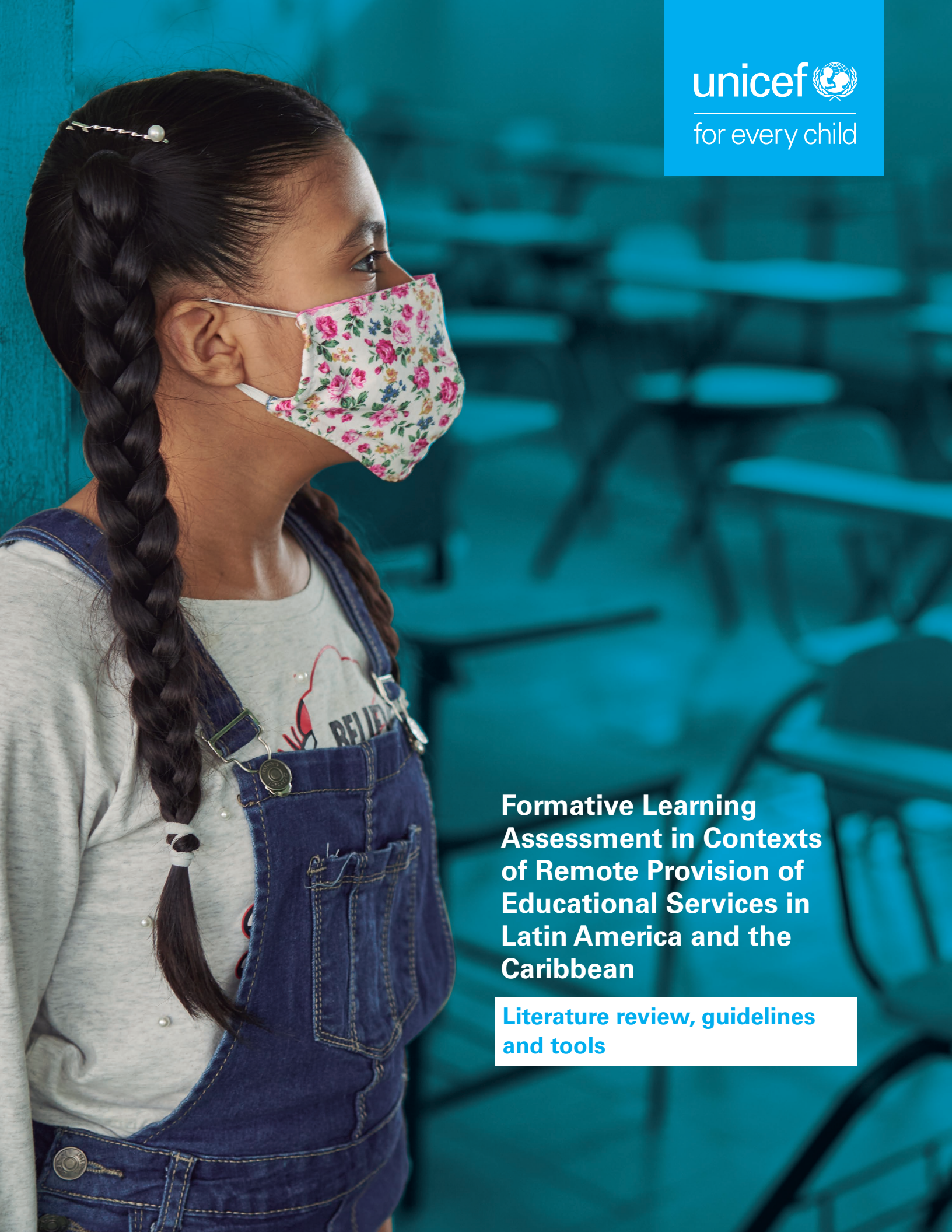

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Formative Learning Assessment in Contexts of Remote Provision of Educational Services in Latin America and the Caribbean

Literature review, guidelines and tools

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Formative learning assessment in contexts of remote educational services in Latin America and the Caribbean: Literature review, guidelines and tools.

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Overview

The far-reaching effects of the COVID-19 pandemic on education systems are as yet unknown. Concerns are already emerging among education authorities and practitioners regarding what and how students are actually learning during a school year that was anything but normal.

This global emergency has necessitated the provision of remote educational services. Assessing the effectiveness of the teaching–learning process is critical to determine whether students are learning as expected under the current circumstances and to identify and measure learning losses that must be recovered.

Since they are not synonymous with one another, distance education and the remote provision of educational services– which are now the most common education modalities for schools across Latin America and the Caribbean – must be clearly distinguished. The latter encompasses various forms of operation, including printed material, educational programmes broadcast on radio and television, digital platforms or a combination of these methods.

This document seeks to identify a series of considerations and approaches that should inform government decision-making regarding policies and procedures for the formative assessment of students in the context of remote provision of educational services.

Section 1 presents some useful considerations to guide and support teachers in conducting formative assessment relevant to the current context. Section 2 shares experiences that have proven to be successful in advancing formative assessment under adverse conditions. Section 3 provides a set of guidelines on the use of diverse methods and tools for remote formative assessment. Section 4 classifies formative assessment methods according to the means used for the provision of remote education services and describes each method in turn. Section 5 identifies some of the pandemic-induced challenges faced by the main education actors. Finally, section 6 summarizes the main ideas put forward in the document. The appendices include a list of examples of learning management systems and another of digital tools to support formative assessment within the context of remote delivery of education services.

This document is intended to inform education authorities and provide inputs for their deliberation when preparing guidelines and procedures to support teachers and others responsible for conducting formative assessment to measure the outcomes of the teaching–learning process. Such assessments are also valuable for collecting evidence that can be used to adjust practices linked to remote provision of education, taking into account students' diverse circumstances and living conditions, with emphasis on the most vulnerable.

I. Considerations concerning learning assessment

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Moving towards a new concept of learning assessment under the current circumstances of the COVID-19 pandemic calls for authorities responsible for education policy to promote greater clarity on the distinction between distance education and remote provision of education services. Authorities should also consider issues related to continuity of education; learning objectives; and student diversity.

1.1. Main characteristics of distance education

Distance education emerged in the mid-nineteenth century as an inclusion mechanism – regulated and supported by the provision of educational study materials – for people with occupations or jobs who were unable to attend regular education programmes. Distance education is a self-study model with no set schedule, which allows individuals to organize their own learning experience based on the materials provided by the educational institution.

Distance education initially operated through the postal delivery of printed study materials. Communication between participants and the educational institution was mediated by the postal service and covered an array of options, including the provision of higher education, first introduced in 1858 by the external programme of the University of London.

Retention was an ongoing problem, however. In response, distance learning programmes started to provide participants with feedback, support at their preferred times, and tutorials and activities with their peers, among other measures to maintain engagement.

Distance learning was transformed by the advent of radio and television, which allowed people to be reached on a massive scale – far beyond that achievable via printed material alone. Some of the most successful experiences of distance learning, at least in the early years of employing the mass media, concern programmes involving civil organizations such as unions or religious groups. In these cases, individuals unable to afford their own radio or television could instead access the educational content at the organization's facilities. By participating in group activities, students could both lend and receive the support needed to stay engaged and enhance their learning.

Most recently, the emergence of the digital age has opened up an entirely new set of opportunities and challenges. The versatility of digital technology enables it to be used for many purposes:

- **Carrier of content:** Educational materials can be saved on a digital device that serves as a library or repository with the potential to store various formats, such as book, audiobook, audio recording, video and animation (which may include interactive activities).

- **Communication device:** Using a digital device in tandem with a mobile network or internet connectivity enables expansion of its resource storage capacity (e.g., via exclusive access to a server managed by the service provider), with no restrictions or predefined limitations. Mobile network or internet access also enables two-way communication with teachers, fellow students and other individuals who are part of the educational experience.

» **Learning management system:** A learning management system (LMS) is a type of software that organizes the educational process within different learning environments in which the student can find materials linked to the study plan, collaborate with others, submit assignments, receive feedback, etc. In some cases, the LMS can also adapt the materials to the individual student's performance, thereby reinforcing what needs to be reinforced for the student and avoiding tasks too simple to be engaging or so difficult as to become frustrating. An adaptive or 'intelligent' LMS – if based on artificial intelligence – can be a great tool for adjusting the learning experience according to the zone of proximal development identified for each student at every moment.

Advancement of information and communication technologies has drastically transformed distance education. Today, education programmes can enable class participation and shared experiences with teachers and peers without the need for physical co-presence.

The level of success achievable using digital media depends on many complex factors, however. These include: (1) the quality of the materials, including their pertinence to different settings; (2) the logistics capabilities needed for its operation, including proper technical support and replacement of failing equipment; (3) security risks, in terms of both digital and physical safety; and (4) the coverage, quality and affordability of mobile network or internet access. For example, even if an institution has a solid digital infrastructure, the educational experience will be compromised if students lack sufficient, reliable and stable internet connectivity at home.

Problems on any of these fronts can lead to poor learning experiences that are usually too focused on the tool itself and fail to attend to their educational intent. Use of digital media can also result in disparities, as not all students can access and benefit from these technological options. The widening access gaps and deepening social inequalities that may result are contrary to the realization of education as a right for all children.

Strictly speaking, based on the above, some educational responses to the pandemic cannot be considered distance education modalities. Rather, they involve the remote delivery of education schemes. That is, regular programmes are implemented remotely in such a way as to resemble practices designed for classroom instruction in an educational institution.

It is commonly accepted that digital media and communication cannot currently replace all content and aspects involved in learning designed for physical co-presence – not least the interpersonal dimension, which supplements bidirectional teacher–student feedback. This raises questions regarding the capacity of delivering remote education services to achieve the same learning objectives as in-person education.

Disregarding this analysis can lead to the assumption that something radically different is being done. In fact, this modality can overlook the important influences on learning of non-verbal communication, gestures – which allow signals of learning progress to be transmitted and captured – and feedback derived from classroom practices.

It is thus necessary to analyse the various methods of formative assessment applicable in the context of remote education considering the different means used for remote provision of education services.

1.2. Continuity in the provision of educational services

The ongoing global crisis caused by the novel coronavirus has had concrete repercussions for education systems, which continue to face administrative and operational challenges. Continuity of education provision goes far beyond 'teaching a class', however. Fundamentally, it involves protecting the learning experience and maintaining the institutional and emotional relationships that students establish with their school, teachers and peers.

Learning is chiefly a human experience, whereby students interact, under certain institutional arrangements, with other individuals – including peers, teachers, other figures of authority and family members – resulting in profound cognitive, relational and emotional implications (Archer, 2014). This idea underlies both the socialization role of the school (Berger & Luckmann, 1967), which is also critical for identity development and maturation (Erikson, 1995), and the character of social practices embedded in learning and in the use of what we learn (Street, 1998).

At the same time, this attribute of schooling related to interaction and the establishment of emotional bonds develops differently according to the individual student's age and developmental stage (Piaget, 1926, 1965). For instance, it is clear that young children find a source of security in adults – parents or caregivers at home; teachers at schools – but they learn self-regulation in their relationships with peers (Winnicott, 1991). Moreover, bonding and emotional relations with peers play a crucial role among adolescents (Erikson, 1995).

Assessing the effectiveness of education provision should therefore consider more than just the acquisition of knowledge and skills that promote certain individual traits. It should adopt a broader stance to also assess how individuals understand and process their teaching–learning experience, including consideration of the critical influence of in-person interaction with others.

The mobility restrictions and physical distancing imposed to contain the pandemic are important barriers to the effective assessment of student learning progress by teachers. This is because the absence of physical interaction may prevent teachers from having access to gestures and other forms of non-verbal communication conveyed by students. Prior to the pandemic, it was taken for granted that these signals, critical to the monitoring of student learning, would usually be gathered informally in the classroom.

Guaranteeing continuity of education services in the current context thus goes far beyond the provision of educational materials (printed, broadcasted, or based on digital media), necessitating also the establishment and maintenance of meaningful personal relations.

For example, in relation to early childhood education (or pre-primary education), any general intervention in response to the pandemic should consider child development specialists' recommendations on how to define early learning assessment mechanisms. It should also prioritize issues related to young children's emotional well-being, given the high levels of stress resulting from the pandemic situation.

In summary, **monitoring learning levels calls for improved methods of collecting information that suitably reflects student performance. This will enable the adaptation of formative assessment procedures to support students and their families during this difficult time in students' education.**

1.3. Learning goals

Appraising student learning is part of the overall teaching–learning process, and the activity serves two functions: It verifies whether students have achieved what is expected of them at a given moment in time, and informs both students and teachers about the learning process, enabling them to adjust their practices accordingly. In other words, evaluation distinguishes between *summative* assessment (assessment *of* learning) and *formative* assessment (assessment *for* learning).

Under normal conditions, feedback is an integral and central part of education. It is both an educational resource that guides students in how to learn more and better, and a communicative action that helps to strengthen the relationship between teacher and student, to further promote learning.

In the current circumstances, in which lack of physical co-presence limits informal communication, formative assessment methods thus become critical. There is an urgent need to ensure that the assessment methods used address the doubts and reduce the anxiety affecting students, parents, caregivers and teachers, particularly by including sensitive and detailed feedback (Liberman et al., 2020), as a communication mechanism and support for personalized linkage that is crucial to foster trust and companionship. In this sense, feedback should be properly framed not only in relation to the nature of the tasks being assessed but also as an instance of warm and emotionally healthy communication that provides support.

Learning assessment should also be aligned with the curriculum's pedagogical approach, which can be defined and organized in various manners according to objectives, content or competencies, among other factors, depending on the agreement of the authorities approving the curriculum.

The adverse circumstances are forcing education authorities to prioritize some components of the curriculum and identify those that may be unachievable under current conditions. Nevertheless, it is particularly important to **avoid disseminating messages that may, even unintentionally, undermine the importance of some learning objectives or encourage a narrowing of the curriculum delivered in schools beyond what has been obliged to undertake by the COVID-19 crisis.** That is, overemphasizing some academic areas seemingly more achievable under current conditions should not be detrimental to the development of autonomy, self-confidence and resilience nor should lead to the neglect of key academic content in order to focus more on the socio-emotional components of the curriculum.

Identifying which curriculum components may be currently unachievable and which should be prioritized is a delicate process. It should be as transparent and participatory as possible to ensure that all of the major stakeholders have a common understanding of the rationale behind the decisions made.

By the same token, learning assessment guidelines for teachers should be aligned with pedagogical intentions. If the curriculum is organized by competencies, it is necessary to determine what can be assessed for each competency and identify which elements required for assessment are available under current conditions.

It is essential that national education authorities design feasible and logical guidelines to guide teachers' assessment of student progress. These guidelines should be coherent with the education system's provision of services and pay special attention to the attributes of the means used for teacher–student interaction. For instance, if teachers are able to communicate regularly with their students – by phone, messaging applications, visits, etc. – the same forms of communication should also serve as spaces for more comprehensive formative assessment. Similarly, where education provision is based on the distribution of printed material and self-study, self-assessment options must consider the available support infrastructure.

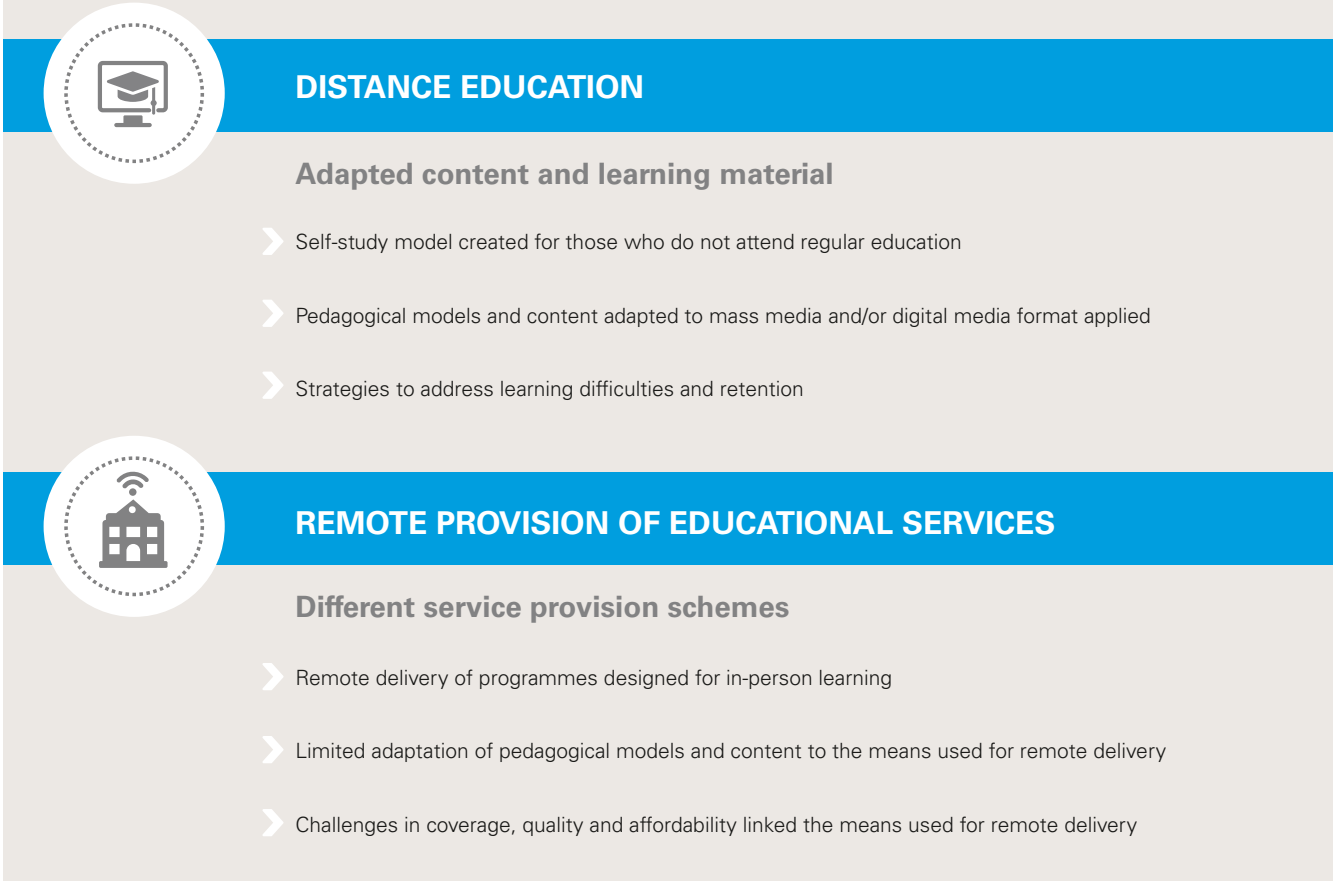
1.4. Diversity of students

Since education and learning are social phenomena that are locally situated and deeply embedded in context (Cooper & Dunne, 2000), it is not feasible to have a single solution that adapts to the different learning and assessment circumstances. Instead, it is necessary to consider as relevant variables for the learning process all key aspects of student diversity: age, developmental stage, gender, socio-economic circumstances, disabilities, language, cultural background, migratory status and urban/rural geographic location.

Student diversity has likely already been considered by most national policies assessing progress. Given that measures to contain COVID-19 have led to increased inequality, however, countries should probably now update this characterization, particularly with regard to those populations already excluded prior to the pandemic.

Therefore, it is necessary to increase the visibility of the new challenges and support the autonomy of teachers and educational institutions, as they have first-hand knowledge of the school community members' specific circumstances. Providing proper room for professional judgement will allow teachers and schools to adjust education provision to respond appropriately to the possible effects experienced by families. Most importantly, their input can help to ensure that out-of-school children and adolescents, as well as those at risk of dropping out, are not left behind.

Figure 1. Differences between distance education and the remote provision of educational services



II. Literature review of experiences

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2.1. Experiences in distance education

The literature reports a significant number of experiences related to learning assessment in distance education that are defined by much more than the media used for education provision. It should be noted, however, that this modality generally offers self-paced programmes aimed at young people and adults, and so there has been limited experience of assessing progress among school-age students.

Even so, in the current context of the COVID-19 pandemic, in which education must be delivered remotely, distance education is a valuable source of information on learning assessment experiences. It even provides inputs to enable the design of more creative practices that do not simply attempt to simulate teaching–learning experiences designed for physical co-presence.

It is important to bear in mind that the various delivery modes employed by distance education – printed material, radio and television broadcasting or different types of digital – should not necessarily be conceived of as successive phases of the teaching–learning process, since they can be used in different contexts and complement each other.

Africa and Asia

Ghana's Untrained Teachers' Diploma in Basic Education programme sends textbooks and study guides to teachers in remote northern regions as part of its efforts to help teachers obtain a diploma in basic education. The teachers use the study guide or curriculum to read the textbooks and complete worksheets and tests, which then they mail to their tutors at the nearest Pedagogical University. This printed material is usually combined with radio and television broadcasts, audio-based lessons, phone conversations and in-person meetings (Burns, 2011).

Nevertheless, printed material is being, to some extent, replaced by digital media such as CD-ROM, USB-drives, online access to repositories, e-book readers -as Kindle or Nook-, or tablets. Several open universities in Asian countries use digital media either as distribution channels for text-based instruction or as print distribution mechanisms (Burns, 2011).

United Kingdom

The United Kingdom's Open University (OU) is one of the world's largest providers of distance learning that currently operates using a combination of diverse modalities. The feedback students receive on their assignments is mostly provided by personal tutors and generally come in the form of written comments. To ensure consistency and fairness, tutors' marking and feedback are based on a specific marking guide or rubric. Students must submit assignments through electronic platforms, and assessments are designed to be summative and/or formative. Tutors are required to mark and comment on a standardized summary sheet, but they usually also add comments on the student's script or may return additional feedback documents (Chetwynd & Dobbyn, 2011).

India

In India, the evaluation system was recently reformed in response to the National Curriculum Framework. The framework advances a paradigm shift from content-based individual testing to problem-solving and competency-based assessment, in both in-person classes and open and distance learning. This has contributed to the setting of examinations of a shorter duration and with flexible time limits; there are now open book exams; self-assessment, as well as peer assessment and feedback are promoted. Various assessment tools, including observation, assignment and project work, portfolio/e-portfolio, checklist, rating scale and anecdotal records, are also recommended in the curriculum framework (Chaudhary & Dey, 2013).

Liberia

During the 2014 Ebola crisis, the Education Development Center in Liberia used Short Message Service (SMS) text messages to send class schedules to all students on its Interactive Radio Instruction programme. Teachers could also consider hosting live call-ins to discuss radio content or delivering newspaper supplements as complementary printed material (Education Development Center, 2014; McBurnie, 2020).

SMS text messages were also used to conduct surveys during the Ebola crisis as part of a rapid assessment of the effectiveness of Liberia's public health communication strategy. The surveys assessed knowledge of the disease, efficacy of care practices, susceptibility of population groups, severity of illness in affected persons, and stigma surrounding Ebola (Berman et al., 2017).

This experience shows that a similar SMS-based solution could be implemented to connect students and teachers in communities that are hard to reach by other means. This could enable students to identify the key learning outcomes and work synchronously with their teachers, even while a radio or television programme is aired (Liberman et al., 2020).

Sierra Leone

This case demonstrates that calls and SMS can be mobilized for a formative assessment, as complementary to radio broadcasts. This occurred during the 2014–2015 Ebola crisis when Sierra Leone's schools were closed for eight months. The Emergency Radio Education Program was broadcast daily with mathematics, English and civics courses to keep primary and secondary level students engaged with their learning experiences.

Students could call toll-free and ask questions at the end of each session, and teachers could also use phone calls to support and follow up on their students. In cases like this, it is necessary to assess the context, as well as to ensure the communication line's capacity and stability in order to provide adequate formative feedback.

United States of America

The United States offers two notable examples of television instruction with phone communication between learners and teachers.

Television instruction in the state of Oklahoma began during the oil crisis of 1985 to help the smaller, independent school districts that could no longer afford to employ teachers and meet the minimum curriculum standards. Since then, many students have continued to attend classrooms where educational material is broadcast on television and they can dial a dedicated number to ask the teacher questions at the same time.

This experience shows that television instruction helps to save money, especially in small school districts, and can be as effective for higher education students' learning as instruction provided within a classroom. Although at first glance the initial start-up costs (e.g., for recording equipment) may appear too high to be cost-effective, ongoing costs are relatively low when one considers the large number of students that can be reached. Thus, the teacher could set aside sufficient time to prepare and master instruction to be delivered by television, while regularly updating the course material (Lacina & Book, 1991).

Similarly, in the 1990s, the Los Angeles Unified School District in California worked with a local educational television channel to produce *Homework Hotline*, a two-hour mathematics and English programme broadcast four afternoons a week. The television programme's hosts served as tutors for students, who could call the hotline number free of charge to receive help with their homework. Most calls were directed to off-air teachers, who supported students behind the scenes (Lipton, 1992).

This initiative, involving direct phone calls between teachers, students and also parents, has been expanded to other states including Tennessee, Kansas and Michigan (Liberman et al., 2020).

Mexico

Mexico's Telesecundaria educational programme is one of the longest-running and most successful experiences involving instructional television. In place since the late 1960s, it provides year-round, curriculum-aligned activities primarily aimed at rural secondary schools (i.e., schools for communities of less than 2,500 inhabitants) across the country. The programme combines television broadcasting with on-site teacher tutoring using textbooks and study guides (Durán, 2010).

The tutors, who are not necessarily certified teachers, guide in-class discussions and promote community-based activities. For instance, the programme includes community activities organized around topics like health, productivity and the arts in such a way that promotes local development. These activities, called *Vinculación con la Comunidad*, complement *Armando las Piezas y Demonstrando lo Aprendido*, didactic strategies that draw together the main content of the course and allow students to apply their knowledge to propose a solution to a local problem. A diagnostic test is carried out at the beginning of the programme, formative assessment is conducted throughout the various activities, and a summative assessment concludes the programme to verify students' progress (Durán, 2010).

Similar programmes, including face-to-face components, could be safely implemented in response to the COVID-19 pandemic, in areas where virus transmission risk is under control. Some parents and caregivers may even be able to participate as tutors in such programmes, if they receive appropriate training.

2.2. Some experiences during the COVID-19 pandemic

Egypt

In Egypt, the Ministry of Education has asked parents to take charge of assessing students in the lower grades (preschool and Grades 1–2) during the COVID-19 pandemic. Parents have also been asked to ensure that students complete the curriculum using the electronic library and Edmodo platform. For Grades 3–7 (transition years), final examinations will not be conducted for the current school year. Instead, students will complete a research project for each subject using the electronic platform. For Grades 10–11, students will take computer-based pilot tests at home using tablets provided by schools. The pilot test will be conducted (without grades) for Grade 11 to prepare students for the year-end exam. Tests will not be corrected but an incorrect answer elicited the correct answer for students to re-enter (World Bank, 2020).

Croatia

During the pandemic, Croatia has taken measures to organize lessons delivered via public television for primary school students in Grades 1–4. Teachers send students additional exercises that require internet use and are intended to motivate parents and caregivers to support young children's work. For children aged 6–10 years, no special resources are foreseen since classes are delivered via television and teachers communicate with parents by phone. For Grades 5–8 of primary and lower secondary school, video lessons are available both via television and online. In addition, each school has organized virtual classrooms on various platforms (i.e., Loomen, Microsoft Teams, Yammer) where teachers communicate daily with their students to provide instructions, check on their learning activity and ensure the completion of tasks (World Bank, 2020).

It is also important to note that the national education authorities of Croatia and several other countries have decided to postpone or suspend high-stakes summative assessments such as those used for making decisions on grade repetition – in countries where it exists[1] – and promotion. Instead, these countries are currently promoting alternative forms to assess knowledge, such as formative assessment (International Institute for Educational Planning, United Nations Educational, Scientific and Cultural Organization, 2020).

Botswana

In Botswana, as part of a study, a phone-based assessment and a face-to-face assessment took place – before schools closed for the lockdown – to weigh in on the accuracy of the latter type of assessment. The face-to-face phase carried out in schools comprised two assessments for students in Grades 3–5. In the first, the classroom teacher assigned an addition or subtraction problem to the whole class and students wrote down their responses in an individual booklet. The teacher then graded each student using a scoresheet specifying the type of problem and its level of difficulty. The second

1 Grade repetition is a contestable practice that is present in many Latin American countries. Educational research has extensively demonstrated its ineffectiveness in fostering learning and its strong association with the reproduction of social inequalities (Crahay, 2019; Demeuse, Crahay & Monseur, 2001)

assessment was the more comprehensive Annual Status of Education Report test of numeracy, which was applied to the same sample of students.

The phone-based assessment was conducted by former teachers who made direct calls to students in these same grades. Teachers were trained through voice notes and written material shared via the WhatsApp messaging service. This assessment, designed to capture the same numeracy skills as the face-to-face assessment, involved the teacher texting or reading aloud a problem, which was then answered aloud by the student. An important additional step, which took a more formative approach, was that students were asked to explain their working to ensure that they understood the mathematical technique. The authors found preliminary evidence suggesting that the phone-based assessment accurately captured basic numeracy skills (Angrist et al., 2020).

The Caribbean region

The Caribbean Examinations Council offers an online learning platform where teachers can create virtual classrooms for real-time interaction with students. Students, teachers and parents can also access multiple resources, such as past papers, interactive programmes, digital toolkits. As family members also play an important role in education, each day's schedule comes equipped with questions for parents and caregivers to ask their children (World Bank, 2020).

Argentina

Argentina has decided to eliminate grading based on a numerical scale and declared that assessment should be formative in nature. In 2020, the Federal Council of Education stated that summative marking using a ratio scale does not guarantee a fair and transparent assessment of the diverse individual and collective trajectories of school populations across all jurisdictional education systems. Further, this approach does not at this stage constitute an adequate tool to guide the teaching–learning process. Instead, formative assessment will be centred around the application of various pedagogical resources, allowing teachers to investigate, systematize and provide while accompanying students in their process. Formative assessment can also offer students and their families a shared understanding of what is happening in each stage of the teaching–learning process, to provide support and promote self-assessment, helping students develop their abilities to continue learning.

Chile

In 2020, the Chilean Ministry of Education proposed instruments to assess student' performance from a formative perspective. These tools include a video or relevant TED Talk, followed by two or three pertinent questions for classroom discussion, plus engaging readings that supplement the various subjects covered in class. Students can also be asked to do a small summary, mind map or outline portraying what they have learned; divide the text being analysed to set relevant learning goals to pursue at home; and by using images, carry out and share artistic or manual activities that may be used for future assessment.

Every instance of formative assessment completed by students will be compiled by the teacher according to the students' abilities. The delivery of assessments is expected to rely on digital tools (e.g., a platform provided by the institution; email or messaging application). Alternatively, some assessment activities will be conducted in person when regular classes resume. In either case, teachers should provide timely feedback to give students clarity about their progress.

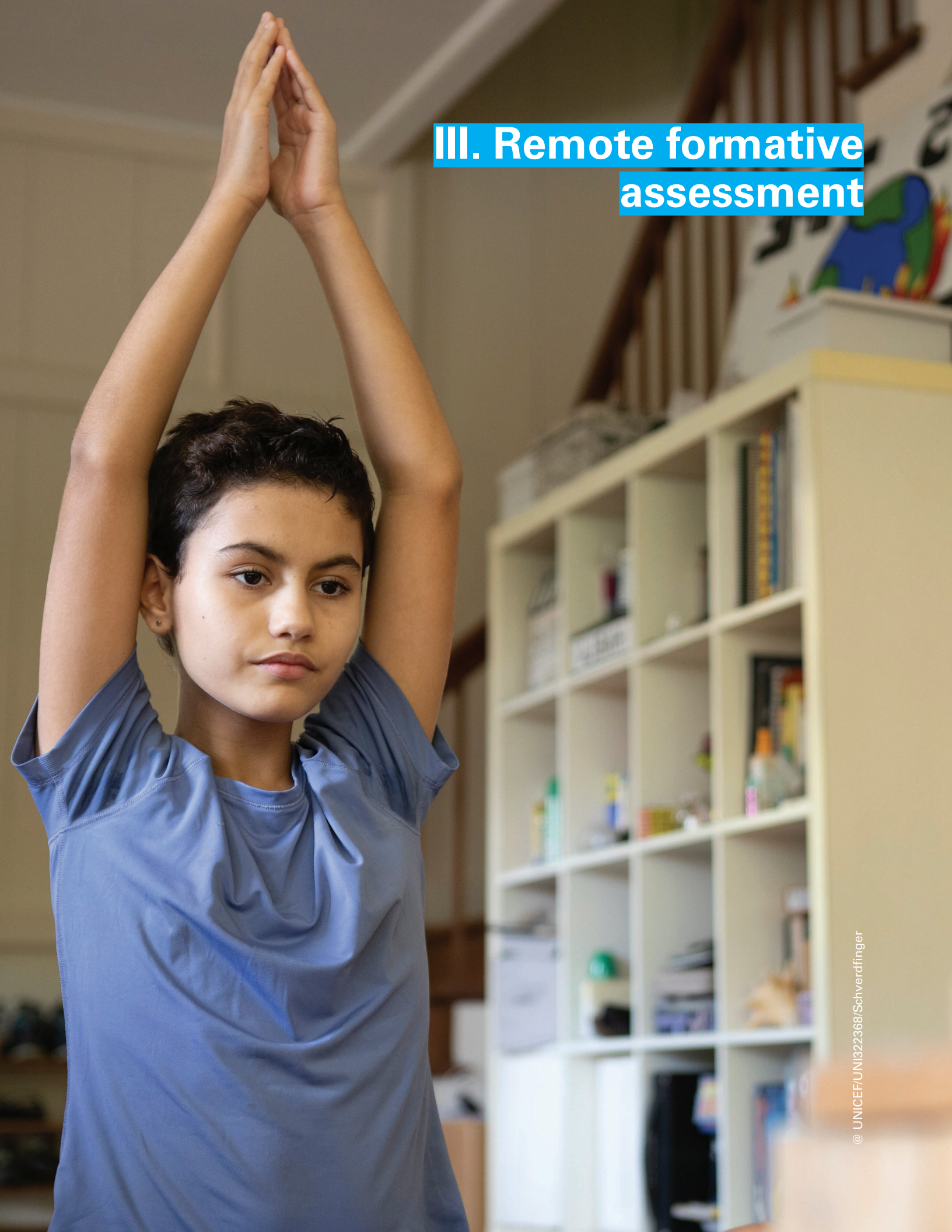
The Chilean Ministry of Education also highlighted the importance of diversifying how students can demonstrate their learning, to respond to their own needs, characteristics and interests, as well as the varied ways in which students learn.

Guatemala

The Ministry of Education of Guatemala has established that when in-person classes resume, each student will present a portfolio for assessment. This will comprise all of the work that the student has carried out at home, through the *Aprendo en Casa* programme. This portfolio will serve as the basis for assessing what students learned while schools were closed.

For students without access to digital technologies or internet connectivity, print-based tools and digital equipment can be provided to supplement radio and television programming. For instance, in Argentina, Jamaica and Peru, both radio and television broadcasts are supplemented with notebook/tablet packed with learning resources that are delivered to students' homes (World Bank, 2020).

III. Remote formative assessment



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As previously mentioned, assessing progress can help verify what students have achieved (summative assessment) and inform both students and teachers about the learning process to enable them to adjust their practices accordingly (formative assessment).

Formative assessment can play a key role in ensuring remote learning and is carried out in accordance with some general considerations linked to its validity, reliability and the specific mode(s) used for education provision. To be **valid and reliable**, formative assessment should:

- ensure tasks are **pertinent** to the student's context
- ensure that the necessary **conditions are present** for students to be able to produce a response (whether individually or working in teams)
- provide effective formative **feedback**
- include **multidimensional** perspectives
- provide **support to students**
- include opportunities for documenting and **monitoring** evidence of learning
- rest upon **multiple sources** of evidence of learning
- be explicit and clear about **learning goals** and the rubrics to be used, which should be shared in advance.

Formative assessment becomes effective if it contributes to developing the student's abilities to learn in a continuous manner (Organisation for Economic Co-operation and Development and the Centre for Educational Research and Innovation, 2008). In particular, formative assessment emphasizes the teaching–learning process; involves students in this process; promote peer assessment and self-assessment; and helps students to understand their own learning.

3.1. Online learning

Where a reliable digital infrastructure and connectivity are in place, providing students with stable broadband internet access at home or in school, online learning appears to be the most appealing alternative to in-person education for most policymakers. Several countries and education systems have thus been making significant efforts to move in this direction.

Notwithstanding the enormous potential of digital technologies and communications, digital platforms in and of themselves cannot be assumed to be better than other modalities of remote education provision. The quality of an education programme is contingent upon its overall pedagogical design, how it makes the most of the tools at its disposal, and the pertinence of the service to student context and conditions. From this viewpoint, digital media can support both

excellent and poor content, and promote both good and poor educational experiences.

Moreover, online learning that facilitates synchronous completion of tasks and submission of assignment can be very positive for students. Coursework is reviewed relatively quickly by teachers, who can also receive students' critical feedback in real time, and students can simultaneously access the teacher's feedback. Synchronous communication provides both student and teacher with insight into the learning process. It also allows for the promotion of peer assessment and self-assessment skills, an aspect which has proven to be adaptable to and effective in various learning settings.

3.2. Radio and television broadcasts

While online learning has the potential to deliver enormous benefits, it also involves significant investments. These are needed to ensure the coverage, quality and affordability of digital services, as well as the 'digitalization' of instructional programmes and content. To bypass such costs, governments can instead broadcast educational material on radio and television, both far-reaching platforms that offer feasible and attractive channels to address the pandemic's challenges.

Broadcasts delivered by radio or another audio device, such as a compact disc player, MP3 player or mobile phone, consist of pre-recorded interactive lessons that aurally deliver content to students, teachers and caregivers. Such programmes should be accompanied by teacher guides, student materials and training for teachers and caregivers (World Bank Group and Education Development Center, 2015).

A 2020 report suggests that, under the current circumstances of the COVID-19 pandemic, formative assessment may be conducted in two contexts: in-person and remote scenarios. Where feasible to gather together up to 10 students, the facilitator or teacher can first guide the group through the activities in the radio or audio programme. The teacher then carries out the formative assessment, managing the respective assessment resources or comprehension questions using printed material or through mobile devices.

In the remote scenario, parents and caregivers play a critical role in facilitating their children's participation in the radio or audio programme's learning activities and completion of the assessment resources or comprehension questions about the content studied. If printed material is used for the assessment, caregivers can return the collected responses as images (photographs), using a messaging application such as WhatsApp on a mobile phone. Where such connectivity is unavailable, results can be submitted on paper via the postal service.

Depending on connectivity conditions, messaging applications can be used in both scenarios to enable the sharing of additional information to complement the radio or audio programme content.

Both radio and television broadcasts face challenges related to inadequate radio or television signal coverage, especially in dispersed and sparsely populated areas; students' lack of access to a radio

or television; and even language and accent barriers. Nevertheless, radio and television programmes have successfully helped to sustain critical linkages between students and their schools (Powers & Azzi-Huck, 2016).

One of the problems associated with the use of educational radio and television programmes stems from the fact that broadcasts are unidirectional. That is, they do not cater for two-way communication or interaction between the producers and disseminators of content and the consumers or recipients of that content. The same issue applies to remote education provision that relies on the distribution of printed material.

3.3. Phone calls, text messages and instant messaging

One way to address the limitations of educational content broadcast on radio and television rests upon the role that teachers can play in the present situation of the pandemic. To supplement broadcasts, teachers can establish a two-way communication channel with their students using a mobile phone (or landline) – for voice calls and/or sending and receiving SMS text messages – or a messaging application, if both teacher and student can access a suitable device and data plan.[2] If regular communication can be sustained, teachers could implement some assessment practices using such channels, for instance, to support and follow up with their students at the end of each learning session.

On the other hand, communicating feedback by phone could become very difficult, especially if there are many students watching the same lesson on television (as is the intention). In such cases, as well as in low-resource and low-connectivity situations, students, caregivers and teachers require other ways of communication to ensure the learning process and assessment.

Alternatives to phone communication (including SMS text messages and other digital tools) may involve the use of the postal service, email or in-person visits

(provided when there are no health risks for families and teachers). There are text-message learning platforms, like **Arist**™, which deliver a series of texts containing multiple choice and short answer questions, can be used for synchronous assessment of individual students, with teachers providing instructions, tasks and feedback in real time (Kamenetz, 2020). Forms of asynchronous communication such as post or email can also be used to request and submit assignments.

2 Several governments have been negotiating with telecommunications providers regarding the conditions for expanding access and not charging for data traffic linked to education provision (servers used for this purpose are easily identifiable). The situation for local teacher–student communications have not been able to achieve good results because it is difficult to identify who should have access to free (or subsidized) data traffic. Many of these efforts are therefore contingent upon the disposition of resources by both teachers and families (i.e., devices and data plans) and, as such, entail an important risk associated with socio-economic inequalities.

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IV. Assessment methods according to the means of education service provision

With the school closures due to the COVID-19 pandemic, education systems have been forced to provide remote education services, through: (1) printed material and radio and television programmes; (2) asynchronous digital media; (3) synchronous digital media; and (4) a combination of these modalities.

Based on the literature review findings and the significant experiences presented in this report, Figure 2 lists 16 methods of formative assessment categorized by the means used to deliver remote education services. This classification is necessary as some methods will work only in certain circumstances. While all assessment methods can be used in education provision via synchronously managed digital media, methods 11 to 16 no longer apply when using asynchronously managed media. When education is delivered using printed material, radio and television, only methods 1 to 6 apply.

4.1. Education provision with printed material, radio and television

1. **Self-assessment:** Remote learning rests to a large extent upon autonomous work carried out by each student. Hence, the task of the learner assessing her/his own progress can become a substantive part of the learning experience. Printed or digital -based assessments disseminated digitally can include brief, regularly spaced tests requiring each student to complete some tasks and then use an answer key to review her/his answers. For this sort of assessment to be particularly useful, answer keys can be supplemented with an explanation of common mistakes. Students can then identify not only their areas for improvement but also understand why they may have made those specific mistakes. Guidance can then be given on what aspects learners need to take into account and/or what sections of the material they should review.

   Self-assessment quizzes or tests can comprise multiple choice, fill-in-the-blank or closed questions on content that is not too complex conceptually (thought the tests can be very complex in terms of the operations required to solve them). Checklists can also be included as self-assessment activities. These are easy to mark and can be formative if they are developed based on a careful analysis of common errors with supplementary explanations and guidance. Self-assessment tests can also comprise problem-solving exercises in a spreadsheet format. In any case, even if tasks are drafted to monitor the development of learning, they are usually concrete in nature, so it is necessary to ensure that they are meaningful in diverse settings.

   For questions requiring the student to produce an answer freely, predefined comments on what that answer should consist of are useful. However, reviewing answers to open-ended questions of this type is cognitively more demanding. As such, open questions are not always appropriate or easily suited to self-assessment.

   Given the scope that can be covered with predefined texts, it is advisable to limit their use in self-assessment to tasks involving identifying content, carrying out some operations, and establishing correspondence and relations using analogies, sequences or pairing exercises.

   Self-assessment relies on an important level of autonomy and self-discipline. It is therefore a suitable method for use with students mature

Figure 2. Formative assessment methods according to the means of delivery

Provision with printed material, radio, television	Provision with asynchronous digital	Provision with synchronous digital media
1. Self-assessment	1. Self-assessment	1. Self-assessment
2. Written assessments	2. Written assessments	2. Written assessments
3. Projects	3. Projects	3. Projects
4. Production of written pieces	4. Production of written pieces	4. Production of written pieces
5. Phone interviews	5. Phone interviews	5. Phone interviews
6. Portfolios	6. Portfolios	6. Portfolios
	7. Production of multimedia pieces	7. Production of multimedia pieces
	8. Peer assessment	8. Peer assessment
	9. Topical or Q&A forums, blogs, wikis	9. Topical or Q&A forums, blogs, wikis
	10. Group assignments	10. Group assignments
		11. E-portfolios
		12. Presentations
		13. Debates
		14. Oral assessments
		15. Online games/competitions
		16. Adaptive tests or quizzes

Assessment

- Applicable to all types of delivery means. Guidance and feedback can be provided via postal service, phone, SMS text messages and instant
- Applicable to education provision via asynchronously managed digital media. Guidance and feedback can be provided via postal service, phone, SMS text messages, instant messaging service apps, and email.
- Applicable to remote education provision using synchronously managed digital media. Guidance and feedback can be provided via postal service, phone, SMS text messages, instant messaging service apps, email and LMS platforms' specific tools (including feedback sessions).

Source: Prepared by the author

enough to take control of their own learning experience. As with educational materials, self-assessments should be developed and provided in the same language of instruction. Learners for whom self-assessment is employed should be fully competent in the written form of the language.

2. **Written assessments:** For learning more complex content, especially those demanding complete answers in fully written texts, students will need to submit their written assessments for grading and feedback. It also applies even in cases where the mean of education provision only uses printed materials.

3. **Projects:** For a coherent assessment of a complex topic, printed material or digital media can be used to prompt students to develop a project encompassing various tasks. Projects can be developed individually or in groups and typically require students to review the available literature, conduct an experiment (practicable given the available resources and safety conditions at home), analyse results and produce a written report on the entire process. Critical questions to do with the suitability of this method surround what should be reported and which communication media are available for reporting purposes. The student may submit project results in a log-file on paper or on a digital device; if connectivity conditions allow for reporting via an audio or video file, these can be included.

   The most useful and rewarding project assignments start with a clear task and are developed relying on continuous support from the teacher. Such support should include feedback on incomplete work, allowing students to make corrections and include elements they may be missing, until a final product is completed. Assignments can cover almost any topic and be used to implement different education strategies.

   Written assignments are feasible only for those students who have command of the written form of the language of assessment. The complexity of each project should be commensurate with the student's maturity and the available resources. Ideally, the project should establish a clear connection with the context.

4. **Production of written pieces:** This method usually allows for complex tasks to be performed and demands that students possess the necessary skills in order to express ideas coherently in writing. Written pieces provide an opportunity for students to express themselves through items (texts) of varying length and complexity; which does not only depend on the age but also on the scope of the task. Formats can range from anecdotal records to a monograph on a set topic. The feasibility of using this tool, as with other methods, comes down to the critical question of which communication media are available to students to submit their work and receive feedback.

5. **Phone interviews:** When stable, reliable and affordable phone communication can be established between teacher and students, an interview by phone can serve various purposes. It can be a way to conduct an oral examination; an opportunity to monitor progress and emotional well-being; a channel to strengthen continuity and engagement; and a means to also involve other household members, especially parents and caregivers.

   Depending on the purpose of the phone call, it is important to have in place a more or less structured interview protocol to follow. While follow-up calls can be more open-ended and develop as per each student's responses and potential difficulties, oral examinations could be quite structured. In all cases, the teacher may resort to a checklist to ensure that each call satisfies its intended purpose, including in terms of the feedback that can be provided. The option for the teacher to provide explanation of any mistakes made by students in an oral examination should be an integral part of the interview protocol.

6. **Portfolios:** Producing a portfolio can be a very engaging activity for students, provided that they are supported with continuous monitoring to help them maintain their work over a given time. A portfolio created at the last minute, however, does not help to achieve the intended goals associated with building such a body of work. A portfolio is useful for keeping track of students' progress, as it comprises various pieces of work produced by the student over a set period. Portfolios help students to take ownership of their work and improve the ways in which they organize and retrieve information. How often a teacher can review a portfolio and provide feedback and guidance to the student on ways to improve and better archive its contents is a key issue. Consideration should be given to the available means for producing, sending and receiving feedback on both a partially complete portfolio and the final body of work.

   With the support of their parents and caregivers, younger students can keep a portfolio of non-written pieces. Teachers should, however, assist parents and caregivers to help their young children prepare the pieces, thereby enabling parents to promote the learning process.

4.2. Education provision with asynchronous digital media

7. **Production of multimedia pieces:** Personally, crafting a product is a rich experience that can become still more engaging when dealing with multiple media formats such as text, audio, still images, animation and video. Particular care must be taken, however, to avoid losing track of the content by focusing too much on the media. Opportunities to use this assessment method are heavily dependent on the media used for teacher–student communication and on each student having access to the necessary equipment to produce multimedia works.

8. **Peer assessment:** Peer assessment fosters responsibility among students and diligence in reviewing someone else's work; at the same time, it helps the peer reviewers to identify mistakes and limitations in their own work. As soon as a fast and reliable communication mechanism has been established that enables students to communicate with one another, it is feasible to think about introducing practices based on peer assessment.

   Peer assessment can be conducted with any type of work, provided that students can access the work in the format submitted by their peers. Teachers should prepare in advance clear guidelines or rubrics to help students in peer assessment tasks. These guidelines will also be useful for self-assessment activities. The guidelines provide specific assessment criteria as well as clear indicators to let students know what is expected of a given piece.

   Peer assessment requires that students are mature and have a clear understanding of the assessment criteria, which are usually stated in somewhat abstract terms.

9. **Topical or question-and-answer (Q&A) forums, blogs, wikis:** Asynchronously managed digital media enable continuous dialogue and cooperation. This method is valuable for schools, teachers and classrooms as it can be used to create topical or Q&A forums, blogs, wikis and other useful tools. Moreover, these tools are valuable due the fact that the information they report remains and can be stored as a digital archive of previous work, which can be used as a reference point for new endeavours.

   This set of tools promotes a high level of student participation by enabling the clarification of doubts and the detailed exploration of issues

that a particular learning experience may trigger. Ensuring a successful experience with these tools demands time and dedication from the teacher, as well as the willingness of students to actively participate and express themselves in written form.

10. **Group assignments:** Having a fast and reliable means of communication in place also enables teamwork and group assignments. If communication is established through a dedicated platform (e.g., an LMS or web-based shared resources), whatever is developed as a group activity can also be recorded and stored online. Teachers can therefore easily monitor work in progress and provide ongoing feedback. In contrast, if communication is only through SMS text messages or instant messaging applications, teachers will find it increasingly difficult to provide continuous feedback.

    Group assignments can provide a rich, emotionally supportive experience for students and have a very positive impact on sustaining the learning process. The more mature the students, the more a teacher can rely on this assessment method to collect information that accurately reflects student performance.

4.3. Education provision with synchronous managed digital media

11. **E-portfolios:** These share all of the advantages of physical portfolios, but since they are recorded and stored digitally, are easier to transport (if appropriate digital and communication conditions are available). E-portfolios can thus be used to demonstrate learner knowledge, monitor learning progress, and given that they are regularly updated, they allow for ongoing teacher feedback.

    Synchronously managed digital media in the form of several LMS solutions, including **Seesaw**, can enable the creation of collaborative and shareable e-portfolios. These allow teachers to provide systematic feedback, as all such information can be properly recorded and retrieved.

    Working with e-portfolios requires a minimum level of knowledge and command of the electronic tools to be used. These tools must have sufficient capacity to support the stored content and operate in a stable manner.

12. **Presentations:** Whether delivered by individuals or groups, presentations require preparatory work to organize ideas, source or create supporting materials, and develop the necessary communication skills to convey learning about the topic in question. This process can be supervised and enriched with feedback.

    With reliable synchronous communication in place, an actual – albeit digital – classroom can be created. Various activities resembling those that go on in a physical classroom (such as individual or group sessions) can then be introduced.

    It is important to bear in mind, however, that engaging in synchronous online activities can be stressful and demanding. Therefore, how they are organized and their impact on time allocation by students and teachers must be arranged with the utmost care. Notably, digital devices and broadband connectivity may be shared between household members. Hence, how much time a student allocates to synchronous online activities can seldom match the time allocated to equivalent activities in the classroom. The age and maturity of students also need to be considered – the younger the student, the less time can be expected to be spent on continuous online activity.

13. **Debates:** Activities involved in real-time debates require fast and reliable digital communication channels. Given the emotional components of debates, participants should have the necessary skills to create a positive environment conducive to dialogue and not conflict.

14. **Oral assessments:** Whether oral assessments are conducted individually or in groups, it is advisable to ensure optimal connectivity and the availability of audio and video equipment for students and teachers. Given that students can refer to supporting materials while being assessed, these real-time, bidirectional examinations are not recommended for evaluating the recollection of information (information that can be memorized).

15. **Online games and competitions:** Certain online games and competitions can be used as assessment tools (Burns, 2011). Since some online games and competitions, like Quizizz, are designed for educational purposes, they can be used to conduct online formative assessment that allows players (learners) to reflect on their mistakes. In a study of student perceptions of Quizizz, respondents affirmed that they could learn a topic better when asked to construct questions for the game based on the topic, and that they prefer to be allowed to refer to their notes when answering the questions to reduce their anxiety (Mohamad et al., 2020).

16. **Adaptive tests or quizzes:** In those cases where an LMS is in place, adaptive tests can be used as practise and review mechanisms, or as assessment tools that provide detailed information on students' progress and areas of improvement.

In general, it is recommended that assessment methods focus more on fostering the abilities to use the available information and critically consider and apply this information in other fields. Besides their use in organizing group work, these methods are also valuable for strengthening collaborative work skills and harmonious relationships with peers and others. Under the current circumstances of the COVID-19 pandemic and in most learning processes, assessments based on the recall of information are not recommended, except for some tasks where automaticity without conscious attention is needed.

With the exception of phone interviews, the formative assessment methods described are all based on the following assumptions: Students may have total or partial access to supporting materials, and they may engage with people who can assist them in preparing their responses.

The possibility of two-way communication between teacher and students is considered an attribute of most pedagogical practices in education systems. Only those assessment activities involving an LMS or other synchronous software can, however, allow for co-presence within a digital environment.

Faced with school closures and the obligation to maintain physical distancing, thousands of teachers have developed myriad initiatives to sustain communication with their students. While such efforts are laudable, education authorities should adjust or develop policies to address the current challenges involved in teacher–student interaction, and not leave the provision of education to the initiative of individual teachers.

V. Challenges triggered by the pandemic

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Most of the learning assessment practices mentioned thus far, although with references to the current context of the COVID-19 pandemic, are also valid for remote provision of learning experiences, whether as part of a distance education programme or as a support mechanism for regular classroom provision. However, this section focuses solely on identifying specific challenges resulting from the pandemic, in order to inform and shape policy decisions regarding formative assessment under the current conditions.

5.1. Challenges for students

Education systems were originally designed to promote discipline and acceptance, not autonomy. Many education stakeholders (policymakers, parents and even teachers) pay insufficient attention to the importance of developing autonomy among students. In the current context, characterized by the provision of remote education services, however, autonomy reveals itself as a cornerstone in the individual educational experience and highlights the need for learning that is largely dependent on students' commitment, engagement and self-motivation – elements that rest upon their **autonomy.**

Education policy and teaching practices should focus on encouraging autonomy, taking into account that this is acquired throughout the various developmental stages and depends on individual (people) and environmental conditions. These factors should be considered in the design of remote provision of education services and for formative learning assessment practices, so as to avoid attempts at 'one-size-fits-all' solutions that fail to consider student maturity and context.

In educational experiences that rely heavily on one-way communication, such as radio and television broadcasts, the provision of printed material alone, or asynchronously managed digital media, it is important to prevent students at home from feeling **abandoned**. This may occur if there are not enough mechanisms in place for teachers to sustain regular communication with their students to follow-up the teaching-learning process, as well as provide guidance, feedback and emotional support.

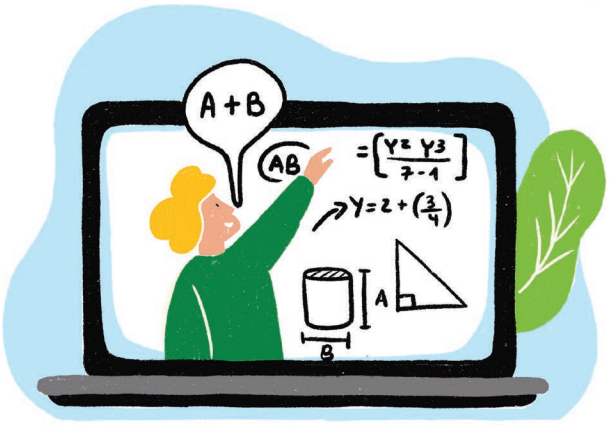
Moreover, teacher-student disengagement could compromise the results previously achieved, interrupt their educational trajectory and affect their capacity to learn new things. On top of all this, the emotional and socio-economic impact of the pandemic may cause students to feel overwhelmed and hopeless.

5.2. Challenges for teachers

The crisis triggered by the pandemic has thoroughly modified the conditions in which teachers previously performed their work. Teachers have been forced to adapt to the new situation, in many cases without major guidance or support from education authorities, and at their own expense (for instance, where they have devised mechanisms to reach their students using their own mobile phone and data plan). National education authorities should respond to this situation by providing clear guidance, supporting tools, training and professional development opportunities.

Moreover, the current crisis has made it even more evident that policy should not be about *prescribing* in great detail what schools and teachers should do – since local developments cannot always be anticipated or even imagined by a national authority. Rather, policy should serve to *empower* the autonomy of students, teachers, schools and communities. For instance, no national authority could have foreseen that a science teacher in the Andean region of Peru would create a female robot to amplify the reach of the national programme *Aprendo en Casa*. Nevertheless, the national authority should provide the necessary space and means for initiatives such as this to flourish. Education policies must be more than sets of measures that respond to centralized decisions. Policies should acknowledge that education systems are complex, dynamic systems with properties that emerge from encounters with different education agent and their capacity for action. As such, they should be organized to favour autonomous action in each local setting. In this sense, policy should *enable* agents of the system and not be too focused on attempting to *prescribe* what they do (Guadalupe, 2016).

Within a policy framework that fosters professional autonomy, teachers can better adapt their professional practice. Teaching should be understood as a job where expert knowledge is mobilized by teachers and school teams in an autonomous manner, including daily tasks, responsibilities and management accountability.

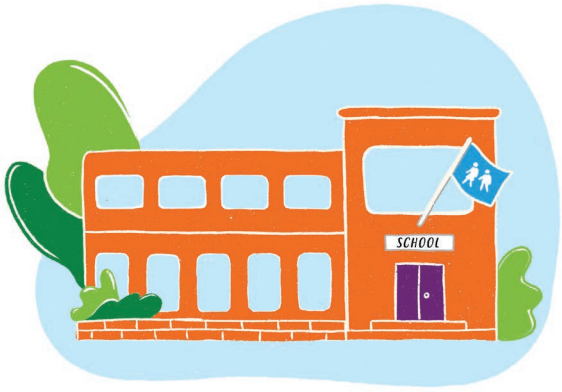


Teachers should also be capable of communicating among themselves to exchange doubts, questions, and experiences of addressing the areas varied needs of students, given their diversity of ages, cycles/grades, learning areas, living conditions, and access communication services. Education authorities and professional organizations should promote and facilitate collaboration among teachers, not least because it is crucial in ensuring a professional response to the new conditions.

Teachers should be guided to monitor learning and, within this area, strengthen formative assessment practices. However, many teachers lack the relevant resources, training and experience required. This is due to both insufficient/inadequate pre-service or in-service training, as well as to the lack of autonomous access to necessary resources for professional development.

Education policy needs to recognize that different responses to the crisis have different impacts on teachers' allocation of time to support students. On the surface, the remote provision of education service may appear to reduce instructional hours and teaching time. On the contrary, preparing remote activities and ensuring continuous communication with students may actually require more time to be invested in teaching and in formative assessment. At the same time, the crisis has become a critical opportunity to adjust, where necessary, the way the teacher's workday is measured (including in-classroom and not-in-classroom teaching time), as well as provide relevant professional support on how to organize time, follow up with students, sustain student engagement and administer assessments.

5.3. Challenges for schools



Schools are the institutional spaces in which teachers, together with principals and other school staff, organize their particular responses to the pandemic given the local context. As such, schools should comprehensively address the various learning barriers and limitations that their communities confront, as well as those related to the continuation of studies from one school year to the next.

Since schools are the repositories of the material resources used to deliver education services, their responses should include the development of resources that use remote means of service provision, as well as, collaboration and communication mechanisms with parents, caregivers and local communities to support students and implement a range of formative assessment methods.

It is advisable to strengthen communication and support parents and caregivers to encourage the education process of their children, considering the limitations they may have. This communication should be based on trust and regular, open and frank interactions with the parent and/or caregiver, through conversations, meetings and clear reports on student progress and the school's overall performance.

5.4. Challenges for education authorities

National and sub-national education authorities are particularly subject to public pressure. In centralized systems, this is stressed by the fact that the national authority appears to be the main responsible agent for every single detail about every single school.

Beyond the urgencies of the moment and the current demands addressed to national education authorities, it is important that they continue to focus on the fundamental issues of student learning. National authorities should support schools and teachers in dealing with the crisis by providing guidance and resources to help them successfully cope with the situation. It is thus a particularly favourable situation to reconsider, where applicable, the effectiveness of centralized systems, and open up a debate that may lead to higher levels of school autonomy.

At the same time, national education authorities should make clear decisions and carry out actions to address the potential impact of the crisis on learning continuity. Given the central role that formative assessment play in sustaining rewarding educational experiences, it is important that authorities prepare clear guidelines for its implementation. These guidelines should consider the requirements of a diverse set of resources and methods to be mobilized for formative assessment according to each particular situation.

Moreover, creating the material conditions for this type of learning assessment is a major responsibility that goes beyond the scope of education authorities but requires their leadership to convene and coordinate effective multisectoral work. Coordination with other sectors responsible for the supply and provision of communication services through analogue, asynchronous and synchronous digital media is essential for the provision of remote educational opportunities to prevent a greater digital divide and increased socio-economic disparities.

Finally, education authorities must facilitate dialogue between different agents of the education system, to strengthen ties and build trust, as well as lessen divisions created by viewpoints based on prejudices or unrealistic expectations in relation to remote provision of educational service.

5.5. Challenges for parents and caregivers

Households are the new locus of educational experiences that were previously based in schools – a shift that has presented major challenges for parents and caregivers. While parental engagement has always been important for their children's learning, this role has become more crucial in the context of remote provision of education services under the current circumstances. Especially so when it comes to the teaching–learning process in early childhood or the continuity of education for students who do not have access to internet and/or internet-enabled devices.

Besides these challenges, other factors can add to the complexity of the household context. These factors mainly relate to families' living conditions and varying capacities. Poverty and exclusion represent critical challenges, as they influence the level of parental education, health and work conditions, as well as access to digital devices and digital media. Further challenges brought on by the effects of the COVID-19 pandemic include greater family stress due to confinement, physical distancing and fear of contagion; illness in the family nucleus; and loss of employment or income.

In this complex scenario, the engagement and support that parents and caregivers can provide to students will be possible only if families receive adequate support as part of comprehensive social services.

It is therefore critical that education authorities call for and lead multisectoral efforts to ensure that remote provision of education services and formative assessment methods are designed to provide structural solutions to all families while focusing in particular on the most marginalized and vulnerable. This would enable all students to receive adequate educational support from their caregivers and families and thereby succeed in overcoming the barriers to learning imposed by complex crises such as the COVID-19 pandemic.

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VI. Key aspects of formative assessment in remote delivery

Education systems have been forced to rethink education provision as a result of the measures adopted to respond to the COVID-19 pandemic. In turn, this new context has made it necessary to reconsider formative assessment according to the means used to deliver education services remotely. Formative assessment in the context of remote delivery is critical because it offers information on students' learning according to the specific mode of delivery used. Additionally, it provides evidence to inform any adjustments required to learning assessment practices and methods.

The following ideas summarize the centrality of formative assessment and highlight its main attributes:

1. Under the current circumstances, rather than assessing the performance of the education system, it is essential to monitor **how student learning has taken place** during this period. Consequently, formative assessment should be carried out to measure the results achieved and provide feedback on the teaching process.

2. As learning is not a linear process but a human experience that reflects the current context and the specific circumstances of each student, **it is imperative that expectations regarding formative assessment are aligned with experiences of a year that can hardly be considered normal**. As such, besides planning for the attainment in 2021 of the learning achievements not achieved in 2020, it is also necessary to value what has been learned from this crisis. Of particular importance are the lessons learned about the new challenges for humanity as a whole, and for each country in terms of its social, economic, political, environmental and cultural dimensions.

3. It is important to stress the **centrality of formative assessment** for the learning process and progress indicators, as these are critical components of the learning experience. In this sense, the crisis should be seen as an opportunity to shift away from the less useful and sometimes harmful numeric assessment practices that focus excessively on grades, averages and rankings. This shift requires increased efforts from teachers to acknowledge their students' work and provide meaningful feedback that allows the students to build on and continue with their educational experience.

4. It is important to ensure that **temporary assessment procedures are sufficiently robust** in order to properly provide feedback on learning, as well as foster trust in the education system and its agents. Thus, education authorities need to communicate the scope and strengths of the options available for education service delivery, explaining the reasons for the decisions made and ensuring that methods and tools are well adapted to work as smoothly as possible in the context.

5. To properly implement formative assessment in the context of remote education provision, **teachers should be properly trained and equipped**. This requires public policy actions that encompass a vast array of issues: (1) extensive training for every teacher to acquire the necessary knowledge, as well as become familiar with the different systems and tools; (2) equipment provision and timely technical support; (3) pedagogical support; and (4) communication services and devices to maintain interaction with students. It is essential to consider the characteristics of the contexts where education is provided, for example, rural and dispersed areas, with low or no mobile phone and internet coverage; public schools with insufficient resources and weak infrastructure and that are poorly equipped; and school conditions serving indigenous populations. Moreover, it is important for education authorities to support public interest communication campaigns with messages aimed at students, families and other members of the education community.

6. To create an environment conducive to learning, it is critical to consider the **roles of the various social agents beyond the school system**. In particular, parents and caregivers can facilitate assessment

processes and reinforce messages regarding their formative importance. Nonetheless, these agents also need to receive adequate information and support to accompany their children's learning.

7. From a broader perspective, education is an enabling human right. It is the principal means for socio-economically excluded children, adolescents and adults to overcome poverty and fully participate in their communities. Thus, the right to education is paramount in this complex crisis and takes on a leading role. However, the physical distancing measures implemented to address the current global emergency have violated the right to education for millions of children in the Latin America and Caribbean region.

Remote provision of educational services depends mainly on technical solutions and investments in technology and infrastructure for connectivity. Consequently, it is critical that authorities in the fields of education, information and communication technology, finance, and social services work together to close the digital divide. As well as, compensate for lack of equipment and deficiencies in connectivity, and provide the essential means to ensure access to quality teaching and monitoring of learning, especially for the most marginalized and vulnerable populations. This is vital not only because **education is a human right that contributes** to **reduce inequality**, which has continued to deepen as a result of the pandemic. It is also crucial because **school routines are essential to provide stability, help students face uncertainty, and prevent learning losses** and its long-term consequences for their educational trajectories and opportunities in adult life.

In line with the above, the formulation or adjustments of education policies should aim to ensure the continuity of education services, considering the following issues:

1. **The importance of maintaining the relations** between students, teachers, peers, parent, caregivers and, in general, the entire education community. Although these relationships were previously taken for granted, they are fundamental for building an educational experience that encompasses cognitive as well as social and emotional aspects.

2. **The importance of monitoring the teaching–learning process** to collect evidence and make pertinent adjustments to the process.

3. **The need to ensure** that formative assessment is properly aligned with curricular intentions and responds to the context of the current crisis.

4. The urgency of **adapting the remote provision of educational services to the specific circumstances of each developmental stage and age**. This is important to ensure that teaching responds to the specific circumstances of learning in early childhood and preschool, as well as in primary and secondary education. It also helps to provide solutions appropriate to the dynamics of each educational context (i.e., urban, rural, or intercultural bilingual education) and is critical to re-engage out-of-school children and adolescents and support those at risk of dropping out to complete their education.

5. The ability to **distinguish between mechanisms for remote provision of educational services and distance education programmes,** bearing in mind that no single solution can respond to all circumstances.

6. **The need to advance formative learning assessment** – since it is a central component of the educational experience that enables verification of student progress – and use this evidence to strengthen all components of the teaching–learning process.

7. **The need to pay close attention to the main attributes of each formative assessment method** and its applicability to the specific means used for remote provision of educational services. This will help to promote an approach that is consistent with the expectations and central concerns of students and agents of the education system.

Likewise, a national strategy that is consistent with formative assessment for learning (conducted remotely), should pay particular attention to the following:

1. The guidelines provided by education authorities on what should be assessed, the procedures for assessment and the expected results.

2. How administrative systems operate to record information on student progress and the relevant changes in measurement scales, including the design of report cards or progress reports.

3. The use of progress information (produced by some types of assessment) for grade promotion, repetition – in those countries where it applies – and necessary corrective measures.

4. The prioritization of pre-service and in-service teacher training programmes required to enable teachers to successfully undertake all aspects of formative assessment in the context of remote delivery of education services.

5. The importance of rethinking standardized assessments from the perspective of remote education provision.

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Appendix 1: Learning Management Systems

Key features	Software	Open source (Yes/No)	Spanish version (Yes/No)
Software application for the administration, documentation, monitoring, reporting, automation and delivery of educational courses. **Assessment options:** » Problem types: multiple choice, true/false, matching » Difficulty levels are adjusted to match the students » Questions are randomly generated from the database **Options for feedback:** » Instructions on how to access additional information regarding the associated content **Reports of student outcomes** **Interactive options that include manipulating objects, drawing figures, and labelling diagrams.**	ATutor	Yes	Yes
	Chamilo		Yes
	Claroline		Yes
	ILIAS		Yes
	LAMS		Yes
	LON-CAPA		No
	Moodle		Yes
	Open edX		Yes
	OpenOLAT		No
	Sakai		Yes
	SWAD		Yes
	TalentLMS		Yes
	Blackboard Learn	No	Yes
	Canvas LMS		Yes
	D2L		Yes
	Edmodo		Yes
	Engrade		No
	Etudes		No
	HotChalk Ember		Yes
	Kannu		No
	Schoology		Yes
	Seesaw		Yes
	Skillsoft		No
	Uzity		No
	WebCT		Yes
	WizIQ		No

Source: List compiled following an internet search conducted on 15 July 2020.

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Appendix 2: Digital tools for formative assessment

Name	Key features	Spanish version (Yes/No)
Animoto	Gives students the opportunity to make a 30-second video of what they learned in a given lesson.	No
AnswerGarden	Tool for online brainstorming or polling. Teacher can use this real-time to see student feedback on questions.	No
The Answer Pad	Allows teachers to capture data from students using the website or application.	No
AudioNote	A combination of a voice recorder and notepad that captures both audio and text-based notes for student collaboration.	No
Backchannel Chat	This tool, which is similar to Twitter, promotes student participation in a specific subject. The teacher acts as a moderator and makes comments to students. The tool allows the teacher to control the chat and create a tag cloud with the highlights of the conversation.	No
Biblionasium	Allows teachers to keep a digital log of books that students have read, create reading challenges for students, and monitor progress. Students can also review and recommend books to their peers on the site.	No
Buncee	A creation and presentation tool that helps students and teachers to visualize, communicate and engage with classroom concepts and ideas.	No
Chatzy	Supports backchannel conversations in a private setting and encourages discussion; facilitates the preparation of summaries; and helps keep a discussion going after the class is over.	No
Classkick	Allows the posting of assignments, so that both the teacher and students/peers can provide feedback and monitor progress.	No
Coggle	A mind-mapping tool designed to help understand students' thinking.	Yes
Conceptboard	Facilitates team collaboration in a visual format similar to mind-mapping but using visual and textual inputs.	No
Crowdsignal	Creates online polls, quizzes and questions. Students' responses can be eliminated in reports.	No
Dotstorming	A whiteboard that allows digital sticky notes to be posted and voted on. This tool is best for encouraging class discussion and for brainstorming ideas on different topics and questions.	No
Edmodo	A platform where students and teachers can collaboratively solve questions.	Yes
Edulastic	Allows teachers to create rapidly assessments aligned with the curriculum and receive instant feedback from students to adjust learning.	No
Flipgrid	Students can use 15-second to 5-minute videos to respond to prompts; teachers and peers can provide feedback.	No

Name	Key features	Spanish version (Yes/No)
ForAllRubrics	Allows for the import, creation and scoring of rubrics. Data can be collected offline, with no internet access, and scores computed automatically.	No
Formative	Provides teachers with the opportunity to assign activities to students, receive the results in real time, and then provide immediate feedback to students.	No
FreeOnlineSurveys	Facilitates teachers to quickly and easily create surveys, quizzes, forms and polls.	No
Kahoot!	Game-based web service, which can be used to create quizzes, discussions and surveys. Video clips, music and images can be added. Both the number of correct responses and the total time needed to submit the responses are used to score and rank the participating students.	Yes
Kaizena	Teachers can provide students with real-time verbal feedback on their digitally uploaded work and attach reusable resources created by them.	No
Lino	A virtual corkboard of sticky notes to enable students to submit questions and receive comments on their learning. These can be used as quiz on the lesson during its course or at the end of the lesson.	No
Mentimeter	Allows students to vote on any question formulated by a teacher.	No
MicroPoll	Allows for the creation of polls and analysis of responses. Polls can also be embedded in websites.	No
Miro	Collaborative online whiteboard platform designed for remote group work and collaboration.	No
Naiku	Teachers can easily and quickly create quizzes that students can respond using their mobile devices.	Yes
Nearpod	Like an all-student response system, this allows teachers to gather evidence of student learning, but differentiated lessons can also be created based on the data collected.	Yes
Obsurvey	Tool to create surveys and questionnaires.	No
Padlet	Provides a 'blank canvas' for students to create and design collaborative projects.	Yes
Pear Deck	Allows the planning and creation of interactive presentations in which students can participate.	No
Peergrade	Enables teachers to create assignments and upload rubrics. Students upload their work and are anonymously assigned for peer review according to the rubric.	No
Piazza	Allows teachers to upload lectures, assignments and homework; formulate questions and respond to student inquiries; as well as survey students on class content.	No

Name	Key features	Spanish version (Yes/No)
PlayPosit	An interactive video tool that enables teachers to add formative assessment features (pauses and questions) to survey what students know about the topic. Teachers choose from a library of video content from popular sites such as YouTube and Vimeo.	No
Plickers	Allows teachers to collect real-time formative assessment data without the need for student having devices.	No
Poll Everywhere	Teachers can create surveys to with questions and provide feedback. Students respond in various ways, and teachers see the results in real time. Open-ended questions enable data collection and tag clouds activation to include responses.	No
ProProfs	Builds and tests knowledge with quick quizzes, polls and rapid surveys.	No
Quia	Teachers can create games, quizzes, surveys and more, and access a database of existing quizzes from other educators.	No
Quick Key	Helps teachers with accurate marking, instant grading and immediate feedback for better student engagement.	Yes
Quizalize	Allows teachers to easily create quizzes and homework for students. Teachers can monitor students and identify areas for improvement.	Yes
Quizlet	Allows for the creation of flashcards, tests, quizzes and games to study.	Yes
Quizizz	Assessment forms.	Yes
Random Name Picker	Enable teachers to input a class list to facilitate random selection of names, or also to add a list of keywords for students to describe by definition and others to guess the word.	No
Seesaw	Helps teachers to improve communication with parents and caregivers and facilitates formative assessment. Students can use the platform to document their learning.	No
Socrative	Cloud-based student response systems, accessible through smartphones, laptops and tablet computers. Allows teachers to create assessments such as oral tests, self-guided quizzes and team games.	No
Spiral	Provides teachers access to different forms of feedback as part of formative assessment.	No
SurveyHero	Allows teachers to quickly build simple questionnaires and surveys.	No
SurveyMonkey	Enables teachers to create and deliver online polls and surveys.	Yes
Tagxedo	A tag cloud generator that allows teachers to examine student consensus regarding a topic and facilitate dialogue.	Yes
Triventy	Game platform that enables teachers to create quizzes for students to take in real time. These live quizzes provide teachers with real-time data on students' understanding of the concepts learned in class.	No

Name	Key features	Spanish version (Yes/No)
Typeform	Survey creation tool that provides teachers to add graphical elements.	Yes
Verso	Allows teachers to set up learning using a URL. Space is provided for instructions. Students download the app and introduce their responses to the assignment. They can then post their comments and respond to those of others. The teacher can group responses and check engagement levels.	No
Vocaroo	Enables users to create audio recordings without the need for software. Recordings can be easily embedded in slide shows, presentations or websites.	Yes
VoiceThread	Facilitates collaborative student discussion and work. It allows students to create and share conversations attached to documents, diagrams, videos, images and other formats.	Yes
Wordle	Generates tag clouds from any entered text to incorporate responses and facilitate discussion.	No
XMind	A mind-mapping software.	No
Yacapaca	Allows teachers to create and assign tests.	No
Zoho Survey	Teachers can create surveys and see students' results in real time.	No

Source: United Nations Children's Fund Serbia, 'Open Digital Educational Tools for Interactive Online Teaching and Learning', <**www.unicef.org/serbia/en/open-digital-educational-tools-interactive-online-teaching-and-learning**>, accessed 13 January 2021; Dyer, Kathy, '75 Digital Tools and Apps Teachers Can Use to Support Formative Assessment in the Classroom', NWEA, 31 January 2019, <**www.nwea.org/blog/2019/75-digital-tools-apps-teachers-use-to-support-classroom-formative-assessment**>, accessed 13 January 2021; Common Sense Education, 'Top Tech Tools for Formative Assessment', <**https://www.commonsense.org/education/top-picks/top-tech-tools-for-formative-assessment**>, accessed 18 January 2020; McLaughlin, Timothy, and Z. Yan, 'Diverse Delivery Methods and Strong Psychological Benefits: A review of online formative assessment', *Journal of Computer Assisted Learning*, vol. 33, no. 6, December 2017, pp. 562–574.

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