussion about how technologies can be used to accelerate pedagogy to improve learning, reduce disparities, and empower teachers and students.

Implementation of this type of hybrid education model must go beyond the pandemic and be aligned with a broader strategy to transform the education sector. Technological advances throughout this century have been enormous, and they are now being accelerated by the health crisis caused by COVID-19. There is some discussion about how to incorporate technology into classrooms (or in homes), but there is little discussion about how technologies can be used to accelerate pedagogy to improve learning, reduce disparities, and empower teachers and students. Many failures in the use of technology have occurred because it was not part of a whole, but instead employed as some kind of magic solution. Aligning the introduction of technology with a specific challenge and exploiting its comparative advantages is key to improving learning.²⁶

Another important factor is how to implement innovations in education systems. For a long time there has been discussion about whether the changes need to flow from the ministries to the systems (centralized), or from the education centers to the policymakers (decentralized or atomized). Each of these methodologies has its advantages and disadvantages, but the question of how to innovate has still not been resolved. Various experts, such as Michael Fullan and Andrew Hargreaves, propose change from the middle ground,^{27,28} with schools working in clusters and transforming themselves into joint agents of change and improvements. This creates a movement of voluntary and progressive change. An example is the System of Protection of Educational Trajectories in Uruguay. By combining a territorial entity of primary and lower secondary schools with the use of data from Education Management



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4. Conclusion: The medium-term vision – innovation, change management, and governance

and Information Systems (EMIS) and online enrollment, Uruguay succeeded in making the transition between both education cycles practically universal.²⁹

Finally, consideration must be given to institutional designs that are adequate for innovation in large organizations, which are difficult to change. Educational innovation requires governance that leads the change and a regulatory framework that structures the digital transformation in education and guarantees the ethical use and privacy of data as well as

Educational innovation requires a governance that leads change and a regulatory framework that structures the digital transformation of education and guarantees the ethics and privacy of data and cybersecurity arrangements.

cybersecurity arrangements. Governments, in general, have wanted to develop innovation in education through their own ministries of education by creating specialized areas.

An alternative is to build independent agencies that specialize in pedagogical innovation and in technology in the service of education systems, and that have a more specific focus and more agile decision-making and implementation processes. Two examples are Ceibal in Uruguay and Keris in Korea.

No less important is to recognize that hybrid education models must be financially sustainable. Their cost must stay in line with average expenditures per student in education

systems. For example, Uruguay uses an allocation equivalent to 5% of expenditure on basic education as a sustainability guideline over time. The classification of the countries in terms of their level of development of Education Management and Information Systems (see Table 1) must also serve as a guide to define the digital and non-digital tools that should be used in the hybrid education model, and to align the countries' strategies with the base conditions for connectivity and the devices available, at least in the short term.

8. Notes and references

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