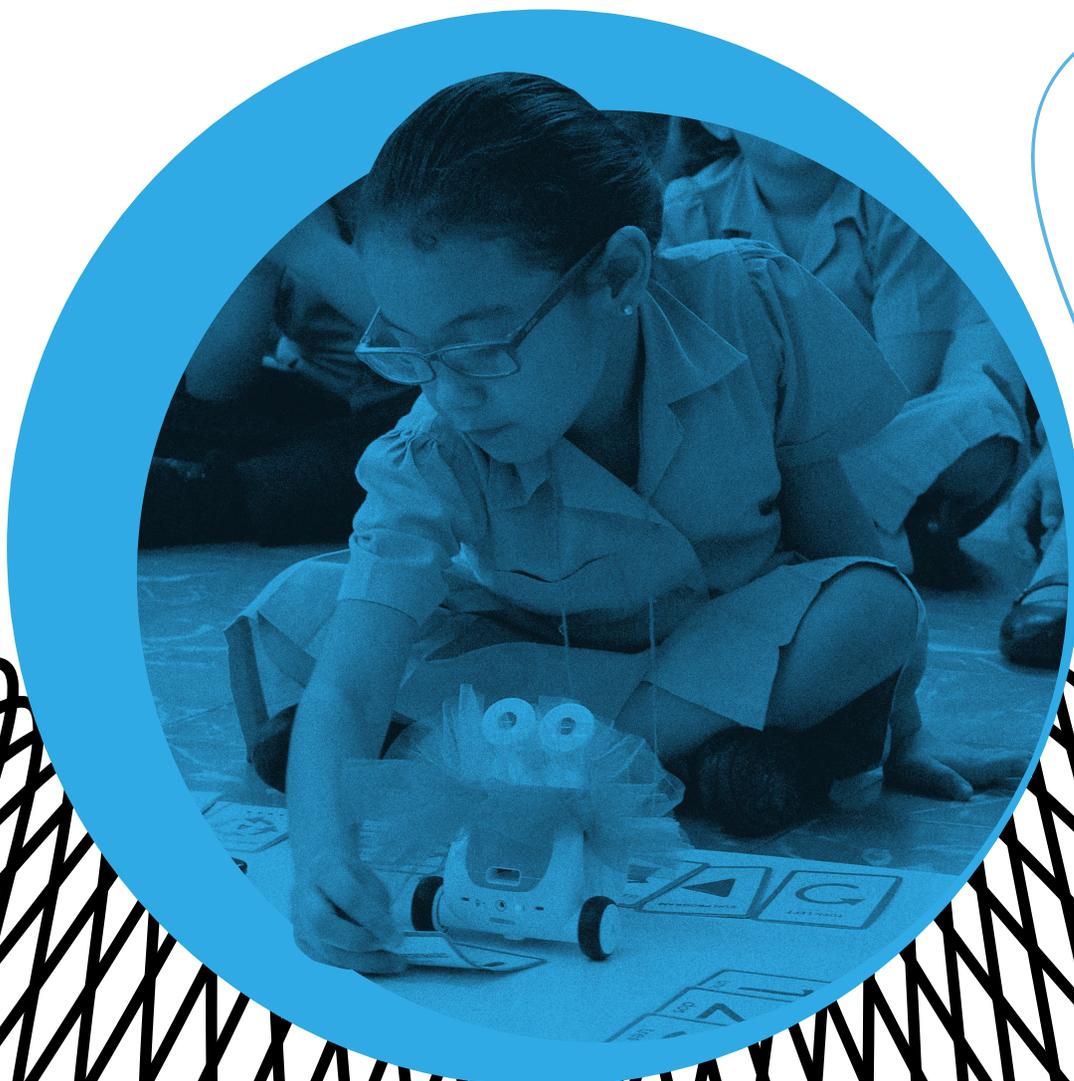


Art, Culture and New Technologies
in Latin America and the Caribbean
Creative Economy

Edutainment

Trends and Digital Strategies



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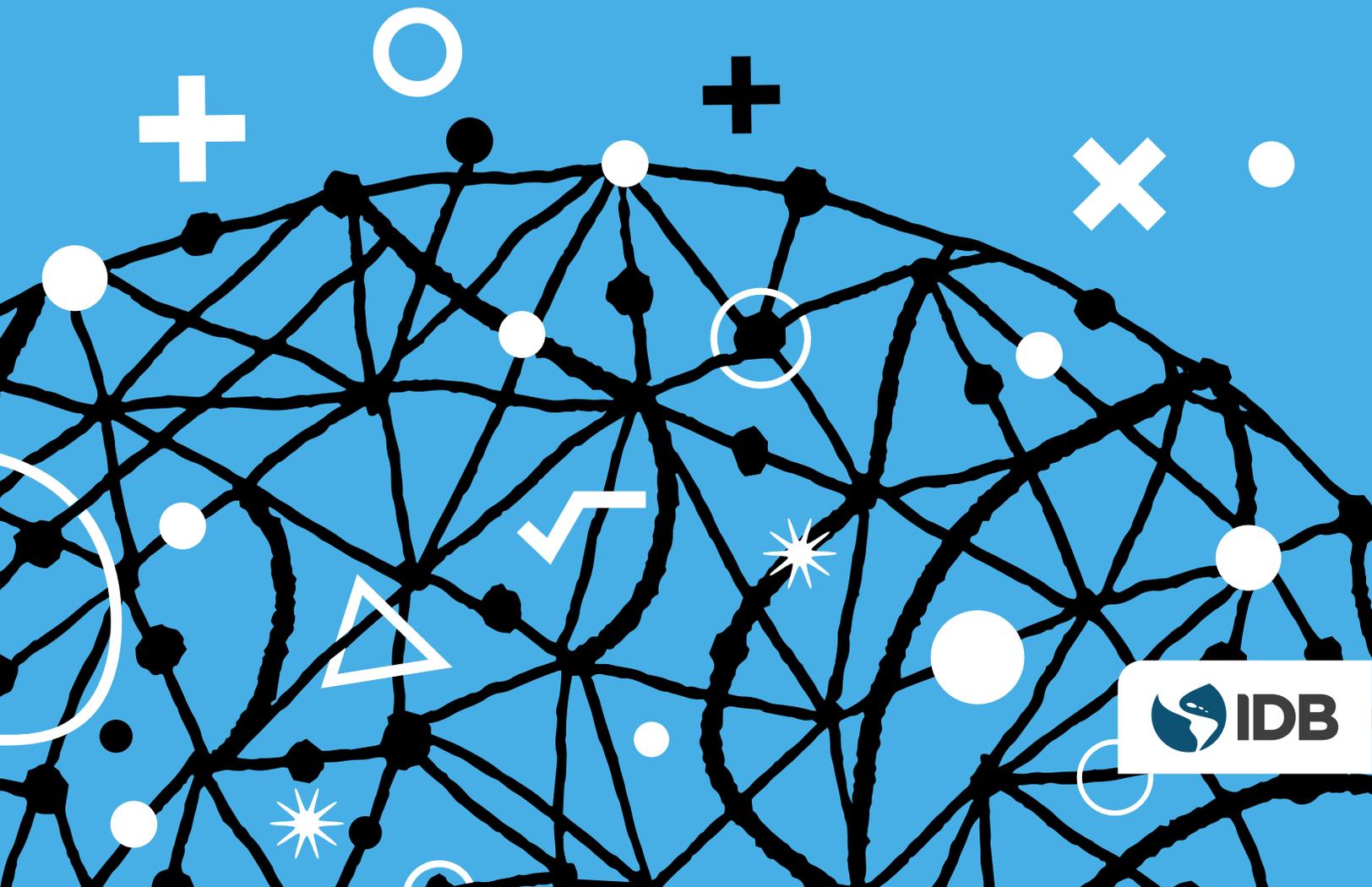
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Introduction

What opportunities are there for entertainment and digital content creators to positively impact education? Which are the trends in the education-entertainment-technology hybrid domain? How can technology and innovation contribute to the creation of better and more meaningful recreational and educational experiences? What relevant experiences and conclusions can we draw out from the health crisis, regarding different ways of learning from a ludic perspective?

This publication revolves around such questions echoing the document *Vision 2025. Reinvesting in the Americas: A Decade of Opportunities*, published by the Inter-American Development Bank (IDB). There it has been stated that during the coming years, digitization, rapid adoption of new technologies, as well as fostering innovation, entrepreneurship, and the growth of SMEs among the creative industries in Latin American and the Caribbean (LAC), will play an important role in achieving economic recovery.¹ The results of our research will be contrasted with these ideas, aiming at mapping out challenges and strategies for the sector, while exploring major opportunities for education from the perspective of the entertainment industry, focusing on technology as a bridge between these two fields.

In that sense, this book seeks to understand the economic impact of merging education and entertainment, and the well-being benefits resulting from it. Through qualitative and quantitative research, our study is one of the first attempts to map LAC educational and entertainment business' companies, devoted to producing game-based learning content. Gathering reliable information about the industry will allow governments and investors to create public policy, and to promote funding together with grant programs in a sector that has enormous potential to make a positive impact in our region.

In recent years we have witnessed a revolution: thanks to the entertainment industry we are able to learn almost anything on a screen, without leaving home. In a time where millions of people use digital platforms on a daily basis, the only necessary ingredients to learn anything at any time or place are a computer monitor or any other mobile device, internet connection, and motivation and curiosity.

¹ Inter-American Development Bank, *Vision 2025. Reinvest in the Americas: A decade of opportunity*, (Washington DC: BID, 2021).

The benefits of bringing children and adults closer to educational programs by adding game-based features have been well-known for a long time. Today, the question isn't whether we should encourage the fusion of education and entertainment through technology, but what the best way of doing it should be. Perhaps the only certainty we can draw out from the pandemic is that, in critical times, technology and creativity are the best allies to rethink education.

As 90% of students left classrooms because of the pandemic², and 86 million children were still out of school 18 months after the onset of the crisis, the shortcomings and challenges posed by digital divide³ and the gender gap in our countries have become more urgent. Edutainment can be seen as a catalyst, bringing accessible and tailored solutions to the majority of populations in LAC, suitable to their own context. According to the World Bank, "edutainment can be a gamechanger for development. Unlike traditional messages conveying abstract concepts that wear out quickly, these educational narratives can be easier to absorb".⁴

On the following pages we will study the potential of edutainment, focusing mainly on those tools, methods, and content from Cultural and Creative Industries (CCI) that foster innovation. *Edutainment: Trends and Digital Strategies* is part of the IDB editorial series, Art, Culture and New Technologies in Latin America and the Caribbean, intended to point out the impact of digitization, the adoption of technologies by cultural and creative industries from the region, and how this can catalyze innovation, social cohesion, and change.

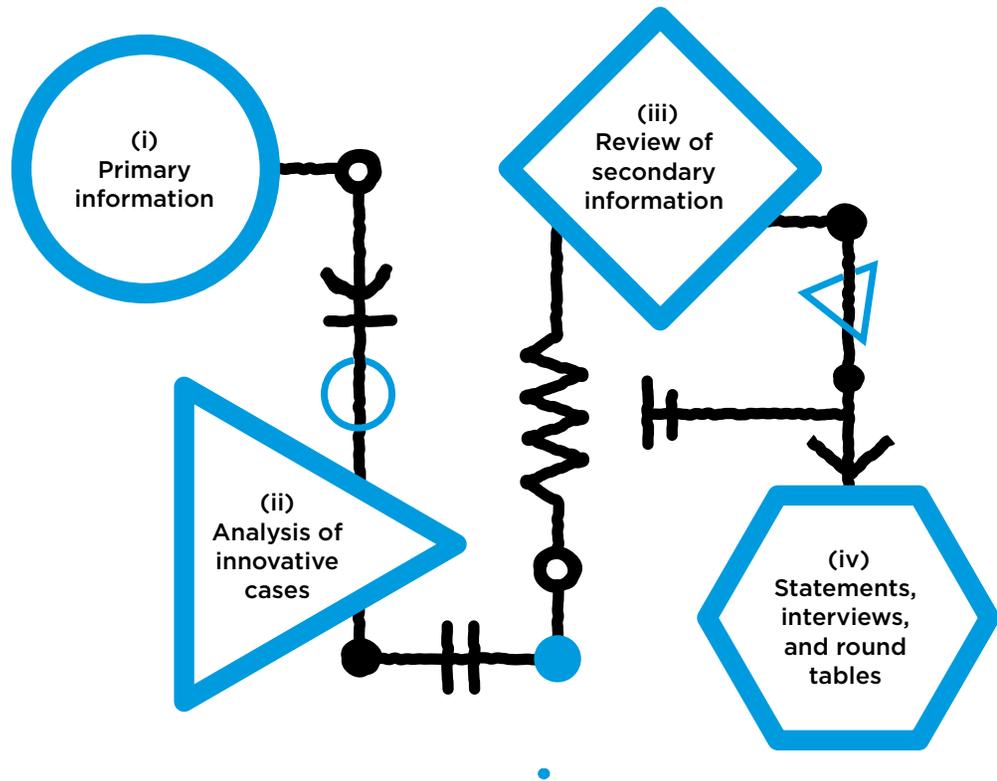
2 UNESCO, "Education: From disruption to recovery", June 2021, accessed July 4, 2021, <https://en.unesco.org/covid19/educationresponse>.

3 Only 50 % of the population in LAC has broadband internet access, which translates into digital exclusion and scarce opportunities. Carlos Felipe Jaramillo, "Closing the digital divide to combat poverty in Latin America and the Caribbean", World Bank, "Cerrar la brecha digital para combatir la pobreza en América Latina y el Caribe", World Bank, October 16, 2020, accessed June 10, 2021, <https://blogs.worldbank.org/es/latinamerica/cerrar-la-brecha-digital-para-combatir-la-pobreza-en-america-latina-y-el-caribe>.

4 World Bank, "Digital technologies in education", last modified December 30, 2020, accessed June 2, 2021, <https://www.worldbank.org/en/topic/edutech>.

Methodology

This publication was generated from **(i) primary information**, from a *qualitative research* conducted through in-depth interviews to different stakeholders in the region and a *quantitative research* surveying companies from the educational and entertainment sector in the region⁵ by telephone; **(ii) analysis of innovative cases** in the edutainment sector in LAC, North America, Europe, and Asia; **(iii) review of secondary information** such as global, regional, national, and sector reports and surveys; and **(iv) statements, interviews, and round tables** with education and entertainment professionals, officials from the culture field, and creative economy experts. Throughout this volume, data from other studies are referenced in the critical apparatus. In the interest of not being repetitive, whenever no reference is assigned to support any information, it should be assumed that we are quoting our primary research.



- 5 In order to gather relevant information on the sector, we carried out a quantitative study focused on measuring technological development, trends, and innovations in the context of the pandemic in our region, as well as shortcomings, strategies and the consumers' reactions. Edutainment was the most challenging survey from the six other cultural sectors studied since it is a hybrid and emerging industry in LAC. Specialized companies were hard to reach or find, and not all of them see themselves as belonging to the “edutainment” sector. The survey was conducted in October 2021, using a sample of 25 companies' founders, directors and CEOs, producing educational and entertainment content or software. Aura / SIMO, “Quantitative study for the Series ‘Art, Culture and New Technologies in Latin America and the Caribbean’” (Mexico City: 2021).

1. Traces of COVID-19 in the Edutainment Sector



In the context of the pandemic, digital transformation and use of educational platforms has grown rapidly; Some of those new platforms are games or have some gamification component.

—**Mercedes Mateo-Berganza**, Head of the Education Division of the Inter-American Development Bank

The Fine Line Between “Edu” and “Tainment”

During the second half of the 20th century edutainment was everywhere. From television shows and toys like kid’s microscopes, to recreational history or science theme parks, several generations of children grew up with classic examples of edutainment. Today, the occurrence of edutainment in digital formats is overwhelming. Whether through video games, platforms or apps, whether using augmented reality or artificial intelligence tools, the exposure of the digital native generation to edutainment content seems endless.

The acronym edutainment comes from the contraction of *education* and *entertainment*. Due to its two-fold nature, it is impossible to pigeonhole it. From an educational point of view, its academic features are always underlined. From a ludic perspective it is related with leisure and entertainment components. But even if experts avoid strict definitions,⁶ several elements allow us to identify its products as a hybrid genre based on visual material using complex narratives and playful formats, with a ubiquitous innovation component, aiming at engaging and entertaining young and older audiences.⁷

- 6 Some experts even reject the term “edutainment”, arguing that by labeling it after “entertainment” its learning potential is undermined. They also believe that most edutainment companies do not hire specialized educators or creators. The Encantos team, an entertainment-driven EdTech company based in New York agrees with this point of view: “We actually don’t see ourselves as edutainment, because we think there are actually a lot of shortcomings in the edutainment approach. Often education is retrofitted to fit in the entertainment, it’s like they care a lot about making it fun and entertaining, but they don’t have a specialist educator or psychologist, or someone who understands how fast children learn and what’s appropriate for their development”. Sophia Espinoza (Learning Art and Design Director at Encantos), interview by Andrea Villers, June 22, 2021.
- 7 Buckingham y Scanlon, *That is Edutainment: media, pedagogy and the marketplace*, Sydney, Conference Paper, 2000, retrieved June 2, 2021.

For the purposes of this publication, we define edutainment as content produced within the entertainment industry used in educational environments, usually involving innovation, and fueled by new technologies. We also understand education in a broad sense, as a teaching, training, or learning activity rather than attached to school curricula or professional careers, focusing on specific skills and non-traditional subjects. In addition, edutainment addresses topics conventionally ignored by academic programs, like video game design, online content creation, and coding, usually portraying the dynamic nature of the digital world.

Infrastructure: Turning Gaps into Bridges⁸

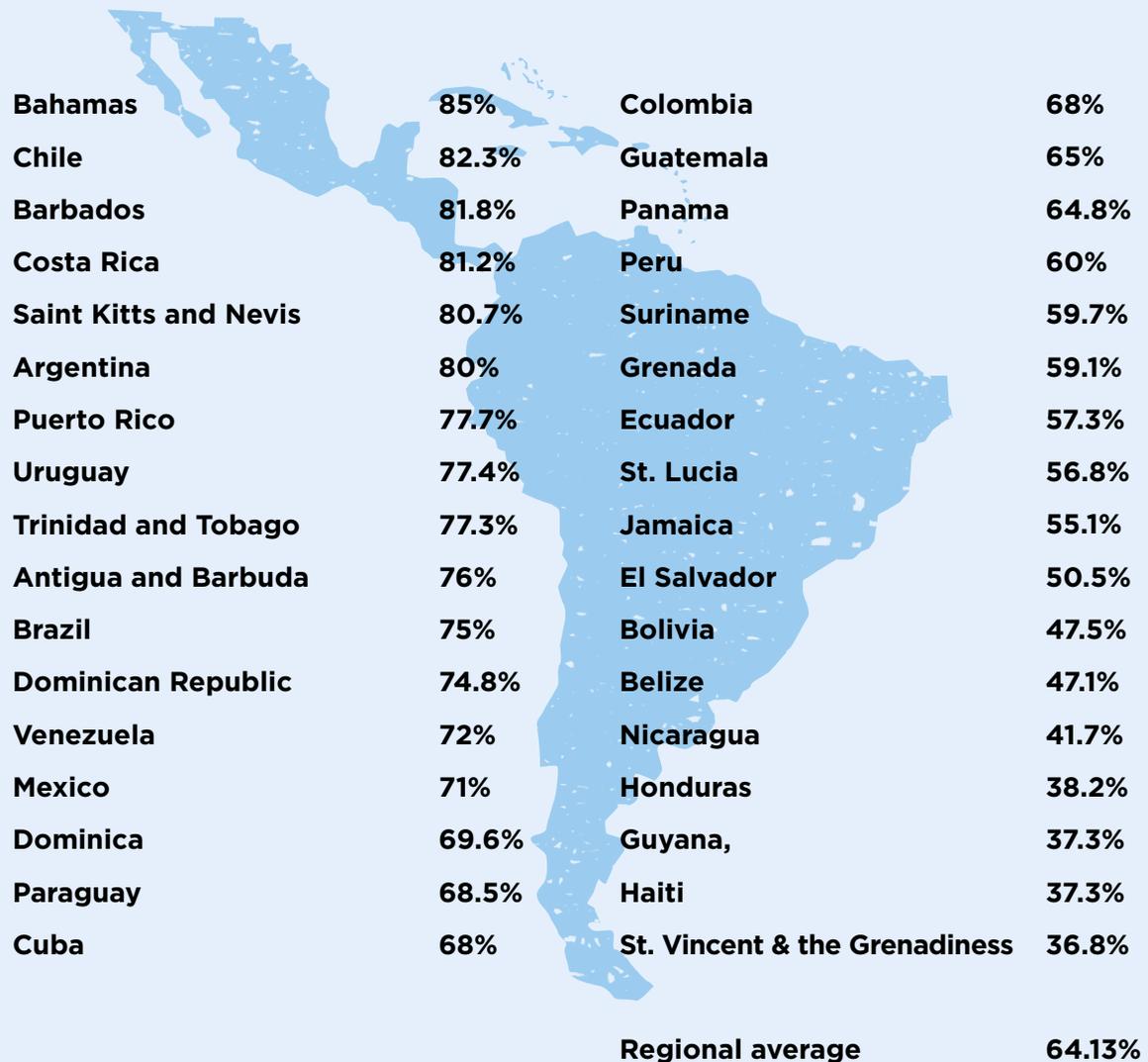
In LAC, more than 154 million students from elementary and secondary school, namely 90% of the total enrolled, stopped attending regular courses during the first trimester of 2020⁹; 86 million of them were still out of classrooms in September 2021.¹⁰ The health crisis also aggravated the alarming trend of school dropouts in the region.

The digital divide, unequal access to information and communications technology (ICT), and reduced Internet access are a constant reality in LAC, especially all across rural areas. Nevertheless, recent reports show an improvement in internet access. According to these, 75% of students in the region have a desktop or a laptop computer at their school,¹¹ and 64.1% of them have an internet connection. Nonetheless, these figures conceal variations between countries of over 50%. While 82.3% of the

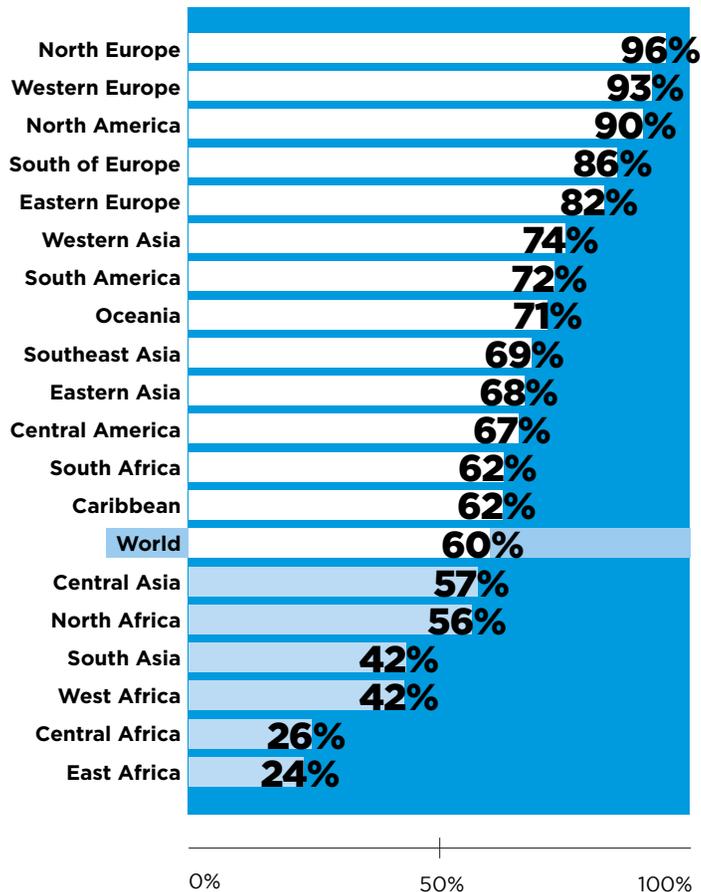
- 8 Due to the diverse nature of the projects in the sector in LAC and the impossibility of considering it an industry, it has been quite difficult to measure the ups and downs of edutainment during the COVID-19 crisis. Nonetheless we do have access to reliable, and sufficient data on its effects in the fields of education and entertainment. By cross checking the data, we have identified some challenges and opportunities for edutainment, also contrasting the quantitative research results from the customized study conducted for this book.
- 9 UNESCO Santiago, “Responding to COVID-19: Education in Latin America and the Caribbean last updated September 20, 2020, accessed February 23, 2021, <https://en.unesco.org/fieldoffice/santiago/covid-19-education-alc/response>.
- 10 BBC News Mundo, “Los niños que olvidaron leer y escribir”, September 27, 2021, accessed September 27, 2021, <https://www.bbc.com/mundo/noticias-58672483>.
- 11 OCDE, *Aprovechar al máximo la tecnología para el aprendizaje y la formación en América Latina*, 2020, accessed April 25, 2021, https://www.oecd.org/skills/centre-for-skills/Aprovechar_al_m%C3%A1ximo_la_tecnolog%C3%ADa_para_el_aprendizaje_y_la_formaci%C3%B3n_en_Am%C3%A9rica_Latina.pdf.

Chilean population is connected, only 38.2% of Hondurans have Internet access (Graph 1):

Graph 1. **Percentage of Population with Internet Access in LAC (January 2021)**¹²



¹² “América Latina y el Caribe: uso de internet por país 2021”, issued by Statista Research Department, July 2, 2021. The Caribbean was one of the regions whose countries and territories had some of the highest internet penetration rates in LAC by January 2021 (85% of its population was connected). Only in Chile and Costa Rica more than 80% of their population has internet access, while Brazil and Mexico lead the region in number of internet users.

Graph 2. **Inequality and Internet Access in the World**¹³

In LAC, online education programs went up by 62%, during the first and second trimester of 2020, with 85% of the countries in the region migrating elementary and secondary school programs into digital platforms.¹⁴ To facilitate infrastructure access for online learning, some countries gave free or subsidized mobile devices and internet connections to students.¹⁵ Online learning was not the only way for young LAC populations to continue learning during lockdown. When questioned about their preferred

¹³ Digital 2021 Global Overview Report. Data Reporting in Statista.

¹⁴ UNESCO Office Santiago and Regional Bureau for Education in Latin America and the Caribbean, Banco Interamericano de Desarrollo, *Reabrir las escuelas en América Latina y el Caribe: claves, desafíos y dilemas para planificar el retorno seguro a las clases presenciales; reporte, 2020*, accessed June 10, de 2021, <https://unesdoc.unesco.org/ark:/48223/pf0000375059>.

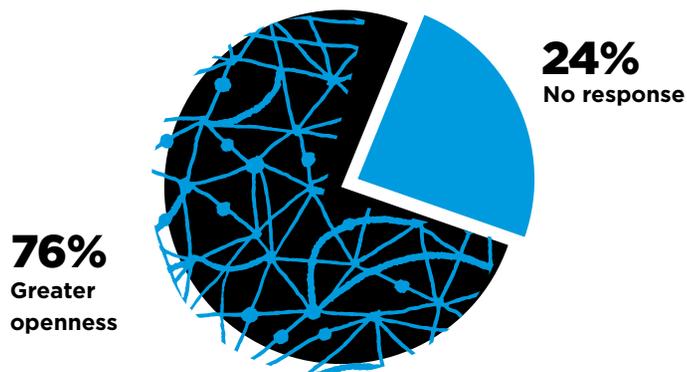
¹⁵ Cell phones are the most accessible device on which audiences might be reached in the context of the digital divide. In LAC, the adoption of smartphones in 2019 was 69%. Reliable predictions assert that in the next five years we will witness an increase of around 100 million new smartphone connections in the region. (GSMA, *The mobile economy in Latin America 2020*, 2020, Accessed June 10, 2021, https://www.gsma.com/mobileeconomy/wp-content/uploads/2020/12/GSMA_MobileEconomy2020_LATAM_Esp.pdf).

educational resources, where their social interactions mainly were taking place, and how they were using their spare time, respondents' answers pointed towards a transition into the digital world.

Feeling Locked In? Education from an Entertainment Perspective as a Way Out

In the search for learning experiences during lockdown, online digital educational and edutainment content soared. Our study confirms this trend. 76% of the respondents consider that openness for innovation in education is increasing, not only in terms of remote and online learning, but also in terms of merging education with entertainment.

Graph 3. **Perception About the Openness for Innovation In Education**



Traditional media like television recovered its former importance in edutainment. In Colombia, Escuela Plus—an educational channel in partnership with brands like Discovery at School, National Geographic, Microsoft and Fundación Torneos—was made available for free during lockdown. Another example is TV Educa in Chile, a public television channel founded by the Asociación Nacional de Televisión (Anatel), in partnership with the Consejo Nacional de Televisión (CNTV) and the Ministry of Education. A year after its premiere, the CNTV conducted a survey revealing that almost 90% of the public hoped for the channel to continue broadcasting after the health crisis would be over.¹⁶ In August 2021 the channel closed down and announced that it would be transformed into

¹⁶ La prensa austral, “Estudio reveló que un 86% quiere que TV Educa se mantenga tras la pandemia”, June 3, 2020, accessed March 9, 2021, <https://archivo.laprensaaustral.cl/nacional/estudio-revelo-que-un-86-quiere-que-tv-educa-se-mantenga-tras-la-pandemia/>.

a cultural channel, keeping up with the creation of educational and family content, while contributing to remote learning for children under 17. The IDB also partnered with *Sesame Street* to broadcast one hundred hours of free content, including the award-winning series *Elmo's World* and “Caring for each other”, a project by Sesame Workshop created to help children and families during the pandemic.¹⁷

Other brands with no experience in the field of educational content, ventured into the market. Nickelodeon launched the app and the interactive minisite NOGGIN, a streaming service targeting six-years-old kids, or younger. This was part of the #chicosunidos campaign promoting free educational chores to do at home.¹⁸ The most famous characters of the brand also talked to children about preventive measures like handwashing, and published information for parents and children on its Nick Helps website. The firm has decided to dedicate 30% of its content to education and entertainment, based on its own market study, taking into account parents' preference for educational products¹⁹.

The interest of large international firms in educational products using entertainment and technology, is also the result of a significant increase in the public's preference for this type of content since the onset of the pandemic. 80% of the respondents of our study saw their audience and clientele growing, while 60% think their clientele has changed as a result of the global health crisis.

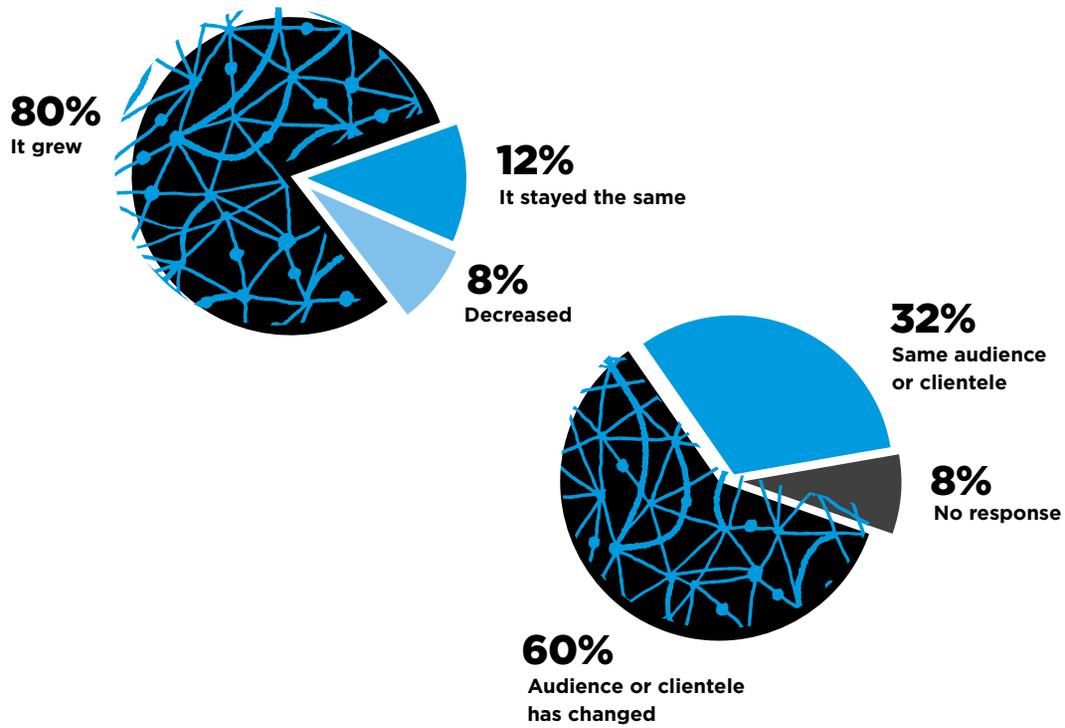
Entertainment, education, and professional training should join forces to consolidate a resilient industry in the decades to come. Ecosystems are key for developing tools and creating public policies to foster talent and support human capital. 96% of the respondents pointed out that an alliance with the audiovisual sector (film and television) would be positive for the development and consolidation of the edutainment sector.

¹⁷ IDB, “IDB and Sesame Workshop to bring Sesame Street content to Latin American children”, June 9, 2020, accessed June 17, 2021, <https://www.iadb.org/en/news/idb-and-sesame-workshop-bring-sesame-street-content-latin-american-children>.

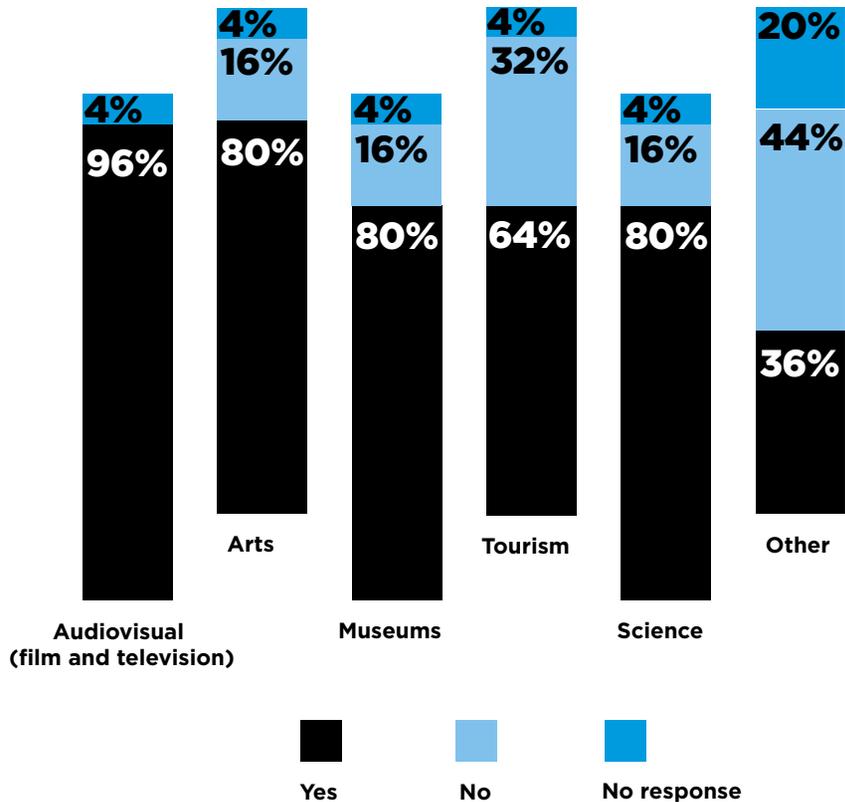
¹⁸ Google Play, “Noggin by Nick Jr.”, accessed March 9, 2021, https://play.google.com/store/apps/details?id=com.mtvn.nogginintlgoogle&hl=es_MX&gl=US.

¹⁹ “Noggin, el streaming de Nickelodeon para los más pequeños de la casa”, January 27, 2020, accessed October 20, 2020 <https://expansion.mx/tecnologia/2020/01/17/noggin-el-streaming-de-nickelodeon-para-los-mas-pequenos-de-la-casa>.

Graph 4. Audience and Clientele



Graph 5. Pertinence of Partnering with Other Sectors for the Development and Promotion of Edutainment



Human Capital: Technology, the Gamechanger

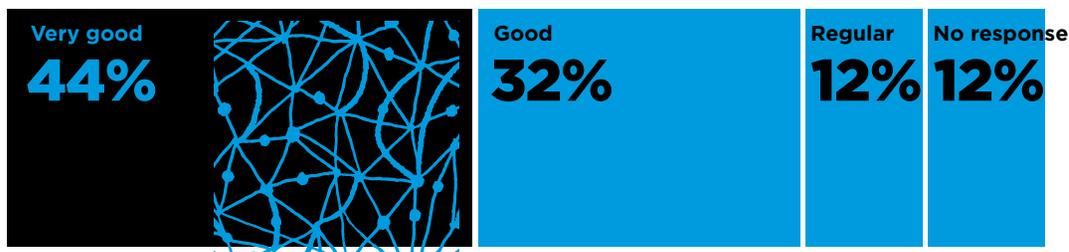
The transition towards online learning showed education professionals' limits when teaching through digital media. This lack of training represents an opportunity to enhance digital skills throughout LAC. In our region, less than half of teachers at elementary and secondary schools have participated in online courses or seminars, and 60% of them admit needing more workshops to enhance their ICT teaching skills, even if only 22% of them labeled this need as 'substantial'.²⁰

Change is already underway. Even reluctant teachers were left with no choice but to integrate technological tools, realizing the advantages of doing so, out of necessity. Breaking through the bias of technology as a substitute for teachers and painstaking training will be key to moving forward. And although most of the current game-based methods and systems are based on universal usability and a user-friendly approach, For Claudette Muñoz, from Lego Education, "Teachers feel fearful and anxious about the implementation of concepts like educational robotics, when in fact it is quite user-friendly."²¹

Edutainment, Innovation as the Flagship Policy

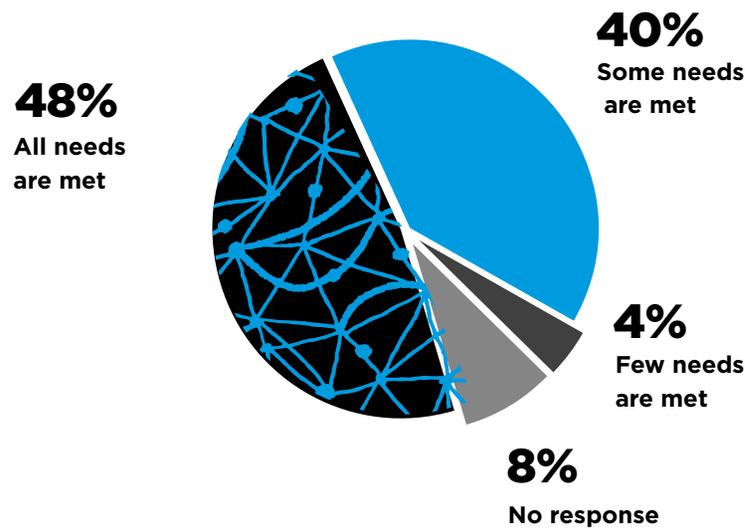
Unlike other fields, for edutainment innovation has been a major feature. Technology has been a mandatory condition for its development. Almost 80% of the respondents admitted having a very good or a good technological structure prior to 2020. And the majority of them, considered that technology was sufficient to satisfy all or almost all the needs of their clients.

Graph 6. **Technological Development Before the Pandemic**



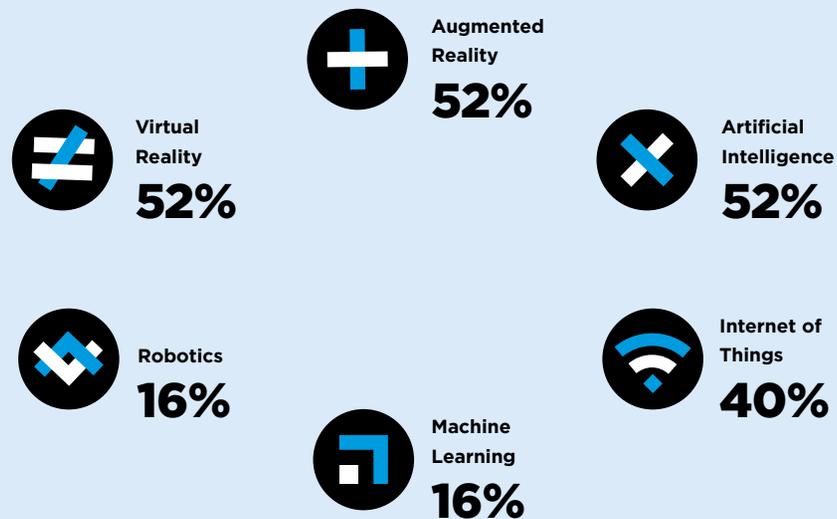
²⁰ OCDE, op. cit.

²¹ Claudette Muñoz, (Head of the Lego Education for Canada and LaTam Division), interview by Luis Vargas, February 2021.



For the creation of educational entertainment services and products in LAC, the use of video games and apps stands out, but websites, YouTube, social networks, and streaming content are important too. Before the pandemic, 50% of the respondents were already developing virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) products, and 40% of them were exploring the Internet of Things (IoT).

Graph 7. **Technological Resources Used Before the Pandemic**

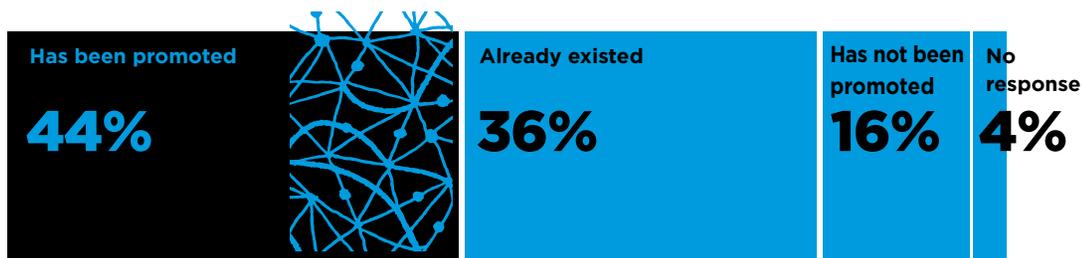


Globally, the importance of educational technology solutions is expected to grow aided by VR, AR, AI, and IoT, accentuating the development of the market in a significant way. Investment in virtual and augmented reality applied to education alone has increased significantly, hitting 1.4 billion euros in 2016, and is expected to reach 11 billion by 2025.²²

There is no doubt that the pandemic was an accelerator of this process. 44% of the respondents believe that design and development of educational entertainment products and services has increased during this time, while 56% of them consider that the use of such products has increased.

Innovation and Trends

Graph 8. **Creation of Educational Entertainment Products and Services**



Graph 9. **Use of products and services**

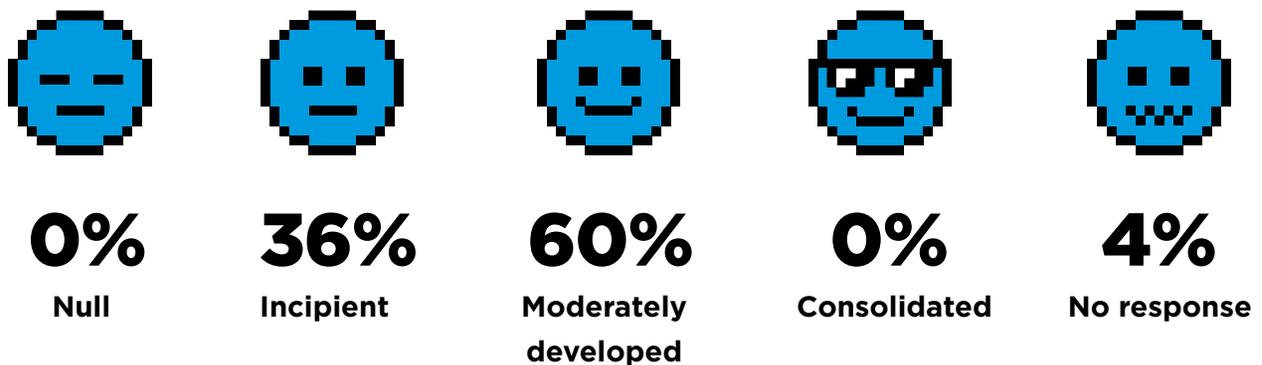


²² Grand view Research, *Education Technology Market Size, Share & Trends Analysis Report By Sector (Preschool, K-12, Higher Education), By End User (Business, Consumer), By Type (Hardware, Software), By Region, And Segment Forecasts, 2021 - 2028*, April 2021, accessed June 14, 2021, https://www.oecd.org/skills/centre-for-skills/Aprovechar_al_m%C3%A1ximo_la_tecnolog%C3%ADa_para_el_aprendizaje_y_la_formaci%C3%B3n_en_Am%C3%A9rica_Latina.pdf.

Predictions say that the global education market is about to reach 10 trillion dollars by 2030, with an increase of non-traditional actors, different from universities and schools, participating more actively.²³ They also consider that the next unicorn in the business world will be a startup who can merge innovative and entertaining approaches into concise learning applications, in other words, an edutainment startup.²⁴

Edutainment in LAC has enormous potential for economic growth. Opinions in the sector are divided: 60% of them consider the market as moderately developed; while 36% of them consider the market is still incipient.

Graph 10. **Development of the Edutainment Sector in LAC**



²³ Holon IQ, "Education in 2030. The \$10 Trillion dollar question", accessed June 17, 2021, <https://www.holoniq.com/2030/>.

²⁴ Dima Syrotkin, "The Next Trillion-Dollar Startup Is Going to Be an Education Company", Medium, May 28, 2021, accessed June 14, 2021, <https://medium.com/swlh/the-next-trillion-dollar-startup-is-going-to-be-an-education-company-3eec-f764e8e6>.

2. Rethinking Educational Entertainment: Between Face- to-Face and Digital Experi- ence

The real innovation, the emergence of a “versus”, is to create a device that will train basic cognitive skills, superior cognitive skills, socio-emotional skills, and technological skills, in such a way that people will feel included and not left out.

—Pablo Aristizábal, founder and CEO at Creators + and Competir Group



21st Century Skills: Who Said that the Future of Learning Needed to be “Hard”?

The digital revolution and the pandemic have both reminded us of the importance of transversal skills, such as creativity and active learning, which are ranked today as two of the first five essential abilities in the workplace.²⁵ Education is not only about knowledge, “it is also learning how to do things, and while doing them, basic cognitive skills, superior cognitive skills, socio-emotional skills—such as empathy, resilience, perseverance, or courage— begin to emerge.”²⁶

According to the Encantos team, an entertainment-driven educational technology company embracing the slogan: “Inspiring kids to learn 21st century skills”, life skills are, “social-emotional and cognitive skills that kids need to thrive and are not taught too often in schools, like empathy or understanding how to handle emotions and time; learning skills, like critical thinking and collaboration. These are things you can’t just memorize, skills you need to cultivate, skills often known as the four Cs in education: Communication, Collaboration, Critical Thinking, and Creativity.”²⁷

21st century skills or ‘Skills for life’²⁸

- Adaptability
- Learnability
- Self-awareness
- Self-regulation
- Global citizenship
- Collaboration
- Communication
- Creativity
- Digital Empathy
- Entrepreneurship

²⁵ Kate Whiting, “Estas son las 10 principales habilidades laborales del futuro - y el tiempo que lleva aprenderlas”, World Economic Forum, 2020, accessed February 10, 2021, <https://es.weforum.org/agenda/2020/10/estas-son-las-10-principales-habilidades-laborales-del-futuro-y-el-tiempo-que-lleva-aprenderlas/>.

²⁶ Definition by Pablo Aristizábal, (Competir Group EdTech Company founder), interviewed by Andrea Villers, February 19, 2021. Creators + and Competir Group is a transmedia educational company based in Argentina, with operation in Colombia, Peru, Mexico, Uruguay, Spain, and the US.

²⁷ Sofía Espinoza, interview.

²⁸ BID, *Habilidades para la vida*, accessed September 10, 2021, <https://clac-habilidades.iadb.org/es/habilidades>.

- Ethics
- Leadership
- Mindfulness
- Motivation
- Critical thinking
- Perseverance
- Resilience
- Problem solving

Studies have shown that new technologies can be very useful in fostering transversal skills. Virtual reality (VR) and augmented reality (AR) are perfect tools for this task. It's ability to recreate simulated environments, where users engage into a wide range of social interactions, reduce factors of environmental stresses, and increase their attentiveness.²⁹ According to a study conducted by Stanford University, technology might help fight discrimination and increase empathy.³⁰ Educational robotics is another learning environment that helps students handle their emotions, improving their self-control and self-esteem. Other simple manual activities, like playing with Legos, also help reduce anxiety levels in children.³¹

The arts in the STEAM acronym (science, technology, engineering, art, and math) help improve confidence and self-regulation, and build other communication and cognition skills.³² Creativity and the arts foster intersubjective skills, whose importance has grown significantly, even if it remains difficult to measure them. Some examples of these skills are the ability to deal with stress in high-demanding environments or even showing curiosity as a sign of motivation for constant learning.³³

²⁹ Steve Smole, "The Future of Virtual Reality for Soft Skills", Roundtable learning, accessed June 3, 2021, <https://roundtablelearning.com/the-future-of-vr-for-soft-skills/>.

³⁰ Roswell Robert O. MD, et al., "Cultivating Empathy Through Virtual Reality", *Academic Medicine Journal of the Association of American Medical Colleges*, 2020, accessed February 5, 2021, <https://vhil.stanford.edu/pubs/2020/cultivating-empathy-through-virtual-reality/>.

³¹ Muñoz, interview.

³² Neil Swapp, "Creativity and Academics: The Power of an Arts Education", Edutopia, October 4, 2016, accessed May 20, 2021, <https://www.edutopia.org/blog/creativity-academics-power-of-arts-education-neil-swapp>.

³³ Blanca Montoya Gago y Gonzalo Chavarri, "Cómo la realidad virtual y aumentada potencian las soft skills", ThinkBig, November 25, 2020, accessed March 15, 2021, <https://blogthinkbig.com/como-la-realidad-virtual-y-aumentada-potencian-las-soft-skills>.

Empowerment: You Are the Owner of Your own Curiosity

Making good use of technology in educational contexts implies raising questions on how to teach effectively, but especially about different ways of learning.³⁴ It is evident that technology alone is not enough to enhance learning or development of 21st century skills. Rather than just replacing classrooms with immersive virtual environments, or textbooks with video games, the goal should be to engage learners using entertainment methods and digital innovation. Creativity, as Pablo Martínez Zárte believes, does not come from a tool, because any technological tool becomes obsolete after five years. On the other hand, “the ability that we have to stand for and master these tools, using them to our advantage in problem solving, never wears out.”³⁵

Mercedes Mateo-Berganza, head of the IDB’s Education Division, remarks the importance of motivation in the success of any edutainment content:

There is evidence showing that when students have intrinsic motivation to learn, in other words, when they are intrinsically motivated to carry out a task because they are enthusiastic or passionate about that task, then their willingness to make an effort to get it done will highly increase. They are more involved because they are more motivated, and that makes the difference in the learning process.³⁶

This type of motivation is precisely what can be fostered through entertainment and the use of gamification in education, as we have been witnessing from several examples of video games and audiovisual content on websites, social networks, and apps.

³⁴ Eleanor Stringer, Cathy Lewin, y Robbie Coleman, *Using digital technology to improve learning* (London: Education Endowment Foundation, 2019), accessed February 5, 2021, <https://educationendowmentfoundation.org.uk/tools/guidance-reports/using-digital-technology-to-improve-learning/>.

³⁵ Pablo Martínez Zárte (visual artist and Head of the Film Studies Division at Universidad Iberoamericana, in Mexico City), interview by Andrea Villers, January 14, 2021.

³⁶ Mercedes Mateo-Berganza, (head of the Education Division at the Inter-American Development Bank), interview by Andrea Villers and Isabel Gil, June 17, 2021.

Storytelling: It Is All About Knowing How to Tell

One of the main features of edutainment is its reliance on powerful narratives to engage learners. Whether it's done through fiction characters, influencers, using comics, videos or by any other means, the key concept is to imagine, adapt, and tell a story to connect emotionally with audiences by effectively conveying a direct message.

During the pandemic, the IDB's behavioral economics group created an online gamified intervention encouraging behavioral changes to reduce the spread of the virus and prevent the collapse of health systems in the region.³⁷ At the beginning of the pandemic there was confusion everywhere; since sanitary restrictions were complex, preventive measures were difficult to understand and comply with. To ease the confusion, a questionnaire called "What kind of Coronahero are you?" was created, using a gamification system with scores, feedback, and character creation sections, while encouraging people to adopt relevant health measures. This behavioral experiment was disseminated by different LAC governments, showing its effectiveness to improve the perception of the COVID-19 vaccine among their population.

A good storytelling product has enormous potential to teach several different topics from an inclusive and more equitable point of view. That is the general opinion at Encantos, a platform that set out to address representation problems in the United States, where African American and Latino children make up half of its child population, but are rarely represented in the media. Yet, for its founder Susie Jaramillo: "Edtech is not as engaging as it could be, it doesn't have compelling characters, or story lines that truly engage children. Entertainment has not taken into account the things that the children should be learning, they don't leverage the superpowers that they have to truly benefit them. And so, we saw a space where we could come in and tell authentic stories by authentic creators that would represent children and also engage them and help them learn 21st century skills."³⁸

Remote education is increasingly leveraging storytelling as a tool to create unique, enjoyable, and meaningful experiences. Examples are masterclasses and online courses taught by celebrities, now being replicated, and enhanced by several different platforms. The success of this type

³⁷ Déborah Martínez Villarreal, Ana María Rojas Mendez y Carlos Scartascini, *Behavioral Economics Can Help Fight Coronavirus* (IADB, 2020), <https://publications.iadb.org/en/behavioral-economics-can-help-fight-coronavirus#:~:text=Using%20behavioral%20insights%20to%20design,people%20gradually%20resume%20normal%20life>.

³⁸ Susie Jaramillo (CEO at Encantos), interview by Andrea Villers, June 22, 2021.

of digital content lies in the inspirational life history behind the experts, rather than in the techniques they are supposed to teach. An example of this kind of platform in LAC is GrandMasters, whose Mexican founders are confident of its fast positioning in the Hispanic market, as they have been witnessing the boom of the streaming and edutainment market. Academia del Futuro, also from Mexico,³⁹ is a similar project but aimed at children. Keen to the virtual master class concept, it broadcasts personalities from the entertainment world and leaders from the creative sector who teach music, comics or even drawing, but on its catalog. There are other courses covering school subjects, such as mathematics or language.

Immerse Yourself into Extended Reality: Holograms at University and the Workplace

Although before the pandemic immersive technologies such as virtual and augmented reality—known as extended reality (ER) as an ensemble — were being used to recreate experiences at the workplace and at educational spaces, predictions state that its adoption by other sectors will hugely increase in the coming years. Using the human body as a natural interface stimulates body memory while carrying out specific activities. The advantages of such a technology are evident: operational costs such as transportation are reduced, as well as the risks inherent to carrying out potentially harmful tasks, like piloting an airplane as part of civil or military training.

An increasing number of studies have advocated the benefits of merging ER into teaching programs to help students participate in more engaging learning experiences. Some of those benefits are:⁴⁰

- Motivation and strong commitment. Students show bigger motivation by creating immersive environments and encouraging organic interactions.
- Better recall of information and paying closer attention. Learning is an action involving a great mental effort; the more motivation students have the more attention they will pay, while recalling better through a faster learning process.
- Complex concepts and development of cognitive areas. ER can impact the development of different cognitive areas in charge of awareness,

³⁹ Academia del futuro, official website, accessed June 4, 2021, <https://www.academiadelfuturo.com/>.

⁴⁰ Archit Kaushik, “XR for Social Impact: A Landscape Review”, Games for Change, 2020, accessed August 3, 2021, https://www.gamesforchange.org/refresh2018/wp-content/uploads/2020/10/G4C_XR4C_2020_white_paper_Final.pdf.

spatial abilities, and memory. It has also been shown that immersive reality combined with gamification helps students to achieve a better understanding of complex abstract concepts.

- Learning by doing. Through offline portable devices students gain access to all sorts of interactive experiences regardless of time and place. Setting their body in motion and interacting with gestures, students can experience meaningful learning.
- Personalized learning. ER helps customize the learning process according to students' needs. This is particularly pertinent for people with disabilities and learning disorders.
- Fostering empathy. Immersive digital environments bring students closer to situations experienced by other individuals and communities from different epochs and foreign places, which has an enormous impact in developing empathy when teaching about equity and social justice.
- Lower costs. One of the challenges hindering the expansion of ER has been costs. However, more accessible, or free versions of ER have been emerging. An example are school trips and tours through virtual reality.

A prominent example of ER is Hololens, Microsoft's augmented reality glasses. Although aimed more at immersive and interactive video games, devices like this one are now being used for online learning by using sensors to reproduce holographic images in a physical environment. For instance, medical students are learning about human anatomy with Hololens, navigating the human body in 3D.

Another interesting project is Google Expeditions⁴¹. Created with a clearer educational purpose in partnership with important museums, universities and laboratories, this immersive platform enables users to explore global locations through VR and AR tours. Teachers can take guided tours with their students or build their own expeditions using 360° or 180° photos and even Street View panoramic images on their browsers.

Some universities have also started incorporating VR and AR into their curriculum. In September 2020, the University of Arizona in partnership with the Dreamscape studio launched the Dreamscape Learn project, a series of video games designed for the university campus. One of them, called *Alien Zoo*, replicates the environment of a science fiction video game using a futuristic setting to learn about evolutionary

41 In November 2020, Google announced plans to shutdown Expeditions, putting and end to the VR Tour application in June 2021 due to accessibility problems. Its contents are now available on Google Arts & Culture, a free website where users can access content from any device, regardless not having VR interfaces.

biology. The key of the project is that students adopt the role of a scientist who must research and conduct tests, while scoring points and getting bonus items, and interacting with other classmates.⁴² In Mexico, El Retoño Technological University has built “the largest virtual reality center in LAC”, using RV technology as the cornerstone of its careers in Data Science, Artificial Intelligence, and other programs focused on innovation.⁴³

Another excellent crossover between VR and education is Stanford University’s Virtual Human Interaction Laboratory in partnership with Sesame Workshop, featuring a fictional character from its flagship television show *Sesame Street* in an immersive and interactive virtual reality environment. A study showed that children (ages four to six) are positively influenced by characters they interact with in a VR environment.⁴⁴

Since the onset of the COVID-19 crisis, for fields such as education, health and the arts working together has become more necessary. The World Health Organization has recognized the importance of researching and developing the field of “cultural well-being” in programs such as fighting against isolation, building healthy habits, and disease prevention, among others. These new subjects will require training professionals capable of combining medical and social work knowledge with methodologies from the arts, using VR and AR digital platforms.⁴⁵

Virtual reality laboratories are successful examples of applied ER, where through science experiment simulation, students can observe, listen, and feel real-life experiences from a laboratory. These online learning alternatives have proven substantial advantages: their time-and-space flexibility and adaptability make them a real and safe option for huge audiences, at low costs, while improving awareness and concentration almost sixfold.⁴⁶

42 Arizona State University, “Dreamscape Immersive, ASU launch bold partnership to bring cutting-edge virtual reality to learners worldwide”, Arizona State University News, September 18, 2020, accessed May 21, 2021, <https://news.asu.edu/2020-09-18-discoveries-dreamscape-immersive-asu-partnership-virtual-reality-learners-worldwide>.

43 Virtual Ware, “Viroo convierte a UTR en la universidad con el centro de RV más grande del mundo”, September 11, 2020, accessed June 11, 2021, <https://www.virtualwareco.com/es/news/inauguracion-vr-center-universidad-retono/>.

44 Alice Bonasio, “Expert View: 3 ways VR is transforming Learning & Development”, AR VR Journey, April 24, 2018, accessed April 17, 2021, <https://arvrjourney.com/expert-view-3-ways-vr-is-transforming-learning-development-487a021e8334>.

45 Ekaterina Travkina and Pier Luigi Sacco, op. cit.

46 According to a study conducted by Saga University in Japan, EEG data showed

Video Games: a Tool for Learning

For decades the world of education has welcomed the arrival of video games in the learning environment. The same is true from a game industry point of view: serious games are an example of specialization in the sector of game-based educational content as a means for spreading knowledge.

There are several advantages of video games as learning tools. They can help to teach skills such as critical thinking, resilience, perseverance, and problem solving. On the other hand, they encourage users to feel comfortable with experimentation, technological languages, and online interactions.⁴⁷ Its market penetration is another advantage, although this fact poses a double-edged issue. As Mateo-Berganza of the IDB points out: “The potential is fascinating. There are self-regulated platforms. After 30 or 45 minutes the platform sends you a notification: “Your playtime for today is up”, then it turns off with another notification: “Come back tomorrow.” But other apps do not do the same and the child may end up playing for longer periods of time [...] Obviously self-regulation is an important issue, but not all children from all ages have developed that skill yet”.⁴⁸

The game industry has benefited from the pandemic. The more than 22 million game consoles sold globally the first half of 2020 (compared to the 16 million sold in 2019) attest to this fact. Consumer spending on video game content hit 10 billion US dollars in the first trimester of 2020, with users spending 15% more on mobile games.⁴⁹ Some schools, particularly in the United States, turned to popular video games to keep their students engaged, using *Minecraft* or *Fortnite*, the most played multiplatform game in history.⁵⁰ For instance, a teacher faced with border closures

that students taking virtual reality classes showed better and longer concentration. CIEENYTEC, “Virtual reality laboratories for simulation of science experiments,” accessed June 10, 2021, <https://www.cienytec.com/edu2-laboratorios-realidad-virtual-ciencias.htm>.

⁴⁷ HEP Online Bureau, “Edutainment: A profound enabler of learning and equal opportunity”, March 26, 2021, accessed June 19, 2021, <https://highereducationplus.com/Edutainment-a-profound-enabler-of-learning-and-equal-opportunity/>.

⁴⁸ Mateo-Berganza, interview.

⁴⁹ Mike Vorhaus, “Gaming Industry Sees Big Growth While People Stay Home”, Forbes, June 22, 2020, accessed June 10, 2021, <https://www.forbes.com/sites/mikevorhaus/2020/06/22/gaming-industry-continues-big-growth-due-to-stay-at-home-americans/?sh=3d62886e43a1>.

⁵⁰ Olga Kharif, “Why Minecraft and Roblox Are on the Fall Syllabus”, Bloomberg, August 24, 2020, accessed February 19, 2021, <https://www.bloomberg.com/news/articles/2020-08-24/teachers-use-minecraft-and-roblox-to-educate-kids-during-coronavirus-pandemic>.

due to COVID-19, was planning a school trip to the Parthenon found in the video game *Assassin 's Creed: Odyssey* an alternative method to teach his elementary school students about Ancient Greece.⁵¹

Commercial video games are a good example of entertainment not intended for educational purposes that nonetheless educate. For several years they have been used in classrooms covering at least two main goals:

a) To teach transversal skills such as teamwork, self-regulation, and collaboration, through project-based learning.⁵²

b) To teach critical thinking and problem solving in subjects such as history, mathematics, and physics, among others.⁵³

The global online video game platform Roblox estimates that, in the first year of the pandemic, its flagship game *Minecraft* (the second best-selling of all time) increased from 100 to 150 million active users per month.⁵⁴ Even before the health crisis hit, the market penetration of the educational version of *Minecraft* (*MinecraftEdu*) was already outstanding not only in the United States, but also in LAC. Then, after schools shut down globally, *MinecratEdu* was used as a means for teachers and students to bond and communicate. Additionally, their developers have created extra activities on emotion regulation, meditation, and breathing techniques.⁵⁵ During the lockdown the brand attempted to position itself as a large-scale project-based learning tool fostering creativity. For that reason, they launched the competition # MinecraftCOVID19, with challenges ranging from building a library or museum—to fighting misinformation around COVID-19—to designing a state-of-the-art hospital to deal with major health crises. Other categories of the contest encouraged coding and modeling of the virus in 3D and building a Rube

51 Elise Favis, “With coronavirus closing schools, here’s how video games are helping teachers”, The Washington Post, April 15, 2020, accessed February 19, 2021, <https://www.washingtonpost.com/video-games/2020/04/15/teachers-video-games-coronavirus-education-remote-learning/>.

52 Julia James, “Stanford experts provide guidance for how parents and teachers can navigate the Fortnite craze”, Stanford Graduate School of Education, May 14, 2018, accessed March 5, 2021, <https://ed.stanford.edu/news/stanford-experts-provide-guidance-how-parents-and-teachers-can-navigate-fortnite-craze>.

53 MacFarlane, 2000.

54 Matthew Wood, “Minecraft Fitness Run! - A Virtual PE Workout Game and Brain Break”, Youtube, January 12, 2021, accessed May 25, 2021, https://www.youtube.com/watch?v=y_5sOYdNmj8.

55 Julieta Schulkin, “El videojuego como aula virtual: el uso de Minecraft Education durante la pandemia”, Infobae, September 23, 2020, accessed March 24, 2021, <https://www.infobae.com/gaming/2020/09/23/el-videojuego-como-aula-virtual-el-uso-de-minecraft-education-durante-la-pandemia/>.

Goldberg machine (a sophisticated device for solving a task through a sequence of steps), all of them focusing on solving real problems around the health crisis.⁵⁶

Partnerships among gamers and streamers from virtual platforms are also a field of opportunity for innovation and growth in LAC. L3TCraft in Spain, directed by Chincheto (a gamer with 700 thousand subscribers on YouTube) in collaboration with Microsoft and Minecraft, is developing games and creating school activities “through branding campaigns merging brands, influencers and audiences with the objective of reaching more people, through visibility and engagement”.⁵⁷

Epic Games, the house that created *Fortnite*, has gone one step further to push its educational program ahead, by releasing a series of online courses and tutorials on programming and augmented reality through the Unreal Online Learning platform, offering it to teachers and students free of charge. An example of the potential of this platform is that of a secondary school teacher who gave his students the task to design an ecological skatepark. By using architectural modeling, students became familiar with principles of AR and 3D modeling, while learning relevant topics on urban planning, programming, history, and ecology.⁵⁸

As the use of games as educational tools at schools has increased, both Roblox and Epic Games have adapted their products to meet school requirements. Although games like *MinecraftEdu* (launched in 2016) already considered some controls for school contexts, since the onset of the pandemic other parental controls were added for teachers to regulate and supervise its contents. In addition to adding cybersecurity solutions for schools and parents, they aim at improving plans and protocols against bullying, fraud, and other online dangers.⁵⁹

Another advantage of virtual video game platforms is game analytics, a powerful tool for understanding user behavior. Through statistics and data, it is possible to study in detail the performance of any given player or groups of players, for instance, the amount of time they spend online, their decision-making process and their overall progress. Such information is very useful when planning how to enhance the user’s experience or to discover behavioral patterns. In educational video games,

⁵⁶ NASEF, “Minecraft COVID-19 Design Challenges”, accessed June 19, 2021, <https://www.nasef.org/learning/minecraft-covid-19-design-challenges/>.

⁵⁷ L3tcraft, official website, accessed March 25, 2021, <https://www.l3tcraft.com>.

⁵⁸ Unreal Engine, official website, accessed April 10, 2021, <https://www.unrealengine.com/en-US/education>.

⁵⁹ Fortinet, Cost-effective, “Simple Security for Today’s Connected Students”, accessed June 2, 2021, <https://www.fortinet.com/solutions/industries/education>.

this comes as an even greater advantage, since through analytics experts can learn the impact and permeability of the learning process, identifying both learning deficiencies and areas of opportunity. Some games like *Dyctective*, are designed to improve literacy skills, while getting a fast and costless diagnosis on dyslexia and other literacy disabilities.

The video game industry in LAC is thriving.⁶⁰ Although it's a territory with many possibilities yet to explore, the LAC video game market has gradually gone from a passive role importing translated and localized products, to becoming an industry increasingly producing its own content. The demand for creative and innovative video games goes hand in hand with the need for more diverse teams. In that sense the gender gap and a more inclusive agenda continue to be a challenge at the content design and development departments of video game companies. If we learn from all media (even those without an explicit educational purpose), then video games can be a great ally in sending a fair and more equitable message.

Both Fair Play Labs studios, in Costa Rica and Lienzo in Mexico, have channeled their work into developing social-oriented video games, representing diversity and addressing issues like global warming and culture appreciation of indigenous communities. Another example of social responsibility is *Dale!* created by the Argentine researcher Beatriz Diuk and developed by Globant, a video game company fighting illiteracy. With the intent of measuring the learning level of *Dale!*, a pilot was tested among a group of children who did not know how to read or write. One group of children had a teacher as facilitator, while the other only used the video game. The results showed similar processes of learning which indicated that video games, in a monitored school context, can be an extremely valuable tool to support teachers' work.⁶¹

There are other companies innovating in the field, like the Mexican agency Ncite, which creates digital game-based solutions to build learning experiences, business training solutions, financial education products and educational video games. Among their educational games are those available on Ludi, an educational digital platform comprising a website and a mobile application with more than 200 games available, encouraging elementary school students to practice school curricula while interacting with their friends. It also lets teachers and parents get stats on the students' performance⁶².

⁶⁰ Alejandra Luzardo, et al., *Los videojuegos no son un juego*, IABD, 2019.

⁶¹ Infobae, "Crearon un videojuego que busca combatir el analfabetismo en las zonas más vulnerables", October 26, 2020, accessed May 7, 2021, <https://www.infobae.com/educacion/2020/10/26/crearon-un-videojuego-que-busca-combatir-el-analfabetismo-en-las-zonas-mas-vulnerables/>.

⁶² <https://ncite.mx/case-studies/>.

Despite the positive impact, independent developers of educational games are struggling financially. The undeveloped game sector in LAC is yet to take off and funding and support will be key to achieve its consolidation. Ulises Valencia, director of Digital Invaders Institut, the first educational center for digital creativity in Latin America⁶³, believes that the educational video game industry requires public and private support and sponsorship in order to grow. He argues that work hours, effort, and expertise invested into developing these games, compared to the economical profit generated from it, is quite uneven⁶⁴.

Streaming and Edutainment on Demand: Learning 24 Hours, 365 Days a Year

Although there is no precise data quantifying the share of edutainment companies in the streaming market, the general trend shows a consistently growing tendency that will continue in coming years. Both in LAC and world-wide, educational events have been regularly using streaming and broadcasting platforms from social networks companies like Instagram, Facebook and YouTube, sometimes even simultaneously.

But exclusive educational-driven platforms have also emerged. The global company FilmDoo, founded originally as a streaming film platform by two Thai communication experts in 2015, has recently ventured into online education. By developing a playful learning language tool, FilmDoo adapts innovative technology to deliver edutainment content. Its game-based platform helps teachers and users to profit from videos and films as interactive and online learning materials.⁶⁵ Its catalog has not only thousands of films adapted for language learning, but also educational

⁶³ Games for change is a non-profit organization, located in New York, that promotes the exchange of ideas and resources on the social impact of gaming through workshops, design competitions, and consulting projects. Among other activities, they host annually the G4C festival, gathering game creators and social innovators, and inspiring young people to reflect upon social issues while learning STEM and 21st century skills. Games for Change, official website, accessed June 10, 2021, <https://www.gamesforchange.org/>.

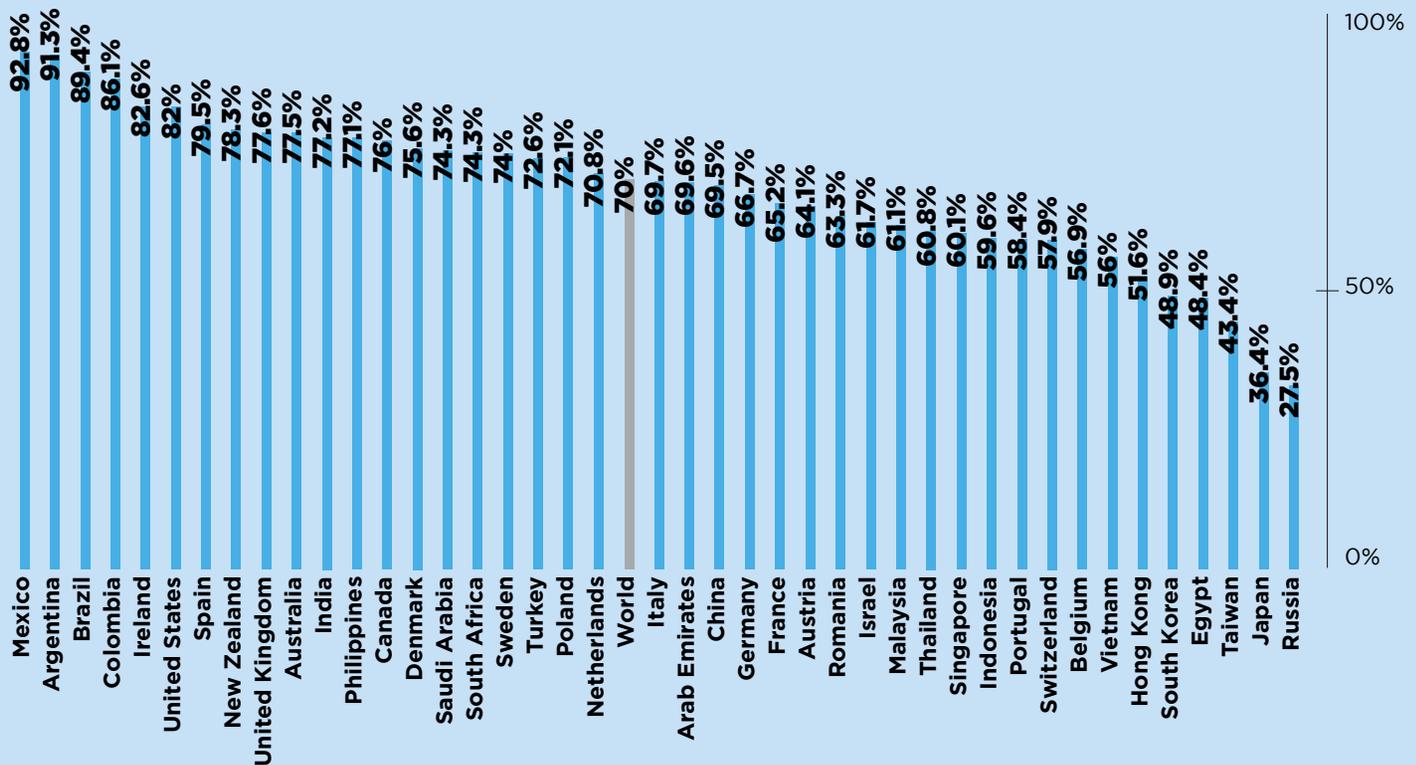
⁶⁴ “For a company to invest in game development, the first thing you need is sponsors, then you need a lot of funding, to really make an impact” Ulises Valencia (founder and director at Invader Institute), interview by Andrea Villers, July 29, 2021.

⁶⁵ Weerada S., “Movie-Streaming Game-based Edutainment Platform Rises to the Challenge of Raising Student Engagement Online in the COVID-19 Era”, June 17, 2020, accessed June 10, 2021, <https://www.linkedin.com/pulse/movie-streaming-game-based-Edutainment-platform-rises-sucharitkul>.

games, all put together by an AI-driven algorithm that displays customized learning content.⁶⁶

On the other hand, Netflix has agreed to costless screening of its educational documentaries at schools even before the pandemic. But due to educational centers closing world-wide, it has also given free access to several other documentaries, films, and educational shorts available on its YouTube channel. Also available on its website are extra educational resources, such as conversation and debate guidelines for teachers and students to further explore and discuss different issues, through questionnaires and home activities.⁶⁷

Graph 11. **Percentage of Streaming Platform Users by Country**⁶⁸



⁶⁶ FilmDoo, official website, accessed June 10, 2021, <http://www.edootainment.com/index.html>.

⁶⁷ Netflix, *Responding to teachers' requests for access to documentaries*, April 17, 2020, accessed June 10, 2021, <https://about.netflix.com/en/news/free-educational-documentaries>.

⁶⁸ GWI (Q3 2020) Global survey of internet users aged 16-64 globalindex.com.

The available data is from the streaming market in general. The Video on Demand (VOD) share in LAC—and globally for that matter—grew significantly during the pandemic. 83% of consumers purchased VOD services at least once in 2020.⁶⁹ Mexico, Brazil and Argentina are now at the top rank of countries with the most active streaming users among populations with internet access, even above the United States, Spain, or Canada. Globally, in 2020, Netflix reported 37 million new paid memberships, which represents a 31% increase compared to 2019.⁷⁰ Meanwhile, Amazon Prime reached 150 million users in January 2020.⁷¹

Netflix and Amazon Prime Video have an important share of the regional market. In November 2020, Disney + was launched in LAC, while Hulu, HBO Max, and ViacomCBS are expected to follow shortly. LAC represents a huge and growing market. According to the Economic Commission for Latin America and the Caribbean (ECLAC), a third of its population still lacks internet access. In March, the consulting firm Digital TV Research predicted the growth of subscriptions to VOD and streaming services from 42 million at the end of 2019 to 81 million in 2025. In September, an updated projection predicted more than 100 million subscriptions during the same five-year period.⁷²

“How-to” and Beyond: Learning on Youtube

Generation Z

- 47% spend more than 3 hours per day on video platforms.
- 59% prefer YouTube for learning, but 39% prefer teacher-led instruction.
- 59% think that technology will significantly transform the pedagogical methods at universities.
- 47% use apps and games to learn.

⁶⁹ Sherlock Communications, “Mercado, consumo y diversidad en servicios de streaming en América Latina”, accessed June 10, 2021, <https://www.sherlock-comms.com/es/informe-streaming-latam/>.

⁷⁰ Netflix, *Annual Report*, January 19, 2021, accessed June 17, 2021, https://s22.q4cdn.com/959853165/files/doc_financials/2020/q4/FINAL-Q420-Shareholder-Letter.pdf.

⁷¹ Todd Spangler, “Amazon Prime Tops 200 Million Members, Jeff Bezos Says”, *Variety*, April 15, 2021, accessed June 15, 2021, <https://variety.com/2021/digital/news/amazon-prime-200-million-jeff-bezos-1234952188/>.

⁷² Idem.

Millennials

- Only 22% spend more than 3 hours on YouTube.
- 44% prefer self-directed learning supported by online courses and video lectures.
- 60% like to learn from books.
- 66% think that technology will transform the methods at universities.
- 41% use apps for educational purposes.⁷³

The fact that today we are learning from other content aside from that explicitly tagged as educational, has become self-evident. YouTube is an exemplary case. Since its foundation in 2005, users around the world have turned ‘How- to’ videos into one of the most popular contents on the platform. Over time, ‘How to’ videos have grown in sophistication, and its specialized presenters are now known as edutubers.⁷⁴ An emblematic case in LAC is Julio Profe, a Colombian teacher with more than 4.59 million subscribers, who creates content about physics and mathematics and interacts with children around the continent on another channel exclusively devoted to video games called “Julio Profe Gamer”.

Google reported an estimated 50% growth of “how-to videos” views, year over year since the onset of the pandemic. Searches including words “for beginners” or “step by step” increased by 65%. And globally, since March 13, 2020, the daily views average of videos including the word ‘homeschooling’ has risen more than 120%, on channels devoted to math tutorials or streaming lessons and even videos including syllabus planning for teachers at home⁷⁵. Educational resources on Youtube are being used by families to make science experiments or to go on virtual reality field trips—these immersive experiences include tours to experience butterfly migration in Mexico and even to feed the Tasmanian devil—.

As content becomes more sophisticated, professional, and diverse, we ought to revisit our views on entertainment and education, seriously considering whether the learning-from-home trend is just a fad or rather it is the tip of the iceberg of a new learning reality, appearing to be on the right track for education in the XXI century.

⁷³ Pearson, Meeting the expectations of Gen Z in higher ed. Pearson, 2020. https://www.pearson.com/us/content/dam/one-dot-com/one-dot-com/us/en/files/PSONA5646-8150_TIDL_GenZ_Infographic_Print_FINAL.pdf.

⁷⁴ Grace, “How YouTube is Revolutionizing Edutainment”, *Medium*, October 3, 2017, accessed February 18, 2021, <https://medium.com/@gracmasn/how-youtube-is-revolutionizing-Edutainment-a02bff30da91>

⁷⁵ Ashley Wiers, “3 ways people are using YouTube to learn at home during the coronavirus pandemic”, May, 2020, accessed June 10, 2021, <https://www.think-withgoogle.com/consumer-insights/consumer-trends/how-people-use-youtube-for-learning/>

#LearnOnTikTok

TikTok, the social network where users can share videos from 15 to 60 seconds length, ventured into edutainment in 2020. With more than 2 billion users worldwide, they have recently tested their potential as a broadcaster and creator of microlearning (i.e. short educational content with hyper-succinct information on subjects like history or geography, or even as guidelines to carry out a practical project).⁷⁶ During the health crisis TikTok launched the brand campaign #LearnOnTikTok, tagging different tutorials on topics such as cooking, history, science and environmental education. In the summer of 2020, the brand announced an investment of 50 million dollars and an alliance with celebrities like chef José Andrés, the motivational coach Tyra Banks, and engineer Bill Nye, to create short educational videos.⁷⁷

Faced with complaints about whether the platform could really be used as a learning tool, ByteDance, the company owner of TikTok, launched an intelligent lamp equipped with a camera, and an integrated digital assistant. Its most attractive feature is that it helps parents watch over their children while doing homework in real time.

Learning Programming in a Fun Way

Technology design and coding have been enlisted as two of the most important professional skills for the immediate future.⁷⁸ A proof of the growing interest for coding is its increasing occurrence in school curricula and school programs. Scratch, a website developed by MIT Media Lab, is a free platform to learn programming through edutainment tools, marketed for children aged between eight and sixteen. Sharing a market

⁷⁶ Rachel E. Greenspan, “Teens Are Going Viral with Theatrical History Lessons on TikTok. These History Educators Are Thrilled”, *Time*, November 8, 2019, accessed February 20, 2021, <https://time.com/5721116/teen-tik-tok-history-lessons-videos/>.

⁷⁷ Bryan Thoensen, “Investing to help our community #LearnOnTikTok”, *Tik Tok Newsroom*, May 28, 2020, accessed February 7, 2021, <https://newsroom.tiktok.com/en-us/investing-to-help-our-community-learn-on-tiktok>

Ingrid Lunden, “TikTok tests a Learn tab to showcase education and how-to videos”, *Tech Crunch*, November 5, 2020, accessed February 7, 2021, <https://techcrunch.com/2020/11/05/tiktok-tests-a-learn-tab-to-showcase-education-and-how-to-videos>.

⁷⁸ Kate Whiting, “Estas son las 10 principales habilidades laborales del futuro - y el tiempo que lleva aprenderlas”, *World Economic Forum*, October 22, 2020, accessed April 15, 2021, <https://es.weforum.org/agenda/2020/10/estas-son-las-10-principales-habilidades-laborales-del-futuro-y-el-tiempo-que-lleva-aprenderlas/>.

penetration in 150 countries and with 74 million registered users, the platform enables interaction with other users while collaborating on the creation of characters, stories, and animations; using a user-friendly coding language suitable for non-experts. According to their statistics the demand during the pandemic has grown, hitting approximately 900,000 active users per month.⁷⁹

Lego, a firm that specializes in the manufacturing and assembly of construction toys, ventured into edutainment thirty years ago. In alliance with MIT Lego has been designing robotic solutions and software to teach STEM skills since 1980. According to Claudette Muñoz, head of the Lego Education Division for Latin America and Canada: “Learning through play is extremely important because it focuses on the child. It allows the teacher to step back so the child can take control of their own learning experience, finding meaning from what they really like. We have faced the challenge to demonstrate that learning through play is a methodology, one that delivers significant results.”⁸⁰ Lego’s educational sets not only convey principles on mathematics, coding, or biology, but they also teach transversal skills fostering critical thinking and creativity.

The educational process in Lego Programming for programmed languages is progressively thought out and is processed by differing through school grades. The first step is Physical Coding; here preschool children learn how to solve problems with Lego Boost, a plastic-colored set of Lego block pieces, and an application to add sounds to them. The second step is Block Based Coding, a programming-based set where text is not involved, a learning experience that can be enhanced on the Scratch platform. In the last step, high school kids learn coding in Python –a programming text language singled out for the amazing legibility of its code– with activities involving AI and Internet of Things through sensors that collect information. Kids can then program and code instructions so that by using sensors, robots can carry out simple tasks involving motion, autoregulation and turning electronic devices on and off. Lego has also launched the LEGO Mindstorms line, a series of programmable robots that do not demand expert knowledge on programming from users and foster critical thinking and problem solving.

Lego Education is looking to expand into the Latin America market. For that reason, they have been working on strategic relationships with non-profit organizations, governments, and universities to be part of the new milestone of teaching. The educational division already has representation in countries like Mexico, Brazil, Colombia, Peru, Chile and Argentina.

⁷⁹ Scratch, *Scratch Statistics*, accessed June 10, 2021, <https://scratch.mit.edu/statistics/>.

⁸⁰ Muñoz, interview.

Some of its projects involve working with indigenous communities, and others are social or health related. Such is the case of a partnership with the Rehabilitation Cognitive Center at the National Institute of Pediatrics in Mexico, where Lego Educational and Robotics Technology are being applied (through computer coding, mechanical and construction elements) as an alternative to neuropsychological interventions. This technology has been put to test in the rehabilitation of cognitive functions of patients, through fun, personalized, and motivating teaching methods, showing positive results according to current studies.⁸¹

In India, the online learning platform Byju's Future School offers coding, programming and math lessons for children ages five to fourteen. Science, music, English and arts lessons are expected to follow shortly. Byju's stands out among other MOOC for its one-to-one and live interaction. According to its CEO and founder the natural progression of students is they first start with free content, then they watch pre-recorded content until they finally venture into live classes.⁸² Courses are designed to teach basic coding concepts such as logic, structure, sequence and algorithmic thinking, through creative activities. In May 2021 Byju's entered the Mexican, Brazilian, and US markets, launching a campaign to promote video game coding courses for children, following their mission to empower a generation, and turn children into creators rather than consumers of technology: "The real promise of coding is not that kids will become computer engineers. Coding is a fun tool to exercise their desire to build, curiosity to question, imagination to explore - the traits that will serve any child well in any career, in any hobby, and in life."⁸³ Yet its real impact on these new markets will only be visible during the coming months.

⁸¹ Kardias, *Kardias blog*, July 13, 2021, accessed July 29, 2021, <https://kardias.org/2021/07/>.

⁸² They currently have 11,000 female teachers from India, serving students in English-speaking markets. Its founder and CEO declared his interest in hiring thousands of local teachers in Mexico, Brazil and Indonesia to serve non-English speaking markets. In April 2021, a month after being launched in Mexico, the company already had 200 teachers from the country and more than 1,000 active students. Alnoor Peermohamed, "Byju's to launch Byju's Future School in push for overseas expansion," *The Economic Times*, April 9, 2021, accessed June 10, 2021, <https://economictimes.indiatimes.com/tech/startups/byjus-to-launch-byjus-future-school-in-push-for-overseas-expansion/articleshow/81968234.cms>.

⁸³ Byju's Future School, official website, accessed June 10, 2021, <https://www.byjusfutureschool.com/>.

A Science Rock Ballad

The rock band from Chicago OkGo has turned into another creative way to teach STEM using entertainment.⁸⁴ After several professors in the United States started using their videos as material for their science and mathematics classes, in 2018 the band released OkGo Sandbox, a set of online resources to systematically explore concepts like gravity, parables or perspective, and even the importance of mistakes and resilience while learning.⁸⁵

In 2021 OkGo launched the #ArtTogetherNow project, which invited viewers to create a collaborative video to cope with lockdown and social distancing in a fun and creative way. According to the band, by interacting with their virtual community they managed to send a message of unity and solidarity during the crisis.⁸⁶

The idea of mixing music with education, enhancing the experience through an appealing visual language that could be attractive to younger audiences, has been replicated in LAC. In 2014 Elements Music Experience (ME) in Monterrey, Mexico, founded an online music learning program available on their own website and on its app. Elements ME offers a comprehensive music learning program based on gamification with challenges and several additional features. Flexibility, personalization, playful learning, and social interaction are major features of this program. Students are assigned with individual and personalized assessments, while teachers receive student grades and analytics in real time. There are four major categories: listening, theory, reading, and rhythm. Through them students can learn different skills like recognition, perception, performance, structure, design, order, fluidity, awareness, identification, coordination, speed, and accuracy.

⁸⁴ 95.5 KLOS, “Rock band OK Go creates online resource to help educators teach science”, May 23, 2018, accessed February 24, 2021, <https://www.955klos.com/2018/05/23/rock-band-ok-go-creates-online-resource-to-help-educators-teach-science/>.

⁸⁵ Elissa Nadworny, “Teachers And Those Magical OK Go Videos: A Match Made In Science?”, *NPR*, March 21, 2018, accessed March 3, 2021, <https://www.npr.org/sections/ed/2018/03/21/591691009/teachers-and-those-magical-ok-go-videos-a-match-made-in-science>.

⁸⁶ Ok Go Sandbox, official website, accessed May 16, 2021, <https://okgosandbox.org/art-together-now>.

3. Cases of Innovation



All crises urge us to innovate... an adaptive leap that forces individuals and communities to look at the resources at hand to face a crisis.

—**Pablo Martínez Zárate**, director of the Masters in Film from the Universidad Iberoamericana in Mexico City

In this section we discuss seven case studies from LAC. Some of these initiatives were born in the middle of the pandemic, while others are examples of innovation by companies expanding their mission into the digital world in the context of this crisis. Their experience represents concrete responses to the questions we have been raising throughout this volume. Each study case described below can be seen as a solution tackling successfully different concerns and challenges of the sector. For instance, online 21st century skills training using playful digital environments, or ER simulation and other products from the entertainment industry (like video games) being merged to provide solutions in other areas like health, and even addressing the need for universal access to digital learning-while-playing platforms and edutainment streaming. Many of these case studies are also a good example of how to find sustainable funding and increase audiences.

Overall, they are platforms putting new learning methods forward, using entertaining formats, and EdTech solutions. Whether aiming at school students or adults, workers, and professionals from different fields, they have tried to change traditional education through innovation and creativity, a most necessary approach since lockdown and social distancing implications became more and more evident. Some projects like Predea or Historias para armar were born in this context to respond to the issues that many students and families facing with online learning were having: trouble concentrating; little interest in topics that do not address children and adolescents' lives nor stimulates their curiosity, or fatigue triggered by non-personalized formats and videos.

Grandmasters. Mexico

How to Combine the Best Learning Practices with the Best Entertainment Using a Streaming Platform?

Grandmasters is a streaming educational project—one of the few 'edutainment platform' projects in LAC labeled as such by their founders—that has seen the growing demand of online education formats and on-demand content as an opportunity to grow. On its website, users can access master classes by outstanding personalities from different disciplines, through a subscription service. The teaching-learning approach is simple but effective. It relies on the art of storytelling, displayed by well-known personalities, known as mentors, that have the ability to inspire entrepreneurs. Each lesson is divided into introduction, case analysis and conclusions, and it is presented in an engaging and entertaining format, like if it were a TV miniseries, in episodes that can be watched at the

subscriber's own pace. Mentors are chefs, musicians, athletes, scientists, psychologists, youtubers, influencers and even an astronaut, all of them awarded and reputed in their own fields.

Created in 2020, GrandMasters is now only available in Spanish, targeted for the Mexican market, but is willing to venture into other Hispanic markets in LAC, the United States and Spain. Their business model is the same of other streaming platforms: users pay a monthly fee for any time access in return.

Despite its recent foundation, its growth has been remarkable, and their creators expect to reach a number of 40,000 subscribers by the end of 2021. Grandmasters required an investment of more than one million dollars, and its founders are considering other investment funds to keep expanding into other countries.

Vertex MedixLab. El Salvador

What can Other Sectors Learn from Video Game Companies?

MedixLab is a virtual laboratory at the El Salvador Hospital using visual aural and tactile effects in training health staff. It was developed by Vertex Studio, in partnership with IDB Lab, the laboratory of innovation IDB Group and the Institute Specialized Professionals Health (IEPROES).⁸⁷

Vertex is a games and simulation company that develops innovative products driven by rendering, simulation, and real-time machine learning.⁸⁸ It is the first technology builder in El Salvador that uses state of the

⁸⁷ BID Lab, "BID Lab e IEPROES presentan Medix Lab, un proyecto de realidad virtual para capacitar al personal de salud", August 11, 2020, accessed April 24, 2021, <https://bidlab.org/es/noticias/1658/bid-lab-e-ieproes-presentan-medix-lab-un-proyecto-de-realidad-virtual-para-capacitar>.

⁸⁸ Since its foundation in 2010, the founders of Vertex knew that in order to grow and be competitive world-wide, the first thing they had to do was train and recruit talent willing to take risks. Their first few years' income was invested in training and searching for young talent with creative abilities and self-taught interests. In 2013 they started a home office program, which made them gain experience in cloud-based working processes and platform management while dealing with remote clients. In 2016 they embraced virtual simulation as their main project. Looking for funds they turned to the United States government, and the U.S. Department of Defense, offering them their expertise on training drones for official missions. This helped them keep training their staff on simulation technology. Iliana Benitez, co-founder and CEO, points out the shortage of top-level developers as a major challenge, which has forced them to complete positions with people from other countries. The company is also invested in adding more women to the team, even against the lack of information available on careers

art technology to create experiences and solutions for its clients, through digital design, animation, and technology development. Most of their production processes are based on gaming and have recently ventured into the education field. As a result, they launched an educational robotics project, consisting of a set of items delivered at schools for children to assemble in order to build a robot. They have moved this project online on a simulator, and they are planning to take it to the next level into virtual reality. So far, more than 20 thousand students have benefited from this program.

Eduflix. Argentina (with impact in LAC, Spain and the United States)

How to Reach a Large Number of Users with Entertaining Educational Content?

Sometimes labeled as the Netflix of education, Eduflix is a streaming platform with a diverse educational content catalog. Covering elementary and secondary school curricula, it has more than thirty thousand resources and fifteen thousand videos in three different languages. It also has functions intended to measure progress and track down performance, with personalized suggestions on syllabus and self-assessments tests.

Based on a learning-to-learn approach, Eduflix aims to create an open learning space accessible at any time and on any device, to bring school curriculum everywhere, and enhance soft skills acquisition. Pablo Aristizabal, director and founder of Creators + y Grupo Competir, 89 EdTech owner of Eduflix, fosters a philosophy of learning ‘how to’ do things, how to live in community, how to comprehend, how to learn, and how to create.

Eduflix content is developed by education experts, following a student-to-student pedagogical approach in which children are encouraged

and job opportunities in technology, especially among young women. Benitez, Iliana (CEO of Vertex), interview by Isabel Gil, June 2021.

89 Aristizabal founded Competir in 1997 with an e-learning courses catalog at a time when online training was something completely disruptive. Later, in 2007, he created Aula 365, a learning support platform including animated films from different school topics and fields. It was until 2012 when they achieved global recognition as producers of playful and sophisticated educational content by launching the television series *The Creators*, aiming at teaching science to children in a fun way. Available on Netflix for all of Latin America, the US and Europe, *The Creators* has become a transmedia series that allows viewers simultaneous interaction on televisions and on the web.

to identify and understand the purpose of their own learning. Their major concern is to create performative content, namely, content that compels children to act as central characters of their learning process. Their team is formed by teachers, instructional designers, writers and filmmakers, designers, illustrators, animators, editors, programmers, and developers.

The company is pivoting constantly, producing apps, games, streaming platforms and interactive websites, and other projects based on virtual reality, augmented reality, and machine learning. Aula 365 allows children to learn through multimedia content on Aulaland; they can chat, ask questions, and reply to them on Coopernia; they can play in 3D and AR environments on KidsNews; and they can create, play and have fun in *Creápolis*. Currently Eduflix has turned into a transmedia platform and an educational social network that fosters a sense of belonging to a community, collective intelligence, and critical thinking in childhood, with more than three thousand interactive resources to learn while playing and creating.

As a response to the educational crisis that arose from the pandemic, EdTech Competir launched in March 2020 the educational platform Aprender en Casa, freeing thousands of their own contents for teachers and students during the school year 2020.

Historias para armar. Latin America and the Caribbean

How to Enhance 21st Century Skills through Hybrid Formats from a Fun Perspective?

One of the main reasons why families and children throughout LAC have faced different challenges in adopting remote learning is the lack of digital and socioemotional skills that would help them cope with the many changes they have been through.

Historias para armar is a website and an app that enhances digital skills among infants from LAC, while providing them with tools to develop soft skills. Created by The Walt Disney Company Latin America, Chicos.net and Eidos Global, it is a platform where children can learn how to tell stories using creative tools. Addressed to kids from ages eight to eleven, it works on a hybrid mode, with both online and offline activities. The learning process has been divided into three stages: Explore, Tell, Create, in which children describe their experiences and learn through digital and literacy tools. Materials are tagged using six categories: Movies, Animation, Video Games, Comics and Aural Stories. For example, *Fanzines. How to create a specialized and do-it-yourself magazine* teaches them how to create stories and publish them independently; *Where do*

the games come from? A board game based on your stories and My first videogame. Getting started in programming shows them how to build their own video games while learning programming.

Historias para armar stands out among other learning videos for its diverse palette of learning formats. For instance, the “Explore” section teaches them storytelling through a short series of YouTube videos. On “Create” they are informed with the most basic steps in storytelling. On “Tell”, they are encouraged to tell the stories they have previously created using their favorite format (comic, audio features, fiction, in animation or even video games). By alternating digital and analog environments children are able to take an active role without the need of being online at all times. The platform also features support materials for teachers and parents.

Prendea. Peru

How to Ensure that Children and Teenagers Learn Playfully Online about What they Really Love?

Due to the pandemic, extracurricular activities were canceled, depriving the students of the opportunity to learn about subjects outside traditional curricula. The founders of Prendea used digital innovation to tackle this problem, by connecting students and teachers from Spanish speaking countries, bearing in mind the objective of becoming the most important learning hub in LAC.

Prendea is a platform offering Zoom lessons for children and adolescents from ages four to eighteen, focusing on teaching them creatively and innovatively about things they really like. It is basically an online and at home catalog of extracurricular workshops to learn what schools and other educational platforms are leaving behind. One advantage of its methodology is that participants work in small groups, making sessions more interactive and personalized. According to its founders “Since school-aged children learn out of fun and curiosity, their learning experiences should be very interactive, personalized and entertaining for them to engage and remain motivated. Such experience is difficult to gain from recorded videos.”⁹⁰ Prendea mission is to offer tools for kids’ development beyond academic curricula. Since they are aware of the potential of

⁹⁰ Natalia Vera, *ZONA STARTUP: PRENDEA, CUANDO LOS TALLERES EXTRACURRICULARES TAMBIÉN VAN A CASA*, July 27, 2020, accessed April 17 2021, <https://tecno.americaeconomia.com/articulos/zona-startup-prendea-cuando-los-talleres-extracurriculares-tambien-van-casa>.

soft skills, they are willing to take the big challenge of finding a scalable and affordable solution in the future for its expansion.

The platform launches live classes every week on more than three hundred different topics, offered to groups of ten students maximum. Its catalog includes lessons on geography, fashion design or filmmaking (*Make your own movie!*). And even less traditional content like dancing on TikTok (*TikTokmanía. Dance to the beat of TikTok*), or sports broadcasting or creativity through Minecraft. They also promote soft skills through creativity on interesting courses like: *Awaken your giant! Empower yourself as a leader; Touching speeches. How to handle your oral presentations or My emotions and myself. On learning and communicating with them.* Classes are taught by experts in their fields, and children are allowed and encouraged to jump from one subject to another to continue their learning process.

Prendea was born on August 20, 2020, and today they have more than a hundred teaching experts, coming from ten different Spanish speaking countries. It has a remote working staff from different parts of Latin America, such as Venezuela, Mexico, Peru, and Costa Rica. It was founded by Gonzalo Aguilar and Benjamin Garmendia, two Peruvians who founded Check (2019), a startup that was part of the 6G acceleration program by UTEC Ventures, and has since become an innovative adaptive learning platform for mathematics.

Invader Institute. Mexico

How to Bring Technological Creativity into Formal Higher Education Institutions?

Invader Institute was born from the need to professionalize creative workers in Mexico, training them through technology while raising awareness of intellectual property, and fostering economic growth in the creative field in Mexico.

Since 2009, when it was born under the name Digital Invaders, it has developed its mission to train professionals in the creative sector using new technologies. Created by Grupo W, a digital creativity agency in Saltillo, Coahuila, its first concern was recruiting specialized talent for their team, since finding highly skilled staff was proving a difficult task, not only in their own city but across the country.

They first launched a fourth-month Certificate called WebScout, where they taught the fundamentals of the creative industry, and emphasized the importance of developing creativity. As time passed, the number of applicants grew and the need to formalize their programs encouraged

the founders to partner with the University of Carolina to issue official certificates. The institute currently offers a bachelor's degree in Creative Technology, another in Design and Game Development and an MBA in Digital Business. Scholarships for students taking part in their E-Sports team are available, seeking to encourage this type of activity.

Although they considered themselves an institution with a strong analog component—given that in many of their classes, devices like Arduino are used, or IoT technology employed to welding, fixing cables, building robots, and playing with concrete things, through dynamics encouraging face-to-face interaction— today they also have online programs that have helped them deal with all the changes experienced since the pandemic. At the same time, they have seen this as an opportunity to reduce operation costs and have remote teachers from different countries, teaching through video conferencing platforms.

Hero Guest. Mexico

How Can Technology and Gaming Enhance Employee Training?

Gamification or game-based learning at companies for corporate training, is an increasingly popular resource to raise the full potential of employees while promoting business growth. Among its benefits are higher motivation from employees in their relation to themselves and to customers, it's more appealing pedagogy and direct impact in behavioral transformation. The United States, Canada, and Europe invested 8 billion dollars during 2020 in gamification of education and it is expected that 50% of the operations and processes at the biggest global companies will be gamified by the end of 2021.⁹¹

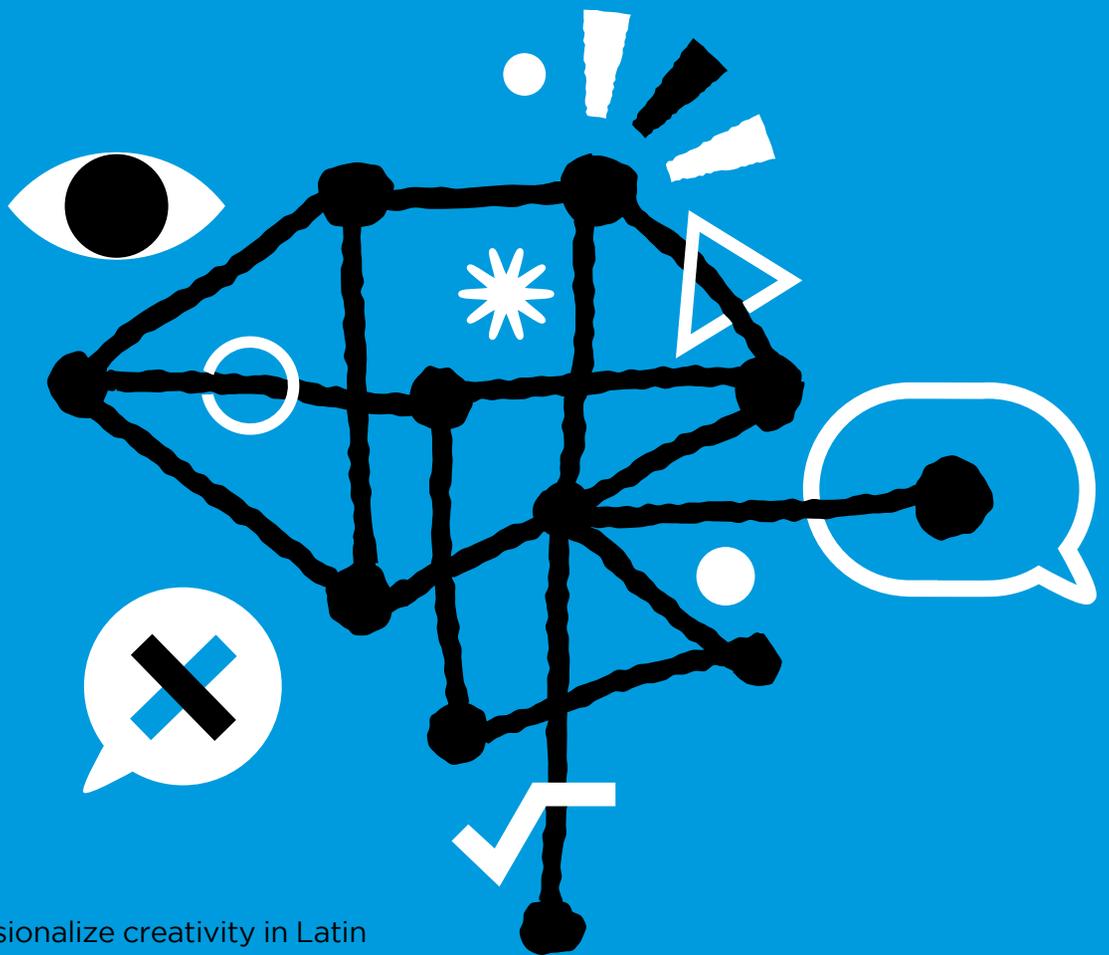
In Mexico, the company Hero Guest focuses on professional learning and training through technology aiming to help brands achieve their business' goals through training. Using an app based on a ludic-reflexive approach and “microlearning”—mainly audiovisual materials such as videos and games from five to ten minutes each—trainees can complete remote modules without leaving home. By incorporating data intelligence technology, they are also able to gather reliable statistics, and analyze learning patterns, measuring progress in real time and updating or improving their content, in a short period of time.⁹²

⁹¹ Playmotiv, “Gamificación: cifras y casos de éxito”, Playmotiv, June 28, 2018, accessed July 9 2021, <https://playmotiv.com/nada-mejor-que-una-dosis-de-datos-para-comprender-mejor-la-repercusion-de-la-gamificacion-en-los-negocios/>.

⁹² Hero Guest, official website, accessed May 13, 2021, <https://heroguest.com/>.

Originally targeting the food industry, Hero Guest had to pivot during the pandemic to attract other markets such as hospitality, retail, insurance, FinTech and fast-moving consumer goods. In doing so they had to reinvent their product, making it more affordable for other contexts and users, accessible on any smartphone. To encourage photographic memory, content design is a task shared by different professionals, ranging from graphic designers, pedagogues and, more recently, instructional designers. According to their own revealing data, only four out of ten companies in Mexico invest in training, which deters work performance and wellness of their employees, limiting their own business growth and hindering the Mexican economy too.

4. Final Thoughts



Our goal is to professionalize creativity in Latin America. We want to train creative professionals how to make a living from their ideas. But we must encourage imagination and creativity right from the beginning of school so that people recognize its value to change economic metrics in the region.

—**Ulises Valencia**, director and founder of Digital Invaders Institute

Critical thinking, abstract, deductive, and inductive thinking, creativity, computational intelligence... simple and complex problem solving... All that is where the digital era is heading...

—**Pablo Aristizabal**, founder and director of Grupo Creators + and Racing

The Game is Not Over. How to Foster the Edutainment Sector in the Immediate Future?

The COVID-19 pandemic increased the speed of digitization in the education and the creative industry sectors, bringing new opportunities for local and regional development. For LAC countries, promoting internet access should be the first step to benefit from the advantages of approaching education and training through new technologies. Such advantages include promoting XXI century skills, fostering the practice of innovative teaching methods, and customizing the learning process making it more inclusive for students, especially those risking being left behind.

The digital sphere served as an ally to online education, educational television, and radio. While millennials and Generation Z demographics are familiarized with digital environments, edutainment is not so much a transition (moving from a classroom into virtual conferences), rather an adoption of resources to comply with expectations of children, youth and adults already used to video games, video tutorials and even virtual reality. Edutainment offers a competitive advantage over traditional education mechanisms: it complies with the most important rule in the virtual world: you should be able to learn wherever and whenever, at your own pace.

How should we understand this new reality in the sector? How can we translate the crisis of education into opportunities in LAC? How should the current transformations be capitalized? How should the edutainment industry relate to the public sector? Who should invest in edutainment and who should encourage the creation of public policy?

Below we enlist some recommendations on public policy that national and local governments should undertake, working hand in hand with organizations, companies, and civil society. We include relevant information that might be considered when investing in the development of edutainment in LAC, a sector with enormous potential for a positive impact in our region.

Public policy makers should consider:

- 1.** Promoting greater collaboration between the education and entertainment sector to foster and enhance technological and creative skills, and as 21st century skills. LAC governments, agencies and educational institutions at all levels must prioritize these skills to prevent lagging behind.

- 2.** Creating chances to reform current curricula using learning-by-playing and inclusive methodologies. Although the pandemic demanded immediate response to take care of such core subjects like mathematics,

others like emotional intelligence and creativity must be included too, as a dynamic framework where other science and arts subjects (STEAM) can be included.

3. Investing in the development of digital skills for managers, teachers, students, and parents is imperative. Training campaigns should be promoted among active teachers, as well as among the new generations of education professionals.

4. Informing and spreading the benefits of using edutainment digital resources for learning.

5. Promoting collaborative spaces among educators, psychologists, visual artists, designers, instructional designers, programmers, video game developers, specialized storytellers, and technology experts to develop multidisciplinary content according to the interests of each different segment of the population, in order to transcend education as something confined to the walls of a school, just as past generations considered it. .

6. Developing diverse and inclusive narratives allowing empowerment of women, indigenous peoples, Afro-descendant communities, people with disabilities, and people from socially vulnerable contexts.

7. Launching public and private initiatives to promote FEAST strategies (fun, easy, attractive, social, and opportune) enhanced by edutainment and gamification to send messages of common welfare, while helping transform harmful behaviors and overcome prejudice.

8. Developing educational projects where the cultural and creative sector work together, particularly in the use of new game-based digital tools and new forms of cultural content. Governments, private institutions, and non-profit organizations should take advantage of this opportunity and lead the planning, execution, and funding of this sort of project for all educational levels.

9. Providing a space for dialogue between governments and entrepreneurs so the offer of the edutainment industry can meet the needs from institutions, and to promote political openness to incorporate solutions into the education system with more flexibility.

10. Developing policy on public procurement to support entrepreneurs whose educational products and services are at stake.

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55 Valencia, Ulises (director and founder of Invader Institute). In an interview with Andrea Villers. July 29, 2021.

Vargas, Rodrigo (CEO and co-founder of Hero Guest). In an interview with Isabel Gil. May 2021.

Quantitative study for this publication

Aura / SIMO. "Quantitative study for the Series 'Art, Culture and New Technologies in Latin America and the Caribbean'". Mexico City: 2021.

6. Glossary

A

Artificial Intelligence

Combination of algorithms that simulate human intelligence processes performed by machines.

Augmented Reality

Technological interface that allows users to see and interact with digital items, in a physical reality context.

B

Bootcamp

Intensive courses developed to train students in different fields, usually focusing on work skills or digital skills and software development.

C

Collaborative learning

Learning approach in which a small group of people work together to share information and knowledge.

D

Digital divide

Unequal access to technologies among social groups.

Digital skills

All skills related to secure and efficient use of digital tools.

Digitization

The Process of transforming analogue information or objects into digital formats.

E

Educational Milestone

Expected progress of learners through training.

G

Game-based learning

The use of games and game rules as learning tools according to a pedagogical method.

Gamification

Motivational learning strategy based on playful elements or game design components, with reward mechanisms playing a key role.

M

MOOC

Acronym for “Massive Open Online Course”. Digital Learning Service targeting massive audiences.

N

Non fungible token (NFT)

Items traded in digital environments. They are unique and unrepeatable cryptographic pieces built with blockchain technology.

O

Online learning

flexible and self-paced education program, based on the use of digital tools and platforms.

R

Remote learning

Education programs that can be completed remotely, by analog or digital materials.

S

Self-learning

The ability to gain new knowledge by oneself.

Serious Games

Video games designed with educational and informational purposes.

57 **Soft skills**

Also known as skills of the future, are interpersonal skills related to how people interact among each other.

Startup

Company in the first stages of operations, usually related somehow to technology.

Storytelling

Communication strategy focusing on narrative techniques to inform, sell, motivate, and so on.

Streaming

Multimedia technology designed to watch recorded or live content on digital platforms.

T

Tax incentives

Reduction or exemptions of tax payment from governments meant to encourage a specific economic activity.

V

Video on demand (VoD)

Content distribution system granting unrestricted access to users through streaming platforms.

Virtual Reality

Technological immersive virtual environment that simulates scenes or places. Users access this type of experience on a VR helmet or a visor.

7. List of Projects Discussed

Company / Project	Country	Type of Project	Page
Academia del Futuro	Mexico	Teaching platform / application	24
Alien zoo	United States	Video game	25
Assassin's Creed: Odyssey	Canada	Video game	28
Aula 365	Argentina	Edutainment platform / application	42, 43
Byju's	India	Programming teaching platform	37
ByteDance	China	Technology company	35
Competir Edtech	Argentina	Edtech	42, 43
Creápolis	Argentina	Videogame	43
Dale!	Argentina	Videogame	30
Dreamscape Learn	United States	Educational Alliance	25
Dytective	Spain	Video game	30
Eduflix	Argentina	Streaming service	42
Elements ME	Mexico	Music teaching platform	38
Encantos	United States	Education company + entertainment	20, 23
Epic Games	United States	Video game developer	29
Escuela Plus	Colombia	Audiovisual channel	12
Fair Play Labs	Costa Rica	Video game developer	30
Filmdoo	United Kingdom	Streaming service	31
Fortnite	United States	Video game	27, 29

Company / Project	Country	Type of Project	Page
Games for change	United States	Organization of videogames and technology	31
Google Expeditions	United States	Virtual reality application	25
Hero Guest	Mexico	Gamification application	46
Historias para armar	LAC	Educational platform	40, 43
Invader Institute	Mexico	Educational institution	31, 45
Julio Profe	Colombia	EduTuber	34
L3tcraft	Spain	Educational Alliance	29
Laboratorio Virtual de interacción humana	United States	LaboratoryVR Laboratory	26
Lego Education	Denmark	Games company	15, 21, 36, 37
Lienzo	Mexico	Video game developer	30
The Creators	Argentina	Television series	42
Medix Lab	El Salvador	VR Laboratory	41
Minecraft	United States	Videogame	27, 28, 29, 45
MinecraftEdu	United States	Videogame	28, 29
Ncite	Mexico	Educational game developer company	30
Netflix	United States	Streaming service	32, 33, 42
Noggin	ALC	Educational application	13
Ok Go	United States	Educational resource platform	38
Sesame Street	United States	Television series	13
PrendeA	Peru	Online education platform	40, 44
Roblox	United States	Video game platform	28, 29
Scratch	United States	Programming teaching platform	35, 36
Sesame Workshop	United States	Organization generating television content	13, 26
TikTok	China	Social network	35, 45

Company / Project	Country	Type of Project	Page
Universidad Tecnológica El Retoño	Mexico	Educational institution	26
Vertex	El Salvador	Technology and innovation company	41
Youtube	United States	Social network	16, 29, 31, 32, 33, 34, 44

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