

The Provision of Learning in Mexico During the COVID-19 Pandemic: Defining the Digital Divide

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The pandemic in Mexico: Another burden to chronic socioeconomic inequalities

Geographically, the United Mexican States are part of North America, along with the United States of America and Canada; south, they border Guatemala and Belize; they border the Gulf of Mexico to the East, and the Pacific Ocean to the West (Sistema de Información de Tendencias Educativas en América Latina [SITEAL], 2020). Mexico has 32 federate entities, which are home to approximately 129 million inhabitants, out of whom 78% live in urban areas, and 15% are indigenous (SITEAL, 2020).

In 2018, Andrés Manuel López Obrador was elected President of Mexico for a period of six years, adopting an anti-neoliberal policy. The change of regime aimed at eradicating chronic socioeconomic gaps that had been affecting the largest sector of the Mexican population –humanism for development, reduced violence, and no more forced migration are among the priorities of López Obrador’s 2018-2024 National Plan for Development (Plan Nacional de Desarrollo, Gobierno de la República, 2019). The country’s gaps were indeed preoccupying: in 2018, 36.6% of the population in urban areas and 56.3% in rural areas lived in poverty, 25% of women lived without an individual outcome and, in 2015, 70% of the population did not trust the previous administration (Economic Commission for Latin America and the Caribbean [ECLAC], n.d.-a; n.d-b). Violence-wise, homicides increased 84% between 2015 and 2020, and organized crime went up 40.5% since 2015 (Institute for Economics and Peace, 2021). Mexico faced the pandemic under this atmosphere.

Mexico’s education system, policies and rulers

The national education system in Mexico comprises basic education, upper-secondary education, and higher education, which can be taught in schools, remotely, and in a mixed modality (Secretaría de Educación Pública [SEP], 2015-a). Basic education comprises pre-school (3 years), primary school (6 years), and lower-secondary school (3 years); upper-secondary education typically takes 3 years; higher education offers short-term technical degrees, as well as undergraduate (4 to 5 years) and graduate degrees (SITEAL, 2019). As of 2019, all Mexican states are obliged to provide free, public education at these levels (Presidencia de la República, 2019-a; SITEAL, 2019).

Since 1921, the Secretary of Public Education (SEP, 2015-b) oversees most of Mexico’s education system. SEP regulates initial school (from 0 to 2 years of age), basic education, and certain modalities of upper-secondary education. Universities are typically autonomous or private, although SEP also manages teacher colleges and eventually certifies all higher education diplomas (SEP, n.d.; 2015-c). The largest university is the National Autonomous University of Mexico (Universidad Nacional Autónoma de México [UNAM]), which provided free education to 258, 128 students at all higher education

levels during the 2020-2021 academic year (Portal de Estadística Universitaria UNAM, 2020). In 2020, according to *América Economía*, Mexico's Technological Institute of Higher Education (Instituto Tecnológico de Estudios Superiores de México [ITESM]) and the National Polytechnic Institute (Instituto Politécnico Nacional [IPN]) appeared before and after UNAM in national quality rankings, respectively (Allan, 2020).

Over the years, and in parallel with the 80-year rule of the Revolutionary Institutional Party (Partido Revolucionario Institucional [PRI]) until 2000, the structure of the Mexican education system remained somewhat constant and centralized, with the government empowering teacher unions to avoid labor demands, rather than improving education policy (Ornelas, 2019). That relation, known as corporatism, conferred too much power to teacher unions over the years. Some irregularities by teachers such as the bequeathing of teaching positions to family members surfaced in the 2000s, when the PRI finally stepped down and the National Action Party (Partido Acción Nacional [PAN]) led the country, but they were paradoxically addressed when the PRI went back to power in 2012. In 2013, the education program (Programa Sectorial de Educación) aimed at increasing the quality of basic education, and enrollment rates and quality at other levels, as well as regaining control over the national education system. Doing so, however, implied the close evaluation of teachers and their practices. Therefore, the subsequent Education Reform, which should have been one of the drivers of the 2012-2018 PRI administration, received great backlash from teacher unions and was eventually taken down by the current Morena party administration, giving power back to teacher unions (López Obrador, 2019).

The López Obrador administration replaced the Education Reform with the General Law on Education (Ley General de Educación) (Presidencia de la República, 2019-b). The current law is based on a holistic view of education at all levels and for all individuals, emphasizing democracy, humanism, equity, interculturality, and excellence with a national orientation. Those values were introduced to the classroom for the 2021-2022 school year under the proposal "New Mexican School" (Nueva escuela mexicana, Art. 11-14); other areas of importance are indigenous and inclusive education and the obligation of states to provide higher education. Chapter XI of the Law specifically tackles Information Communication Technologies (ICTs) and digital learning, announcing the progressive issuing of an Educational Digital Agenda (*Agenda Digital Educativa*), which fosters the access and use of digital learning in students' and teachers' daily lives.

According to the 2019-2023 Educational Digital Agenda (SEP, 2020), Mexico's efforts to include ICTs in education began in the 1980s with the production and delivery of computers to primary and lower-secondary school establishments, and have evolved through time. Relevant to this document is the launching of Red Edusat (Satellite Education Network) in the late 1990s, which allowed for the provision of education to remote areas and led to the Telesecundaria system – lower-secondary learning through television –, which was being used by about one fifth of the country's lower-secondary students in 2018. Another outstanding moment was the launch of MexicoX, the country's platform for Massive Open Online Courses (MOOC). Nowadays, the production of digital learning material has been taking place within SEP through the initiative @prende.mx. Part of the 2016-2019 Digital Inclusion Plan (Plan de Inclusión Digital [PID]), @prende.mx works toward the improvement of digital skills and computational thinking, which comprises educational television projects (Coordinación General @prende.mx, n.d.). The 2019-2023 Educational Digital Agenda (SEP, 2020) took note of previous programs and needs to come up with five working lines: teacher training and updating; digital literacy, inclusion, and citizenship; production, promotion, access and social use of digital learning resources; better connectivity and infrastructure of ICTs together with LTKs (Learning

and Knowledge Technologies) and communication; and research, innovation and creativity in digital education. These axes are embedded in the National Agreement on Education (Acuerdo Educativo Nacional) and its New Mexican School; they respond to the General Law on Education (Arts, 84, 85 and 86) and, as of 2019, to the country's Constitution (Arts. 3, 6).

Mexico's rapid response in education to the COVID-19 pandemic

SEP decided to close schools on March 16, 2020, and its reaction to the pandemic in educational terms was swift (personal communication, February 13, 2021). A week later, on March 23, SEP made national curricular contents available on television and radio through special programming up until upper-secondary education (Badillo, 2020). At the same time, and as early as the very same March 16, SEP announced the launch of *Aprende en Casa* (Learn at Home), an online platform designed to reinforce the national curriculum (Notiemex, 2020). *Aprende en Casa* was implemented from April 20, 2020, until the end of the school year on July 6, 2020, with the goal of completing the school year and achieving the expected learning outcomes of students according to the national curriculum (Notiemex, 2020). Then Secretary of Education Esteban Moctezuma underlined, however, that Mexico's textbooks should still be used as basis for study (Notiemex, 2020), but all three means of communication – television, radio, and internet – became part of *Aprende en Casa*. In that way, the Mexican education system did not stop providing education at the beginning of the pandemic.

Since the 2020-2021 school year took place online, *Aprende en Casa* evolved into *Aprende en Casa II* and *Aprende en Casa III*. The particularity of *Aprende en Casa II* – from August through December, 2020 – was that school teachers and directors became involved in the creation of content for TV and radio shows, while *Aprende en Casa III* was designed to help students and teachers transition to in-person classes by using the platform as a point for discussion prior to class (personal communication, February 13, 2021). In other words, along with national textbooks,¹ and in addition to other strategies implemented by each states,² *Aprende en Casa* was the official support portal provided by SEP to continue teaching.

As of the end of 2021, *Aprende en Casa* continued to be available through SEP's portal at aprendeencasa.sep.gob.mx. The webpage clearly displays all *Aprende en Casa* activities by level, then by grade. As users scroll down, links to the national and state textbooks are provided. When clicking on a given grade, visitors are prompted to the weekly schedule of activities and subjects, with the possibility of visiting previous weeks and even school years, back to the beginning of *Aprende en Casa*. After choosing a date, visitors can choose a subject to access complete lesson plans; a link to YouTube is also provided that connects the lesson on the platform to the corresponding show (see Figure 1). The videos are also shown on television and their audio is broadcasted on the radio (personal communication, February 13, 2021). Grades from preschool to lower-secondary education follow that structure. When clicking on upper-secondary education, visitors are prompted to *Jóvenes en Casa* (Youth at Home), a portal that provides educational links to television programming, as well as social and socioemotional support. Appendix A provides a list of the links to these resources.

Figure 1
Official Aprende en Casa YouTube channel (November 8, 2021)



Digital learning during the COVID-19 emergency context: Did Aprende en Casa work?

To understand how Aprende en Casa contributed to the spread of digital learning and the implementation of the Educational Digital Agenda, this report presents the analysis of an exploratory study that consisted of three semi-structured interviews. The interviewees for this inquiry were a leader of the Aprende en Casa strategy at SEP, the director of a basic education public school in Tijuana, northern Mexico, and the director of a private pre-school establishment in Mexico City. The interviews were conducted from February to August 2021 and centered on each interviewee's perspectives according to their professional standpoint. This report presents the results according to three topics that complemented each other among the interviews: the duty of the State as the main provider of education, the progress and setbacks in the use of technologies for educational purposes, and the factors that define the digital divide in Mexico. Findings suggest that the digital divide in Mexico cannot be merely understood as the access to devices and the Internet that the US National Telecommunications and Information Administration (NTIA) defined in 1999, but as a holistic set of factors that intervene in the use of technologies: Internet and mobile, social class, economic capital, emotions and perceptions, and public policy, results which are very much in line with Robinson et al. (2015). These factors interact within an already unequal society whose educational backbone is its Secretary of Education, but whose implementation burden ultimately lies on the teaching staff. The research findings are discussed below.

The State as education provider

The fact that SEP was conceived of and still acts as a paternalist institution that regulates national education allowed Mexico to respond quickly to the emergency situation. In

March, 2020, SEP was able to set up *Aprende en Casa* in a timely manner based on two main axes: national curricula and textbooks. Because SEP delivers textbooks to all schools in Mexico in elementary school, and because all teachers are familiarized with them and the national curricula for each subject, *Aprende en Casa* could function according to expected learning outcomes (personal communication, February 13, 2021). In its early stage, the strategy was organized by cycles – 1st and 2nd grades, 3rd and 4th grades, and 5th and 6th grades –, and national textbooks were also available online, so the whole curriculum was available from the beginning. As the 2019-2020 school year came to an end, *Aprende en Casa 2* was divided into grades (personal communication, February 13, 2021).

SEP also made use of @prende.mx, which was already working on the digitalization of education, and which was synchronized with television and radio to reach out to marginalized or rural areas. According to the interviewee at SEP (personal communication, February 13, 2021), the strategy was created based on a 95% of the country's population having access to television. It follows that television played a key role at the *Aprende en Casa 2* and 3 stages: lesson plans were being provided for all subjects in all grades, per week, following a normal school schedule, and with accompanying video shows made by curriculum developers and professional script writers to ensure content delivery, but also in an effective and fun way. In other words, the complete national curricula for pre-school, primary, and secondary school were filmed as shows that were transmitted by television, radio, and online via YouTube. In those remote areas where children had no access to any of those means, SEP made use of the existing booklets specially designed for tutoring in community areas produced by the National Council for the Promotion of Education (Consejo Nacional de Fomento Educativo [CONAFE]). Every week, 155 scripts for primary education and 70 scripts for secondary education were produced until July, 2021, when the filming of the learning objectives that comprise the national curriculum was completed (*Aprende.mx*, 2021; personal communication, February 13, 2021). As mentioned earlier, the portal @aprende.mx includes links to live TV shows for lower- and upper-secondary education, many of which contain sign language translation, some of which are specific to Digital Culture, and all of which are available through open TV (see Appendix B for a list of *Aprende.mx*'s visual channels of promotion). As the interview from SEP said, "this is a national strategy. It is not only the TV show, but all those elements so that the provision of education does not stop" (personal communication, February 13, 2021).

SEP, being a national institution, facilitated coordination at different levels of policymaking and implementation. First, SEP presented the new contents of *Aprende en Casa* to state secretaries of education so that each state could know and be aware of what SEP was offering, regardless of their own strategy. *Conaliteg.gob.mx* is the government's portal for the National Free Textbooks Commission (Comisión Nacional de Libros de Texto Gratuitos [CONALITEG]) where both national and state textbooks are available in their digital versions. In addition, SEP could invite teachers from all throughout the country to become curriculum developers and TV show hosts of the *Aprende en Casa 2* and 3's strategies (personal communications, February 13, 2021; February 16, 2021). Further, the content of the video shows was revised by experts from other ministries, universities, and specialized institutions according to the subject tackled (e.g., the Mexican Academy of Language reviewed content from the Mother Tongue subject shows, and input from the Secretary of Public Health helped to create a new subject called Healthy Life). At the beginning, SEP could even make deals with the private sector to use their own videos to complement *Aprende en Casa*, such as Khan Academy or Slim Foundation.

All these joint efforts were possible because SEP could coordinate the strategy at the national level.

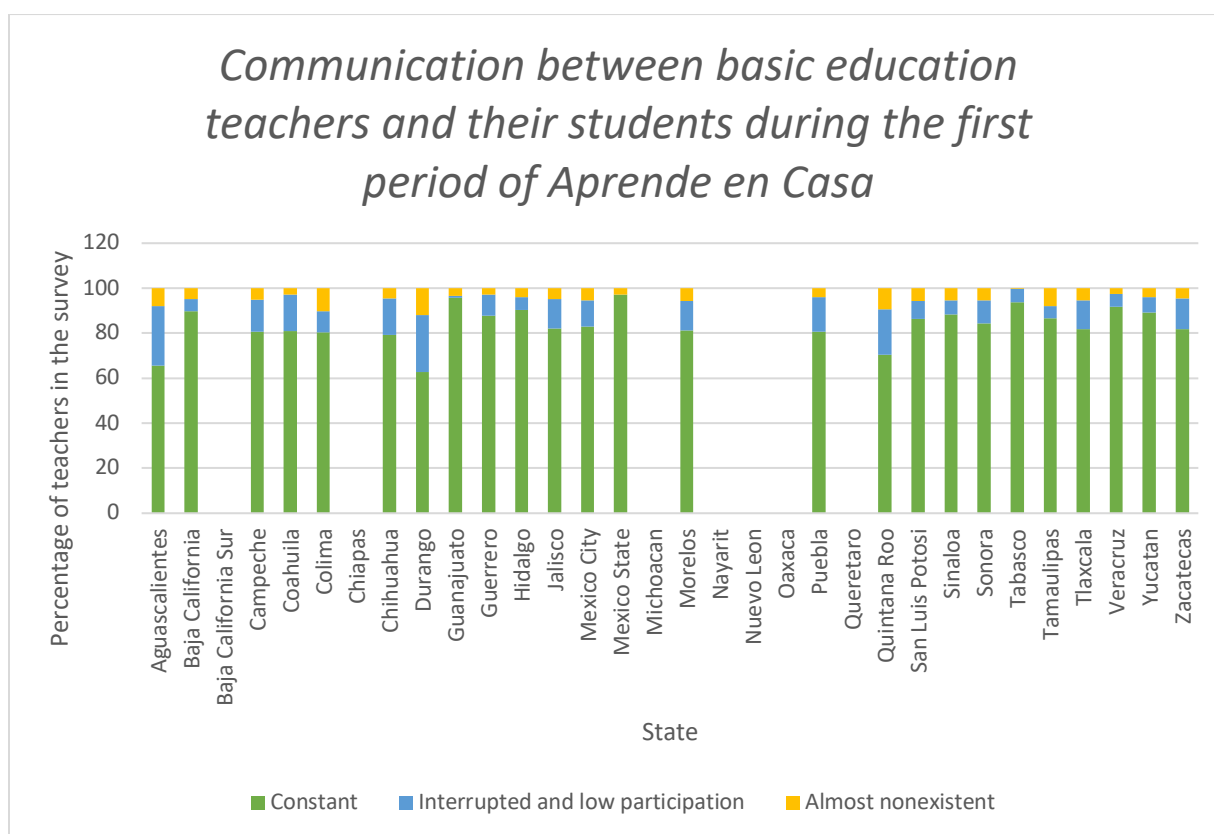
Technology use for educational purposes: Progress and setbacks

During the COVID-19 pandemic, technology users realized that they were already communicating through ICTs, but that the emergency situation helped them start using them for education. As the director from the public school commented based on his interaction with teachers throughout the country and Latin America (personal communication, February 16, 2021), the vast majority of the Mexican population used Facebook or Whatsapp to talk to each other, but they never thought of using those tools to teach. When the pandemic came and teachers saw the need to stay in touch with their students, those communication channels became educational content transmitters. Mobile internet providers played a big role in that shift since Telcel and Movistar, the country's largest mobile telephone companies, made available 1USD dollar packages with unlimited access to Facebook and Whatsapp, facilitating in this way the use of *Aprende en casa* and homework deliveries, while teachers posted *Aprende en Casa's* YouTube videos on Facebook so students could access them from their phones (personal communication, February 16, 2021). Further, teachers themselves began using resources beyond *Aprende en Casa* for class, to share among each other, and to create tutorials for other teachers to learn how to teach and communicate online. As the director of the public school said, "study plans and curricula, even before 2009, included the use of technologies...However, we hadn't really gotten it, we'd never reflected on the importance of those technologies. From my point of view, teachers of basic education saw them from afar, as an ideal, as a requirement, but far"; later on, he added, "after the pandemic, we don't see ourselves anymore without the digital skills that we've been using now" (personal communication, February 16, 2021).

While teachers and educators were very resourceful during the pandemic and improved the digital skills of their students and their own, technology could not make up for thorough learning and communication. The directors of the public and private schools admitted to the lack of interaction within *Aprende en Casa* being an area for future work (personal communications, February 16, 2021; August 27, 2021). This drawback was more noticeable among younger students. In the private pre-school, for instance, the director strived to provide interaction to children to improve their motor, language, and socioemotional skills by teaching dance and sports on Zoom when parents were at home, and by implementing a home school system inside children's homes; conversely, the school noticed that newly admitted students to the 2021-2022 school year lagged behind in those skills because they had stayed at home and had not seen the need to speak, move, or interact (personal communication, August 27, 2021). Even SEP noticed that communication between teachers and their students had been uneven during the implementation of *Aprende en Casa* (See figure 2). The SEP interviewee admitted, "how the child will learn is a different topic. There are many factors surrounding learning, but the Secretary [SEP] never has not stopped providing education" (personal communication, February 13, 2021). Far from being interpreted as a sign of negligence, *Aprende en Casa* recognized its own pedagogical limits. Therefore, although many connectivity and technology issues were addressed and improved in Mexico, the national strategy could not – and was not designed to – replace in-person learning.

Figure 2

Communication between basic education teachers and their students during the first period of Aprende en Casa³



Defining the digital divide in Mexican education

Because Aprende en Casa is a broad strategy that provides resources to all teachers and educators, many of them ventured inside the resources and are now using technologies, but it is not the case everywhere. This research hints at there being considerable gaps between the private and the public systems. In the two examples of schools for this report, teachers used Whatsapp to communicate with parents and students; however, many private schools seem to have opted for Zoom to keep some form of interaction (personal communications, February 16, 2021; August 27, 2021). Further, the director from the private school mentioned using an online drive to share tutorials and resources with parents (personal communication, August 27, 2021) but, in other regions of Mexico, teachers were not so inclined to use technologies, perhaps due to apathy (personal communication, February 16, 2021), or perhaps due to enduring issues with the national government. This was the case of teacher unions in the southwest of Mexico, who demanded going back to in-person schooling (De todos modos...John te llamas, 2021). Whatever the reasons for using technology to teach may be, the digital divide in Mexican education was first defined by the will of teachers and educators to incorporate digital resources into their teaching.

Another element that defines the digital divide in Mexico is, indeed, the economic factor. First, during the pandemic, some parents who were paying for private basic education for their children moved them to public schools because classes were not in person, and they

considered that their investment was not paying off (personal communication, February 16, 2021). In the case of the private school, the director admitted to having a hard time to keep the school in service because parents thought that it was not worth investing on pre-school (personal communication, August 27, 2021). In other words, regardless of social status, many parents preferred not to spend money on education during the pandemic. Second, the director of the public school mentioned that state and regional policies played a part in the use of technologies because not all states invested on their provision. In his state, which is located in northern Mexico, policymakers decided to provide Google Classroom to teachers so these could Google Suite, but not all states invested in providing those resources (personal communication, February 16, 2021). States also had the choice to implement different platforms, such as Mexico City and its platform *aprendeencasa.mx*, so not all states approached technology in the same way. Third, as of February 13, 2021, at the time of the interview with SEP, there was no consensus between different state actors on a national strategy to even improve connectivity. As a result, the degree to which technologies were applied to education varied across national contexts and were widely driven by economic factors.

If the digital divide in Mexican education was reduced, teachers and school directors played a big part in the process. It was thanks to teachers that video shows could be created (personal communication, February 13, 2021); some school directors who accompanied teachers throughout the digital adaptation and capacity building process saw their schools evolve into the digital era (personal communication February 16, 2021); some school directors who were preoccupied with providing high-quality education looked into practices abroad to make sure that their digital strategies were meeting international standards (personal communication, August 27, 2021). Regardless of the type of institution, directors who saw the importance and usefulness of using digital resources to solve problems in class pushed their staff to a digital era in education; likewise, some teachers were able to implement ICTs and LKT not only to communicate, but to have their students become familiar with other uses of technology. In that sense, the digital divide in Mexico is defined by the drive of its educational leaders.

Conclusions

Internationally and nationally, *Aprende en Casa* was a very successful strategy. Mexico was one of the very few cases that did not stop providing education during the pandemic and who offered a comprehensive platform divided by level, grade, subject and weekly schedules for teaching, with lesson plans, additional resources, and files of experiences that gathered all the knowledge accumulated during the pandemic so teachers could track their students' progress. It was a national effort that brought together several sectors and levels of experts, and which was praised and supported by UNICEF to meet international standards; countries throughout Latin America, the Caribbean, and even Japan approached Mexico to find out more about their system (personal communication, February 13, 2021). By early 2021, out of 250,000 teachers who randomly took a survey available on *Aprende en Casa*, 64% affirmed using the strategy (personal communication, February 13, 2021). Even during the 2021-2022 school year, SEP and *@aprende.mx* continued improving digital content in education (Once Noticias, 2021). In that sense, *Aprende en Casa* contributed to meeting most technological goals of the Educational Digital Agenda and the New Mexican School.

Despite *Aprende en Casa*'s coverage success, better connectivity and ICT infrastructure, as well as the implementation of LTKs do not define alone the digital divide. Indeed, digital learning resources were produced, but access and social use developed unevenly throughout the country. The survey by SEP mentioned above indicated that television is

still more widely used than the Internet (personal communication, February 13, 2021), and that traditional gaps such as urban and rural connectivity, or private and public access to resources, still played a part in the use of technologies and the learning process. With regard to the latter, policymakers and implementers realistically knew that students would lag behind because neither teachers nor in-person schooling can be replaced (personal communications February 13, 2021; February 16, 2021). However, it is not the gap between learning outcomes and the core curriculum that stands out, but the gap between those policymakers who invest on digital education and those who do not, and the gap between those teachers and directors who will push the country towards a digital era in education, and those who cannot because they lack the means or knowledge, or whose social context demands prioritizing other more immediate needs such as infrastructure, salary raises, or the reduction of violence. In Mexico, the digital divide depends on will and drive. As some schools reopened on August 30, 2021, and returning to school was voluntary (Ledezma, 2021), state and national governments, students, parents, teachers, and the country overall, will have the opportunity to continue reflecting upon how to make the best use of digital learning.

Notes

[1] National and state textbooks are available in digital format at conaliteg.gob.edu.mx

[2] For instance, Mexico City implemented its own platform, laescuelaencasa.mx (retrieved November 3, 2021).

[3] This graph was presented by SEP at a general meeting with Mexico's secretaries of each state. The approximate number of teachers who took the survey is 18,387,00. Data for Baja California Sur, Chiapas, Michoacán, Nayarit, Nuevo León, Oaxaca, and Querétaro were missing at the time of the data collection.

Acknowledgements

The author would like to thank the school directors and the leader at SEP, who kindly accepted to participate in this project, and for their additional feedback and material. Thanks as well to those who enabled the author to contact the interviewees, and to those who provided input on the methodology of the reports. May this series of reports be useful to you. Last, the author would like to thank CICE, the authors and reviewers for their contributions to this Special Issue's report section, and Marcella Winter, Co-Principal Investigator of the project.

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Image Credits

Figure 1. SEP. (2021, November 8). Taken from Aprende en Casa's YouTube channel on November 8, 2021. <https://www.youtube.com/c/aprendeencasa>

Figure 2. SEP. (2021). Taken from personal communication, February 13, 2021.

Appendix A***National plans and digital resources made available by SEP and used during the COVID-19 pandemic (as of November, 2021)***

- Aprende en casa. (November, 2021). <https://www.aprendeencasa.sep.gob.mx>
- Aprende en casa SEP. (November, 2021). <https://www.youtube.com/aprendeencasa>
- Aprende mx. (November, 2021). <https://www.gob.mx/aprendemx>
- National and state textbooks (Comisión Nacional de Libros de Texto Gratuitos [CONALITEG]). (November, 2021). <http://www.conaliteg.sep.gob.mx>

Appendix B***Aprende.mx channels of visual education promotion (as of November, 2021)***

Level	Type of channel	Name of channel	Link or frequency
Various	Internet	YouTube: Televisión educativa	https://www.youtube.com/c/tveducativamx
Various	Internet	Facebook: Televisión educativa	@TvEducativaMx
Various	Internet	Twitter: Televisión educativa	@tveducativamx
Various	Internet	Instagram: Televisión educativa	@tveducativamx
Various	Television	Ingenio TV	14.2 open television; Red Edusat
Primary	Television	Aprende en casa, primary education	11.2 open television (Canal Once); Red Edusat
Teacher training	Television	Capacita TV*	Red Edusat
Lower-secondary	Television	Aprende en casa, secondary education	24 (Red Edusat)
Lower-secondary	Television	Telesecundaria	11 (Red Edusat)
Lower-secondary	Television	Telesecundaria +	Red Edusat
Upper-secondary	Television	Telebachillerato	17 (Red Edusat)

*In November 2021, the government online portal for Capacita TV was unavailable at <https://aprende.gob.mx/canales/capacitav>

Sources: @prende.mx (2021); Edusat (2021); Expansión política (2021).