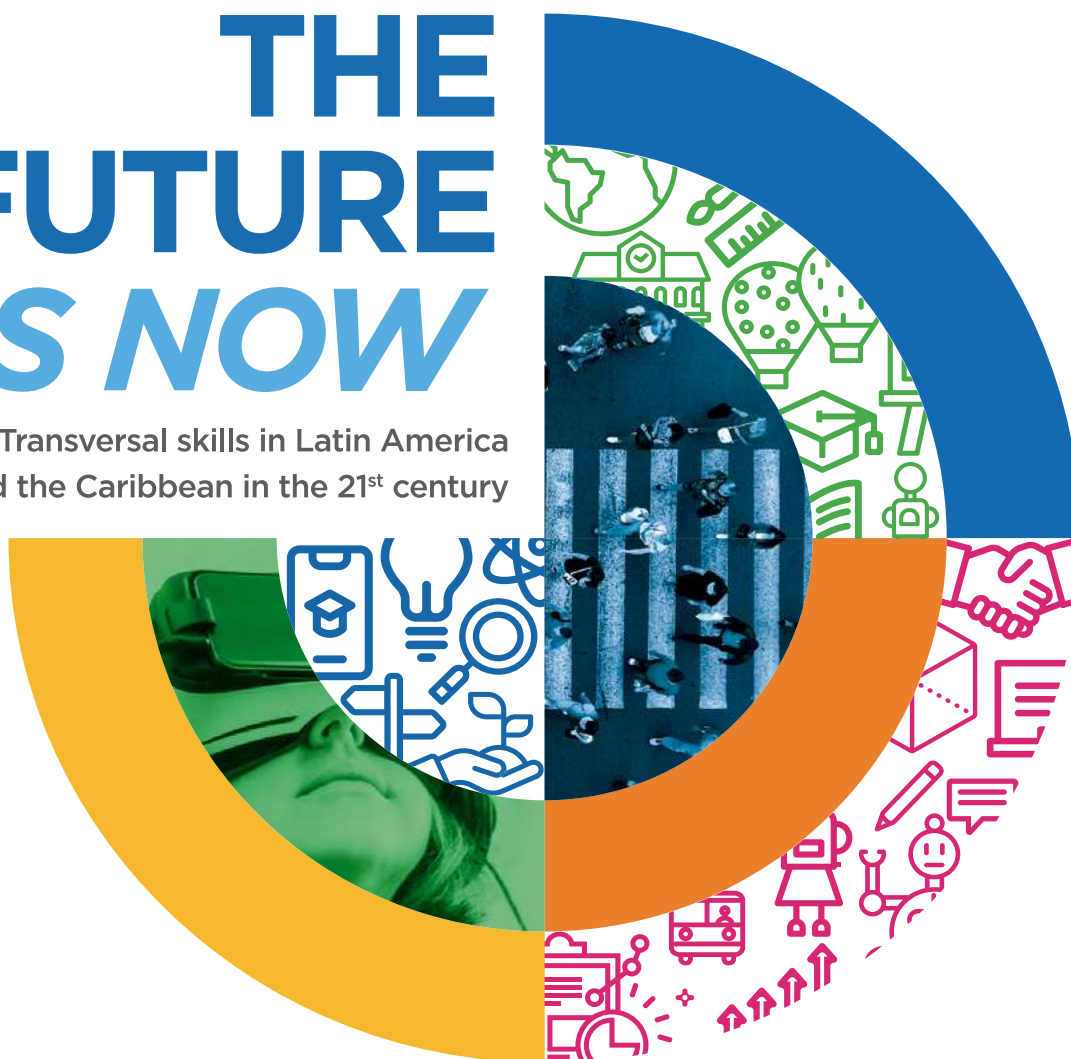




THE FUTURE *IS NOW*

Transversal skills in Latin America
and the Caribbean in the 21st century



Edited by
Mercedes Mateo Díaz
and **Graciana Rucci**

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Prior to his appointment, he served as External Relations Manager, Education Division Chief, and principal advisor to the IDB Office of the Executive Vice President. He holds a B.A. in Economics and Political Science from the Universidad del Salvador in Buenos Aires and a master's degree in Public Policy from Georgetown University.



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Her passion lies in fostering mutually beneficial relationships and building an extensive network of contacts across civil society organizations, private foundations, and companies that work or invest in countries in Latin America and the Caribbean. She is currently in charge of promoting strategies for current and future workers in the digital economy, and analyzing the intersections of technology, education, training, and productivity to promote inclusive growth and the quick adoption of impactful solutions. Elena holds a B.A. in Economics from the Universidad Autónoma de Madrid.



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Evelyn Vezza

Evelyn Vezza is an economist specializing in employment and social protection, and she currently serves as a consultant for international organizations. As such, she has worked with the World Bank in Argentina on studies and projects related to social protection and employment, as well as poverty and equity. She has participated in projects on youth employment and job formalization for the Regional Office and the Southern Cone Office of the International Labor Organization (ILO), as well as studies by the IDB, the International Training Centre of the ILO, the UNDP, and Fundación Telefónica.

As an associate researcher for the Center for Distributive, Labor, and Social Studies (CEDLAS), she collaborated on projects related to policies to improve female labor participation and youth insertion in the labor market. Prior to this role, she served as a technical officer in the ILO office in Argentina, a junior professional for the Southern Cone at the World Bank, and an economist for the National Ministry of Economics in Argentina. Evelyn holds a master's degree in Economics from the Universidad Nacional de la Plata.



CHAPTER 1

The Future is Now

by Mercedes Mateo Díaz

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“I am one of those who think, like Nobel, that humanity will draw more good than evil from new discoveries. I was taught that the way of progress was neither swift nor easy.

Nothing in life is to be feared; it is only to be understood. Now is the time to understand more, so that we may fear less.”

Marie Curie



Introduction

The 21st century is not going to happen in the future: **it is happening today.** Accelerated technological, migratory, demographic, and environmental changes are reshaping the social, economic, and political order. This new configuration creates new demands for training individuals. **Depending on how they are educated and trained in this dynamic environment, these changes can become real opportunities to be capitalized on and to transform countries and the region positively. This report focuses precisely on how.** We are going to present some answers and pose many questions that, although still unsolved, are key to helping people involved in talent development set the agenda for the coming years. These include the perspectives from the public policy design as well as those of the content providers in private sector and civil society organizations.

Despite advances toward greater equality, it is not yet possible to break the cycle of dependence: social and family origin largely predicts the future and the chances of success for children and young people.

Foundational skills are the best buffer to respond to the uncertainty posed by today's world.

We find ourselves in an age of transition, filled with uncertainty and speculation that generates apocalyptic visions as well as hyper optimistic views about how to approach this juncture. This report aims to contribute to a **greater understanding**, not so much about what is happening— given that much has already been written and there are plenty of different projections in this regard (Godfray, Muir, Pretty, & Robinson, 2010; Milano, 2019; Novella, Repetto, Robino, & Rucci, 2018; World Economic Forum, 2016; OECD, 2003)—, but about how we can prepare ourselves, **what skills** we have to prioritize, **what works best** to develop them, **at what stage of the life cycle** we can most effectively intervene, **what already exists** in regional education and training systems, and **how**— through public policy and collaborating with the private sector and other relevant stakeholders—**we can offer services and concrete tools** for individuals to navigate an uncertain world that is continuously transforming successfully.

The transition from one model to another is creating new social tensions and aggravating existing ones, which puts a lot of pressure on the political system and governance. Social mobility has improved in the region, and inequity has decreased when compared with the levels during the 1990s. Still, despite advances toward greater equality, it has not yet been possible to break the cycle of dependence: social and family origin largely predicts the future and the chances of success for children and young people. This was recently referred to as the **“family legacy”** (Duryea and Robles, 2017). To reduce these inequalities in opportunities, **the most significant challenge that the countries in the region face in education is no longer about access** (in most cases), **but about retention** (many students in the region drop out of school) **and relevance** (what and how they learn).

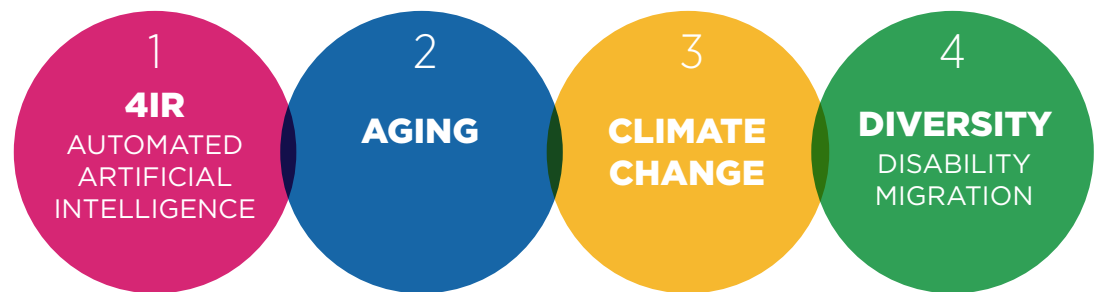
Individuals need to be equipped with a set of **transversal or foundational skills** that will be the new currency to **compete in the labor market** and to **grow and achieve higher levels of well-being throughout their lives.** For this system to be sustainable, there must be a critical mass: these skills can't only be possessed by a few individuals. Foundational skills are the best buffer to respond to the uncertainty posed by today's world. We are talking about **digital skills, teamwork, communication, creativity, critical thinking, problem-solving, and importantly, the capacity for lifelong learning, perseverance, resilience, tolerance, and empathy.** These are not new skills, but they are critical in the 21st century.

There are transversal skills programs that, with limited human and financial resources, can prepare the region to realize its full potential.

Traditional education and training models have focused educational investment on cognitive development, treat transversal skills programs as less important (at best). Today, these programs cannot continue to be secondary to the training process. The good news is some programs meet have softened the blows of these challenges and prepare the region to develop to its full potential. And, in some cases, they can be implemented with limited human and financial resources. For the region **to transform positively**, educational and training systems must generate **a critical mass of young leaders, agents of change, and active individuals, of all ages and socioeconomic backgrounds**. In a short period, systems will have the mission to transform individuals from ordinary to extraordinary by last century's standards.

A Different Reality with Some Constants

Although the **reality of the region is very different** than it was a decade ago, it is still developing in a **familiar context**. Despite substantial improvements in most macroeconomic and social indicators, **essential challenges** such as **inequality**, a **widening skills gap**, and **violence** remain. These are barriers to agilely responding to **major global challenges** that this new era brings.



Global Challenge 1: The Fourth Industrial Revolution (4IR)

The percentage of **workers with occupations at high risk of automation** varies according to estimates, but some data for Latin American and the Caribbean indicates rates above 50% (Bosch, Pages, & Ripani, 2018; Group World Bank, 2016; McKinsey, 2017; Plastino, Zuppolini, & Govier, 2018). This means **people will have to change jobs and career tracks many times throughout their lives and interact with robots daily**—new colleagues who will be an integral part of the production and value generation processes. In a recent Vice documentary about the future of work, an Amazon worker at one of the package distribution centers said that, “you end up feeling like the robots you work with” (VICE, 2019).

This situation raises many questions that we must answer: Are these changes going to make us less human? Will we end up working for machines? How are we going to resolve **the ethical conflicts** that arise from robots and artificial intelligence? For example, in the use of data or in critical decision-making, who will have access to certain services? To survive in a world where automation prevails, **how do we leverage, empower, and capitalize on the roles of human to get the most out of technology? How do we teach, not only to children and young people, but also to adults, things that machines cannot do? Or, how do we further develop imagination, creativity, and strategy, skills that are more difficult to automate?**

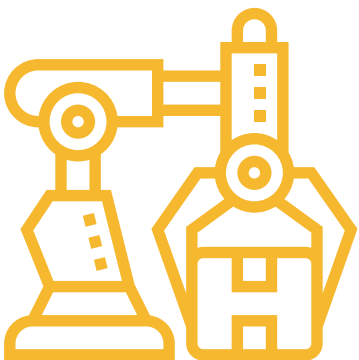
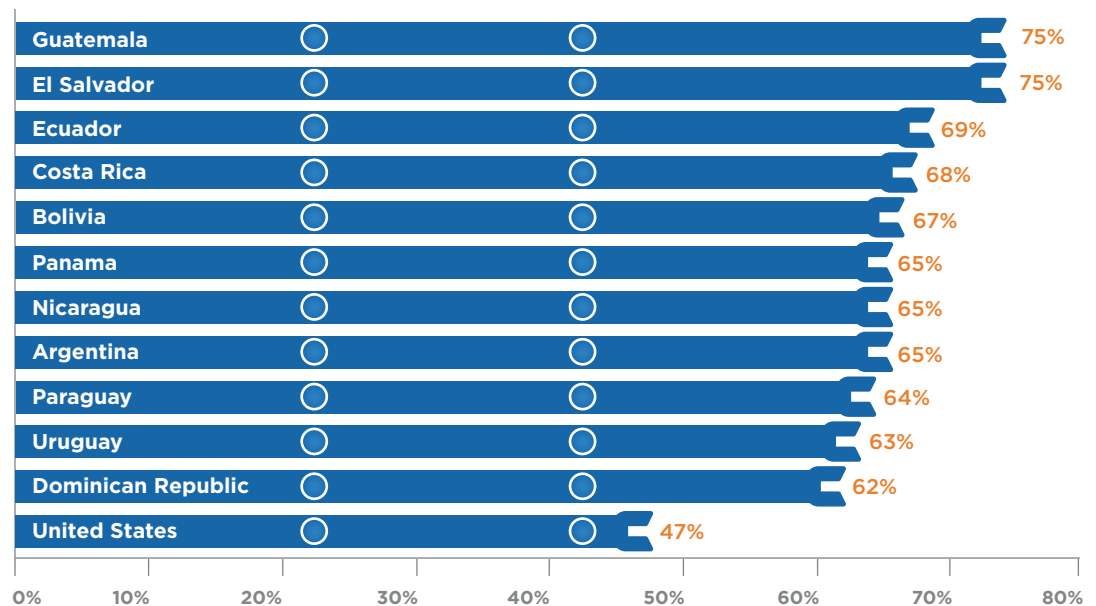


Figure 1.1. Percentage of Workers in Occupations with a High Risk of Automation

Source: Bosch, Pages, & Ripani, 2018.



500

million children live in
flood-prone areas



160

million live in countries
with recurring
droughts

Global challenge 2: Climate Change

Natural disasters, such as storms, floods, droughts, and other phenomena related to climate change are putting much **pressure on the environment and natural resources**. According to the latest Intergovernmental Panel on Climate Change (IPCC)¹ report, human activities have caused approximately 1 °C of global warming above pre-industrial levels. And, from 1961 to 2017, 37 countries have lost surface land due to rising waters. In LAC Ecuador has lost a 10% area and El Salvador 0.6%. Additionally, more than 500 million children live in flood-prone areas, and around 160 million live in countries where droughts are increasingly frequent.² The region has been particularly hard hit by these phenomena, and has had significant repercussions on tourism-based economies which have affected people's lives and livelihoods. **How do we nurture citizens who are committed to and respectful of their surroundings?**

Global Challenge 3: Migratory Flows

Never in the history of humankind have there been so many displaced people, or people living in a country that is not their own. Today, there are more than 258 million international migrants worldwide, representing 3.5% of the world's population (World Migration Organization, 2017). Several countries in Latin America and the Caribbean are subject to these migratory flows. By 2017, Argentina had a Latin American immigrant population of 1.8 million, the largest in the region.³ Meanwhile, Colombia has the largest number of Venezuelan immigrants, 1.4 million, including regular and irregular

1 See <https://www.ipcc.ch/sr15/chapter/spm/>.

2 See <https://www.unicef.es/noticia/los-ninos-seran-los-principales-afectados-por-el-cambio-climatico>.

3 See <https://www.pewresearch.org/fact-tank/2019/01/25/latin-america-caribbean-no-longer-worlds-fastest-growing-source-of-international-migrants/>.



258

million migrants
worldwide (3.5% of
the world's population)



Older adults
currently represent

8%

of the population.
By 2040, this will
increase to 15%



33%

of homicides
worldwide occur
in Latin America

migrants.⁴ The displacement and migration make us live in increasingly heterogeneous societies. In the social sphere, **heterogeneity** increases the **level of tension and conflict**, since coexistence is easier to achieve among similar people. **Diversity** calls for significantly **greater effort** in both the individual and collective spheres: an increased capacity for openness, empathy for others, tolerance, and conflict resolution. **How can we capitalize on diversity to generate better, more productive societies with higher levels of well-being? How can our schools give access to, for example, a girl who has been forced to migrate? How can a teacher cope with possible school bullying? How can we promote citizenship, productivity, and entrepreneurship in our countries that respects the environment and a peaceful, multicultural coexistence?**

Global Challenge 4: Aging

Latin America and the Caribbean has 640 million inhabitants, of which 171 million are young people between 14 and 29-years-old (27%). Many countries benefit from the demographic dividend, a favorable circumstance that occurs when the number of working-age people exceeds the number of dependents (children and the elderly).⁵ This advantage has implications on economic well-being because it creates higher income per capita and greater savings (Duryea & Robles, 2017). However, its duration is different for each country. For example, in Barbados, the demographic dividend has ended and in Uruguay, it practically ended. Belize, Bolivia, Haiti, and Guatemala have not experienced it yet. The demographic aging in the region is taking place relatively fast. For example, in Europe, it took between 50 and 75 years for the percentage of people over 65 to double (from 10% to 20%). In Latin America and the Caribbean, it will double in a much shorter period: between 20 and 22 years (Bosch, Pages, & Ripani, 2018; Cruz-Aguayo et al., 2019; UN, 2017). Older adults currently represent 8% of the population, but the percentage will increase to 15% by 2040. **Could we take advantage of an intergenerational exchange of skills? How can younger people help older adults leverage technology? And how can older adults help young people develop foundational skills?**

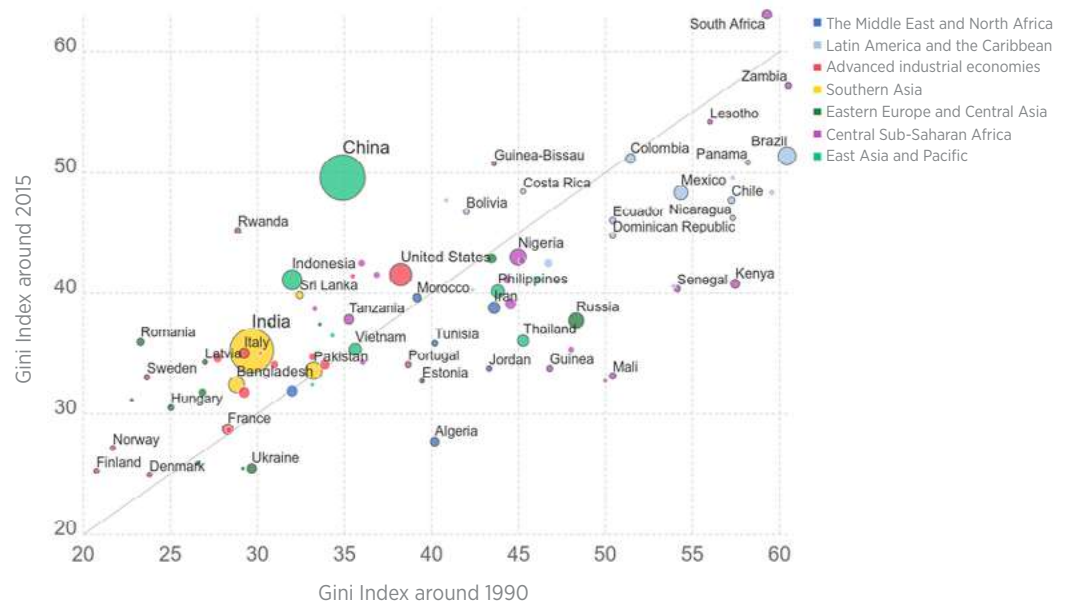
Constants in the Region: Inequality, Skills Gap and Violence.

In addition to other global challenges, Latin America and the Caribbean face **specific obstacles**, making it not particularly well-positioned to meet the challenges of the Fourth Industrial Revolution. The region has **high levels of inequality, a significant skills gap** in what companies seek and what exists in the labor market, and **extremely high rates of violence**, not only in the streets but also in schools and homes. Latin America is home to 8% of the world's population, but 33% of global homicides (Muggah & Tobón, 2018).

Automation arrives in the context of high inequality. Most LAC countries have reduced levels of inequality since the 1990s, but they remain to be high. Less qualified workers will suffer the most, given that technological change favors higher-order skills. Disruptive technologies, such as artificial intelligence, will gradually displace workers, especially those who carry out tasks that require a lower qualification level. This scenario implies that the growth and wealth generated by new technologies will not reach the most vulnerable people.

4 See <https://www.migracioncolombia.gov.co/infografias/content/231-infografias-2019>

5 The United Nations defines the demographic dividend as beginning when the percentage of children under 15 falls below 30% and ending when the percentage of those over 64 does not exceed 15% ([Social Pulse, 2016](#)).

Figure 1.2. Inequality (measured via the Gini index) in 1990 vs. 2015

Source: University of Oxford, 2018.

Mindset: The Key to Breaking the “Family Legacy”

One learns a lot by studying the paths of extraordinary people. Analyzing their most notable quotes can help explain their success and how they focused their energy. And by reading them, one also can imagine how much talent has been lost due to a lack of opportunities and training people to have the character and mindset to support and encourage their development and to realize their full professional and human potential. Consistent traits noted in the words of these **extraordinary people are perseverance, resilience, self-regulation, self-control, continuous learning, and desire to persist and excel** throughout life. Additionally, they mentioned the importance of **creativity, passion** for life and work, motivation and concern, in many cases, for the common good and the desire to **contribute to a higher purpose**. Their lives were all influenced by family, school, and teachers.



PERSEVERANCE, RESILIENCE, SELF-REGULATION

“We must have perseverance and, above all, have confidence in ourselves. We must believe that we are gifted for something and that this thing, at whatever cost, must be attained.” **Marie Curie.**

“Success is the ability to go from failure to failure without losing your enthusiasm.” **Winston Churchill.**

“Genius is one percent inspiration and ninety-nine percent perspiration.” **Thomas A. Edison**



CHARACTER, ATTITUDE, DISCIPLINE

“Most people say that it is the intellect which makes a great scientist. They are wrong: it is character.” **Albert Einstein**

“Running taught me valuable lessons. In cross-country competition, training counted more than intrinsic ability, and I could compensate for a lack of natural aptitude with diligence and discipline. I applied this in everything I did.” **Nelson Mandela.**



CONTINUOUS LEARNING AND IMPROVEMENT

“I like to learn. That’s an art and a science.” **Katherine Johnson.**

“I always work with a goal: and the goal is to improve as a player and as a person.” **Rafael Nadal.**

“It took me 17 years and 114 days to become an overnight success.” **Leo Messi**



THE IMPORTANCE OF TEACHERS AND FAMILY

“I had a very, very interesting childhood, but, oh my, education was the primary focus in our family. Our teachers made such a difference —all my teachers and professors were very supportive and nurturing.” **Katherine Johnson.**

“My mother said to me, ‘If you are a soldier, you will become a general. If you are a monk, you will become the Pope.’ Instead, I was a painter and became Picasso.” **Pablo Picasso.**



PASSION

“You can overcome anything, if and only if you love something enough.” **Lionel Messi.**

“I always improvised. It’s been the way I communicate, the way I tell my stories. I sit down, and music just flows out. I always say I get out of the way... for me, music is a metaphor to life, to stories, and improvisation has always been there.” **Gabriela Montero.**



TEAMWORK

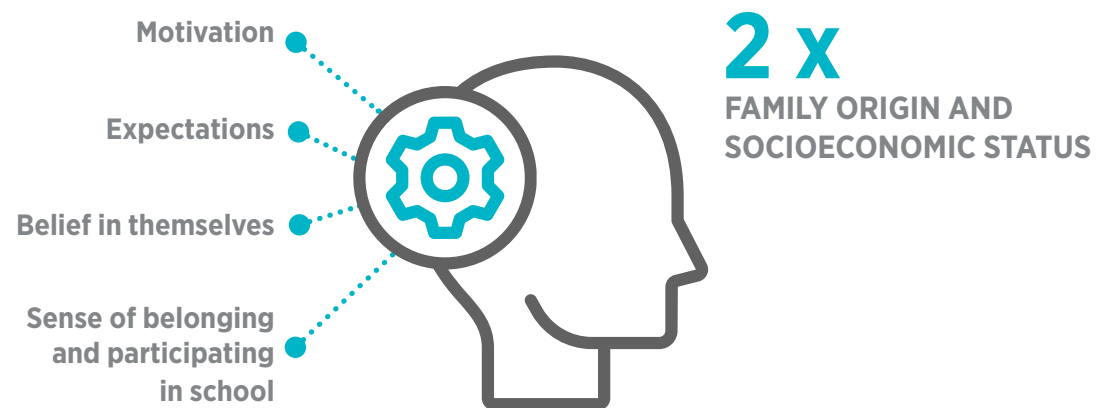
“However great your dedication, you never win anything on your own.” **Rafael Nadal.**

“I prefer to win titles with the team ahead of individual awards or scoring more goals than anyone else. I’m more worried about being a good person than being the best football player in the world.” **Lionel Messi.**

In recent decades, we have learned many things about the brain, neural connections, and our ability to grow and learn throughout life, including the importance of mindset and character.

A McKinsey study on how to improve student education outcomes, which draws from 2015 PISA data, suggests that of the 15-year-old students tested, mindset can be twice as important as their socioeconomic background in predicting academic performance. This means family origin does not necessarily define the future of children if the school manages to strengthen young people's mindset and mental architecture. In the study, boys from lower socioeconomic quartiles with the right mindset, achieved better academic performance than boys in the highest quartile with a poor mindset (McKinsey, 2018).

Figure 1.3. Student *Mindset*



Our mental schema will determine our motivation, expectations, and the extent to which we believe we can change and grow, not only on an individual scale, but also collectively.

In 2006, psychologist Carol Dweck introduced the idea that there are **two types of mindset** that determine how we perceive our talents and abilities. Those with a fixed mindset believe we are born with a set of fixed abilities and cannot alter them, while those with a growth mindset believe that skills develop. Our mental schema will determine our motivations, expectations, and the extent which we believe we can change and grow, not only on an individual scale, but also collectively. They determine, for example, for a teacher to think that a girl is destined to perform worse in math than a boy, just because she is a girl, and could never become an engineer. It explains why a low-income child who had fewer educational opportunities and performed poorly on his first test might drop out of school. He might think he is the problem, that he cannot learn, instead of realizing that the real problem is inequality of opportunity, investment, and effort. These differences in mindset keep us from seeing **the transformational value that education and training systems have on an individual**: “*Quod natura non dat, Salamanca non præstat*” (“What nature does not give, Salamanca [the university] does not lend”), goes the famous saying. Instead, we should see precisely the role of schools, universities, and professional training systems – they all are privileged spaces to develop not just technical skills but also the right mindset.

The difference between those who succeed and those who fail is not only innate intelligence, but effort, determination, perseverance, resilience, and the passion for achieving a goal.

In her book, Carol Dweck describes how, when she began her research, she wanted to understand how people dealt with failure. To that end, she began observing children who were given a challenge that they could not overcome. She observed that while some students became frustrated by failure, others thrived. They turned a setback into a problem-solving challenge, which offered an opportunity for growth and learning. That is, **failure** did not amount to lack of intelligence; it was not something fixed, immutable. It was something that could change and evolve: you fail, you try, you learn, you solve. *You grow*. Failure is a state; it does not define you permanently.

Angela Duckworth wrote a fascinating study (2016) in the same vein. This psychologist and professor who conducted research at the University of Pennsylvania was motivated by personal experience. She wanted to show her father that although she was not a genius in his eyes, even those smarter than her did not possess the **perseverance** (grit) that allowed her to achieve all she set out to do. Her research confirms the idea that what makes the difference between success and failure is not only innate intelligence, but rather the effort, determination, perseverance, and resilience to fall and get back up as many times as necessary, as well as the passion for achieving a goal.

Angela Duckworth began her research at West Point, the U.S. military academy. The West Point candidate selection process is extremely rigorous: more than 14,000 candidates apply each year but only 1,200 are admitted. Of these 1,200 cadets, one in five will drop out before graduation, and most of them will do so during the first weeks of the program. Duckworth asked whether there is a way to predict who will persist during those first weeks and who will leave. The selection process is so exhaustive that it could not be a matter of ability but of attitude. There are people who, despite their talent having the necessary talent, surrender before realizing their full potential. **The critical factor** in losing interest during the process is **the capacity to continue trying after every failure**.

“It was this combination of passion and perseverance that made high achievers special.”

Angela Duckworth

The behavioral sciences provide an interesting approach to the issue of mindset. **Sometimes large-scale reforms are not necessary to get people to learn.** It is important to understand why people behave in a certain way and how cognitive habits and biases cause individuals not to act rationally or in their best interest. In this sense, O'Reilly et al. (2017) offer the following example: in the United Kingdom, students, particularly boys, do worse on final exams when there is an international soccer tournament. These exam results will influence their academic and professional trajectories, representing a difference of thousands of dollars in lifetime earnings. The question is: why? These types of human behavior are directly related to mindset. In this sense, the behavioral sciences offer tools and techniques for parents, teachers, and school leaders related to building skills such as perseverance. This helps develop other skills, including cognitive skills, allowing students to focus and achieve their goals (see Chapter 13).

Building skills such as perseverance helps develop other skill sets, including cognitive skills, allowing students to focus and achieve their goals.

Increasing evidence shows the relationship between the socio-emotional development of individuals and their commitment to school, academic performance, and work.

Foundational skills provide the structure for individuals to build productive and healthy lives.

Mindset = Foundational Skills

Why do we talk about foundational or transversal skills? Given the amount of information and knowledge we've accumulated and the speed at which such information is being generated, it is unrealistic to expect an individual to memorize or to store all available content. We also know that for this task, machines do a better job than the human brain. Therefore, individuals must be prepared to perform tasks that are more difficult to automate, to be effective in jobs that do not yet exist, and to adapt to the rapid changes that will occur throughout their life, which, incidentally, will be longer.

Transversal skills are not only beneficial because individuals **learn to self-regulate, be more empathetic and resilient, persevere, adapt to changes, and have self-confidence and higher expectations** for their future. Increasing evidence shows the relationship between the socio-emotional development of individuals and their commitment to school, academic and professional performance (Duckworth and Seligman, 2005; Duckworth et al., 2007; Durlak et al., 2011; Heckman and Kautz, 2013; OECD, 2015), as well as other positive outcomes for individual and collective well-being in regards to health, violence, and criminal behavior (Brookings, 2015; Case and Deaton, 2017; Chernyshenko, Kankaras, and Drasgow, 2018; Durlak, Dymnicki, Schellinger and Weissberg, 2011; Durlak et al., 2011; World Economic Forum, 2016; Heckman and Kautz, 2012; Heckman and Rubinstein, 2001; Herrera et al., 2015; Kankaras, 2017; OECD, 2015). These skills provide the foundation on which individuals can build productive and healthy lives.

When facing **an uncertain labor market, countries cannot focus exclusively on the development of specific knowledge and skills,**⁶ nor can they continue missing the opportunity to **ensure continuous skill development throughout life.** For individuals, this will lead to better work trajectories and greater overall well-being. In other words, this skill set is necessary not only for work, but also equally important for life in general. **Transversal skills** will empower the individual **at any age** to live in an **increasingly digitized world, reinvent themselves continually, learn to learn, and thrive in environments with diverse individuals.**

Figure 1.4. Transversal Skills

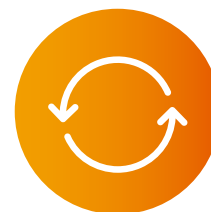
They are:



Essential
to human
development



Necessary to
navigate healthy,
productive, and
happy lives



Applicable in multiple contexts because they are largely transferable from one field of life to another

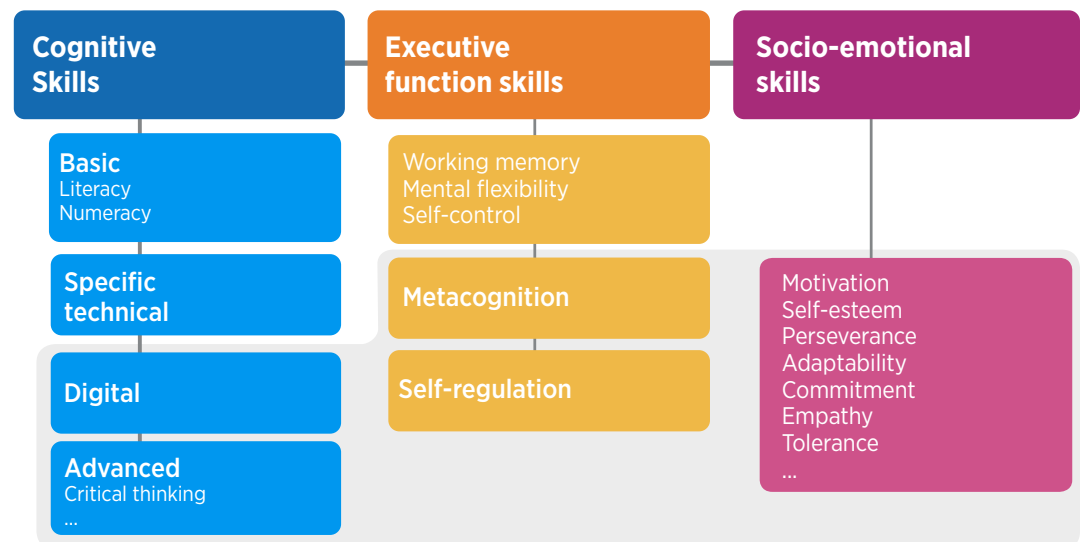


Not specific to a job, task, professional field, discipline, or occupation

⁶ Jeremy Auger, for example, co-founder and chief strategy officer of the D2L training company, recently indicated in an interview that the average lifespan of a tech skill is approximately 18 months. See <https://www.weforum.org/agenda/2019/05/soft-skills-are-hard-to-measure-and-in-demand-can-they-be-taught>.

These skills have a dynamic relationship with each other, which therefore makes it difficult to compartmentalize. Figure 1.5 however attempts to create a classification for referential purposes. In this report, the term “**21st century skills**” is used to refer to the set of foundational or transversal skills⁷ that include **digital skills** (such as computational thinking); **advanced cognitive skills** (such as critical thinking or problem-solving); **skills related to executive function** (such as self-regulation and metacognition, which have a dynamic relationship with cognitive skills), and **socio-emotional skills**, also called “soft skills” (such as self-esteem, perseverance or empathy). **Basic skills, such as literacy or math, are fundamental for the individual, but they are not a differentiating factor in the training requirements between the past and the present century. They are essential in both periods and therefore, not included as 21st century skills.** Specific technical skills, such as those required to be a mechanic, engineer, or physician, are also not included. They are not foundational but change depending on the individual’s area of specialization.

Figure 1.5. 21st Century Skills



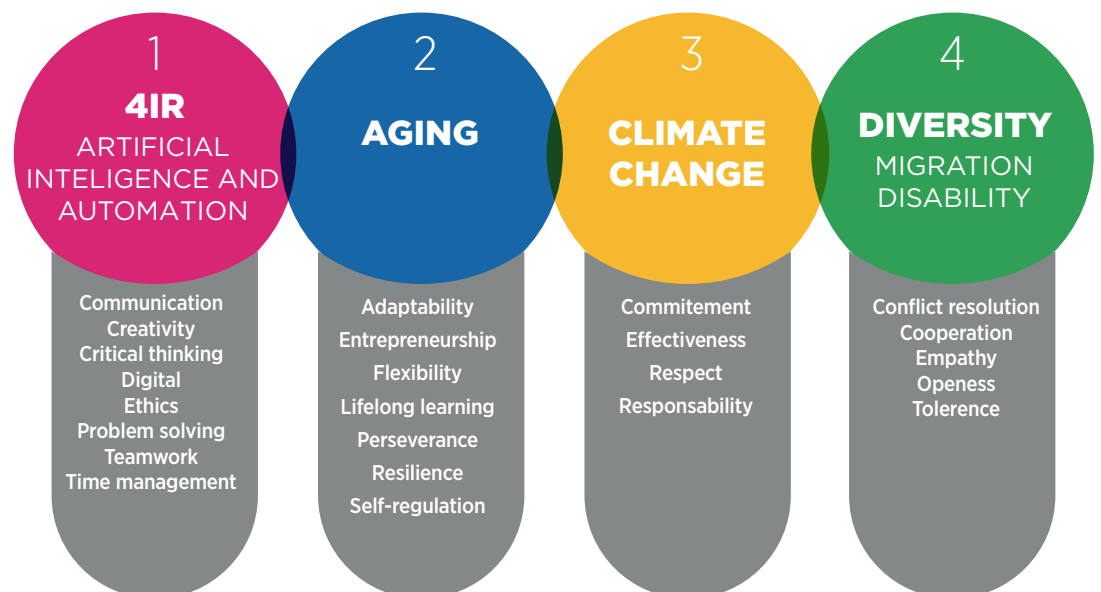
An individual’s skill set “beyond the cognitive” develops and evolves throughout life: these skills are not predetermined (Heckman and Kautz, 2012; Roberts, Walton and Viechtbauer, 2006) and could be **more malleable than cognitive skills** (Almlund *et al.*, 2011). For this reason, it is possible to design and implement interventions aimed at developing different skills at various stages of life. Particularly, **childhood** and **adolescence** stand out as **optimal periods to implement these programs**, with the highest returns on investments compared to other ages (Belfield *et al.*, 2015; World Economic Forum, 2016; Jones, Greenberg, and Crowley, 2015; OECD, 2015). The development of transversal skills in early childhood has been linked to subsequent academic, professional, and social success (Almeida, Behrman and Robalino, 2012; Durlak *et al.*, 2011; Kautz, Heckman, Diris, Ter Weel and Borghans, 2014; Moffitt *et al.*, 2011; OECD, 2018; Schady, 2006). Addressing socio-emotional skills at an early age could be as relevant as developing cognitive skills to support school readiness in children (Jones, Greenberg, and Crowley, 2015; Phillips & Shonkoff, 2000; Pickens, 2009).

It is possible to design and implement interventions to develop different skills at various stages of life.

⁷ Some refer to this skill set as “durable” because they remain relevant over time. See, for example, <https://www.weforum.org/agenda/2019/05/soft-skills-are-hard-to-measure-and-in-demand-can-they-be-taught>.

A healthy social interaction requires that people are equipped with skills (such as emotional intelligence, attention, or empathy) that facilitate healthy interpersonal relationships (Durlak et al., 2011; Goleman, 2006; Jones, Greenberg, and Crowley, 2015). The **complementarity of socio-emotional and cognitive skills, and the positive relationship of the former with results on the labor market (experience, employment status, and salary) are widely documented in the literature** (World Economic Forum, 2016; Heckman and Rubinstein, 2001; Heckman, Stixrud and Urzúa, 2006). All these highlight the importance of equipping individuals with transversal skills that allow them to thrive in constantly changing environments. Evidence is also beginning to show that these transversal or foundational skills are malleable even at the age of adulthood (Prada et al. 2019).

Figure 1.6. Profile of a 21st-Century Individual



1/2
 year of improvement in
 student performance
 could generate an
 economic impact of
USD \$115
trillion

Diplomas Don't Determine Your Worth: Your Know-How Does

In the digital and information age, skills are the new currency —a currency that depreciates when they are not updated nor used by the labor market (OECD, 2012; World Economic Forum, 2019; Lu, 2019). Given the speed at which labor market demands are changing, the human capital in a country depreciates quickly if the investment in continuous training is not in place. OECD estimates show shocking figures: A half-year improvement in student performance in OECD countries could have an economic impact of **USD \$115 trillion** over the working life of the generation born in 2010.⁸

We know that **education is key** in predicting whether we will have work opportunities or how much earnings would be. It's also related to **well-being, physical and mental health, levels of happiness, or civic and social participation. And what makes the difference is not the cumulative years of schooling, but the skills acquired during that time.** Since the 1980s, the rate of return to education has increased in all levels,

⁸ See more at http://oecdobserver.org/news/fullstory.php/aid/3777/OECD_Skills_Strategy:_The_pathway_of_%20choice.html.

particularly in higher education (Patrinos, 2019). This means the demand for more educated workers has increased over time due to technological change, which favors higher-order thinking skills. It is also related to the improved quality of schooling and increased coverage at lower levels (Patrinos, 2019).

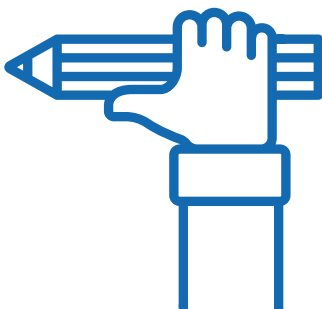
The labor market is changing faster than education. For some years, **many leading tech companies in Silicon Valley have stopped reviewing the resumes or degrees of candidates but instead assigned them with practical tests so that they can demonstrate what they know how to do.**

In preparing this report, we sent a survey to people in the region to listen to their opinions and asked them a series of questions about skills and training to gain a first-hand understanding of the issues that concern them (see Chapter 2). We asked questions like: What matters most to you when you hire someone? What are the five most essential skills for success? What skills should be taught that are not currently developed in education systems? Which skills do workers in the region lack the most? Why don't people develop skills they believe important for training? We found surprising data and answers when we gave people the opportunity to answer, not only the closed and structured questions, but also open-ended ones where they could share their lived experiences in the time of significant changes. A finding that stood out the most was that **students, employees, entrepreneurs, and teachers did not believe that a degree reflected the skill of an individual.** Moreover, they believed that people lack these skills because the educational system fails to promote them, not because individuals lack motivation or aptitude. Lastly, this piece of information was a wake-up call: **people are mainly using their resources and turning to digital platforms to learn outside of the existing traditional system.**

This leads us to reflect more deeply on the need to adapt education and training systems in general, including what is taught, and how it is taught, how knowledge and experience are accredited. In a world where occupations and tasks are going to change regularly and individuals holding multiple jobs at the same time, people will need to reinvent themselves continuously. Companies will seek employees who know how to do something and not merely claim to know, and **degrees will become less relevant.** In this context, **it is necessary to rethink how education and training systems can accredit not only knowledge but know-how, to make relevant skills visible.**

Are Education and Training Systems Ready for the Challenge?

Some labor market analyses such as those made by Manpower Group (2015, 2019), the World Economic Forum (2019), and by open platforms and big data sources such as LinkedIn (Amaral et al., 2018)— show that **there are specific skills clearly in demand and transversal skills are constantly in demand.** These skills **make a candidate stand out among other candidates with similar technical profiles.** As you will see throughout this report, in Latin America and the Caribbean, companies have trouble filling jobs and many do not find the skills they need in the existing workforce: **there is a gap between what the labor market needs and what you find in the labor market.** This mismatch between supply and demand points to the need for improved labor market function and its alignment **with education and training systems.** They must **provide**



these skills that have long been considered secondary and be **more agile** in allowing individuals to **upskill and reskill** throughout their career. This requires a **profound shift in approach and incorporating new ways of teaching and learning** (see Chapter 5). Considering the strong inertia and low capacity of education and training system that fails to keep up with rapidly changing world, only disruption can help navigate the current transition to a new normal.

The way we are educating and training people has not changed as dramatically as our environment.

In *Natural Born Learners* (2018), education expert Alex Beard refers to our schools as “relics of an industrial era.” A simple look at the pictures below shows us two very different worlds: the world we come from, and the world in which we live and where our children grow up and are educated. Despite the contrast, the way we are educating and training people has not changed as dramatically as our environment. Interestingly, many changes are coming from outside education and training systems. Many universities and higher education institutions that are emerging have been created by business executives. Partly because they do not find the skills they need in the labor market, and partly as an opportunity to create a business, they have decided to open training centers that are disrupting what is taught (many place a greater emphasis on transversal skills), how training and education are provided (many implement hybrid and blended learning models), and how it is financed (some do not charge students until they graduate and find jobs). We are currently in transition between the two worlds shown in the pictures.



Education systems were created in a context in which maintaining the established order, supporting the construction of nation-states, and providing a workforce to a new economic system during industrialization seemed the key to progress. They explain why the education system was prioritized. **But the rules of the game have changed.**

If the Industrial Revolution shaped public education as we know it today, the Digital Revolution must bring about equal change in education and training systems. And it must do it because the world has changed. We have changed: the way we interact with other people, with the world that surrounds us, and with the environment. What we

Education systems were created in a context in which maintaining the established order, supporting the construction of nation-states, and providing a workforce to a new economic system during industrialization seemed to be the key to progress.

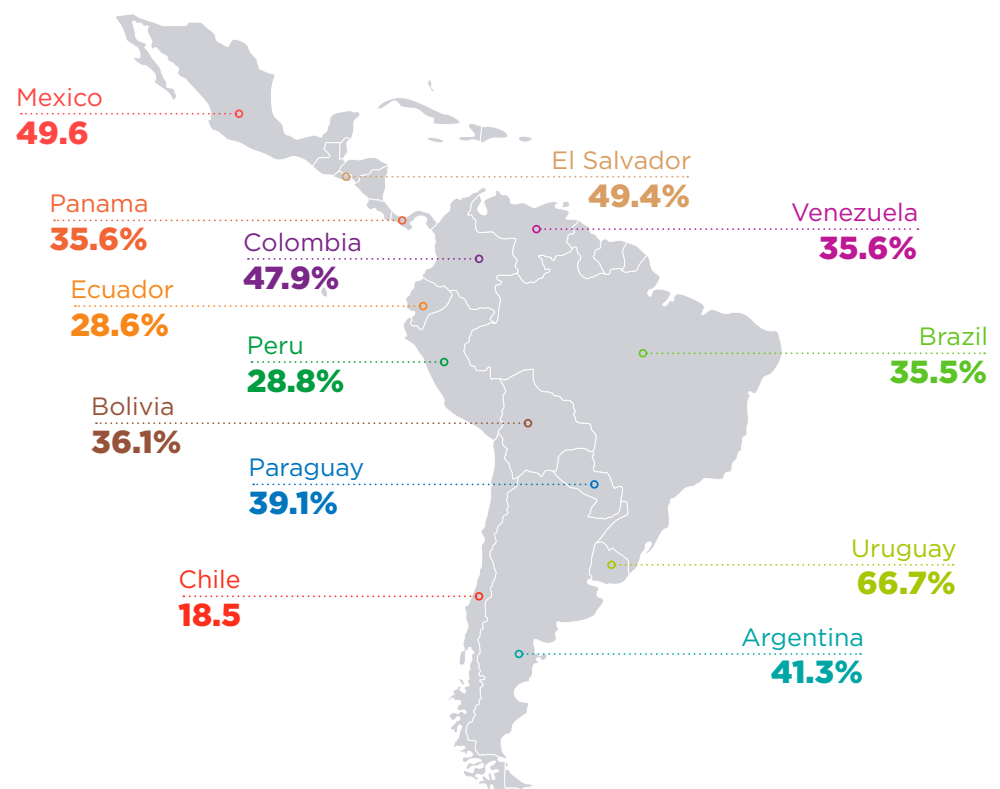
rely on has changed. We need to educate citizens to be capable of living in harmony with this new world that changes day by day. We cannot be left behind because, in a world where algorithms and robots are present in almost all areas of our lives, our skills will make the difference. And that is why today we need, more than ever, agile and flexible educational systems that help us cultivate and foster humanity. **We must revolutionize the model of training and talent development with disruptive mechanisms to develop skills such as critical, creative, and innovative thinking.**

Disconnected from the Learning Path

Despite what the experts indicate about the importance of higher-order skills in the labor market —both cognitive and noncognitive— and the need to constantly update and acquire new skills in a changing world in which automation will displace low-skilled labor, **schools continue to lose students and those who stay are generally unprepared for work and life.**

Currently, **school dropout rates** in the region are **alarming**. Although **economic reasons** are the fundamental cause of abandonment, **lack of interest** and **motivation** are an essential part of the problem. Students do not receive quality basic-skills training (PISA results place most countries in the region at the bottom of the countries evaluated). **The relevance of learning** is also low: in many cases, students are not learning 21st century skills. Besides, falling behind and repeating grades make students feel excluded and disconnected from the system. These factors compound, and, little by little, students fail at school. **Once the individual, at any age, disengages from the path of learning, it is difficult for them to re-engage. They lose the opportunity to acquire a critical skill - learnability or lifelong learning.**

Figure 1.7. School Dropout Rates in the Region



Source: Graduate XXI.

Do We Have Enough Evidence on How to Develop 21st Century Skills?

How do you develop skills such as creativity, resilience, critical thinking, or learnability (the ability to learn continuously)? **We need to better understand the mechanisms of how humans learn, how they develop skills, and how to measure impact and its short, medium, and long term effect.** Similarly, it is necessary to **generate more evidence on the effectiveness of different programs aimed at the promotion and development of soft skills, and on how to adjust them to operate on a larger scale.**

Although there still lacks much information on the acquisition and functioning of noncognitive skills, we do have a few mainly thanks to the advances in research and neuroscience. Neuroscience allows us to understand, on a physiological scale, how learning processes occur.

Shaping Talent and Skills at All Stages of Life

The brain is malleable. It can change, for better or for worse, because of the experiences, habits, and environment to which it is exposed. Neuroplasticity (or brain plasticity) implies that the brain can reorganize itself and create new neural pathways and synapses or connections throughout the lifetime. This plasticity allows us to compensate or adjust for adverse factors or optimize processes.



Skills development must be addressed at every stage of the life cycle.

To maximize return, it is crucial to match investments with the critical learning periods in life.

Childhood and adolescence are often considered the most favorable windows to intervene due to **their high plasticity of the brain**, however **new connections** can also be made in **adulthood**.



Raising awareness about the returns or benefits of education can increase the willingness to learn.

Intrinsic motivation is key for individuals to be determined to continue learning (tools such as video games or gamification in general can help).

Skills in different fields have a dynamic relationship: they interact with each other.



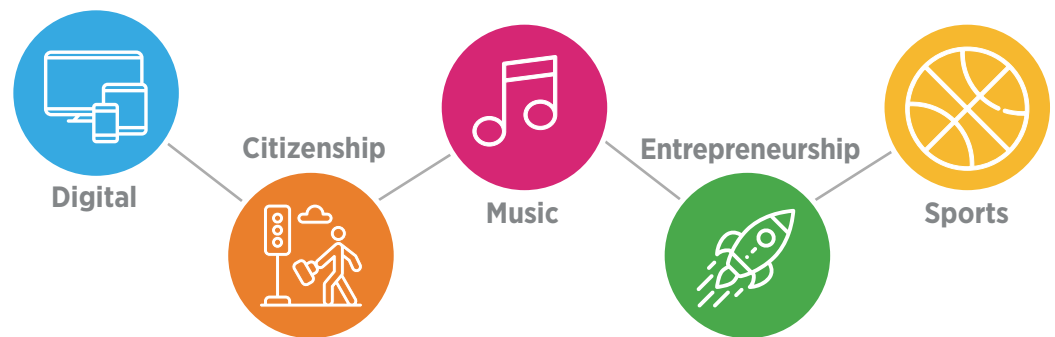
The accumulation of past skills is important for the accumulation of future skills.

This report focuses on programs that have explicitly promoted the development of these skills: citizenship, digital, music, sports, and entrepreneurship programs.

The development of transversal skills has been extremely slow in terms of integrating it into school curricula (see Chapter 7). Thus, we do not have as much information about the effectiveness of these programs as we do on those that develop traditional cognitive skills. Some countries that have made the most advances in this area are outside the region: The United Kingdom, the United States, Japan, Malta, and Spain.

There are **different approaches** to **developing transversal skills within the education systems**. Some systems have incorporated them **transversely in traditional subjects**. Others have done so through non-traditional programs considered, in some instances, as **extracurricular**. And other countries are implementing **mixed models**, incorporating them as learning objectives in all subjects, and developing them specifically through other programs. This report focuses on programs that have explicitly promoted the development of these skills: citizenship (Chapter 8), digital (Chapter 9), music (Chapter 10), sports (Chapter 11), and entrepreneurship (Chapter 12) programs. In addition, as such program development gained greater relevance in public policy in recent years, the report includes **strategies to increase the impact of these programs and the development of these skills which lead to actual changes in behavior** (Chapter 13).

Figure 1.8. Strategies and Programs to Develop 21st Century Skills



In this vein, we need to implement programs that can develop or change, if necessary, the mentality or mindset of individuals from the early years to adulthood.

Do we have the right tools to evaluate these skills? In terms of measurement, **significant progress** has been made, but **much remains to be done** (Chapter 6). We do not have measurements for all skills. In many cases, assessments do not capture well what we want to measure (they have poor psychometric properties), if they do, they need to be contextualized because skills are heavily influenced by the cultural aspects, or many are based on self-reported information, making them less reliable.

Also, assuming we had the right tools to measure these skills, **how do we find out if the programs have the desired impact, and if those interventions, and not others, are the ones contributing effectively to developing talent?** To know, we need **impact evaluations**. These pose three challenges: design (the most rigorous requires randomization, which is not always possible), time, and implementation costs. There are a growing number of programs with rigorous skills assessments, but we need to understand better which of these skills have a lasting impact on the individual and collective outcomes we discussed. **Much of this evidence should be accumulated in the coming years, as we generate more information** on the previous two points.

The Good News: Technology as Part of the Solution

The good news is that thanks to technology, we can improve our efficiency and scalability. How?

Ubiquity. Education and training can be designed so that anyone, from anywhere, can access learning at any time:

- **Anyone:** without any discrimination based on socioeconomic status, disability, ethnicity, native language, etc.
- **Anywhere:** with only a device and internet connection, anyone can develop skills.
- **At any time:** learning goes beyond the boundaries of school years and vocational/technical or university training, and takes place continuously adapting to their needs.

Capture changes in demand. Today, technology allows us to identify and forecast skills demanded by labor market, how occupations are evolving, and what new tasks (within current or new occupations) are emerging, which imply the use of new skills. It also allows us to know how transferable certain skills are and to track learning and career trajectories over time.

Access. Through videoconference, remote teachers/mentors, online training, and other systems, populations that are difficult to attract to education and training systems, including those geographically remote and cannot be reached by conventional means, can be reached.

Efficiency. Technology allows the scaling of programs at a lower cost. Cost reduction is a key factor for access.

Learning. We have at our disposal new pedagogical practices and technologies that when combined, allow us to:

- Incorporate new skills (e.g., digital)
- Customize learning via adaptive learning systems
- Incorporate new resources to teach: FabLabs (digital fabrication laboratories), virtual reality, augmented reality, or artificial intelligence
- Complement existing pedagogical practices with new tools that encourage learning and intrinsic motivation of students: gaming, project-based learning,⁹ experience-based learning,¹⁰ inquiry-based learning,¹¹ Genius Hour¹² (Google).

Accreditation. For an individual to communicate and monetize their skills in the labor market, it is important to recognize and certify transversal skills. It is crucial that the

⁹ In project-based learning, students gain knowledge and skills by working for an extended period to investigate and answer an authentic, attractive, and complex real-life question, problem, or challenge.

¹⁰ Experience-based learning focuses on the individual's learning process. The student learns by reflecting on what he has done (for example, they cook or go to the forest to observe animals instead of learning a recipe or reading a book about those same animals).

¹¹ Students find a solution by asking questions, finding, analyzing and applying information, and using creativity skills.

¹² The Genius Hour refers to a set amount of time during class that the teacher provides to students to explore their passion (originated from the Google company practice of giving engineers 20% of their time to work on any project they wanted).

accreditation is managed through platforms that verify digital identity and track the ongoing skill development of an individual. These platforms could offer self-assessment tools and be implemented at a low cost. More importantly, these would be instruments to measure skills rather than relying on self-reported information. We would have a record of those individuals putting their skills into practice using, for example, video games.

Information. We can learn how we learn and generate information on which combinations of different instructional models (face-to-face, online, blended) with different pedagogical practices produce most learning outcome depending on the student profile¹³. The platforms allow us to generate massive information (big data) on how people learn, the type of programs people find most motivating, what the labor market needs, how to give personalized information to individuals about their skills, what skills they should have (because they are foundational) yet they lack, who are the best providers of those skills (avoiding wasting time and money) and how to develop a career and a learning path.

Our Value Proposition

Putting many of the above ideas into practice, CLIC is a platform currently being developed for the countries in Latin America and the Caribbean to certify transversal skills, generate information and evidence, and manage talent more effectively for the individuals and for the public policy and planning purposes.



Connect Without Limits: Invent Yourself & Get Certified

What is CLIC?

CLIC (Connect Without Limits: Invent Yourself & Get Certified) is a regional platform to help students develop and certify 21st century skills.

It supports education and training systems to implement effective programs to develop transversal skills for work and life.

It promotes a cultural change in training to expand opportunities, transitioning from the logic of degrees and diplomas to that of developing and certifying skills.

What Should be the Focus of Investment?

We are in a moment of transition between two educational models. It is a paradigm shift that will mean **significant changes in the way new training and education systems are financed**, since we will have to invest in people throughout their lifetime. This requires defining clearly where the investment should be focused.

In the public sector, it would make sense to focus on an educational system that ensures all individuals to acquire basic and foundational skills. In addition, it is reasonable to co-finance, subsidize, or promote the financing of continuous training

¹³ For example, evidence suggests that students who receive a combination of teacher-directed and inquiry-based instruction achieve the best results (McKinsey, 2018).

The technological revolution has created a resurgence of demand for the qualities that make us human, thus serving as a counterpoint to a 21st century dominated by artificial intelligence and automation.

This report is a call to action: if education and training systems do not begin to provide the skills children and youth need, students will continue to drop out of school and leave the formal learning centers.

in technical and transversal skills, since people no longer graduate or stop from developing skills that are constantly changing.

Is this educational model more expensive? In principle, yes. The training cycle will no longer be limited to one stage of life, and the spectrum of skills taught will increase and change requiring constant updates. Indeed, the efficiency of the systems would increase and technology can help reduce cost, yet they will have to train individuals throughout their lives. **Traditionally, learning and skills development were concentrated during a few years of childhood and youth. Now, individuals will have to continue learning throughout their career, so the investment will certainly be higher.**

How to pay for it? **From a financial point of view, the public and private sectors (including the individual) should be co-responsible for training and educating people.** The public sector should concentrate on financing the foundational skills and involving the private sector in financing skills specific to occupations, as they require updating.¹⁴ In fact, many companies are already doing this. Many employers are willing to finance the development of specific skills of their employees, if they can recoup their investment and the employees are equipped with transversal skills.

About This Report

The world needs people who persevere, who are flexible, creative, empathic, curious, and eager to learn. Paradoxically, the technological revolution has created a resurgence of demand for qualities that make us human, thus serving as a counterpoint to a 21st century dominated by artificial intelligence and automation. This report focuses on how to educate and train future citizens — who are already the citizens of today — to live and work to the fullest in a new and dynamic environment.

This report is structured into three main sections. The first offers an overview of the current situation via the perceptions of individuals (Chapter 2) and available data (Chapter 3); it also analyzes whether a gender gap in these skills exists (Chapter 4). The second section focuses on new ways of teaching and learning (Chapter 5) and how to measure 21st century skills (Chapter 6 and Chapter 7). Finally, the third section focuses on how different types of programs that develop these skills function, offering an extensive catalog of interventions and rigorous evidence about their implementation. We talk about digital (Chapter 8), citizenship (Chapter 9), music (Chapter 10), sports (Chapter 11), and entrepreneurship programs (Chapter 12). Also, intervention strategies from the behavioral sciences are included to tackle the psychological barriers that prevent individuals from developing skills and achieving goals through changes in habits and attitudes (Chapter 13). To conclude, the report presents a preliminary guidance and insights into designing policies and programs that can be put into concrete actions by the public sector as well as through partnering with the private sector and the civil society (Chapter 14).

¹⁴ On financing, see Amaral et al., 2017; Huneus et al., 2013.

Programs to develop 21st century skills must move from the periphery (or from non-existence) to the center of educational and training processes. We still have a lot to learn, and this report is a step forward to that direction. But it is also a call to action: if education and training systems do not begin to provide the skills children and youth need, students will continue to drop out of school and leave the formal learning centers. Today more than ever, 21st century societies cannot afford to have individuals who are unqualified or without skills necessary to lead successful, healthy, and happy lives because they are precisely the people who are most at risk of being displaced by machines.

It is imperative, not optional, to provide low-income children and youth in and out of school with opportunities and access to holistic and high-quality training and education that develops not only traditional basic skills (such as literacy and numeracy), but also the foundational skills that equip individuals with the right mindset.

In this context, in which new technologies will displace workers without the necessary skills, we will have to choose between covering the costs of people who will be excluded from the productive sector and investing in training so that they are never displaced.

We must provide adults who are already more or less successfully (or should be active) in the labor market **with the tools to continue training and pursue lifelong learning. Again, this cannot be a possibility: it must be a reality.** Otherwise, automation will gradually displace them, and they will join the lists of those dependent on social protection and welfare systems.

If education and training systems serve their purpose and function well for children and youth, most of the subsequent investment in upskilling and reskilling could focus on the development of specific technical skills, which due to technology will change rapidly and require constant updating. Part of that investment can be executed from the private sector. However, **if individuals do not reach adulthood with a set of foundational skills and the right mindset, the private sector cannot be expected to invest in them further. In this scenario, the responsibility will fall exclusively on the public sector, with much higher costs and less effectiveness.**

The choice seems clear: we must invest more and better in training because the least qualified workers will be massively and quickly displaced by technological disruption, and these costs will be economically and socially unsustainable.

In this context, in which new technologies will displace workers without the necessary skills, we will have to choose between covering the cost of people who will be excluded from the productive sector and investing in training so that they are never displaced.

References

- Amaral, N., Fieldsend, G., Prada, M.F., & Rucci, G. (2018), *Hacia la formación de mejores competencias: Sistemas para la productividad y el crecimiento*. Retrieved from <https://publications.iadb.org/es/publicacion/17306/hacia-la-formacion-de-mejores-competencias-sistemas-para-la-productividad-y-el>
- Amaral, N., Nick, E., Ospino, C., Pagés, C., Rucci, G., & Williams, N. (2018), *¿Hasta dónde pueden llevarte tus habilidades?: Cómo utilizar los datos masivos para entender los cambios en el mercado laboral*. Retrieved from <https://publications.iadb.org/es/hasta-donde-pueden-llevarte-tus-habilidades-como-utilizar-los-datos-masivos-para-entender-los>
- Almeida, R., Behrman, J., & Robalino, D. (2012). *The Right Skills for the Job? Rethinking Training Policies for Workers*. Washington: The World Bank.
- Almlund, M., Duckworth, A. L., Heckman, J., & Kautz, T. (2011). "Personality, Psychology and Economics." *Handbook of the Economics of Education*.
- Beard, Alex. (2018). *Natural Born Learners. Our Incredible Capacity to Learn and How We Can Harness It*. London: Weidenfeld & Nicolson.
- Belfield, C., Bowden, A. B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). "The Economic Value of Social and Emotional Learning." *Journal of Benefit-Cost Analysis*, 508-544.
- Bosch, M., Pages, C., & Ripani, L. (2018). *The Future of Work of America Latina and the Caribbean: A Great Opportunity for The Region?* Washington: Inter-American Development Bank.
- Brookings. (2015). "Policy Report: Opportunity, Responsibility, and Security: A Consensus Plan for Reducing Poverty and Restoring the American Dream." *American Enterprise Institute and Brookings Institution*.
- Case, Anne & Deaton, Angus (2017). "Mortality and Morbidity in the 21st Century." Brookings Papers on Economic Activity, *BPEA Conference Drafts*, Elaborated for the Brookings Panel on Economic Activity, March 23-24, 2017. https://www.brookings.edu/wp-content/uploads/2017/03/6_casedeaton.pdf
- Chernyshenko, O. S., Kankaraš, M., & Drasgow, F. (2018). *Social and Emotional Skills for Student Success and Well-Being*.
- Cruz-Aguayo, Y., Fuertes, N., Kang, N., Robles, M., Schady, N. & Zuluaga, D. (2019). *Educación y salud: ¿los sectores del futuro?* Inter-American Development Bank.
- Goleman, D. 2006 (originally published in 1995). *Emotional Intelligence: Why It Can Matter More Than IQ*. Bantam Books.

- Dweck, C.S. (2003). "Ability Conceptions, Motivation, and Development." *British Journal of Educational Psychology* (Special Issue: Motivation and Development).
- Duckworth, Angela. (2016). *Grit. The Power of Passion and Perseverance*. Simon & Schuster, Inc.
- Duckworth, A. L., Peterson, C., Matthews, M. D. & Kelly, D. R. (2007). "Grit: Perseverance and Passion for Long-Term Goals." *Journal of personality and social psychology*.
- Duckworth, A., & Seligman, M. (2005). "Self-Discipline Outdoes IQ in Predicting Academic Performance of Adolescents." *Psychological Science*.
- Durlak, J., Dymnicki, A., Schellinger, K. & Weissberg, R. (2011). "The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions." *Child Development*, 405-432.
- Duryea S. & Robles M. (2017). *Social Pulse in Latin America and the Caribbean 2017: Family Legacy, Breaking the Mold or Repeating Patterns?* IDB. Retrieved from <https://publications.iadb.org/en/social-pulse-latin-america-and-caribbean-2017-family-legacy-breaking- mold-or-repeating-patterns>
- Godfray, C., Muir, J., Pretty, J. & Robinson, S. (2010). "Food Security: The Challenge of Feeding 9 Billion People." *American Association for the Advancement of Science*.
- Heckman, J. J., & Kautz, T. (2012). "Hard Evidence on Soft Skills." *Labour economics*, 451-464.
- Heckman, J., & Kautz, J. (2013). "Fostering and Measuring Skills: Interventions That Improve Character and Cognition." *Institute of Labor Economics*.
- Heckman, J. J., & Rubinstein, Y. (2001). "The Importance of Noncognitive Skills: Lessons from the GED Testing Program." *American Economic Review*.
- Heckman, J.; Stixrud, J., & Urzua, S. (2006). "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior." *Journal of Labor economics*.
- Herrera, L., Buitrago, R., Lorenzo, O., & Badea, M. (2015). "Socio-Emotional Intelligence in Colombian Children of Primary Education. An Analysis in Rural and Urban Settings." *Social and Behavioral Sciences*, 4-10.
- Huneus, C., De Mendoza, & C., Rucci, G. (2013), *Una visión crítica sobre el financiamiento y la asignación de recursos públicos para la capacitación de trabajadores en América Latina y El Caribe*. Retrieved from <https://publications.iadb.org/es/publicacion/15297/una-vision-critica-sobre-el-financiamiento-y-la-asignacion-de-recursos-publicos>
- International Organization for Migration. (2017). Migration Data Portal. Retrieved from Migration Data Portal: https://migrationdataportal.org/?i=stock_abs_&t=2017

Jones, D. E., Greenberg, M., & Crowley, M. (2015). "Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness." *American Journal of Public Health*.

Kautz, T., Heckman, J. J., Diris, R., Ter Weel, B., & Borghans, L. (2014). "Fostering and Measuring Skills: Improving Cognitive and Non-Cognitive Skills to Promote Lifetime Success." *National Bureau of Economic Research*.

Lu, Jian. (2019). "Skills, Not Job Titles, Are the New Metric for the Labour Market." World Economic Forum. Retrieved from <https://www.weforum.org/agenda/2019/07/skills-not-job-titles-are-the-new-metric-for-the-labour-market/>

Manpower Group (2015). *Talent Shortage Survey*. Retrieved from https://www.manpowergroup.com/wps/wcm/connect/db23c560-08b6-485f-9bf6f5f38a43c76a/2015_Talent_Shortage_Survey_US-lo_res.pdf?MOD=AJPERES

Manpower Group (2019). *2019 Skills Revolution 4.0. Humans Wanted: Robots Need You*. Retrieved from https://www.manpowergroup.com/wps/wcm/connect/84b36237-eb5e-460b-bd52-35c28ab187a9/MPG_WEF_SkillsRevolution_4.0_paper.pdf?MOD=AJPERES&CONVERT_TO=URL&CACHEID=84b36237-eb5e-460b-bd52-35c28ab187a9&submissionGuid=877124d4-cb2c-4d46-aaf1-0a5f2d630b80

McKinsey. (2017). *A Future that Works: Automation, Employment, and Productivity*. McKinsey Global Institute. McKinsey and Company. Retrieved from https://www.mckinsey.com/-/media/McKinsey/Featured%20Insights/Digital%20Disruption/Harnessing%20automation%20for%20a%20future%20that%20works/MGI-A-future-that-works_Full-report.ashx

McKinsey. (2018). *How to Improve Student Educational Outcomes?* McKinsey and Company. Retrieved from <https://www.mckinsey.com/industries/social-sector/our-insights/how-to-improve-student-educational-outcomes-new-insights-from-data-analytics>

Milano, F. (2019). *Gobiernos y sociedad civil avanzando agendas climáticas*. Inter-American Development Bank.

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., & Ross, S. (2011). "A Gradient of Childhood Self-Control Predicts Health, Wealth, and Public Safety." *Proceedings of the National Academy of Sciences*.

Muggah, R., & Tobón, K. A. (2018). *Citizen Security in Latin America: Facts and Figures*. Strategic paper.

Novella, R., Repetto, A., Robino, C., & Rucci, G. (2018). *Millenials en América Latina y el Caribe: ¿trabajar o estudiar?* Inter-American Development Bank.

OECD. (2003). *Emerging Risk in the 21st Century*. Organisation for Economic Co-operation and Development

OECD. (2012). *Better Skills. Better Jobs. Better Lives: A Strategic Approach to Skills Policies*, Paris.

OECD. (2015). *Skills for Social Progress: The Power of Social and Emotional Skills*. Paris: OECD Skills Studies.

OECD. (2018). *Social and Emotional Skills: Well-being, Connectedness and Success*. Paris: OECD.

O'Reilly, F., Chande, R., Groot, B., Sanders, M., & Soon, Z. (2017). *Behavioral Insights for Education: A Practical Guide for Parents, Teachers and School Leaders*. London: Pearson

Patrinos, H. A. (2019). The Changing Pattern of Returns to Education. What Impact will this Have on Inequality? The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/505531559051854654/pdf/The-Changing-Pattern-of>Returns-to-Education-What-Impact-Will-This-Have-on-Inequality.pdf>

Prada, F. M., Rucci, G., & Urzúa, S. (2019). *Training, Soft Skills and Productivity: Evidence from a Field Experiment in Retail*, IDB-WP-1015, May, IDB. Available at: <https://publications.iadb.org/en/training-soft-skills-and-productivity-evidence-field-experiment-retail>

Phillips, D. A. & Shonkoff, J. P. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. National Academies Press.

Pickens, J. (2009). "Socio-Emotional Programme Promotes Positive Behavior in Preschoolers." *Child Care in Practice*, 261-287.

Plastino, E., Zuppolini, M., & Govier, M. G. (2018). *América Latina: habilidades para el trabajo en la era de las máquinas inteligentes*. Accenture.

Roberts, B., Walton, K. & Viechtbauer, W. (2006). "Patterns of Mean-Level Change in Personality Traits Across the Life." *Psychological Bulletin*.

Schady, N. (2006). *Early Childhood Development in Latin America and the Caribbean*. World Bank Policy Research.

University of Oxford. (November 19th, 2018). Retrieved from Our World in Data: <https://ourworldindata.org/income-inequality-since-1990>

VICE (Ernst, A.). (2019). *The Future of Work*. USA. VICE in partnership with the Council on Foreign Relations.

World Bank Group. (2016). *World Development Report 2016: Digital Dividends*. World Bank Publications.

World Economic Forum. (2016). *New Vision for Education: Fostering Social and Emotional Learning through Technology*. Geneva, Switzerland. Retrieved from http://www3.weforum.org/docs/WEF_New_Vision_for_Education.pdf

World Economic Forum. (2016). *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*. Retrieved from http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

World Economic Forum. (2019). *Data Science in the New Economy. A New Race for Talent in the Fourth Industrial Revolution*. Retrieved from http://www3.weforum.org/docs/WEF_Data_Science_In_the_New_Economy.pdf

World Economic Forum. (2019). *Global Risks Report 2019*. Retrieved from http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf



CHAPTER 2

The Myths: What Do People Say?

By Laura Becerra-Luna

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We sent an online survey to the region's citizens to answer these and other questions. In this chapter, we analyze their answers.

The future, a distant era that we once imagined as a place where robots would assume human roles, people would travel to outer space, and where inconceivable inventions like self-driving cars and smart homes would be a normal part of life, is no longer a far-off fantasy—it's the here and now. **How do Latin American and the Caribbean (LAC) citizens feel about facing these new circumstances successfully? Do they consider themselves prepared? Do they feel their education system is giving them the necessary tools?** What skills do they not yet have, but feel are important to function successfully in this environment? We surveyed the region's citizens to answer these and other questions and, throughout this chapter, we analyze their answers.



Spoiler alert: Participants expressed that transversal skills are needed to succeed in life more than cognitive skills. They said that degrees fall short in demonstrating a person's skills. They also demand educational system that evolves with the changes occurring around them and that places greater emphasis on transversal skills.

Opinions from Latin America and the Caribbean: Are We Prepared for the 21st Century?

Who spoke?

We distributed a questionnaire widely via email and social networks, and we asked the people of Latin America and the Caribbean to share their opinions. We received 1,022 responses from 20 countries in the region, with broad participation from Colombia, Argentina, and Mexico. We surveyed citizens aged 14 to 60, who had an average age of 45. We had a similar number of male and female participants, and most of those who answered questions had completed higher education, especially at the graduate level. We wanted to analyze different people's profiles to understand the perception of skills-development in the region. We interviewed students, teachers, employers, workers, and those seeking employment. We explain our interest in each profile below.

1022

answers from 20 countries

Citizens mainly from
Colombia, Argentina,
and Mexico

14-60-years-old

Average age of **45**



We interviewed equal numbers of men
and women



Students: We wanted to understand how they perceive the skills training process and what they expect will be relevant once they leave the education system. Do they feel prepared to succeed with what they are learning?



Teachers: We sought insight from teachers about what content think should be taught to a new generation of students for them to thrive in a changing environment. Have teachers adapted content to respond to the new century?



Employers: We wanted information about the most sought-after skills in the labor market. Are Latin American workers prepared to meet the demands of the labor market?



Workers/Those seeking employment: We value the perspective of workers and those seeking employment. Do they feel prepared? How do they perceive their education and training? What do they feel is missing?



Clarification: The objective of this chapter is to present a picture of the situation for those individuals who were encouraged to participate and who offered us their opinion. The analysis presented here is not intended to show the reality of skills across the region nor to be a representative survey of the opinion of Latin American citizens.

“I think that motivation, creativity and teamwork are fundamental issues in education today.”

Teacher, 55-years-old.
Argentina

We heard fascinating opinions! Below we discuss what participants think about skills and what they believe is vital to succeed in today's world.

Transversal Skills are More Important than Specific Knowledge

Participants believe that transversal skills are more important than literacy! **For participants of every profile, the five most important skills to succeed in life are those that allow us to relate better with others and those linked to self-regulation.** We provided a list of skills to participants who were asked to choose the five most important ones for a successful life. Participants of all profiles ranked **teamwork** as the most important skill. The unanimous response makes sense given that people are increasingly in contact with one another and need to be adept at relating to others to work more efficiently. Participants said that **effective communication** was a crucial skill. Participants also ranked **conflict resolution** and **critical thinking** among the most valued skills to succeed today.

Table 2.1 “Select the Five Most Essential Skills for Success and Rank them in Order of Importance.” Answers by Profile

	Students	Teachers	Employers	Workers	Seeking employment
1	Teamwork	Teamwork	Teamwork	Teamwork	Teamwork
2	Responsibility	Critical Thinking	Problem-solving	Effective Communication	Critical Thinking
3	Discipline	Problem-solving	Effective Communication	Problem-solving	Social Skills
4	Critical Thinking	Effective Communication	Creativity	Adaptability	Resilience
5	Effective Communication	Self-learning	Perseverance	Discipline	Effective Communication

We highlighted the skills that participants of all profiles reported as the most important in dark green. The skills that participants reported in at least three profiles are highlighted in light green.

The importance of developing transversal skills is evident in the Latin America and the Caribbean (LAC) labor market. **LAC is the region with the most significant skills gap in the world: four out of ten firms report trouble finding workers with the skills they require.** As a result, the deadlines for filling a job vacancy are longer in LAC than in other regions (Florez & Melguizo, 2018; OECD Development, 2017).

We asked employers which skills they think are most difficult to find in the labor force. Their responses focused mostly on complex social and cognitive relationship skills such as **problem-solving and critical thinking**. We compared these answers with the results from the previous question regarding the five most essential skills for life success. We observed that the primary skills employers identified as being challenging to find were also identified by participants from all profiles as necessary for success: **problem-solving, teamwork, and critical thinking**.

Table 2.2. “Which Desirable Skills are the Most Challenging to Come by among Job Seekers?” Employers

1
Problem-solving



2
Teamwork



3
Critical thinking



4
Creativity



5
Responsibility

These answers align with recent studies where employers highlight the importance of transversal skills and the difficulty of finding such skills in workers in the region (Casner-Lotto & Barrington, 2006; Cunningham, W.; Villaseñor, P., 2014; Busso, Bassi, Urzúa, & Vargas, 2012). Evidence from LAC and the United States shows that, **although traditional cognitive skills continue to be strongly related to results in the labor market, their importance has decreased in the last two decades, while socio-emotional transversal skills has been increasing**, as well as the number of jobs that

“Knowledge is important but more important is knowing what to do with it. In this sense, critical thinking and creativity are fundamental to developing innovative solutions, which allow us to improve the living conditions of communities”

Teacher, 36-years-old

Colombia

use non-routine analytical skills (Cunningham, Acosta, & Muller, 2018; Casner-Lotto & Barrington, 2006; Deming, 2017).

In these circumstances, it is imperative to ask **how job seekers provide information about skills and abilities in response to the demands of potential employers in the region**. Thus, we asked participants **what aspects of themselves they consider most important to present on the labor market to get a job**. Participants generally felt that the most important **thing is the ability to demonstrate that they have the skills required for the position**. Only the students thought that the most important thing to present to recruiters or potential employers is a degree.

Table 2.3 What Do you Think is Most Important to Get A Job?

	Students	Teachers	Employers	Workers	Seeking employment
1	A degree	Work experience demonstrating relevant skills for the position	Work experience demonstrating relevant skills for the position	Work experience demonstrating relevant skills for the position	Work experience demonstrating relevant skills for the position
2	Work experience demonstrating relevant skills for the position	A degree	Certificate or proof of training that shows specific skills	A degree	A degree
3	A high school diploma	Certificate or proof of training that shows specific skills	A degree	Certificate or proof of training that shows specific skills	Certificate or proof of training that shows specific skills
4	Certificate or proof of training that shows specific skills	A high school diploma	Results from tests taken during the selection process	A high school diploma	A high school diploma
5	-	-	A high school diploma	-	-

We highlighted the responses that participants from all profiles made in green. We showed the response “a degree” in blue.

Employers pay more attention to the parts of the job application that give them information about a candidate’s capabilities. Employers want to see if the candidate has the skills they seek rather than relying on their academic or professional degrees. When hiring, employers value skills more than degrees.

It is interesting how, to enter the labor market, obtaining a degree is the paramount goal for students, while for those who are already part of it, the most important thing is to demonstrate they have the desired skills. For employers, a degree is a low priority when making hiring decisions. Participant answers, although not representative, indicate that the education system and labor market are at odds about what is most important when it comes to getting a job. While students in the education system think a degree is a high priority, those in the labor market disagree.

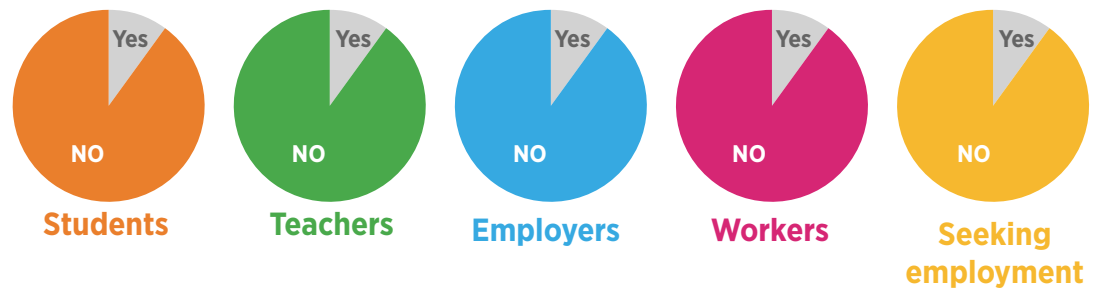
Some research conducted in the region validates the students' perception. For example, Novella, Repetto, Robino, & Rucci (2018) find that young Latin Americans see university degrees and diplomas as a requirement to access quality, higher-paying jobs. This has traditionally been the case, but the labor market of the future will offer new ways of validating skills. Although degrees still hold influence in the labor market and will continue to be so for a while, their real usefulness needs to be reconsidered.

This leads us to the following conclusion of our questionnaire:

Degrees Don't Reflect What People Know or Can Do

As participants noted, **degrees** have become less relevant as a passport into the labor market, and they are **less reliable**. We asked participants **if they thought degrees reflected their skills**. We detail their answers in this section.

Figure 2.1. Do You Think an Academic Degree Reflects a Person's Skills?



Participants responded similarly! **Most participants of all profiles asserted that a degree does not reflect what a person can do, and the changes that the future has brought to the labor market have widened this perception.** Information has never been as easily accessible as it is today, which makes it possible to demonstrate skills and abilities far beyond paper. In the words of [Michael Staton](#), “Credentials are so 20th century” (Staton, 2014).

We want to highlight two statements regarding the value of degrees and the new state of affairs. Having a degree doesn't necessarily indicate what you know how to do. Not having a degree doesn't imply that you are incapable of possessing the same knowledge or performing as well at a task as someone with a degree.

The reality is that the value of degrees has fallen and will continue to do so as we create better ways to assess candidates' skills.

For a long time, degrees were the most widely accepted means of proving a person's knowledge to potential employers. However, the employers are directing their attention to other forms of validation. There is a movement to promote recruitment based on skills and not degrees. Companies such as Google, Apple, IBM, and Netflix no longer require workers to have a degree. As these large companies adopt such practices, this could become a widespread norm in the not-too-distant future. The education system must evolve and incorporate necessary changes to ensure that capacity building meets the demands of the labor market. Furthermore, it must develop a straightforward and reliable way to communicate information about an individual's skill set.










In 2017, 15% of the people hired by IBM in the USA didn't have a four-year degree. Recruitment stopped focusing on candidates with a degree and began to pay attention to applicants' skills (Umoh, 2017).

The conclusions presented so far offer a **mixed message**. **Participants are aware that a degree does not convey information about what they know how to do. However, most participants consider a degree to be essential for candidates entering the labor market.** Why are they interested in presenting a document they know doesn't demonstrate their skills? The reasons for this contradiction could be cultural since, in recent years, the education system has focused on the need for a degree (Rampell, 2013). Changes in mentality take time. However, the reality is that the value of degrees has fallen and will continue to do so as we create better ways to assess job candidates' skills (McAfee, 2013; Staton, 2014).

To illustrate this, we asked workers how they had demonstrated skills to obtain their current job. We offered them a list of options. How did a degree rank in their answers? It ranked in fourth place, behind other types of accreditation such as previous work experience or a personal interview. Via such interactions, they proved that they had the skills the employer sought.

Table 2.4 How Did You Demonstrate that You Had the Skills Required for Your Current Job?

- 01  I had previous work experience that showed relevant skills for the position.
- 02  I demonstrated my skills in an interview/panel.
- 03  When I started to work, I could show what I knew.
- 04  **I presented my degree(s).**
- 05  Professional references.
- 06  I was tested during the selection process.
- 07  I presented certificates of specific skills that were requested

We need to find better ways to validate skills and training in the 21st century.

“I have always thought that the educational system needs to be a little less rigid and encourage the student from an early age to develop in whatever she or he likes.”

Female student, 22-years-old. Mexico

Educational systems should teach socio-emotional skills.

While it is true that people view a degree as a validation of skills, the dilemma is that degrees remain static over time. The skills required for today's job market **are dynamic**. Although we realize that skills are required to obtain a degree, the urgent question is, how can the education system ensure the development and maintenance of skills after a degree is earned? How do employers know that an individual has been improving their skill set since receiving a degree? This information is vital in the dynamic world we operate in today.

In many industries and countries, the most in-demand occupations or specialties did not exist five or even ten years ago, and changes in the job market will accelerate. By one popular estimate, 65% of children entering primary school today will end up working jobs that don't yet exist.

“In many industries and countries, the most in-demand occupations or specialties did not exist five or even ten years ago, and changes in the job market will accelerate. By one popular estimate, 65% of children entering primary school today will end up working jobs that don't yet exist.”

(World Economic Forum, 2016).

It is crucial to disrupt the way we validate skills. We must question the current perception of degrees and how they represent skills. We need to break down logistical barriers to communicate how to validate skills and training in the 21st century. The education system should integrate the skills relevant to success more and more.

How do the citizens in the region perceive education and training in the face of these challenges? Participants told us:

A Call to the Education System to Respond to Changing Times

Taking into account the situation we have described so far, **we asked students, teachers, and employers how they view the education system in the face of current and future challenges**. We asked them what skills they wanted teachers in the education system to focus on that were not already a part of the curriculum. Participants indicated that educational systems should prioritize teaching socio-emotional skills.

Table 2.5 What would you Like to Learn in Schools / College / University that the Education System Doesn't Prioritize?

	Students	Teachers	Employers
1	Critical thinking	Critical thinking	Critical thinking
2	Adaptability	Self-learning	Problem-solving
3	Teamwork	Problem-solving	Effective communication
4	Social skills	Teamwork	Teamwork
5	Problem-solving	Creativity	Self-learning
6	Effective communication	Effective communication	Creativity
7	Leadership	Social skills	Leadership
8	Specific technical knowledge	Resilience	Resilience
9	Creativity	Adaptability	Social skills
10	Discipline	Leadership	Adaptability

“Today, the educational system is quite similar to the one 40 years ago. Although some subjects remain the same, as the world that changes dramatically every decade, the system has become insufficient.”

Worker, 20-years-old.

Argentina

“I have been teaching for 25 years. I question the education system of yesterday. We don’t want to assume responsibility for the changes we must make to modernize.”

Teacher, 54-years-old,

Ecuador.

As we can see, according to our participants, what is missing the most in our educational system is critical thinking. For those who are still in training, those who train, and those who require staff with some training, this skill is identified as lacking in the educational process of the region. Participants identified critical thinking as lacking in the educational system in the region. This affects those who are in school, those who teach, and those who require trained staff. These answers are not surprising: Researchers identified similar challenges for education in the region (Fiszbein, Cosentino, & Cumsille, 2016; Unit, Economist Intelligence, 2009). **Education must train individuals to face new and still unknown challenges** that will change the environment. **These 21st-century skills are fundamental to adjusting to such challenges.** The educational system in the region must prioritize these skills.

We asked participants what skills were missing in the education system, and **we asked what skills they would like to learn.** They confirmed that the **transversal skills are important and showed great interest in developing such skills.** Participants of all profiles ranked **effective communication** among their top five responses.

Table 2.6. What Skills Are Missing and Would You Like to Acquire?

	Students	Workers	Seeking employment
1	Effective communication	Digital skills	Specific technical knowledge
2	Persuasion	Effective communication	Resilience
3	Leadership	Specific technical knowledge	Digital skills
4	Teamwork	Persuasion	Social skills
5	Creativity	Leadership	Effective communication

Participants of all profiles who indicated the importance of transversal skills, marked in dark green. Participants also remarked on the importance of effective communication. We marked traditional skills in blue.

Here again we find differences between student responses and those of people participating in the labor market. While the latter report lack of digital skills, students do not show concern for them based on their responses. Their responses may be due to a generational gap in the approach to technology. As digital natives, students use digital skills more frequently than workers or job seekers. Workers were trained in a school system that didn’t teach such skills, and now they find themselves unprepared for the digitized world. Education must anticipate changes in the environment and respond.



As jobs in the digital economy evolve, labor market demand for advanced digital skills has increased. Of the 20 necessary job skills for which demand increased the most on average among Argentina, Brazil, Chile, and Mexico, ten are directly tied to **technological development** (Amaral et al., 2019).

“Education is moored to the same models that make educational programs continue to be rigid, which teaches fixed methods and content, while the external environment is constantly changing.”

Employer,
60-years-old,
Mexico

“Education in Chile has many flaws. It is very outdated, and children are not being educated with the skills today’s world requires.”

Student,
24-years-old, Chile

Participants noted that the education system doesn’t provide citizens in the region with skills necessary for success.

A point that materializes from the questions we asked participants is the lack of specific technical knowledge. Participants in the labor market including workers and those seeking employment reported that they lack technical expertise in their professional fields. This sounds surprising given that most workers completed higher education in the form of undergraduate or graduate degrees. Low academic achievement in the region has widened the skills gap (OECD, 2016). This constitutes a wake-up call to increase education quality in Latin America. We must intervene to improve educational quality and to teach indispensable new skills so individuals can face an unknown, unimaginable future successfully.

Having essential skills is important when going on the labor market. However, many skills will develop when an individual joins the workforce. We asked workers to understand **what skills they needed but didn’t have when beginning a new job**. The most significant transversal skill gap is **effective communication**, while the next largest is specific knowledge. Participants ranked **digital skills** in the top five, and **four out of five of those ranked are transversal skills**. Participant responses highlight the importance of the training and education processes and how we prepare citizens to be successful, with a particular emphasis on professional qualities and capacities.

Table 2.7. What Skills Do You Need to Perform Your Job That You Didn’t Have When Starting Work?

Workers	
1	Effective communication
2	Specific knowledge
3	Leadership
4	Digital skills
5	Adaptability

When asked **why they did not have certain skills**, participants frequently responded: **“the school system does not provide them.”** This demonstrates that participants think the education system doesn’t provide citizens in the region with the skills necessary for success. It is possible to deduce that the educational process of the workers who participated in this survey did not focus on either the development of digital skills or on other relevant transversal skills, such as leadership and adaptability.

“In my case, I had to develop many of the skills that each job required on my own. These should come from the education system. But it wasn’t like that.”

Employer,
57-years-old,
Colombia

Table 2.8. Why Didn’t You Have These Skills?

Workers	
1	The education system doesn’t provide them
2	I didn’t know that they were going to be important in life
3	I wasn’t born with them
4	I don’t have the motivation or the time
5	They require investment and I don’t have the resources

These responses underscore the need to improve training and education systems in the region. The skills gap indicates that we need an educational system capable of anticipating changes and teaching individuals the necessary skills to confront them.



We need modern education and training systems to ensure that people learn transversal skills from an early age, to encourage people to acquiring relevant skills once they are in the labor market, and to provide flexible tools to fill gaps in education (Amaral, et al., 2019).

Training individuals to develop skills is a great responsibility because it defines how they will face the future.

How individuals react to education and training processes demonstrates of individuals that skills are not predetermined at birth. On the contrary, individuals develop skills over a lifetime. Participants in the region understand this. The education system plays a primary and irreplaceable role in training the citizens in the region. Training individuals in skills development is a great responsibility because it defines how they will face the future.

Thus, we reach the following conclusion of the questionnaire:

We Aren’t Born with a Fixed Skillset

An individual’s skillset is not predetermined by fate: it is a dynamic aggregate in evolution throughout the life cycle (Heckman & Kautz, 2012; Roberts, Walton, & Viechtbauer, 2006). **We are not born knowing how to read or add; although it is common to believe otherwise, transversal skills are acquired and developed at some point in life.** We often hear people say things like, “I was not born a leader,” or “I was not born to speak in public.” Furthermore, transversal skills may be even more malleable than cognitive ones (Almlund, Duckworth, Heckman, & Kautz, 2011).

In the previous section, we analyzed the results corresponding to the skills participants reported they wanted to develop. We asked participants why they thought they didn’t have said skills. We included the response option “I wasn’t born with them” to analyze whether participants think the that an individual is born with a fixed skillset or whether they think it is possible to mold and develop these skills.

Fate does not predetermine an individual’s skillset because skillsets are dynamic, cumulative and evolve.

Table 2.9. Why Haven't You Developed Skills That You Find Valuable?

	Students	Workers	Seeking employment
1	The education system doesn't develop them	The education system doesn't develop them	They require investment, and I don't have the resources
2	I wasn't born with them	I didn't know they were going to be important in life	The education system doesn't develop them
3	I didn't know they were going to be important in life	They require investment, and I don't have the resources	I didn't know they were going to be important in life
4	I don't have the motivation or the time	I don't have the motivation or the time	I wasn't born with them
5	They require investment, and I don't have the resources	I wasn't born with them	I don't have the motivation or the time

“During my work experience, I have had various training. However, after working for 35 years, I had to immerse myself in the digital era; otherwise, I would be out of the labor market.”

Teacher, Colombia

We highlighted the reason participants of all profiles reported for not having skills in dark green. The second most popular participant response is highlighted in light green. “I was not born with them” is shown in yellow.

The belief that one is born with specific skills was not widespread among the participants. The participant profiles analyzed indicate that the absence of skills is the result of gaps in the educational system. We find, once again, a difference between what students responded and what employers responded. Participant responses show that **the option “I wasn't born with them” is more common among students than workers and job seekers.** It is important to remember that students responded that they lacked socio-emotional skills. At the same time, other groups responded that they lacked digital and specific-knowledge skills.

Participants' responses take two distinct positions regarding skills development. Those who believe in **fixed mindset think intelligence** is given to them and that certain skills are a product of destiny and are “set in stone.” Those who believe in **growth mindset think intelligence** develops and that skills are malleable throughout life (Dweck C. S., 2008; Duckworth & Eskreis-Winkler, 2013).

The importance of these perceptions regarding mindset are far more consequential than one might initially think. The mindset a person has regarding the development of intelligence influences their motivation, effort to learn, and appreciation of success. People with a **growth mindset** frequently **take more initiative and persevere** (Hochanadel & Finamore, 2015). It is true that people usually appreciate the role of initiative and effort as they age (Dweck C., 2015). In contrast, people who believe in a **fixed mindset are less motivated, do not learn from failure, do not succeed, and have low academic achievement** (Hochanadel & Finamore, 2015). In the labor market, employers who think that skills are fixed may dismiss candidates who have great skill development potential. Such behavior means that companies lose a good potential employee, and job seekers don't receive training opportunities to develop skills (Dweck, 2008).

The growth mindset strongly influences a person’s motivation, effort to learn, and appreciation of success.

“In my university, as an undergraduate, we never had computers. However, due to the technological advances, it was necessary to train myself to use a computer. Today, many years after my degree, I work as a professor of Digital Journalism. Being open to change and constant training is the secret to keeping up with technological advances in my profession.”

Professor,
52-years-old,
Colombia

As the results show, younger students are more prone to a fixed mindset about skill development. This result is worrisome considering that the skills they refer to are transversal and related to socio-emotional ability. Workers and job seekers work demonstrate a growth mindset, and they provide other explanations for lacking skills rather than the fact that they were not born with them.

Today, more than ever, learning is a lifelong process. We must be prepared to **learn and unlearn skills**. It is true that researchers have identified childhood as the period with the highest success for the implementation of skills development programs (OECD, 2015; World Economic Forum, 2016; Belfield, et al., 2015; Jones, Greenberg, & Crowley, 2015). However, this doesn’t mean that it is impossible or unnecessary to learn throughout life. The importance of lifelong learning is even greater when we consider that, the professionals of tomorrow who will hold jobs that don’t yet exist are being trained and educated today.



“ The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn ”

Alvin Toffler, American writer

In addition to developing transversal skills, it is important for individuals to adapt and update skill sets. How can citizens in the region achieve this? We explain in the final conclusion:

Individuals are Financing Reskilling and Upskilling

We analyzed one issue we have discussed several times in this chapter: how to update of skills. **With a society changing at lightning speed, it is imperative to question whether we are updating the skills of Latin American and the Caribbean citizens effectively.** Participants indicated that they understand the importance of continuous training and, for the most part, do it with their resources.

Table 2.10. Are You Updating Your Skills Regularly? How?

	Students	Teachers	Employers	Workers	Seeking employment
1	Via free platforms	I invest my resources	I invest my resources	Via free platforms	Via free platforms
2	I invest my resources	Via free platforms	Via free platforms	I invest my resources	I invest my resources
4	I don't update them	I receive training at work	I receive training at work	I receive training at work	I don't update them
5		I don't update them	I don't update them	I don't update them	

We marked the most common responses from all participants in dark green. The second most popular response is shown in light green. The least popular response was the option of not updating skills, which is concerning, is highlighted in yellow.

“I complement the skill development process with free training, such as virtual courses.”

**Student,
38-years-old,
Colombia**

“The constant process of updating skills creates success.”

**Professor,
55-years-old,
Colombia**

Free platforms have expanded and democratized knowledge.

Free platforms stand out as a tool to update skills. Participants responded that people in the region are responsible for updating their skills via such platforms and with their resources. People active in the labor market, such as teachers, employers, and workers, also indicated that they receive workplace training. Few participants said they didn't update their skills. In today's world, where constant training is desirable and necessary, to remain competitive in the labor market, nobody should stop updating skills.

Free platforms have expanded and democratized knowledge. **Today, it is possible to enroll in courses at world-class universities without leaving home. Many courses offer certifications that can impact a job seekers success on the labor market.** Platforms such as EdX, Coursera, DataCamp, CodeAcademy, and even YouTube, demonstrate the power of the technological transformation of education in the 21st century. This is just the beginning. As the second decade of the century ends, we are already taking advantage of significant technological advances that would have been difficult to imagine just 20 years ago. We cannot imagine what the future holds or how the century will progress, so preparing for the unknown is wise and necessary.



A few years ago, at the beginning of the decade, online learning remained the exception rather than the rule. Today, online learning is a booming sector and the most prestigious universities, such as Harvard, MIT, and Stanford are firmly committed to such platforms (Bigai, 2019). In 2018, 27 universities from 11 different countries offered more than 50 courses via EdX (Hollands & Aasiya, 2018).



A Columbia University study that analyzed the **demographic profiles** of edX MicroMasters and Coursera Specializations **students** reported that users were an **average age is 35** and **most were between 22 and 44-years-old**. Students of online are educated people who hold **undergraduate or master's degrees** (Hollands & Aasiya, 2018).

New forms of learning contribute to lifelong learning. **Online educational platforms are attractive to adults because they are voluntary, flexible, and less expensive than traditional education.** A person no longer needs to leave the workplace and sit in rush hour traffic to reach a university or institute. Online courses accommodate a person's schedule, offering individuals a variety of choices in terms of courses, pacing and remote access. Online courses have had a positive impact on the labor market, and employers increasingly highlight their importance and validate such credentials (Vigdor, 2018).

The key is to keep your skills up to date because we don't know what will happen tomorrow. We can always learn to learn and continue to seek mastery. Participants responded that modernizing skills is essential to maintain an edge in a changing labor market. **The region must focus on facilitating skills acquisition as well as updating existing skill sets. Education and training systems in the region must propose new**

“I’m in my current position thanks to self-training via YouTube on Moodle management.”

**Worker,
34-years-old,
Colombia**

ways to simplify processes so that skills are easily transferable, valid, and consistent in the digitized world we inhabit today.

There Is a Long Way to Go, but Latin America Has the Potential to Make Progress

The 21st century is characterized by a challenging environment but also new opportunities. Via a questionnaire, we sought to understand if individuals felt prepared to face this new work environment, focusing on skills, training and education. Participants provided interesting although not representative answers. They offered meaningful insight about how individuals in the region perceive the educational system and the 21st century professional world.

Participants said that transversal skills are crucial to success in today’s world, and that individuals must learn a broader range of skills. Participants said they want an education system that predicts the future of the labor market and targets the skills necessary for students to face the future with confidence. We are employing new ways of teaching and learning in the region, and we recognize the urgent need to improve skills validation systems. We recognize that citizens in the region want to modernize their skills. They are turning to free digital platforms or using their financial resources to supplement training processes that did not provide them with the necessary tools for the job market.

We face an environment that challenges us to develop as human beings, and that challenge will only become more difficult. We must be versatile, grow and learn in the face of the unknown. These qualities will allow us to take full advantage of future opportunities.

References

- Almlund, M., Duckworth, A. L., Heckman, J., & Kautz, T. (2011). "Personality Psychology and Economics." *Handbook of the Economics of Education*.
- Amaral, N., Azuara, O., González, S., Ospino, C., Pagés, C., Rucci, G., & Torres, J. (2019). *What Are the Most In-Demand Occupations and Emerging Skills in the Region?* Washington DC: Inter-American Development Bank.
- Belfield, C., Bowden, A. B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). "The Economic Value of Social and Emotional Learning." *Journal of Benefit-Cost Analysis*, 508-544.
- Bigai, K. (2019, January 2). "How Online Learning Platforms Can Support Lifelong Learners and Drive Business." Retrieved from Forbes: <https://www.forbes.com/sites/theyec/2019/01/02/how-online-learning-platforms-can-support-lifelong-learners-and-drive-business/#4bee8fe0552b>
- Busso, M., Bassi, M., Urzúa, S., & Vargas, J. (2012). *Desconectados: habilidades, educación y empleo en América Latina*. Inter-American Development Bank.
- Casner-Lotto, J., & Barrington, L. (2006). "Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century US Workforce." *ERIC*.
- Cunningham, W., Acosta, P., & Muller, N. (2018). *Mentes y Comportamientos en el Trabajo: Fomentando las habilidades socioemocionales para el mercado laboral en América Latina*. The World Bank.
- Cunningham, W.; Villaseñor, P. (2014). *Employer voices, employer demands, and implications for public skills development policy*. The World Bank.
- Deming, D. (2017). "The Growing Importance of Social Skills in the Labor Market." *National Bureau of Economic Research*.
- Duckworth, A. L., & Eskreis-Winkler, L. (2013). "True Grit." *The Observer*.
- Dweck, C. (2015). "Carol Dweck Revisits the Growth Mindset." *Education Week*.
- Dweck, C. S. (2008). *Mindset: The New Psychology of Success*. Random House Digital, Inc.
- Fiszbein, A., Cosentino, C., & Cumsille, B. (2016). *The Skills Development Challenge in Latin America: Diagnosing the Problems and Identifying Public Policy Solutions*. Washington, DC: Inter-American Dialogue and Mathematica Policy Research.
- Flórez, M., & Melguizo, A. (2018, Marzo 13). "Latin America has the Biggest Skills Gap in the World." *World Economic Forum*. Retrieved from: <https://www.weforum.org/agenda/2018/03/latin-america-has-the-biggest-skills-gap-in-the-world-here-s-how-to-bridge-it/>
- Heckman, J. J., & Kautz, T. (2012). "Hard Evidence on Soft Skills." *Labour Economics*, 451-464.
- Hochanadel, A., & Finamore, D. (2015). "Fixed and Growth Mindset in Education and How Grit Helps Students Persist in the Face of Adversity." *Journal of International Education Research*.

Hollands, F., & Aasiya, K. (2018). "Benefits and Costs of MOOC-Based Alternative Credentials." *Center for Benefit-Cost Studies of Education*.

Jones, D. E., Greenberg, M., & Crowley, M. (2015). "Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness." *American Journal of Public Health*.

McAfee, A. (2013, February 26). "Stop Requiring College Degrees." Retrieved from *Harvard Business Review*: https://hbr.org/2013/02/stop-requiring-college-degrees?referral=03759&cm_vc=rr_item_page.bottom

Novella, R., Repetto, A., Robino, C., & Rucci, G. (2018). *Millennials en América Latina y el Caribe: ¿trabajar o estudiar?* Inter-American Development Bank.

OCDE. (2015). *Skills for Social Progress: The Power of Social and Emotional Skills*. OECD Skills Studies.

OCDE. (2016). *PISA 2015 Results: Excellence and Equity in Education*. Organization for Economic Co-operation and Development.

OCDE Development. (2017). *Latin American Economic Outlook 2017: Youth, Skills and Entrepreneurship: Youth, Skills and Entrepreneurship*. OECD Publishing.

Rampell, C. (2013, February 2013). "It Takes a B.A. to Find a Job as a File Clerk." Retrieved from *The New York Times*: https://www.nytimes.com/2013/02/20/business/college-degree-required-by-increasing-number-of-companies.html?_r=0

Roberts, B., Walton, K., & Viechtbauer, W. (2006). "Patterns of Mean-Level Change in Personality Traits Across the Life." *Psychological bulletin*.

Schrage, M. (2010, July 29). "Higher Education Is Overrated; Skills Aren't." Retrieved from *Harvard Business Review*: <https://hbr.org/2010/07/higher-education-is-highly-over>

Staton, M. (2014, January 8). "The Degree Is Doomed." Retrieved from *Harvard Business Review*: <https://hbr.org/2014/01/the-degree-is-doomed>

Umoh, R. (2017, November 7). "Retrieved from Why IBM Wants to Hire Employees Who Don't Have a 4-Year College Degree," *CNN*, <https://www.cnn.com/2017/11/07/why-ibm-wants-to-hire-employees-who-dont-have-a-4-year-college-degree.html>

Unit, Economist Intelligence. (2009). "Skills to Complete Post-Secondary Education and Business Sustainability in Latin America." London: *The Economist*.

Vigdor, A. (2018, February 13). "'MicroMasters' Surge as MOOCs Go from Education to Qualification." Retrieved from *Forbes*: <https://www.forbes.com/sites/adamgordon/2018/02/13/voice-of-employers-rings-out-as-moocs-go-from-education-to-qualification/#7077b365564b>

World Economic Forum. (2016). "New Vision for Education: Fostering Social and Emotional Learning Thought Technology." *World Economic Forum*.

World Economic Forum. (2016). "The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution." *World Economic Forum*.



CHAPTER 3

What Does the Data Say?

By Nicole Amaral,
Rafael Novella,
and Graciana Rucci

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**New generations
will experience
working life in a very
different context
from preceding
generations.**

One hundred million people between the ages of 15 and 24-years-old live in Latin America and the Caribbean (LAC). They represent an unstoppable demographic force that holds the future of the region in its hands, a future marked by disruptive technological advances, including the advent of robotics and artificial intelligence. Who are these young people? What do they expect from life? How do they spend their time? New generations (millennials and centennials) will experience working life in a very different context to that of the generations which preceded them. How can we prepare them for the future of work? What skills do young people need to get a job today and in the future? How are they being affected by digitalization and automation? By examining different data sources, we glean valuable clues to understand better the reality that 21st century youth in LAC face in terms of skills development and academic and work performance.

This chapter attempts to answer these questions with evidence from various studies conducted by the IDB and other agencies. **Section one** reviews what the **data on changing trends in the labor market** tells us. It combines information and findings that are derived from traditional studies and sources of information (such as household and employer surveys) and new and non-traditional sources, such as online job platforms (LinkedIn and others), which offer valuable, albeit incomplete information about the jobs and skills that the market requires. The new IDB series [The Future of Work in Latin America and the Caribbean](#) provides a more in-depth exploration of these trends and delves into new sources and techniques of analyzing large-scale data that can be used to understand today's labor market in a deeper, faster, and more cost-effective way.

Section 2 spotlights young people in the region, looking at who they are, and which factors influence their decisions to study and work. Young people voiced their opinions via the regional project, [Millennials in Latin America and the Caribbean: To Work or Study?](#) which includes 15,000 young people ages 15 to 24 in nine countries (Brazil, Chile, Colombia, El Salvador, Haiti, Mexico, Paraguay, Peru, and Uruguay).¹⁵

Finally, **Section 3** concludes with a series of **key considerations for public policy** to ensure successful learning and professional trajectories for young people in this new labor market, as well as leverage their unique characteristics.

What Kind of Labor Market Do Young People Face Today?

Understanding the demand for occupations and skills in the labor market is a challenge not only for young people, but also for those who design and implement public policies aimed at skills development and improving the match between job seekers and employers.

The market demands skills that young people often lack, which reflects a **widening skills gap** (understood as the difference between the skills demanded by employers and those that workers have). As employers have stated in various surveys, Latin America is the region that faces the most difficulties in filling job vacancies in the world (OECD, 2017a). In Peru, for example, 47% of companies struggle to fill vacancies, 76% of which is due to the candidates' lack of skills (Novella et al., 2019).

¹⁵ These last two countries listed participated by providing quantitative longitudinal information from studies (Young Lives/*Niños del Milenio* study in Peru, and the *Estudio Longitudinal del Bienestar* in Uruguay). The project also relies on qualitative data to contextualize the findings and perceptions, aspirations, and challenges of young people in the region.

Latin America is the region that faces the most difficulties in filling job vacancies in the world.

49%

of the tasks Argentinian workers perform today could be fully automated

Countries must invest in human capital to foster technological innovation to compete globally.

This imbalance between skill supply and demand exists even though the region has invested more in education. Between 2000 and 2015, the number of people with higher education (technical or university) increased from a fifth of the total workforce to nearly a third. This reflects an extraordinary advance in attainment (in just 15 years, the proportion of workers with degrees in higher education increased by 50%). However, these numbers are not enough to meet the demands of the changing labor market. **Education and training systems are not updated or adapted to the realities of a more dynamic labor market, and student performance is inadequate to adapt to new technologies and increased productivity.** For example, the *Encuesta de Habilidades al Trabajo* (ENHAT) in Peru revealed that only 27% of large-scale companies had adopted new technologies, such as advanced networking services (Novella et al., 2019), despite expressing the desire to incorporate these and other new technologies in the near future.

Digitalization and technological advances are **affecting** the **demand for skills**. This is a worldwide trend with significant implications for labor markets, yet evidence on its impact in the region is only beginning to emerge. In the developed world, occupations in which routine tasks are performed have the highest risk of automation and demand for such workers is already decreasing (IDB, 2019b). On the contrary, occupations with fewer routine tasks are more difficult to automate, so demand has grown.

However, in developing countries, evidence on the impact of automation and other technological advances is mixed and inconclusive (World Bank, 2019; IDB, 2018). For example, some studies indicate that in LAC, manual work, which is more easily automated (e.g., machinery operators), has fallen in demand just as much as in developed countries. However, easily automatable “knowledge” occupations (such as administrative staff), which are already declining in developed countries, have not yet been affected in LAC (IDB, 2019b). A recent study of Argentina suggests that, for new technologies to contribute to the country’s growth, the workforce has to adjust to a context in which 51% of work will be complemented by smart technologies. In comparison, 49% of tasks would be fully automated (Accenture, 2018b). Another study of Argentina, Chile, Colombia, Mexico, and Peru used web scraping to consolidate job portal data and found that there is still significant demand for jobs in low-skilled occupations that are at risk of being automated in the near future (González-Velosa et al., forthcoming). In Guatemala, a study found that 75% of jobs will potentially be automated (Micco and Soler, 2018).

Nevertheless, these are risks and possible scenarios, not definitive forecasts. Developing economies (including those in LAC) have high levels of informal labor and different (and often slower) technology adoption and absorption rates that are likely to result in unique, perhaps less intense effects of automation. In fact, a recent study of Peru found that new technology adoption increases the demand for high and middle-skilled workers and does not affect the demand for low-skilled workers (Novella, Rosas, and Alvarado, 2019).

Although the effects of technology may be less drastic for LAC, this uncertainty presents a challenge for the region – countries must invest in human capital, specifically in their workers’ skill sets, to foster technological innovation to compete

New technologies drive a growing demand for advanced digital skills.

globally. In this sense, **what are the skills that the new labor market will demand of young people?** Although we do not yet have definitive or comprehensive answers, the data provides valuable insights.

First, new technologies are driving up demand for advanced digital skills. A recent study of LinkedIn users in Argentina, Brazil, Chile, and Mexico, illustrates that among the 20 fastest-growing skills, ten are directly related to technology development and management. Leading the list are web design and software development, followed by data management and mobile app development (Amaral *et al.*, 2018).

Figure 3.1. The Fastest Growing Digital Skills



Web Design



Software Development



Data Storage



Mobile Application Development

Still, some skills in high demand are not new. In a 2012 survey of employers from Argentina, Brazil, and Chile, 80% of companies indicated that **the most challenging to find in the younger workforce were those that had to do with attitudes and behavior, often referred to as “soft” or socio-emotional skills.** This demand still exists today. The aforementioned survey of employers in Peru indicates that the biggest barrier in filling vacancies is applicants' lack of work experience (48%), which is especially common for young people. The lack of socio-emotional skills (32%) was even more severe than the lack of academic and technical training (23%). While the latter presents a significant problem, it is less of an issue than the former two. In fact, only one out of four vacancies will be filled by a candidate with optimal technical skills without considering her/his socio-emotional skills (Novella *et al.*, 2019).



According to employers, new hiring fails because candidates lack:



48%

work experience



32%

socio-emotional skills



23%

academic and technical training

Evidence of the importance of socioemotional skills is increasingly compelling. Recent studies indicate that **socio-emotional skills** such as problem-solving, critical or creative thinking, and “learnability” (the ability to learn how to learn), **are leading determinants of employability in any position** (IDB, 2018; Deming, 2017; McKinsey, 2018; Accenture, 2018a).

The demand for socio-emotional skills is related to the emergence of “people-centric” occupations (Amaral *et al.*, 2018). Social media specialists, recruiters, marketing specialists, business strategists, and business development specialists— occupations that require high levels of **social intelligence**— are thriving. As a result of demographic change in the region, **demand is also growing for occupations linked to the health and education sectors**, particularly for caretakers (child, elderly, and patient care, among others). These professions, including teachers, doctors, and nurses, require a high level of socio-emotional skills that must be combined with solid technical and digital skills (IDB, 2019a).

The growing importance of socio-emotional skills is not limited solely to “people-centric” occupations. It is expected to play a role in jobs with occupational profiles traditionally defined by highly technical skills, such as scientists and engineers. Such jobs increasingly require a higher level of socio-emotional intelligence and creativity to collaborate effectively and leverage new technologies as they are adopted (Accenture, 2018b). In fact, one study shows that wages are growing most for those who have both strong technical and socio-emotional skills (Deming, 2017).

The evidence indicates that **young people in Latin America and the Caribbean make decisions today in a context that is markedly different from that of previous generations.** Unlike their parents and grandparents, who expected to have jobs that would change little throughout their working lives, they must become flexible workers with the ability to learn new skills continuously and adapt to dynamic professional environments.

Evidence indicates that socio-emotional skills play a significant role in getting hired.

The big question is: **are young people prepared for this new labor market?**

Spotlight: A Closer Look at 21st-Century Youth

Young people in Latin America and the Caribbean are at a **crossroads**. On the one hand, **they have higher levels of education and digital skills than any previous generation.** On the other, as reflected in *Millennials in Latin America and the Caribbean: To Work or Study?*, they are under-equipped for a **labor market that demands an evolving skill set**, and is characterized by high turnover, growing informal labor rates, and the emergence of new work modalities, such as digital platforms.¹⁶ There is a greater demand for experience and different ways to work. We can dig a little deeper to understand this crossroads and the current situation of LAC youth in terms of the future of the labor market.



40%

are not able to correctly perform simple mathematical calculations

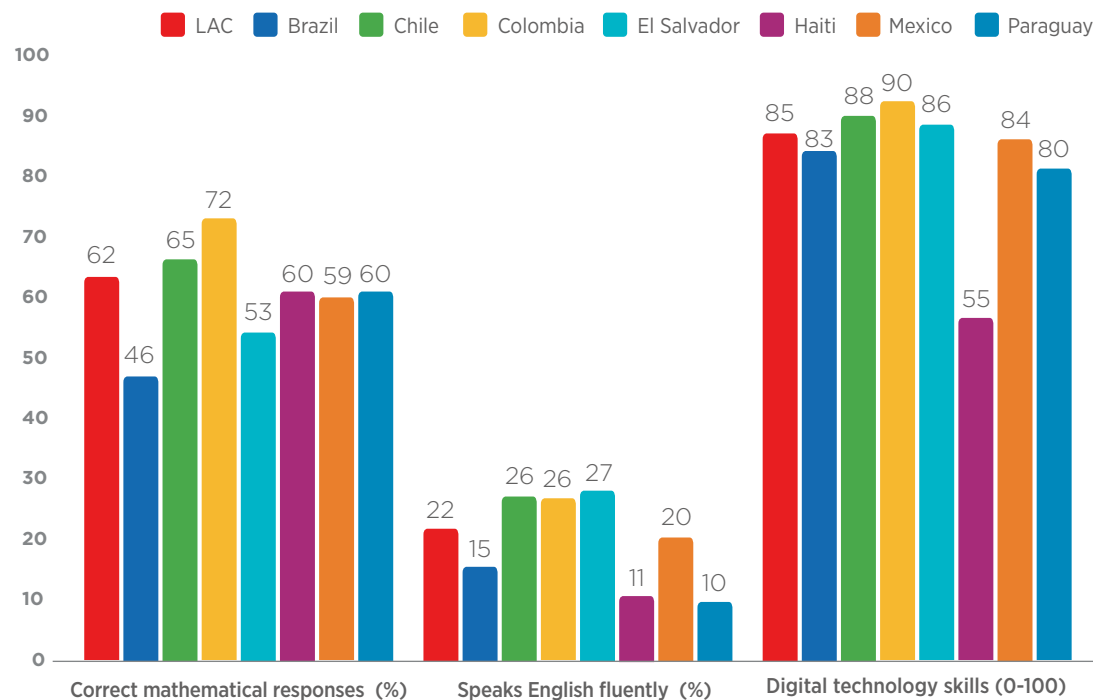
We should start with education. Although the current coverage of higher education has significantly increased, growth in coverage (which has nonetheless progressed inequitably) does not necessarily prove that current education systems have managed to prepare young people for a dynamic and competitive labor market. It is true that, almost 40% of young people have access to higher education and that the region has made significant progress in reducing dropout rates.¹⁷ However, there are still warning signs: **young people in the region lag in cognitive skills, which presents a challenge for the labor market.** Analysis of the Millennials survey in LAC confirms that around 40% are not able to make basic mathematical calculations such as simple division correctly. Also, about three quarters state that they are unable to speak English fluently (Figure 3.2).

¹⁶ Informal labor has shown a downward trend in all countries in the region, but levels are still higher than in other developing countries. The emergence of digital work platforms offers flexibility, but such jobs are precarious in terms of job security and benefits (IDB, 2018).

¹⁷ Secondary education coverage increased by more than 25 percentage points in the last two decades, from 53% in 1995 to 78% in 2015. Similarly, school dropout rates fell slightly from 18% in 2000 to 16% in 2010 (UNESCO, 2013). There has been a significant increase in education spending. In the mid-1990s, the region devoted an average of 3.5% of GDP to education. By 2015, it had increased to 5.3% – a level of spending similar to that of the OECD (2017b).

These are not minor challenges. Low levels of education and, above all, foundational skills¹⁸ as a result of the unequal and generally low-quality education in the region, it is difficult for young people to adapt to and adopt changes (OECD, 2017). A defining characteristic of this challenge is that many do not have a solid foundation for lifelong learning.

Figure 3.2. The Cognitive and Technical Skills of Young People in LAC



Source: *Millennials in Latin America and the Caribbean: To Work or Study?* (Novella et al., 2018).

Although the current coverage of higher education has significantly increased, education systems are not preparing young people for a dynamic and competitive labor market.

The labor market is precarious, and young people have difficulty finding quality jobs and have few opportunities to gain formal work experience. In fact, 20 million young people (21%) neither study, participate in training, or work (also known as NEETs — youth who are not in school, employed, or training). While 41% exclusively study, 21% only work, and 17% do both. Young people who work start, on average, at age 16 and 70% are employed in informal activities (Figure 3.3) marked by high job turnover. That is, a high percentage do not have an employment contract signed by their employer, and therefore lack legal protection. The data concerning job turnover is significant and shows that young people held an average of 3.5 jobs in four years. These figures vary across the region. However, countries like Chile, Brazil, and Colombia have considerably lower turnover rates than those observed in Haiti or Mexico.

¹⁸Foundational skills include socio-emotional and digital skills. These skills are the new basic transferrable skills needed across almost all occupations in today's labor market.

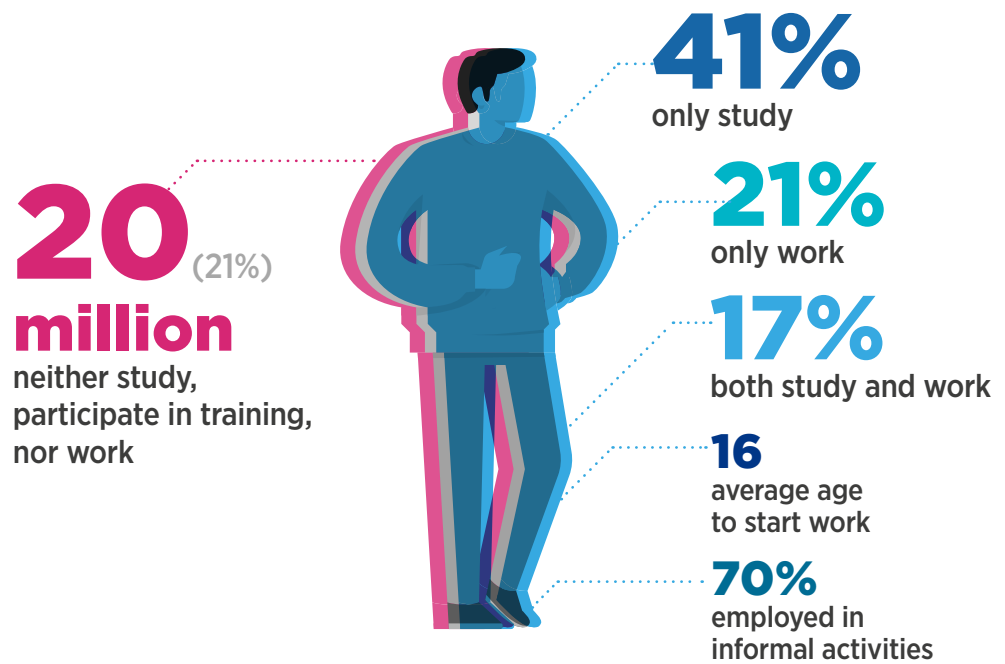
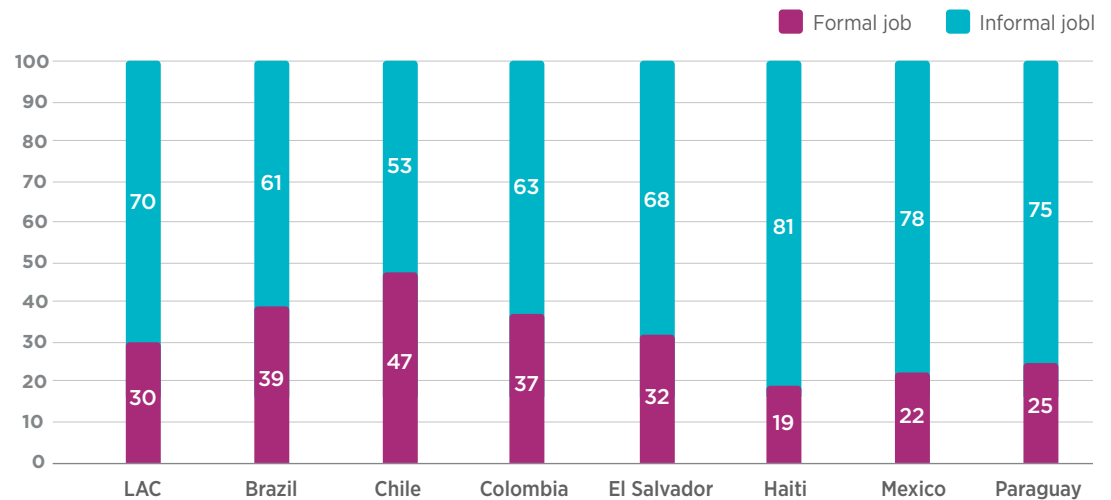


Figure 3.3. Employment Status of Young People (%)



Source: *Millennials in Latin America and the Caribbean: To Work or Study?* (Novella et al., 2018).

Although these figures regarding the future of labor market function and its effects on well-being and productivity seem alarming, **they also indicate a silver lining of many opportunities and areas for improvement.** For example, it seems young people are open to and looking for **more independent and flexible jobs**,¹⁹ which allows them to continue studying as they engage in different activities or gain work experience in diverse fields.

¹⁹ A recent study of the platform economy in Argentina (Buenadicha et al., 2019) shows that the phenomenon is still nascent. However, in 2018, the group of service providers to users via digital platforms represented 1% of the country's total employed population. Half of such workers are 35-years-old or younger. The platform economy offers new opportunities to generate income, but it also presents challenges in terms of regulation and labor standards.

The survey also revealed that young people seem to **offset the costs of informality** with **higher income**. An analysis of the responses showed a correlation between informal labor and higher-income, as young people in countries with higher rates of informal labor also earn salaries more than double the legal minimum wage.

In contrast, in countries with less informal labor, young people's income is just above the legal minimum wage. The analysis showed that 47% of young employees work part-time, and can **combine work with study or other activities**, such as caring for other household members. Evidence shows that these first work experiences, albeit part-time and short-term, provide young people with valuable training and work experience (Heller, 2014).

The analysis also showed that the Not in Employment, Education or Training (**NEETs**), often considered a group "that does nothing," **are quite busy** – they report performing various types of important and productive activities, especially at home (Box 3.1).

Box 3.1. NEETs, Far from the Stereotypes

Data shows that the stereotype of NEETs as a group of inactive or unproductive youth is far from reality. Of this group, 31% of young people are looking for work (especially men). More than half (64%) are responsible for family care activities (mainly women), and almost all participate in household care/chores or help with their family's businesses. Contrary to the established ideas, most NEETs are not young people without obligations, but instead, are carrying out other productive activities. The NEETs of the region, therefore, perform tasks valued in their social contexts. These are misclassified young people since many of them, in fact, participate in the workforce. Only 3% of the NEETs do not perform any of these tasks or have a disability that prevents them from studying or working. Rates are higher, in Brazil and Chile, where the number of seemingly inactive young people stands at around 10%.

31%
Are looking for
work

64% More than
half are
responsible for family
care activities

Almost all of them
participate in
household care
or help with their
families' businesses.



3%
Do not perform any of
these tasks; in Brazil and
Chile, this figure stands
at around

Source: *Millennials in Latin America and the Caribbean: To Work or Study* (Novella et al., 2018).

In addition to challenges at home and in the education system, and labor market, many young people face other challenges that affect their decisions to study and/or to work. For example, **teenage pregnancy** is a **significant challenge** in a region where **15% of young people have children during adolescence**. Data shows that teenage parents are more likely to drop out of the education system, independent of their work status. Becoming a parent during adolescence is a phenomenon that mainly affects women in the lower socioeconomic strata.

In some countries like El Salvador, **violence** limits options for youth and affect their decision-making. NEETs are the group that most frequently identify violence and insecurity as a national problem and drugs as an easy-money trap that distracts them from achieving their goals – decent work, a family, and a house (Novella et al., 2018).

Despite these challenges, young people are optimistic and have a positive attitude towards the future.

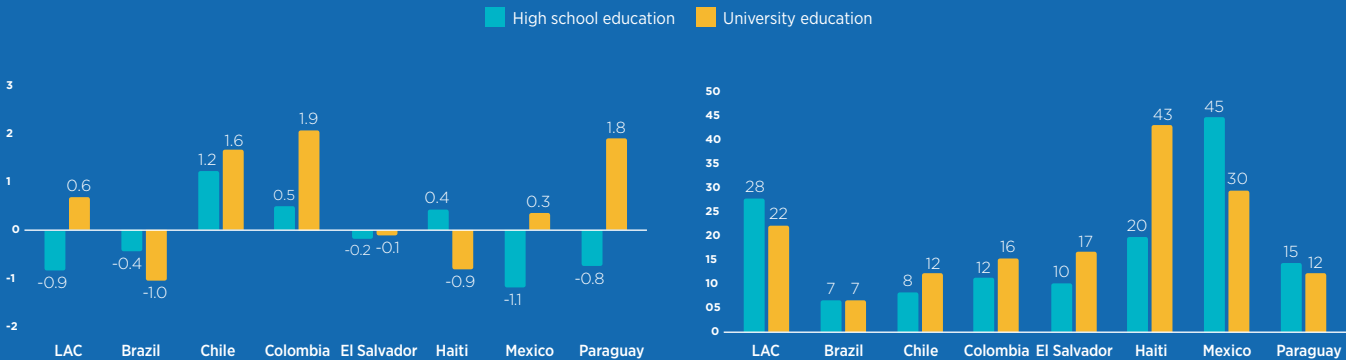
Despite these challenges, young people are optimistic about the future, and their positive attitudes can form the foundation for responding to an increasingly changing work and learning context.

In this sense, **young people have high expectations and aspirations.** For example, 85% of young people globally aspire to complete higher education (Figure 3.4), although currently, only about 40% do. Moreover, 82% claim to be confident that they will achieve their desired level of education (Figure 3.5). This is promising news as long as there is enough support and information to help young people channel their energy and professional aspirations effectively (Box 3.2).

Box 3.2. The Misinformation Problem

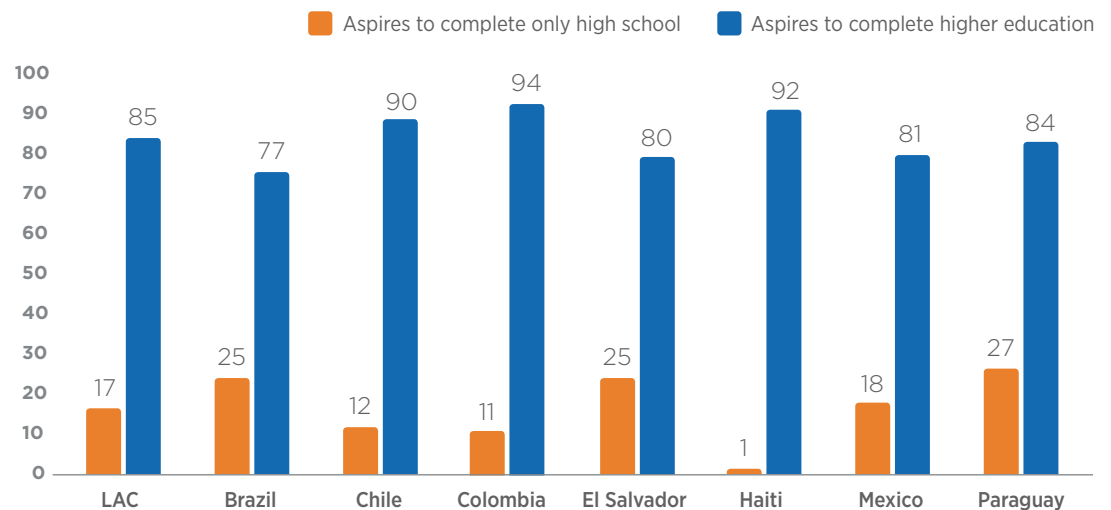
Paradoxically, despite the ubiquity of technology that makes information more accessible, youth in the region continue to be under or misinformed, creating a crucial barrier to better education, job placement, and performance. For example, young people in LAC do not have enough information about how much they can expect to earn in the labor market depending on their level of education, and this can lead to ineffective decision-making regarding their investment in education.

Young people who are misinformed regarding salaries in the labor market (%) and the degree of misinformation in terms of what they believed vs the reality*



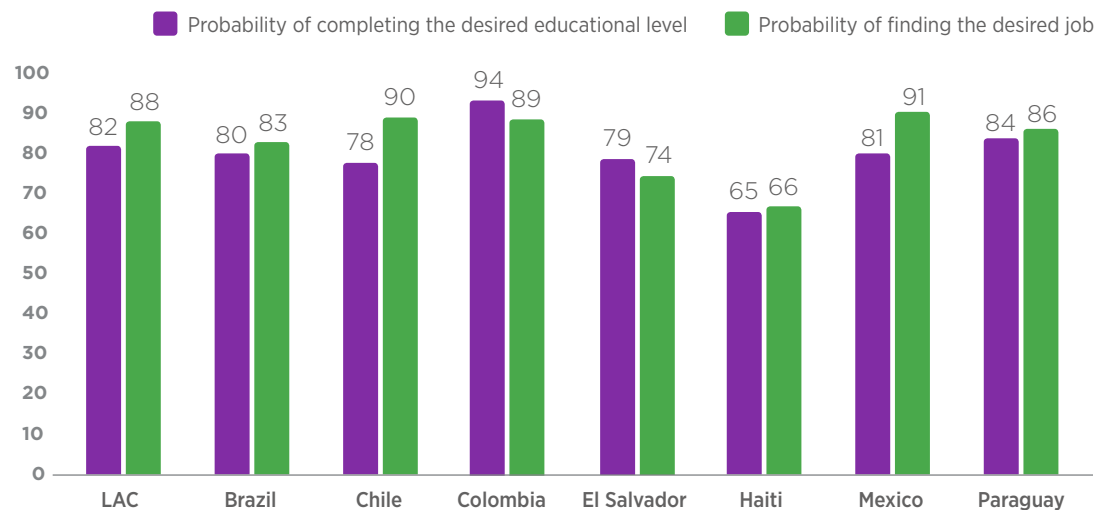
Source: *Millennials en América Latina y el Caribe: ¿trabajar o estudiar?* (Novella et al., 2018b).

*Note: A young person has false expectations if the gap between what they estimate workers earn after completion of different education levels and what they earn on average, based on household surveys in each country, exceeds the standard deviation in any direction. This includes only young people with false expectations. The error or bias is measured by the number of standard deviations from the average wage.

Figure 3.4. Young People's Educational Aspirations (%)

Source: *Millennials in Latin America and the Caribbean: To Work or Study?* (Novella et al., 2018).

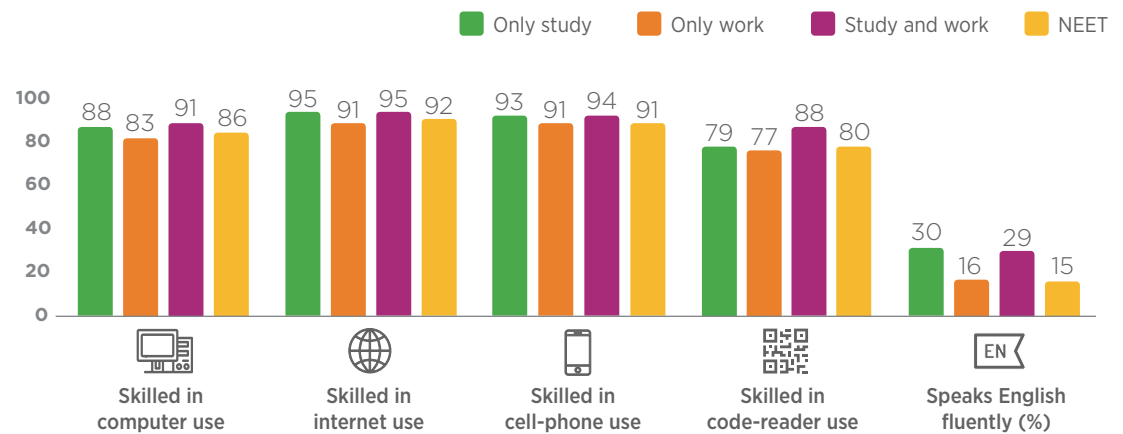
Note: The first bar shows the percentage of young people who, having completed primary school, hope to finish high school. The second bar shows the fraction of young people who, having completed secondary school, indicate that they aspire to complete higher education.

Figure 3.5. Young People's Expectations of Meeting Educational and Work Aspirations (%)

Source: *Millennials in Latin America and the Caribbean: To Work or Study?* (Novella et al., 2018).

Note: Percentage who believes they will achieve their aspirations.

They feel comfortable using the digital technologies they encounter in their daily lives. For example, except for in Haiti, young people say they use digital devices with ease (on average, they reported a level of 80 on a scale of 0 to 100). This includes the ease of using a computer, the internet, a cell phone, and other digital applications. The use of these devices is a basic and critical skill for finding employment in an increasingly digitized market. In addition, these results are consistent, independent of the study and work categories (Figure 3.6).

Figure 3.6. Digital skills and English Proficiency, by Category of Study and Work

Source: *Millennials in Latin America and the Caribbean: To Work or Study?* (Novella et al., 2018).

Note: Skilled on a 0-100% scale.

As for socio-emotional skills, there are positive signs as well. In all countries, respondents express relatively **high levels of self-esteem** (the perception they hold of themselves) and **self-efficacy** (the ability to organize themselves to achieve their goals). In this case, responses exceeded 30 points out of 40. Colombian respondents expressed the highest levels, and Haiti the lowest. **Responses regarding perseverance and determination were similar.** Young people participating in the Millennials survey in LAC scored higher than three points out of a maximum of five, with low dispersion across countries. **These socio-emotional skills are a significant predictor of job success**, because young people who rank highly in perseverance, self-esteem, and self-control, among others, tend to have more confidence in their ability to perform successfully in the workplace and, therefore, are more motivated to do so.²⁰

This raises an important question: **how can we bridge the gap between young people's skills and potential and what employers demand but cannot find?**

In terms of socio-emotional skills, it is important to differentiate between socio-emotional skills such as self-esteem, self-regulation, and perseverance, and the skills that employers recognize and prioritize. The former corresponds to broad categories that relate to all aspects of life (including work). They reflect how one understands and manages emotions, sets and achieves positive goals, feels and shows empathy for others, builds and maintains positive relationships, and makes responsible decisions. As for the latter, **socio-emotional skills prioritized by employers** usually include job readiness and skills closely associated with the workplace such as leadership, effective communication (both oral and written), time management, problem-solving, conflict resolution, and teamwork, among others. These socio-emotional skills can be defined as more precise and complex iterations or combinations of the former, and they generally emerge from a solid foundation in the former. For example, leadership

²⁰ There is no definitive categorization or framework of socio-emotional skills. However, several studies (Dormann et al., 2006; Judge et al., 1990; and Kacmar et al., 2009) identify a set of skills, particularly core self-evaluation skills, that predict job performance.

is associated with the initiative, which develops at different life stages. Similarly, teamwork encompasses attributes such as empathy and communication, which help facilitate positive social interactions (Guerra et al., 2014).

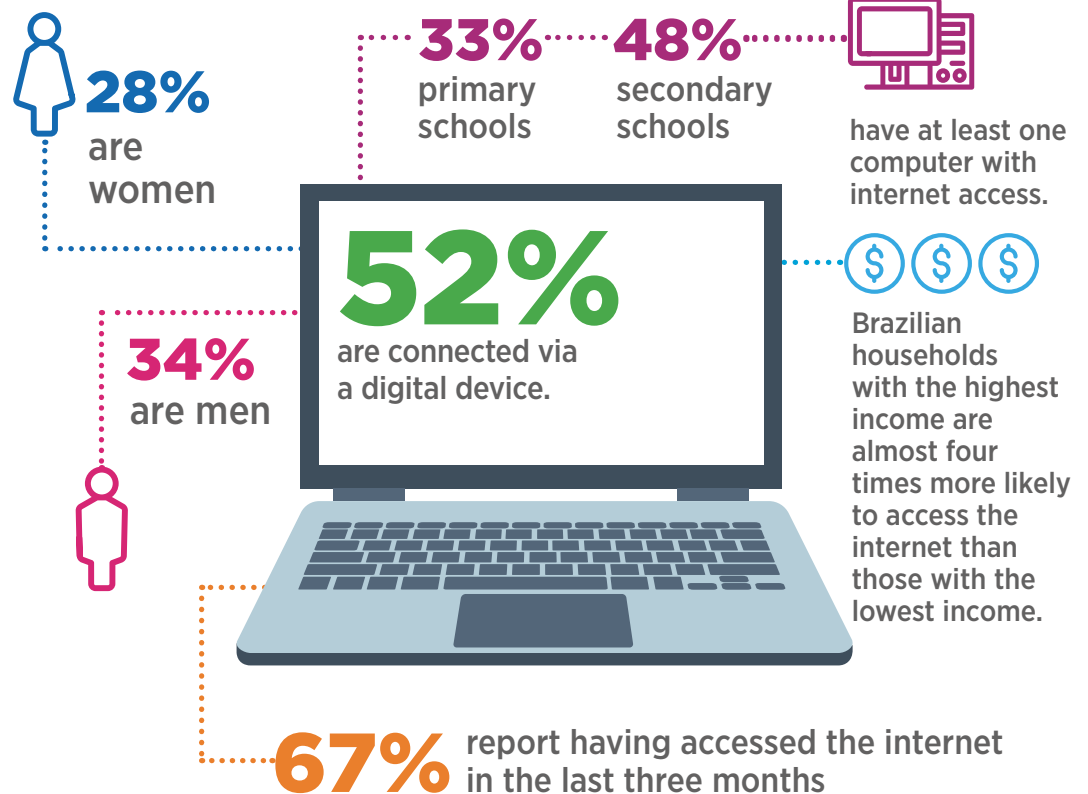
The **good news** is that the Millennials survey in LAC indicates that **young people in the region probably have a solid foundation**. Several studies show that these foundational skills are more difficult to acquire and less malleable after a certain age.²¹ The socio-emotional skills demanded in the labor market, such as communication and leadership, can be shaped in childhood, adolescence, and in adulthood in work environments (Prada et al., 2019).

The same good news applies to digital skills. Young people today use digital devices with ease, especially as compared to previous generations. This is a potential that cannot be wasted. However, several studies show **a gap between self-perception of technology management and actual performance**. As with socio-emotional skills, there may be a gap between the digital literacy of LAC youth and the application of digital skills to a specific field or the more advanced capacity for managing and evaluating data, information and digital content which is increasingly demanded by the labor market (UNESCO, 2018). For example, the results from Chile in the PIAAC test (Program for the International Evaluation of Adult Competencies) show that young people aged 16 to 24 are better at problem-solving in technology-rich environments than older adults. Yet, only 2% attain the highest level of competency compared to an average of 8% in OECD countries (OECD, 2016).

Additionally, connectivity and access to digital technologies vary throughout the region, causing disparities in digital inclusion and digital skills development. In general, **half of the population in LAC lacks an internet connection** (OECD, 2017). In Mexico, for example, a 2016 study sponsored by the World Wide Web Foundation and conducted by the UN indicates that only 52% of the population is connected via a digital device. In rural areas, access is even lower – only 28% of women and 34% of men have access to the internet (Digital Rights, 2016). Additionally, only 33% of primary schools and 48% of secondary schools have at least one computer with internet access. A similar 2019 study conducted by McKinsey in Brazil states that although 67% of respondents reported accessing the internet in the last three months (mainly via mobile phone), accessibility depended on demographic characteristics. For example, households with the highest income are almost four times more likely to access the internet than those with the lowest income (McKinsey, 2019).

²¹ A systematic review of more than 90 studies found that adolescents and young adults demonstrate more significant changes in some of the “Big Five” personality traits (conscientiousness, agreeableness, emotional stability, openness, and extraversion) than the older adults (Roberts, Walton and Viechtbauer, 2006). For example, evidence indicates that adolescents and university-age students become more extroverted as they age, but there are no similar changes at age 30 or older. Longitudinal studies conducted in Australia show that before the age of 25, people can change the Big Five more easily than at later stages (Cobb-Clark and Schurer, 2012; Schurer, 2016).

In Mexico...

Towards a Public Policy for 21st-Century Youth

Data provides an incomplete picture of youth in Latin America and the Caribbean. However, what we already know presents opportunities. What does this incomplete but hopeful vision tell us? We know that 21st-century youth are optimistic, ambitious, versatile, have high expectations of what they can achieve, and are comfortable and confident in a world where technology is ubiquitous.

21st-century youth are optimistic, ambitious, versatile, have high expectations of what they can achieve, and are comfortable and confident in a world where technology is ubiquitous.

On the one hand, they seem to have a **good base of transferrable skills such as foundational socio-emotional skills, as well as confidence and ease in working with digital technologies** in their daily lives (especially compared to previous generations). Though labor markets have become demanding and often unfriendly to young people with little work experience, **young people are flexible and open to new workplace dynamics and combining work with study.** They also have **high expectations for education and labor**, which opens a valuable window of opportunity to invest in the development of human capital via more effective public policy.

On the other hand, the data (mainly from employers), suggest that **the resources available to young people are insufficient.** Thus, it is necessary to continue improving the quality and equity of basic foundational education and training **to tackle the gap in foundational and more advanced skills, such as digital, socio-emotional, and/or cognitive skills.** It is essential to impart these key skills to successfully navigate learning paths that allow them to capitalize on good job opportunities in a dynamic

It is essential to continue improving the quality and equity of foundational education and training.

and challenging labor market. It is important **to recognize and address the barriers that prevent many young people, especially the most vulnerable, from leading productive and happy lives.**

The existing evidence prompts us to ask: **How can we ensure that public policy guarantees successful learning and labor trajectories for young people and builds on and utilizes their strengths and unique characteristics?**

To begin, we need **systems that help people “learn how to learn” and to develop the capacity to update skillsets continuously.** We need systems that provide tools and skills to help individuals change jobs and occupations in the face of fluctuations in demand. These systems provide people with the necessary support so that technological changes do not exacerbate existing skill gaps, especially for the most vulnerable populations.

International evidence demonstrates how important it is **to develop support programs for young people during training and in the transition to the labor market.** The most cost-effective programs are comprehensive and provide timely information and career guidance, training for the development of socio-emotional skills, and the mentoring and the support needed to promote and sustain motivation (Novella and Repetto, 2018).

Existing data on young people in the region offers a starting point to adapt training systems and public policies by focusing on leveraging their strengths and unique characteristics, as well as acknowledging the challenging circumstances that many face.



1. Take advantage of technology to modernize learning. Public policies should modernize the education and training fields to help young people acquire essential experience and skills (cognitive, transversal, digital, and technical). Digitalization and automation may offer more opportunities than challenges. Today, technology can contribute substantially to **personalized forms of learning** that take advantage of the talents and particularities of each person.

It also **offers ways to improve efficiency and coverage.** Modernizing education and training can also take advantage of young people's most distinct characteristics in the 21st century – their ease in working with new technologies and in digital environments. **Evidence on computer-assisted learning (CAL)** demonstrates that the use of software in delivering educational content can improve learning outcomes for young people in developing countries, with particularly convincing evidence for mathematics (Escueta et al., 2017). **E-learning**, combined with face-to-face learning (blended learning), offers more flexible and perhaps more cost-effective training modalities (Escueta et al., 2017) for those who need to be trained on alternative schedules or need a more flexible learning pace. Although evidence on the effectiveness of digital learning is mixed (especially for e-learning), it is a modality that is in full expansion. **Virtual and augmented reality and gamified learning** offer new methods of hands-on learning that engage young people and help them acquire skills throughout their lives. Virtual reality, in particular, is also being used by firms to train current and prospective employees in simulated work environments.

Education and training must take a radical turn and leverage technology for learning.

Education and training must take a radical turn and leverage technology for learning. This implies a complete overhaul of both the classroom and teaching methods. Rethinking the role of the instructor or teacher, improving the management and accountability of training centers, promoting innovation in the classroom, and investing in complementary processes are some of the actions needed to bring about this change (Busso *et al.*, 2017; Elacqua *et al.*, 2018; OECD, 2017).



2. Promote more and better work experiences for young people.

Evidence shows that **work experience has positive returns**. Early work experiences set the foundation for future wage growth (Martínez *et al.*, 2018). That is why it is critical to create programs and policies that provide high-quality, first-employment opportunities to young people.

Consequently, the productive sector needs to play a more active and central role in defining training content, provision, and evaluation methods. **Apprenticeship programs** that combine classroom and on-the-job training with paid employment, are a **critical tool** in bridging the gap between school and work. They have the potential to effectively provide initial work experience for young people in LAC while ensuring continuous learning (Novella and Pérez-Dávila, 2017). A key to successful apprenticeship programs (and other professional training programs) is **the active participation of firms in defining learning content and the guidance and mentorship of youth training at a company** (Fazio *et al.*, 2016).

Companies must be involved in defining learning content and in providing guidance and mentorship to youth in training.



3. Emphasize the development of socio-emotional skills. These skills are a fundamental requirement for success in the workplace, as has been emphasized by employers. Strong socioemotional skills provide young people with the ability to adapt to a changing labor market in which job-specific skills may become outdated quickly. However, it is important to understand better how these skills play out in the labor market to encourage young people

to acquire more specific socio-emotional skills such as **responsibility**, teamwork, **communication**, or **leadership** (Bassi *et al.*, 2012; Novella *et al.*, 2018b; Prada *et al.*, 2018). Such understanding is also critical in increasing **investment in learning socio-emotional skills**. This is especially relevant as it seems that a high percentage of Latin American occupations are at high risk of being replaced by automation (González-Velosa *et al.*, forthcoming).

There are cost-effective ways to develop socio-emotional skills in different contexts and for different age groups. *Expand Tu Mente* (Expand your Mind) is an interesting program in Peru. This program is designed to improve students' educational performance, and it focuses on the development of noncognitive skills such as motivation and perseverance, and seeks to teach students a growth mindset. The impact evaluation found improvements in student academic performance, demonstrating that it is possible to improve educational performance through a change in mindset. This highlights the importance of investing in socio-emotional skills (Outes *et al.*, 2017). The program costs \$0.20 per student, and completing it takes less than an hour. Prada *et al.*, 2018 also show that adults in the labor market can acquire and improve socio-emotional or transferrable skills outside of a formal school setting. For

example, a training program for sales personnel at one of the largest retailers in Chile significantly improved the socio-emotional / transferrable skills of employees identified as most critical to the business (leadership and communication), thereby improving employee productivity.



4. Ensure inclusion. Countries must work to **lift barriers to labor participation**, reduce wage gaps, and encourage labor desegregation. These issues persist throughout the region, especially among disadvantaged groups in the labor market, such as women and people with disabilities, among others. Similarly, they must address the differences and barriers that influence whether young people, especially for NEETs, decide to study and/or work.

This includes thinking about **how to ensure digital inclusion**, so that **young people from vulnerable populations** have the **same chances to benefit from the employment opportunities offered by new technologies and the knowledge-based economy**. Evidence shows that companies that employ new technologies that typically generate employment opportunities for workers with a medium to high level of qualification (Novella et al., forthcoming). Consequently, vulnerable young people must be trained in the skills that allow them to access such opportunities.



5. Invest in developing information guidance systems and tools.

Finally, as the Millennials survey in LAC shows, many young people make decisions about education or careers based on incorrect information. This is especially consequential in contexts where the labor market is constantly changing. As such, information about which training to undertake and which are the most relevant occupations and skills (those that are likely to have the highest returns) is key.

It is imperative to create information systems and provide counseling that helps young people make informed decisions about the future.

Big data and alternative information sources such as social networks and online platforms offer a new range of possibilities to public policymakers. They provide tools that detect trends in real-time and provide job-seekers with more capacity to adapt to the new skills needed in labor markets. **Creating a modern information management system that uses all available information sources has become imperative.** This will not only benefit young people when making decisions about studying or working, but it will also help employers and training providers. Knowing what the market demands is crucial in closing the skills gap and building successful learning and work trajectories (IDB, 2019b).

Equally important is **to ensure that this information is accessible to young people promptly to help them improve their career decisions**. The provision of information affects young people's expectations and knowledge regarding future education and career options and the costs and way to pursue different opportunities. However, while information can be offered at low cost and in easily scalable formats, its effects on young people's behavior and investments depend on the context in which the information is delivered (Novella & Repetto, 2018).

Public policy plays an indispensable role in facilitating young people's learning and labor trajectories. The issues mentioned above are linked to a broader strategy that can promote lifelong learning, in school and the workplace. This strategy must be based

We have created a scenario where learning and work occur continuously, simultaneously, and in new ways.

Young people and companies must change their mindset to take advantage of future opportunities.

on strong and adaptive mechanisms that ensure the quality and relevance of skills development and sustainable and efficient financing mechanisms.

It is also important **to emphasize the role and prominence that employers and individuals play in this process**. Companies are not just consumers of human capital. They must also play a determining role in learning across a lifetime. Countries around the world that have advanced training and education systems are characterized by employer initiative and involvement (Amaral *et al.*, 2017). As for individuals, they play a fundamental role in seeking opportunities for continuous learning.

The future of work has arrived, and connotes significant changes in mindset that young people and employers in the region must undertake. In only a few years, we have moved from a context in which individuals were educated and trained for jobs that would vary little throughout their lives, to a scenario in which learning and work occur continuously, simultaneously, and in new ways. We have become consumers and producers of knowledge and must continuously develop and optimize learning and labor trajectories. The sooner we embark on this mental shift, the sooner we can adapt to what lies ahead and take advantage of future opportunities.

References

Accenture (2018a). *It's Learning. Just Not as We Know It. How to Accelerate Skills Acquisition in the Age of Intelligent Technologies*. Retrieved from https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF/Accenture-Education-and-Technology-Skills-Research.pdf#zoom=50

Accenture (2018b). Inversión en nuevas tecnologías: Oportunidades para la generación de empleo. *Seminario de Desarrollo*. March 3, 2019.

Aedo C., & Walker I., (2012). *Skills for the 21st Century in Latin America and the Caribbean*. IBRD. Washington, DC: World Bank.

Amaral, N., Fieldsend, G., Prada, M.F, & Rucci, G. (2017). *Hacia la formación de mejores competencias: Sistemas para la productividad y el crecimiento*. Technical Cooperation: IDB-NT-1318 Washington, DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/es/publicacion/17306/hacia-la-formacion-de-mejores-competencias-sistemas-para-la-productividad-y-el>

Amaral, N., Eng, N., Ospino, C., Pagés, C., Rucci, G., & Williams, N. (2018). ¿Hasta dónde pueden llevarte tus habilidades? Cómo utilizar los datos masivos para entender los cambios en el mercado laboral. Washington, DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/es/hasta-donde-pueden-llevar-te-tus-habilidades-como-utilizar-los-datos-masivos-para-entender-los>

Alaimo, V., Bosch, M., Kaplan, D. S., Pagés, C., & Ripani, L. (2015). *Empleos para crecer*. Washington, DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/es/publicacion/17019/empleos-para-crecer>

Bassi, M., Busso, M., Urzúa, S., & Vargas, J. (2012). *Desconectados: habilidades, educación y empleo en América Latina*. Washington, DC: Inter-American Development Bank.

Borghans, L., Duckworth, A. L., Heckman, J. J., & Ter Weel, B. (2008). The Economics and Psychology of Personality Traits. *Journal of Human Resources*, 43(4), 972-1059.

Buenadicha C, Madariaga, J., Molina, E., & Ernst C. (2019). *Economías de plataformas y empleo. ¿Cómo es trabajar para una app en Argentina?* Retrieved from <https://www.cippec.org/publicacion/economia-de-plataformas-y-empleo-como-es-trabajar-para-una-app-en-argentina/>

Busso, M., Cristia, J., Hincapié, D., Messina, J., & Ripani, L. (2017). *Aprender mejor: políticas públicas para el desarrollo de habilidades*. Washington, DC: Inter-American Development Bank.

Calero, C. & Roza, S. (2016). The Effects of Youth Training on Risk Behavior: The Role of Non-Cognitive Skills. *IZA Journal of Labor and Development*, 5(12), 1-27.

Deming, D. J. (2017). The Growing Importance of Social Skills in the Labor Market. *National Bureau of Economic Research*, Working Paper 21473. Retrieved from <https://www.nber.org/papers/w21473.pdf>

Derechos Digitales. (2016). Women's Rights Online: Mexico Report Card. *Derechos Digitales: Derechos Humanos y Tecnología en América Latina*. Retrieved from https://www.derechosdigitales.org/wp-content/uploads/report-card-mexico_eng.pdf

Dormann, C., Fay, D., Zapf, D., & Frese, M. (2006). A State-Trait Analysis of Job Satisfaction: On the Effect of Core Self-Evaluations. *Applied Psychology: An International Review*, 55 (1), 27-51. doi:10.1111/j.1464-0597.2006.00227

Elacqua, G., Hincapie, D., Vegas, E., & Alfonso, M. (2018). *Profesión: Profesor en América Latina ¿Por qué se perdió el prestigio docente y cómo recuperarlo?* Washington, DC: Inter-American Development Bank.

Escueta, M., Quan V., Nickow, A.J., & Oreopoulos, P. (2017). Education Technology: An Evidence-Based Review. *National Bureau of Economic Research*, NBER Working Paper No. 23744.

Favara, M. & Sánchez, A. (2017). Psychosocial Competencies and Risky Behaviours in Peru. *IZA Journal of Labor and Development*, 6(1), 3.

Fazio, M. V., Fernández-Coto, R., & Ripani, L. (2016). *Apprenticeships for the XXI Century: A Model for Latin America and the Caribbean?* Washington, DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/en/apprenticeships-xxi-century-model-latin-america-and-caribbean>

González-Velosa C. & Casas, L. (2019). *Demanda de trabajo en américa latina ¿Qué podemos aprender de los portales de vacantes online?*, Technical Cooperation IDB-NT-XX. Washington, DC: Inter-American Development Bank.

Guerra, N., Modecki, K., & Cunningham, W. (2014). Developing Social-Emotional Skills for the Labor Market: The PRACTICE model. *World Bank Policy Research*, Working Paper 7123. Washington, DC: World Bank. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/20643/WPS7123.pdf?sequence=1>

Hanushek, E. A. & Woessmann, L. (2008). The Role of Cognitive Skills in Economic Development. *Journal of Economic Literature*, 46(3), 607-668.

Heckman, J. J. & Kautz, T. (2012). Hard Evidence on Soft Skills. *Labour Economics*, 19(4), 451-464.

Heckman, J. J., Stixrud, J., & Urzúa, S. (2006). The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior. *Journal of Labor Economics*, 24(3), 411-482.

Heller, S. B. (2014). Summer Jobs Reduce Violence Among Disadvantaged Youth. *Science*, 346(6214), 1219-1223.

Holford, A. (2017). *Access to and Returns from Unpaid Graduate Internships*. IZA Institute of Labor Economics, No. 10845

IDB (2018). *The Future of Work in Latin America and the Caribbean. A Great Opportunity for the Region?* Retrieved from https://publications.iadb.org/publications/english/document/The_Future_of_Work_in_Latin_America_and_the_Caribbean_A_Great_Opportunity_for_the_Region_print_version.pdf

IDB (2019a). *The Future of Work in Latin America and the Caribbean. Education and Health: the Sectors of the Future?* Retrieved from [https://publications.iadb.org/publications/english/document/Education-and-Health-The-Sectors-of-the-Future-\(print-version\).pdf](https://publications.iadb.org/publications/english/document/Education-and-Health-The-Sectors-of-the-Future-(print-version).pdf)

IDB (2019b). *The Future of Work in Latin America and the Caribbean. What Are the Most in-Demand Occupations and Emerging Skills in the Region?* Retrieved from https://publications.iadb.org/publications/english/document/What_are_the_most_in-demand_occupations_and_emerging_skills_in_the_region_interactive_version_en_en.pdf

Judge, T. A., Erez, A., & Bono, J. E. (1998). The Power of Being Positive: The Relation Between Positive Self-Concept and Job Performance. *Human Performance*, 11 (2-3), 167-187. doi:10.1080/08959285.1998.9668030.

Kacmar, K. M., Harris, K. J., Collins B. J., & Judge, T. A. (2009). Core Self-Evaluations and Job Performance: The Role of the Perceived Work Environment. *Journal of Applied Psychology*. 94 (6), 1572-1580. doi:10.1037/a0017498. PMID 19916664.

Kautz, T., Heckman, J. J., Diris, R., Ter Weel, B., & Borghans, L. (2014). Fostering and Measuring Skills: Improving Cognitive and Non-Cognitive Skills to Promote Lifetime Success. *National Bureau of Economic Research, Working Paper 20749*. 10.3386/w20749

Martínez, D., Rucci, G., Saltiel, F., & Urzúa S. (2018). *Should I Stay or Should I Go? Career Choices for Young Workers in Latin America*. Technical Cooperation IDB-WP-862. Washington DC: Inter-American Development Bank.

McKinsey (2018). *Skills Shift Automation and the Future of the Workforce*. McKinsey Global Institute. Retrieved from <https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce>
McKinsey (2019). *Brazil Digital Report*. 1st Edition.

Micco, A., & Soler, N. (2018). *The Future of Jobs in Latin America and the Caribbean*. Technical Note for upcoming publication.

Novella, R., & Ripani, L. (2016). Are You (Not) Expecting? The Unforeseen Benefits of Job Training on Teenage Pregnancy. *IZA Journal of Labor and Development*, 5(19).

Novella, R., & Repetto, A. (2018). *Acompañando a los jóvenes en educación y trabajo: ¿qué funciona y qué no? Una revisión de las evaluaciones de programas de bajo costo*. IDB Technical Note No. IDB-TN-1541, 2018. Washington DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/es/publicacion/acompanando-los-jovenes-en-educacion-y-trabajo-que-functiona-y-que-no-una-revision-de>

Novella, R., Repetto, A., Robino, C., & Rucci, G. (2018). *Millennials in Latin America and the Caribbean: To Work or Study?* Washington, DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/es/millennials-en-america-latina-y-el-caribe-trabajar-o-estudiar>

Novella, R., Alvarado, A., Rosas-Shady, D., & González-Velosa, C. (2019). *Encuesta de habilidades al trabajo (ENHAT) 2017-2018: Causas y consecuencias de la brecha de habilidades en Perú*. Working Paper IDB-NT-1352, March. Washington DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/es/encuesta-de-habilidades-al-trabajo-enhat-2017-2018-causas-y-consecuencias-de-la-brecha-de-habilidades2>

Novella, R., Rosas-Shady, D., & Alvarado, A. (2019). Are We Nearly There Yet? New Technology Adoption and Labor Demand in Peru. IDB Working Paper Series No. IDB-WP-01013. Washington DC: Inter-American Development Bank.

Novella, R., & Pérez-Dávila, S. (2017). Are Apprenticeships Programs Effective? Lessons for Latin America and the Caribbean. IDB Technical Note No. IDB-TN-1319, 2017. Washington DC: Inter-American Development Bank.

OECD. (2016). Chile Country Note. Skills Matter: Further Result from the Survey of Adult Skills. Paris. *OECD Publishing*. Washington DC: OECD. Retrieved from <https://www.oecd.org/skills/piaac/Skills-Matter-Chile.pdf>

OECD. (2017). *Latin American Economic Outlook 2017: Youth, Skills and Entrepreneurship*. Retrieved from https://www.oecd.org/dev/americas/E-Book_LEO2017.pdf

OECD. (2018). *Key Facts about the Risk of Job Automation in OECD Countries*. Retrieved from www.oecd.org/employment/future-of-work.htm

Outes, I., Sánchez, A., & Vakis, R. (2017). Cambiando la mentalidad de los estudiantes: evaluación de impacto de ¡Expande tu Mente! sobre el rendimiento académico en tres regiones del Perú. *GRADE*.

Petreski, M. (2018). Is Informal Job Experience of Youth Undermining Their Labor-Market Prospects in Transition Economies? *Open Economies Review*, 1-18.

Prada, M. F. & Rucci, G. (2016). *Guide to Workforce Skills Assessment Instruments*. Washington, DC: Inter-American Development Bank.

Prada, F. M., Rucci, G. & Urzúa, S. (2019). Training, Soft Skills and Productivity: Evidence from a Field Experiment in Retail. Technical Note IDB-WP-1015. Washington DC: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/en/training-soft-skills-and-productivity-evidence-field-experiment-retail>

UNESCO. (2018). A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2. Information Paper No. 51. New York City: UNESCO. UIS/2018/ICT/IP/51. Retrieved from <http://uis.unesco.org/sites/default/files/documents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf>

World Bank (2019). *The Changing Nature of Work*. World Development Report. Washington, DC: World Bank Group.



CHAPTER 4

The 21st-Century Gender Skills Gap: Truth or Fiction

By Monserrat Bustelo
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New Challenges, New Opportunities

21st-century societies move at a dizzying pace: we are astonished by migration flows, climate change, longer life expectancy, and technological developments. Such developments include robots, artificial intelligence, and big data. In this context, as we have seen, **intelligent technology is redefining the skills required by industries and geographical regions**, leading to **a decrease in the returns of traditional cognitive skills as compared to noncognitive ones which are increasingly more valued** (Deming 2017; Edin, Fredriksson, Nybom & Öckert 2017; Daugherty & Wilson 2018).

We need to understand better the existing skill gaps between women and men. This is the only way to take advantage of this transformation to promote policies that strengthen gender equality in the labor market.

On the other hand, the gender gap in the labor market has become an empirically significant and persistent trend in most countries around the world. The technological changes we are witnessing affect these gaps and can either reduce or widen them, depending on how we acquire skills, use, and translate into labor market outcomes. The way the technological revolution transforms the labor market isn't predetermined – it is the result of policies and decisions. **We face a critical opportunity to create conditions for individuals to invest in and develop the most valued 21st-century skills in the labor market.** To achieve this, we need to understand better the existing skill gaps between women and men. This is the only way to take advantage of this transformation to promote policies that strengthen gender equality in the labor market.

With these challenges and opportunities in mind, **this chapter analyzes the noncognitive skills gap that evidence has shown between men and women. This skills gap has an impact on inequalities observed in the labor market.** This analysis is the result of a comprehensive review of economics and psychology literature. It is based on rigorous evidence from experimental studies carried out in labs or in the field.

The objective of this chapter is:



1.- To visualize: evidence for and shed light on the current situation, summarizing lessons learned from the literature, and analyzing the impact of the gender gap in noncognitive skills on the labor market.



2.- To expand solution-oriented spaces: looking to the future, fostering and informing debates to promote skill development with a gender equality approach.

Box 4.1. Gender Equality in the Labor Market: An Unmet Challenge

In Latin America and the Caribbean, the gap in labor market participation between men and women is almost **30%**



Once they enter the labor market, women tend to have low-productivity and low-paying jobs, which creates the gender wage gap.

Women hold a mere **33%**

of the region's highest-paying jobs.



Gender distribution in employment varies systematically by type of occupation which explains part of this gap.

While almost

30%

of women work in occupations linked to the care sector.



Only

6%

of workers are men

Even when they perform the same professional activities, men and women carry out different tasks and have different career trajectories. Women's participation in leadership positions is low in both the public and private sectors. **Only 20% of public administrators are women**, and, across companies, they occupy less than **10% of board of director members**. Additionally, women are more likely to be involved in supporting jobs such as head of human resources or finance.

Educational segregation

largely causes the gender differences in the distribution of occupations.

Women account for 60% of university and other tertiary education graduates. However, **in STEM** (Science, Technology, Engineering, and Mathematics) careers, **they represent only 30% of all graduates**, revealing a low propensity to choose jobs in high productivity sectors. This educational sorting by gender causes women to fall behind men, both in terms of digital cognitive skills for technology use, and in their employment rates in the technology sector. This implies that women are at risk of being excluded from the potential benefits of technological innovation.

Source: Bustelo *et al.* (2019). [The future of work in Latin American and the Caribbean: What will the labor market be like for Women?](#)

The What, When, Where, and How of the Gender Gap in Noncognitive Skills

Which Gaps?

Rigorous evidence increasingly supports the link between gender differences in noncognitive skills and the gaps in certain labor market outcomes. This includes studies about the gender gap in the propensity to take risks, attitudes towards competition, attitudes towards negotiation, social preferences in attitudes towards others, and other psychological attributes (Bertrand, 2011).

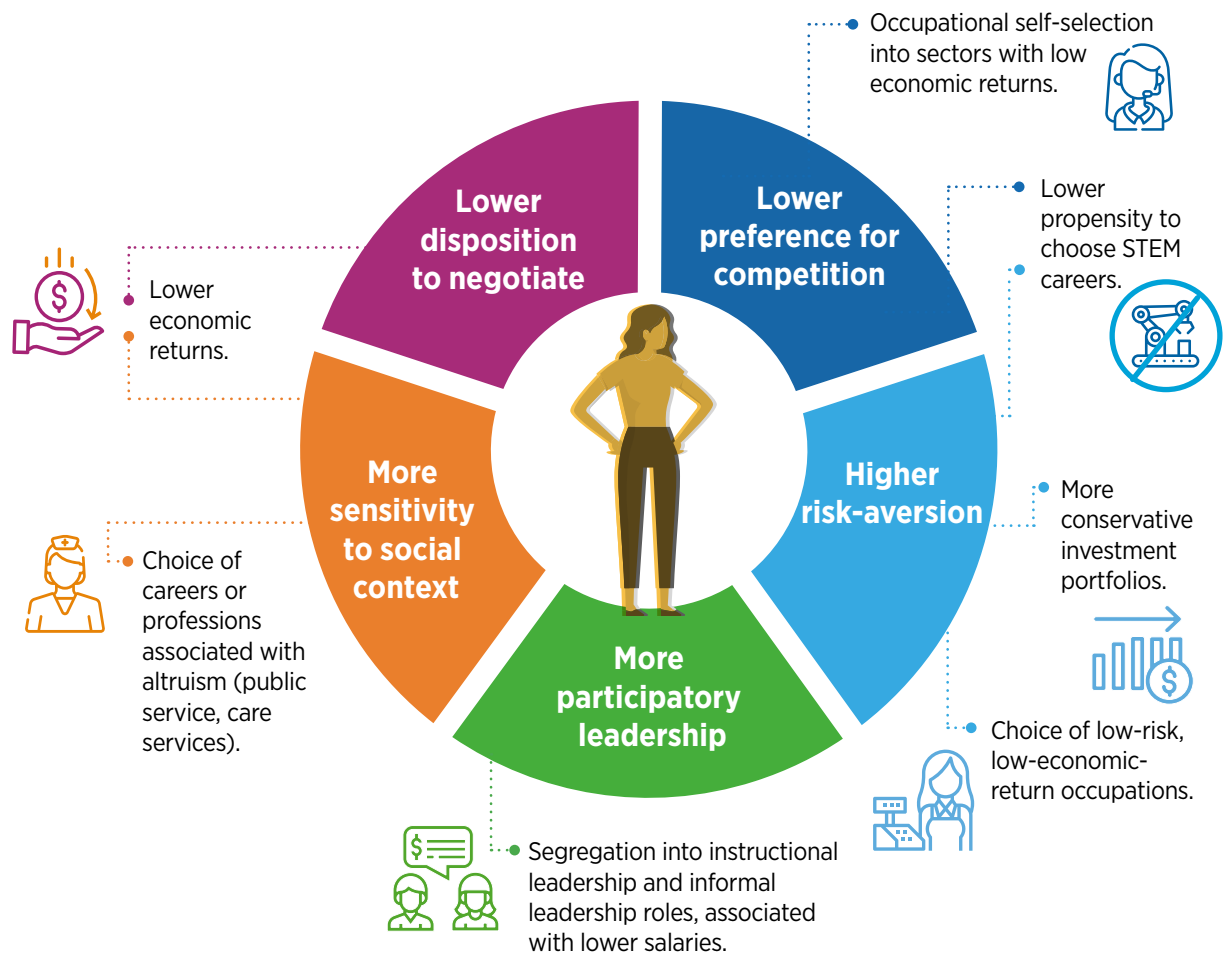
Closing Gaps in Noncognitive Skills

What are these gaps, and what effects do they have on certain labor market outcomes?

Findings in the literature seem to coincide with the fact that **women show higher aversion to risk, lower preference for competition, and lower propensity to negotiate**. Higher risk-aversion can lead women to choose careers with less risk of failure as well as low-rank occupations, choices ultimately associated with lower salaries. Lower preference for competition can discourage them from choosing certain occupations or fields of study perceived as male-dominated (e.g., careers in STEM). Lower propensity to negotiate can lead them to earn lower salaries than their male peers.

On the other hand, **women tend to show a more prosocial attitude and empathy** associated with professional and occupational choices more focused on social services (e.g., care professionals) but lower remuneration. Along these lines, women's leadership style also differs from men's: they are more democratic and empathetic, which leads women to self-select into instructional management positions and informal leadership roles.

Figure 4.1. The Gender Gap and its Consequences



Source: Author's elaboration based on Wickert & Pohlmeier, 2010; Heineck, 2011; Azmat & Petrongolo, 2014; Flory et al. 2015; Rigdon 2013; Shurchkov & Eckel, 2018; Gonzalez Rozada & Levy Yeyati, 2018.

Noncognitive skills are malleable from an early age, and some continue to develop throughout adulthood.

When and Where Do They Appear?

Learning how and at which stage of the life cycle noncognitive skill development takes place is important to understand how such skills relate to gender and to what extent we can reduce gaps.

We accumulate skills that we can hone throughout our lifetime, and we do so to varying degrees and at different moments. For instance, conscientiousness and agreeableness tend to increase over the years (Heckman, 2012). There is different developmental pattern in openness to experience, which follows an inverted U-shaped function in its expression concerning age (OECD, 2018). Skills associated with personality traits reach their maximum around ages 50 to 70, and their manifestation is dependent on context (Borghans *et al.*, 2008).

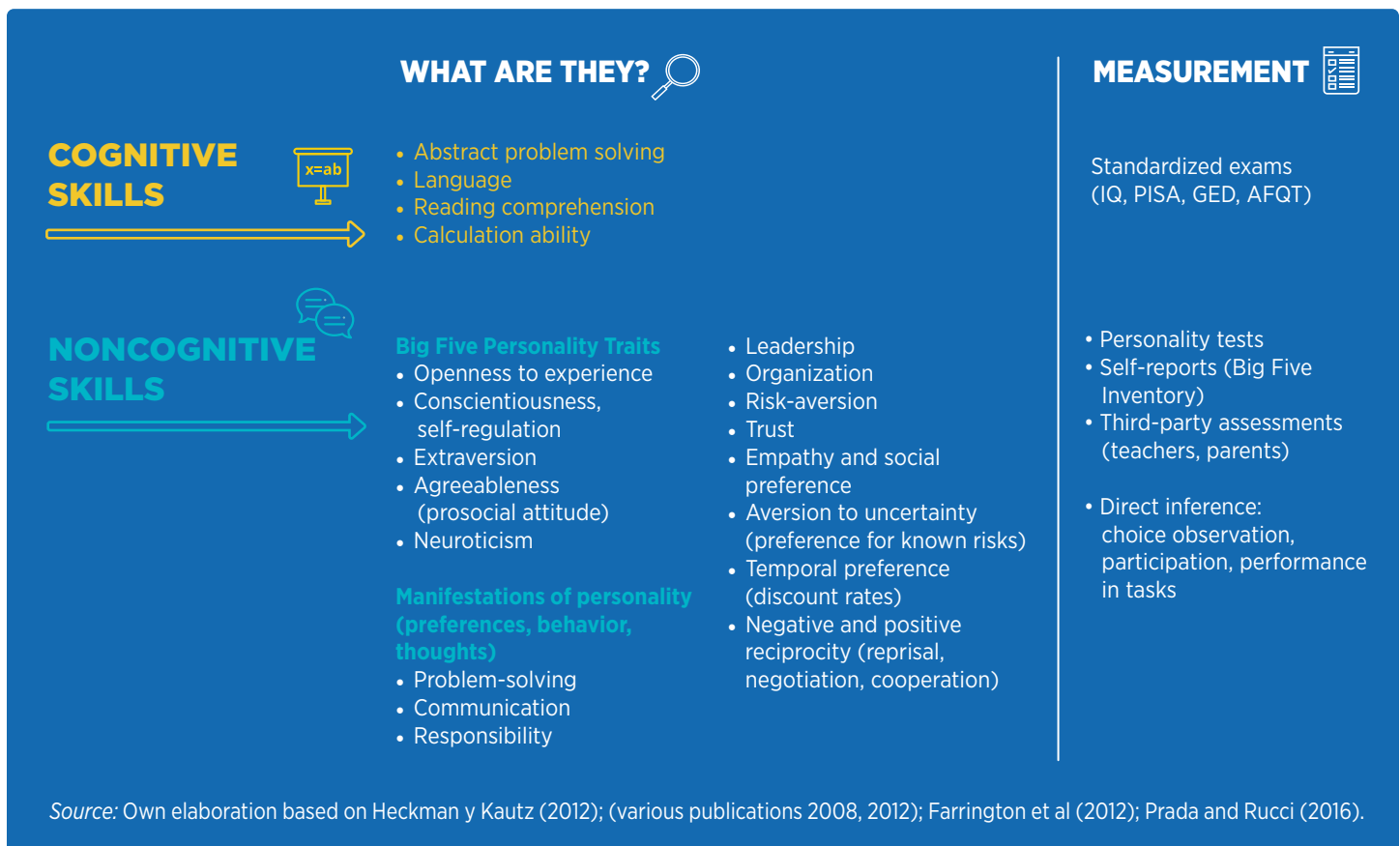
These skills are malleable from an early age and, depending on their type, can develop throughout adulthood. The foundation for specific skills is established during certain life cycle stages, while with others, it is possible to develop and reinforce them. For instance, initiative and proactivity can be developed through adolescence fully. However, social skills (teamwork) can be developed fully specifically during childhood and can only be reinforced later in life (Cunningham *et al.*, 2016).

Families, schools, work, and social environments play a role in the development of these skills. In this case, children, parents, and caregivers play the most important role. For teenagers, their peers and school play a role in development, and, as they grow older, the workplace and higher education institutions come into play. **People develop and learn noncognitive skills throughout their lifecycle, primarily when they begin school in childhood and adolescence. In adulthood, people develop such skills with their peers (equals) and the community.**

Box 4.2. Skills: How to Classify and Measure Them (see Chapter 6)

According to a competence-based psychology approach, noncognitive skills have been defined and measured differently throughout the years. Definitions of these skills vary, including the big five personality traits (the Big Five model). These traits can be observed in the conduct, behavior, and choices people make (Heckman 2008; Prada & Rucci, 2016).

We measure noncognitive skills with different instruments than cognitive ones. Cognitive skills involve general knowledge obtained through schooling and experiences. Studies use IQ tests or standardized math, science, or reading tests that reflect abstract problem-solving and written communication skills to measure the relationship between these skills and academic and labor market outcomes. Studies about the relationship between noncognitive and socioemotional skills cannot use these measurement instruments, even when such skills are critical to knowledge acquisition (Farrington *et al.* 2012).



Gender Bias in Noncognitive Skill Measurement

Noncognitive skills are measured with instruments that differ from those traditionally used to measure cognitive skills. As such, sources include self-reported data collected via surveys and the observation of individual behavior, participation, and choices (Heckman & Kautz, 2012).

Gender bias potentially influences this measurement. These occur when variables such as context and social norms come into play and influence self-reported answers. It is critical to consider gender bias in the measurement of noncognitive skills. Gender differences are often explained better by internalized gender stereotypes and assigned gender roles than by inherent behavioral differences between men and women. We observe this, for instance, when individuals provide answers they perceive to be aligned with gender expectations, and not according to their authentic personality traits (Stake & Eisele, 2010; Bohnet, 2016). In this regard, women tend to be more empathetic than men when gender stereotypes exist (Stake and Eisele, 2010; Ickes *et al.*, 2000). In other words, women behave more empathetically because people expect them to. Furthermore, women who participate in male-dominated groups often bias their answers according to the gender composition (Bohnet, 2016).

Do Women Take Fewer Risks?

Women tend to be less likely to take risks and participate in economic activities marked by ups and downs but have the potential for high returns (Halt & Laurie, 2002; Hartog *et al.*, 2002; Crosson & Gneezy, 2009). Researchers explain this gender gap in atti-

There is gender bias in the measurement of noncognitive skills. It is critical to keep this in mind during measurement.

Women tend to be less likely to take risks and participate in economic activities marked by uncertainty but with potentially high returns.

tudes towards risk in terms of the **emotions, self-confidence, and motivation** associated with risk. Psychology research indicates that **women experience emotions with higher intensity** than men, and this can affect the perceived utility associated with a riskier choice. Women report more fear and nervousness in anticipation of adverse results. Furthermore, their loss aversion is higher (Croson & Gneezy, 2009). Literature shows that when it comes to **self-confidence, men have more confidence than women in their success in uncertain situations** (such as investment decisions) **and their ability** (especially in tasks perceived to be masculine) (Croson & Gneezy, 2009; Barber & Odean, 2001; Bertrand, 2011). Lastly, while **men view risky situations as a challenge** to conquer, **women see them as threats to avoid** (Croson & Gneezy, 2009).

Nevertheless, the presence and magnitude of the gap might depend on gender stereotypes associated with the context or situation. For example, when controlling for financial market knowledge, women's risk aversion decreases with expertise, whereas for men, risk aversion increases. Consequently, a comparison of investment portfolios between men and women with the same expertise reveals no significant differences in their investment choices (Eckel & Grossman, 2008). In the case of multiple-choice exams, men tend to respond more frequently than women if there is a penalty for an incorrect answer, but when there is no such penalty, women make more guesses and improve their scores, performing equally to men (Baldiga, 2014; Bohnet, 2016 & Shurckov & Eckel, 2018).

Are Women Less Competitive?

Behaviors in competitive environments reveal gender differences that favor men. **Women are less prone to compete in settings that are perceived to be masculine or male-dominated and, in general, less demanding in negotiations, affecting their possibilities to advance professionally and obtain higher financial returns.** For instance, an experiment on job-entry decisions revealed that gender gaps in job applications were wider when employment advertisements indicated that compensation would be related to relative performance (Flory *et al.*, 2015). This finding does not mean that men have a strong preference for competitive environments. Rather it shows that women have more of an aversion to competitive workplaces than men (Flory *et al.*, 2015; Mollerstrom & Wrohlick, 2017).

These differences in the willingness to compete have been documented in childhood as well (when boys spend more time in games involving competition, whereas girls engage in games that do not have a clear endpoint or no winners) and increase during adolescence (Niederle, 2016).

Women are less prone to compete in settings perceived to be masculine or male-dominated.

Yet again, gender gaps depend on the study design. Studies that find no gender differences in attitudes towards competition suggest that the evidence failed to account for risk aversion, self-confidence, and attitudes regarding achievement (in relation to others). Such studies erroneously conclude that men prefer competition more than women (De Paola *et al.*, 2015). The terms of negotiations can create bias (Flory *et al.*, 2015; Bohnet, 2016). In fact, evidence suggests that women like competing, but avoid doing so in masculine environments. Women do not react to competition in a similar way when it takes place in gender-mixed contexts. This boosts men's relative performance. When women compete against each other, their performance is not distinguishable from men's (Gneezy & Rustichini, 2004; Gneezy *et al.* 2003). Similarly,

when women have fewer appealing labor market options (for instance, fewer job offers with fixed-wage compensation), they apply more to competitive positions (Flory *et al.*, 2015).

How Do Women Negotiate?

Men and women have different predispositions to negotiation, which is related to the gender gap in career progression and salaries. According to studies that analyze expected salaries for entry-level jobs, **women's expectations are lower than those of men.** This is systematic, with women earning lower salaries, which leads to an overall wage gap (Rigdon, 2012; Gonzalez, Rozada, Yeyati, & Levy 2018). Nonetheless, we observe more significant gender differences in women's tendency to initiate and participate in negotiation than in the way the negotiation is conducted (Crosson & Gneezy, 2009). In other words, the difference lies in deciding to initiate or take part in a negotiation, not in actual performance.

Evidence suggests that men's higher propensity to negotiate than women is dependent on the institutional terms framing the negotiation. Gender gaps are reduced when negotiators have negotiation experience, information, or negotiate on behalf of other individuals (Mazei *et al.*, 2015). In asymmetric negotiations, where the norm is that one of the parties in the negotiation obtains higher returns than the other (because of information asymmetries or power dynamics), men behave in more competitive ways than women (negotiating harder and making more demands). Nonetheless, while this strategy is beneficial when an agreement is reached, it also reduces the success rate (too much tension can lead to the negotiation collapsing, with men receiving nothing). Because of this, gender differences in negotiations vanish when we look at the final monetary results (Arenaz & Iriberry, 2018). Negotiation on behalf of third parties is beneficial to women because it avoids the stereotypical "social backlash" associated with a proactive negotiation (Mazei *et al.*, 2015; Bohnet, 2016; Amanatullah & Morris, 2016). **Rather than suggesting innate gender differences in skills, negotiation strategies reveal differential behaviors among men and women that depend on context** (Amanatullah & Morris, 2010).

Do Women Exercise Leadership Differently?

Women develop a leadership style based on a democratic and collaborative approach, striking a balance between dominant and peer-to-peer interactions. This type of leadership stands out because it promotes, inspires, and motivates other team members, building relationships and fostering teamwork with a reward-based approach. On the other hand, men often engage in "command and control" leadership styles, waiting for problems to arise to address them (Gipson *et al.* 2017; Hyde, 2013).

Some of the attributes of women's leadership style that place them at a disadvantage to men in terms of professional success include their tendency to promote themselves, demand what they want, and initiate negotiations less. They tend to present themselves more modestly and be more effective in groups dominated by men when men show insecurity or doubts in their discourse and are modest in their behavior. Lastly, women also have higher probabilities of retiring from formal leadership roles, and transitioning into informal leadership roles such as facilitators or organizers (Gipson *et al.*, 2017).

The gender gap in career progression and salaries is linked to men's and women's different predispositions to negotiation.

Women develop a more democratic and collaborative leadership style than men.



Evidence on skill differences between women and men does not support the notion of leadership as a masculine skill. Once again, stereotypes influence results. Men tend to practice more effective leadership in positions associated with masculine roles, and women do the same in positions with feminine roles. **People view attributes such as autonomy and independence as requirements for leaders. However, women displaying these characteristics are penalized for breaking the stereotype that they are friendly and agreeable.** Women adopt this leadership style in non-male dominated spaces (Eagly, 2013). For instance, in instructional leadership positions, such as the one displayed by principals in educational institutions, women are more actively engaged than men (Halling *et al.*, 2016). Companies show gender bias in leadership style practices. Companies in crisis (when interpersonal traits become more valuable) are often led by a female manager, while successful companies are presided over by male managers (Gipson *et al.*, 2017).

Are Women More Sociable? How About Other Personality Traits?

Women often demonstrate a more prosocial attitude, agreeableness, or neuroticism. The first factor is associated with altruism and cooperation, and the second one with negative emotionality, anxiety, and emotional instability (Del Giudice, 2015). A comprehensive set of studies identify women's more prosocial attitude or interpersonal sensitivity. Women obtained scores for these attributes that were significantly higher than men. This bias is valued in work environments where tasks involve personal growth, exchanges among colleagues, customer service, or persuading others. This finding is consistent with interpretations regarding the effects of gender socialization on women. Given the negative responses to the lack of this attribute in women, they often express a prosocial attitude more emphatically (Blau & Winker, 2017). Evidence shows that lacking these prosocial attributes is associated with a considerable wage premium for men. In other words, the incentives or penalties correlated to gender expectations (Judge, Livingston, & Hurst, 2012). Results consistently show that women demonstrate a higher tendency to express neuroticism (Rahamani & Lavasani, 2012; Bertrand, 2011; and Weisberg *et al.*, 2011).²²

Evidence on the women's conscientiousness and self-regulation skills is favorable.

Women tend to show higher adaptability in their careers than their male peers, especially in vulnerable and changing work environments with high-stress levels (as demonstrated in a study centered around work in call centers, Coetzee & Harry, 2015). Gender differences in these personality traits are stable from childhood through adulthood (Chapman *et al.* 2007). In terms of self-regulation (self-discipline, organization, and impulse control), women obtain higher scores than men, although results are not consistent across studies (Weisberg *et al.* 2011; Costa *et al.* 2011)

Who Is Most Creative and Open? Men or Women?

When it comes to creativity and openness to experience (curiosity, imagination), there is no rigorous evidence showing statistically significant and consistent gender gaps.²³

In the case of creativity, there are no observable, significant differences (men and women are equally creative), even when there are dissimilarities in how creativity



²² This evidence is from non-experimental studies.

²³ Openness to experience refers to an active imagination, aesthetic sensitivity, attention to subjective experiences, taste for variety, intellectual curiosity, and independent judgment.

develops. These refer to cognitive strategies, the functional tasks, or cognitive styles that each gender is psychologically disposed to adopt (Abraham, 2015). Concerning openness to experience, no significant differences have been found (Del Giudice, 2015). What has been identified are disparities in the areas where openness and curiosity are shown. **Some studies have found a correlation where men show more intellectual curiosity, while women direct their openness to experience towards issues related to aesthetic, artistic, and emotional considerations** (Costa *et al.*, 2001)

Box 4.4. Tell Me a Story: The “Genius” and Gender

Let’s take five minutes for a quick thought experiment. Pay close attention to the bibliographic references in any scientific or academic paper. Normally, we would see the last names, followed by the initial that corresponds to the author’s name. Imagine that person and, later, search for their full name. Did you catch yourself picturing the author as a man only to find out that, in many cases, it was a woman? This is what happens in most cases. If we speak of an “eminent medical professional,” we immediately think of a man (even a female surgeon was incapable of imagining a woman to whom she could apply the “eminent” adjective).

The same happens with adjectives such as “genius,” “brilliant,” “brilliant scientist,” or “talented.” A quick look at instructor evaluations, recommendation letters for university applicants, Google searches about children, and job recommendations proves that such adjectives are more often used for men than for women. **Gender stereotypes about cognitive, intellectual skills tend to have a bias that favors men.**

A study has shown how **these stereotypes appear at a young age.** Children ages 5 to 7 often choose male classmates to form teams when the task instructions describe an intellectual challenge (“This task is for smart people”). At age 6, women start to see themselves as less intelligent and are less likely to think that women are “very, very intelligent.” Women’s beliefs and expectations are shaped by these biases which eventually discourage them from being involved in fields with highly complex content (STEM, philosophy, musical composition), and applying to jobs associated with these areas. Such biases exacerbate lower self-confidence and consequently strengthen their belief that everyone else is questioning their intellectual abilities.

Source: Bian, Leslie & Cimpian (2018).

Closing the Gender Gap in Noncognitive Skills

We have seen how contextual factors that highlight biases or gender stereotypes can lead to gaps in noncognitive skills or increase their magnitude. Thus, **policies seeking to be effective in closing these gaps must focus on neutralizing the impact of these contextual factors.** International evidence points to two types of interventions:

a.- Behavioral interventions: seek to remove behavior-related barriers that reinforce gender stereotypes and hinder women’s development.

b.- Affirmative interventions: try to correct inequalities via specific, temporary actions favoring disadvantaged groups. The first group involves behavioral economic intervention methods that provide lessons learned from disciplines such as economics, psychology, and social anthropology. The aim is to understand how individuals make decisions in real life. Among the options in the second group are setting gender quotas in leadership and representation positions in the public sector and the corporate world.



Let's Change Behaviors. Let's Change History.

The objective of behavioral design initiatives is to use various tactics to influence messages that highlight differences in men's and women's capabilities. These messages shape beliefs from an early age and have a substantial impact on men and women's behavior. It is worth highlighting that, rather than isolated actions, these interventions must be organized activities implemented during different stages in an individual's lifecycle (OECD, 2018).

Box 4.5. The Importance of Language: Fighting Stereotypes in Job Advertisements

Use "Commitment" instead of "determination," "competition," instead of "comprehension," "independence," instead of "teamwork," and "leading teams" instead of "supporting teams." Thus, one compiles a long list of words and expressions that imply gender stereotypes. **Often, job postings employ non-neutral language.** Employment advertisements that contain terms such as "competition" and "dominant" likely appeal to stereotypically male traits, while those containing terms such as "collaborative" and "community-minded" appeal to stereotypically feminine traits. **These subtle differences in job advertisement descriptions greatly influence the applicant pool and promote occupational segregation.**

To avoid this, in some developed countries, certain employers are beginning to tackle gendered language in job postings and other company communications. Companies such as Microsoft, Starbucks, Square, and Twitter are using predictive language processing to de-bias the language used in their job postings and ensure that it is free from gender stereotypes, attracting a large pool of diverse candidates.

Source: VicHealth 2017.



Risk Aversion: Trust Your Talent!

Women's increased risk aversion can discourage them from getting involved in STEM careers. Fostering and stimulating women's self-confidence in their talent is a way to counteract gender stereotypes and ensure, from a young age, that they have the capabilities required to approach any field of knowledge (Tellhed, Bäckström & Björklund, 2017).

Working with a growth mindset approach can help stimulate girls' and women's confidence in their talent.

During school, teachers can promote self-confidence in the classroom via specific study materials. **Working with a growth mindset approach reduces the effect of stereotypes that associate talent with a specific group.** According to a growth mindset approach, a person's probability of success in a field is not determined by a (fixed) amount of talent. Rather, what matters is the individual's disposition to dedicate themselves to learning relevant skills with adequate guidance (Bian, Leslie, & Cimpian, 2018).

Throughout university, there is evidence that **interventions to develop self-efficacy through social belonging** strengthen women's interest and performance in STEM-related fields. One intervention consisted of providing students a non-threatening narrative for interpreting instances of adversity related to studying a STEM career. The intervention showed how these concerns would dissipate with time. A second inter-

vention consisted of an affirmation training to help students manage the stress that can arise from social marginalization. It incorporated a balanced vision of academic life and encouraged the mindset that challenges are manageable. As a result of these interventions, female students in STEM scored better throughout the academic year. Other changes were observed in women's academic attitudes, such as better integration with male students (Walton *et al.*, 2015).



Competition: You Can Do It Too and Even Better!

Evidence shows that developing specific noncognitive skills and removing gender stereotypes in schools can encourage women to have a different attitude towards competition. Boys and girls showed equal willingness to compete after an intervention focusing on developing **perseverance with a growth mindset approach**.

The intervention, which took place at select elementary schools in marginalized areas over a semester, added a module to the school curriculum that guided students in exploring the importance of effort and perseverance to achieve goals. The results of the experiment show that the intervention reduced the gender gap in the willingness to compete among students. The intervention **reinforces girls' optimism about future performance, and encourages them to set ambitious goals** (Alan & Ertac, 2018).

Removing gender stereotypes through a growth mindset approach and priming techniques can encourage women to have a different attitude towards competition.

Implicit memory is another resource to encourage attitudes more conducive to competition. An experiment that used priming techniques asked participants to write about a personal situation where they were in control before engaging in a negotiation. Experiment results showed a change in the willingness to compete when the gender gap was eliminated for students in the treatment group. This is not true in low-power priming situations or when people do not complete the writing task (Balafoutas *et al.*, 2018). This type of resource can be useful in educational spaces, competitive situations, job training programs seeking to motivate participants, and in encouraging women to apply for management positions.

As a corporate practice, **making salary negotiation more transparent levels the playing field for men and women in the workplace**. Some experimental studies show that when a job advertisement does not explicitly mention that the salary is negotiable, women are less likely than male to negotiate (women get discouraged when they are not sure if the offer is reasonable). However, when the posting explicitly states that the salary is negotiable and the salary range is made transparent, the gender gap disappears, both in terms of applications (more female candidates) and engagement in negotiation (women are encouraged to negotiate their salaries). **This means that an easy and zero-cost change, such as removing ambiguity around wage negotiation in job advertisements, could reduce the gender pay gap** (Behavioral Insight Team, 2018; Leibbrandt & List, 2014).

Influential females in leadership positions encourage other women to take the lead.

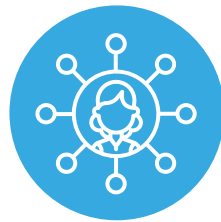


Women, Show Up! Increasing the Visibility of Women and Their Success

Highlighting influential women in certain strategic fields **has a positive impact on women's perception of risk and, consequently, on their choices**. There is evidence that the presence of female instructors in core classes at universities can have a positive

influence on the probability that female students choose certain disciplines (Bettinger & Long, 2005).

In addition, influential women in leadership roles encourage other women to become more visible. Women who witness other women in leadership are less likely to adopt stereotypes because such examples provide counter-stereotypes (Dasgupta & Asgari, 2004). In corporate settings, a positive association has been observed between increases in women in high-level leadership roles and subsequent increases in the number of women in mid-level positions at companies (Kurtulus & Tomaskovic-Devey, 2012).



Affirmative Action: Gender Quotas

While gender quotas initiatives are not behavioral interventions, they do **affect people via behavioral channels and highlight female leadership, ultimately shifting perceptions around stereotypes** (Pande & Ford, 2011).

Positive effects are observed for political representation quotas and corporate board membership.

This approach has a positive effect on political representation quotas and corporate board membership. Following the introduction of gender quotas for local leadership roles in India, changes were observed in school-age girls' perceptions (who could now see women in leadership roles) as well as boys' (greater acceptance of women as leaders). Evidence shows that the gender gap in school attendance is closing, and girls are doing less housework (Beaman *et al.*, 2012). This policy impacted women's participation in local elections, increasing the number of women competing against men in open elections (Chattopadhyay & Duflo, 2004).

Further evidence on women's leadership in corporate environments suggests that female leaders help other women rise in the hierarchy and reduce the gender wage gap in these work environments (Miller, 2018). The quota system on corporate boards has been effective in increasing women's representation. However, some evaluations of these policies find heterogeneous results in other company areas. For instance, setting a quota for the boards of public limited liability companies in Norway had a positive effect on women's corporate participation. However, this effect was limited to those directly affected by the new regulations—the women who made it onto the board (Bertrand *et al.*, 2017).²⁴

Findings indicate that the **introduction of winner quotas by gender (to ensure male and female winners) can encourage women to compete, without incurring substantial efficiency costs** (caused by men's displacement). It incentivizes qualified women to participate in the competition (Balafoutas *et al.*, 2012; Niederle *et al.*, 2013; Sutter & Glaze-Rützler, 2015).

²⁴ In general, this study does not identify a short-term effect on women's choices, since no significant differences were observed in the number of young women enrolling in business education programs (Bertrand *et al.*, 2017).

Box 4.6. Model Behaviors: Promoting Affirmative Policies with Behavioral Actions

In 2011, the top 100 largest companies trading on the United Kingdom stock exchange (FTSE companies), had 12.5% on their boards. In 2012, the UK introduced policy recommendations for companies to promote female representation on their boards. The goal was to reach a 25% minimum representation of women by 2015.

To fulfill this plan, the government pushed for changes based on innovative behavioral science knowledge. The government took advantage of the fact that **people are more likely to adopt certain behaviors if they see others doing the same** to make gender diversity in leadership a social norm. A small group of respected CEOs from large companies supported the idea from the beginning, and they were the key to success. Setting an example, they encouraged other reluctant heads of businesses to seek the advantages of gender diversity in their management boards.

Consequently, the British government no longer highlights the small number of women on boards in their progress reports. Instead, it communicates the growing number of companies reaching the target set. In 2015, the FTSE top 100 companies surpassed their 25% target, reaching 26.2%. In 2016, in light of this success, the UK government set the 2020 goal to have boards of directors be 33% women. The most recent data from 2018 estimates this figure to be 30.2%, nearly reaching the target set for the following year.

Source: Bohnet, 2016; Hampton-Alexander Review, 2018; Women on Boards Davies Review, 2015.

The Time for Action is Now: Debunking Stereotypes to Close Gaps

The 21st Century is dynamic, interconnected, and complex. Challenges and opportunities for skill development define the future. Technology is evolving at an unprecedented pace, becoming a crucial element in the way we work and live. **In this context, gender biases in noncognitive skills can amplify existing inequalities between men and women to access the best labor market opportunities.** To prepare men and women for tomorrow's jobs, it is essential to find solutions that address the specific challenges they face today. If we identify the root causes of gaps and act accordingly, we could reduce such gaps.

Based on existing evidence, we highlight some considerations to address gender gaps effectively:



- 1 Changing systems and environments to deactivate stereotypes.** Men and women exhibit stereotypical ideas about gender from a very young age. Institutions need to change to neutralize the factors that promote gender stereotypes and inhibit women's performance in the classroom and the workplace. These changes, using behavioral science techniques, have shown to be effective.

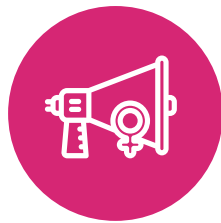
One way to seek change is via “nudges,” a behavioral economics concept that involves positive reinforcement to shape behavior in a desired way. What kinds of actions are these? Below are some examples which have proved effective:

- a.- “Nudges” can reduce women’s risk-aversion and improve their willingness to compete. These include applying a growth mindset in education (“It’s not about what I am, but about what I can become”), making influential women more visible, or using priming tools (promoting positive effects in implicit memory).
- b.- To make the details and potential for wage negotiation more transparent to level the playing field for men and women in the workplace.
- c.- To employ affirmative action policies (such as gender quotas) to influence people through behavioral channels, since making women in leadership visible can change stereotypes.



2

To promote mentorship and support programs. More evidence is needed on the effectiveness of mentorship programs.²⁵ However, promoting the creation of programs where members meet and share information and professional advice can make influential women visible and foster their confidence in their talents, countering stereotypical beliefs. Similarly, assigning mentors to a “sponsors” role makes them more visible and provides them the chance to be considered for opportunities within an organization and receive support during negotiations.



3

Learning and sharing to win. It is imperative to reinforce the knowledge around effective policies to close gender gaps, and to promote and generate evidence about innovative and creative solutions. Promoting transparency and making learned lessons more visible completes the virtuous circle of knowledge.



4

Scaling up impacts. Coordinating actions throughout women’s lifecycle and not as isolated attempts is the only way to ensure noncognitive skill development.



5

Involving relevant stakeholders and promoting consistency across actions: Producing change requires multiple actors, including families, educational institutions, media, companies, and governments committed to gender equality and to deactivating stereotypes and environments that condition men and women’s noncognitive skills.

²⁵ While women participate more than men in these programs, their mentors usually have a different profile, having less seniority and organizational insertion, and performing a coaching role instead of being active promoters within the organization (Bonnet, 2016).

A Social Construct We Can Debunk at A Low Cost

Evidence confirms that the difference between men's and women's noncognitive skills tend to be the outcome of social constructs based on gender stereotypes. In other words, gaps are real, but their foundations are "social fiction" that can be debunked at a very low cost. 21st-century skills contribute to achieving equality between men and women in the labor market. The time to act is now.

References

Abraham, A. (2015). "Gender and Creativity: An Overview of Psychological and Neuroscientific Literature," *Brain Imaging and Behavior*, Vol. 10, pp. 609-618.

Amanatullah, E. & M. Morris (2010). "Negotiating Gender Roles: Gender Differences in Assertive Negotiating Are Mediated by Women's Fear of Backlash and Attenuated When Negotiating on Behalf of Others," *Journal of Personality and Social Psychology*, Vol. 98, No. 2, pp. 256-267.

Autor, D., F. Levy & R. Murnane (2003). "The Skill Content of Recent Technological Change: An Empirical Exploration," *The Quarterly Journal of Economics*, Vol. 118, No. 4, pp. 1279-1333.

Azmat, G. & B. Petrongolo (2014). "Gender and the Labor Market: What Have We Learned from Field and Lab Experiments?" *Labour Economics*, Vol. 30, pp. 32-40.

Balafoutas, L., H. Fornwagner & M. Sutter (2018). "Closing the Gender Gap in Competitiveness through Priming," *Nature Communications*, Vol. 9, No. 1.

Balafoutas, L., R. Kerschbamer, & M. Sutter (2012). "Distributional Preferences and Competitive Behavior," *Journal of Economic Behavior & Organization*, Vol. 83, No. 1, pp. 125-135.

Baldiga, K. (2014). "Gender Differences in Willingness to Guess," *Management Science*, Vol. 60, No. 2, pp. 434-448.

Barber, B. & T. Odean (2001). "Boys will be Boys: Gender, Overconfidence, and Common Stock Investment," *Quarterly Journal of Economics*, Vol. 116, No. 1, pp. 261-292.

Beaman, L., E. Duflo, R. Pande & P. Topalova (2012). "Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India." *Science*, Vol. 335, No. 6068, pp- 582-586.

Behavioral Insight Team, 2018. *Reducing the Gender Pay Gap and Improving Gender Equality in Organizations*. Retrieved from: <https://www.bi.team/publications/reducing-the-gender-pay-gap-and-improving-gender-equality-in-organisations/>

Bertrand, M. (2011). "New Perspectives on Gender," *Handbook of Labor Economics*, Vol. 4b.

Bertrand, M., S. Black, S. Jensen & A. Lleras-Muney (2017). "Breaking the Glass Ceiling? The Effect of Board Quotas on Female Labor Market Outcomes in Norway," *NBER Working Paper* No. 20256.

Bettinger, E. & B. Long (2005). "Do Faculty Serve as Role Models? The Impact of Instructor Gender on Female Students," *The American Economic Review*, Vol. 95, No. 2, pp. 152-157.

Bian, L., S. Leslie & A. Cimpian (2017). "Gender Stereotypes About Intellectual Ability Emerge Early and Influence Children's Interest." *Science*, No. 355, pp. 389-391, October.

Black, S. & A. Spitz-Oener (2010). "Explaining Women's Success: Technological Change and the Skill Content of Women's Work," *The Review of Economics and Statistics*, Vol. 92, No. 1, pp. 187-194.

Blau, F. & A. Winkler (2017). *The Economics of Women, Men, and Work*, Oxford University Press, 8th edition.

Bohnet, I. (2016). *What Works: Gender Equality by Design*, Belknap Press: An Imprint of Harvard University Press.

Borghans L., B. ter Weel & C. Weinberg (2014). "People Skills and the Labor-Market Outcomes of Underrepresented Groups," *Industrial and Labor Relations Review*, Vol. 67, No. 2, pp. 287-334.

Borghans L., A. Duckworth, J. Heckman & B. ter Weel (2009). "Gender Differences in Risk Aversion and Ambiguity Aversion," *Journal of European Economic Association*, Vol. 7, No. 2-3, pp. 649-658.

Borghans L., A. Duckworth, J. Heckman & B. ter Weel (2008). "The Economics and Psychology of Personality Traits," *Journal of Human Resources*, Vol. 43, No. 4, pp. 972-1059.

Buser, T., M. Niederle & H. Oosterbeek (2014). "Gender, Competitiveness, and Career Choices," *Quarterly Journal of Economics*, Vol. 193, No. 3, pp. 1409-1447.

Cassar, A. & E. Katz (2016). "Gender, Behavior, and Women's Economic Empowerment," CGD Background paper, *Center for Global Development*, Washington DC.

Castex, G. & E. Detcher (2014). "The Changing Roles of Education and Ability in Wage Determination," *Journal of Labor Economics*, Vol. 32, No. 4, pp. 685-710.

Chapman, B., P. Duberstein, S. Sørensen & J. Lyness (2007). "Gender Differences in the Five-Factor Model Personality Traits in an Elderly Cohort: Extension of Robust and Surprising Findings to an Older Generation," *Personality and Individual Differences*, Vol. 43, No. 6, pp. 1307-1640.

Chattopadhyay, R. & E. Duflo (2004). "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India," *Econometrica*, Vol. 72, No. 5, pp. 1409-1443.

Coetzee, M. & N. Harry (2015). "Gender and Hardiness as Predictors of Career Adaptability: An Exploratory Study among Black Call Centre Agents," *South African Journal of Psychology*, Vol. 45, No. 1, pp. 81-92.

Croson, R. & U. Gneezy (2009). "Gender Differences in Preferences," *Journal of Economic Literature*, Vol. 47, No. 2, pp. 1-27.

Costa, P., A. Terracciano & R. McCrae (2001). "Gender Differences in Personality Traits across Cultures: Robust and Surprising Findings," *Journal of Personality and Social Psychology*, Vol. 81, pp. 322-331.

Cunningham, W., P. Acosta & Muller, N. (2016). *Minds and Behaviors at Work: Boosting Socioemotional Skills for Latin America's Workforce*. Directions in Development—Human Development; World Bank.

Dasgupta, N. & S. Agari (2004). "Seeing is Believing: Exposure to Counterstereotypic Women Leaders and its Effect on the Malleability of Automatic Gender Stereotyping," *Journal of Experimental Social Psychology*, Vol. 40, No. 5, pp. 642-658.

Daugherty, P. & J. Wilson (2018). "Human + Machine: Remaining work in the age of AI," Accenture Global Solutions Limited, *Harvard Business Review Press*.

Deming, D. (2017). "The Growing Importance of Social Skills in the Labor Market," *Quarterly Journal of Economics*, Vol. 132, No. 4, pp. 1593-1640.

Del Giudice, M. (2015). *Gender Differences in Personality and Social Behavior*, en J. R. Wright (ed), *International encyclopedia of the social and behavioral sciences* (2nd ed.), pp. 750-756.

De Paola, M., F. Gioia & V. Scoppa (2015). "Are Females Scared of Competing with Males? Results from a Field Experiment," *Economics of Education Review*, Vol. 48, No. C, pp. 117-128.

Dohmen, T., A. Falk, D. Huffman & U. Sunde (2010). "Are Risk Aversion and Impatience Related to Cognitive Ability," *American Economic Review*, Vol. 100, No. 3, pp. 1238-1260.

Eagly, A. (2013). "Women as Leaders: Leadership Style versus Leaders' Values and Attitudes," in *Gender and Work: Challenging Conventional Wisdom*, *Harvard Business School Press*.

Eckel, C. & P. Grossman (2008). "Men, Women and Risk Aversion: Experimental Evidence," *Handbook of Experimental Economics Results*, Vol. 1, chapter 113.

Edin, P., P. Fredriksson, M. Nybom & B. Öckert (2017). "The Rising Return to Non-Cognitive Skill," IZA DP No. 10914, *IZA Institute of Labor Economics*.

Exley, C., M. Niederle & L. Vesterlund (2016). "Knowing When to Ask: The Cost of Leaning In," *NBER Working Paper* No. 22961.

Farrington, C., M. Roderick, E. Allensworth, J. Nagaoka, T. Keyes, D. Johnson & N. Beechum (2012). "Teaching Adolescents to Become Learners. The Role of Noncognitive Factors in Shaping School Performance: A Critical Literature Review," *Chicago Consortium on Chicago School Research*.

Feingold, A. (1994). "Gender Differences in Personality: A Meta-Analysis," *Psychological Bulletin*, Vol. 116, No. 3, pp. 429-456.

Fiske, S. (2010). "Venus and Mars or Down to Earth: Stereotypes and realities of gender Differences," *Perspectives on Psychological Science*, Vol. 5, No. 6, pp. 688-692.

Flory, J., A. Leibbrandt & J. List (2015). "Do Competitive Workplaces Deter Female Workers? A Large-Scale Natural Field Experiment on Job Entry Decisions," *The Review of Economic Studies*, Vol. 82, No. 1, pp. 122-155.

Gipson, A., L. Catenacci & D. Pfaff (2017). "Women and Leadership: Selection, Development, Leadership Style, and Performance," *Journal of Applied Behavioral Science*, Vol. 53, No. 1, pp. 32-65.

Gneezy, U. & A. Rustichini (2004). "Gender and Competition at a Young Age," *American Economic Review*, Vol. 94, No. 2, pp. 377-381.

Gneezy, U., M. Niederle & A. Rustichini (2003). "Performance in Competitive Environments: Gender differences," *The Quarterly Journal of Economics*.

González Rozada, M. & E. Levy Yeyati (2018). *Do Women Ask for Lower Salaries? The supply Side of the Gender Pay Gap*, CEPE, UTD.

Hallinger, P., L. Dongyu & W. Wang (2016). "Gender Differences in Instructional Leadership: a Meta-Analytic Review of Studies Using the Principal Instructional Management Rating Scale," *Educational Administration Quarterly*, Vol. 52, No. 4, pp. 567-601.

Halt, C. & S. Laury (2002). "Risk Aversion and Incentive Effects," *American Economic Review*, Vol. 92, No. 5.

Hampton-Alexander Review (2018). *Improving Gender Balance in FTSE Leadership*.

Hartog, J., A. Ferrer-i-Carbonelli & N. Jonker (2002). "Linking Measured Risk Aversion to Individual Characteristics," *Kyklos International Review for Social Sciences*, Vol. 55, No. 1, pp. 3-26.

Heckman, J. & T. Kautz (2012). "Hard Evidence of Soft Skills," *Labour Economics*, Vol. 19, No. 4, pp. 451-464.

Heckman, J., J. Stixrud & S. Urzúa (2006). "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior," *Journal of Labor Economics*, Vol. 24, No. 3, pp. 411-482.

Heineck, G. (2011). "Does it Pay to be Nice? Personality and Earnings in the United Kingdom," *Industrial and Labor Relations Review*, Vol. 64, No. 5, pp. 1020-1038.

Hernandez-Arenaz, I. & N. Iriberry (2018). "Gender Differences in Alternating-Offer Bargaining: An Experimental Study," *CEPR Discussion Papers* 12561, C.E.P.R. Discussion Papers.

IDB (2017), Gender and Diversity Sector Framework Document.

IDB (2019), *The Future of Work in Latin America and the Caribbean: What Will the Labor Market be Like for Women?* Forthcoming. Retrieved from: <https://www.iadb.org/en/labor-and-pensions/future-work-latin-america-and-caribbean-what-will-labor-market-be-women>

Hyde, J. (2013). "Gender Similarities and Differences," *Annual Review of Psychology*, Vol. 65, pp. 373-398.

Ickes, W., P. Gesn & T. Graham (2000) "Gender Differences in Emphatic Accuracy. Differential Ability or Differential Motivation?" *Personal Relationships*, No. 7, pp. 95-109.

Judge, T., B. Livingston & C. Hurst (2012). "Do Nice Guys –and Gals- Really Finish Last? The Joint Effects of Sex and Agreeableness on Income," *Journal of Personality and Social Psychology*, Vol. 102, No. 2, pp. 390-407.

Kaufman, J. (2006). "Self-Reported Differences in Creativity by Ethnicity and Gender," *Applied Cognitive Psychology*, Vol. 20, No. 8, pp. 1065-1082.

Kuhn, P. & C. Weinberger (2005). "Leadership Skills and Wages," *Journal of Labor Economics*, Vol. 23, No. 3, pp. 395-436.

Kurtulus, A. & D. Tomaskovic-Devey (2012). "Do Female Top Managers Help Women to Advance? A Panel Study Using EEO-1 Records," *The Annals of the American Academy of Political and Social Science*, Vol. 693, pp. 173-197.

Leibbrandt, A. & J. List (2014). "Do Women Avoid Salary Negotiations? Evidence from a Large-Scale Natural Field Experiment," *Management Science*, Vol. 61, No. 9,

Lundin, M., O. Nordström Skans & P. Zetterberg (2018). "Leadership Experiences, Labor Market Entry, and Early Career Trajectories," *IZA Discussion Paper Series* No. 11434, IZA Institute of Labor Economics.

Mazei, J., A. Freund, J. Hüffmeier, A. Stuhlmacher, L. Bike & G. Hertel (2015). "A Meta-Analysis on Gender Differences in Negotiation Outcomes and Their Moderators," *Psychological Bulletin*, Vol. 141, No. 1, pp-85-104.

Miller, A. (2018). "Women and Leadership," *The Oxford Handbook of Women and the Economy*.

Mollerstrom, J. & K. Wrohlick (2017). "The Gender Gap in Competitiveness: Women Shy Away from Competing with Others, but not from Competing with Themselves," *DIW Economic Bulletin* No. 22.

Niederle, M. (2016). "Gender" in Kagel & Roth (Eds) *Handbook of Experimental Economics*, Vol. 2, pp. 481-562.

- OECD (2018). *Social and Emotional Skills – Well-being, connectedness, and success*.
- OECD (2015). “What lies behind gender inequality in education?” *PISA in Focus* No. 49.
- Pande, R. & D. Ford (2011). “Gender Quotas and Female Leadership: A Review,” *Background paper for the World Development Report on Gender*
- Prada, M. & G. Rucci (2016). *Instrumentos para la medición de las habilidades de la fuerza de trabajo*, Nota Técnica N° IDB-TN-1070, Inter-American Development Bank.
- Rahmani, S. & M. Lavasani (2012). “Gender Differences in Five Factor Model of Personality and Sensation Seeking,” *Procedia – Social and Behavioral Sciences*, Vol. 46, pp. 2906-2911.
- PwC (2018). “16 Nudges for More #WomenInTech. Quick and Low-Cost Behavioral Measures that Bring Gender Equality to Emerging Tech.”
- Shurchkov, O. & C. Eckel (2018). “Gender Differences in Behavioral Traits and Labor Market Outcomes,” in Averett, Argys & Hoffman (Eds), *Oxford Handbook on Women and the Economy*.
- Stake, H. & H. Eisele (2012). “Gender and personality,” Chapter 2 in J.C. Chrisler, D.R. McCreary (eds.), *Handbook of Gender Research in Psychology*.
- Sutter, M. & D. Glätzle-Rützler (2015). “Gender Differences in the Willingness to Compete Emerge Early in Life and Persist,” *Management Science*, Vol. 61, No. 10, pp. 2339-2354.
- Reuben, E., M. Wiswall & B. Zafar (2017). “Preferences and Biases in Educational Choices and Labour Market Expectations: Shrinking the Black Box of Gender,” *Economic Journal*, Vol. 107, No. 604, pp. 2153-2186.
- Reuben, E., P. Sapienza, & L. Zingales (2015). “Taste for Competition and the Gender Gap among Young Business Professionals,” *NBER Working Paper* No. 21695.
- Rigdon, M. (2012). “An Experimental Investigation of Gender Differences in Wage Negotiations,” Working paper, Rutgers University.
- Ross, L. (1977). “The Intuitive Psychologist and His Shortcomings: Distortions in the Attribution Process,” Berkowitz (Ed). *Advances in Experimental Social Psychology*, Vol. 10, pp. 173-220.
- Solnick, S. (2001). “Gender Differences in the Ultimatum Game,” *Economic Inquiry*, Vol. 39, No. 2, pp. 189-200.
- Tellhed, U., M. Bäckström, & F. Björklund (2017). “Will I Fit in and Do It Well? The Importance of Social Belongingness and Self-Efficacy for Explaining Gender Differences in Interest in STEM and HEDD Majors,” *Sex Roles*, Vol. 77, pp. 86-96.

Van Dijk, H., M. van Engen & D. Knippenberg (2012). "Defying Conventional Wisdom: a Meta-Analytical Examination of the Differences Between Demographic and Job-Related Diversity Relationships with Performance," *Journal of Organizational Behaviour and Human Decision Processes*, Vol. 119, pp. 38-53.

VicHealth (2017). Behavioural Insights & Gender Equality, Victorian Health Promotion Foundation, Melbourne.

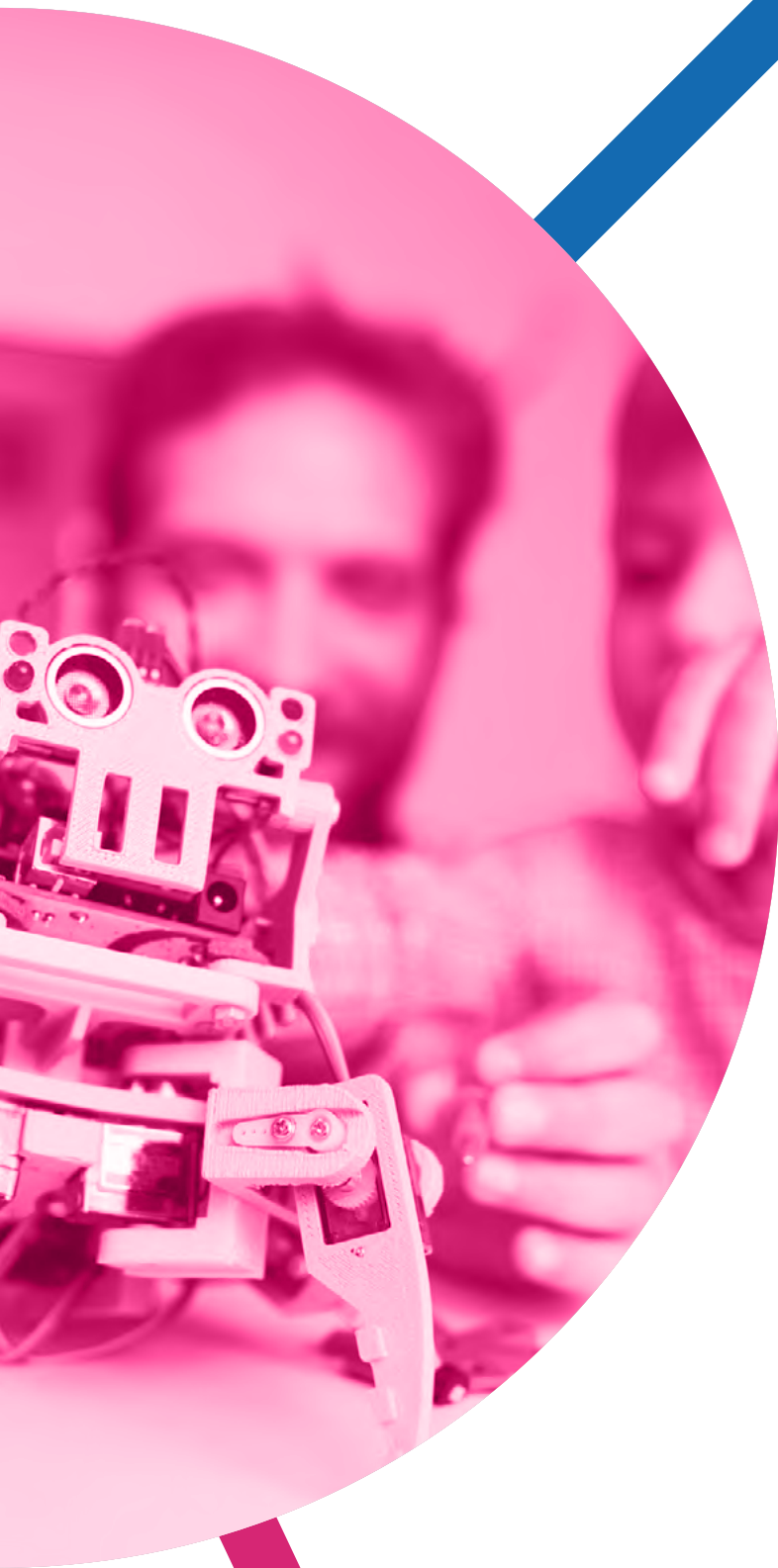
Walton, G., C. Logel, J. Peach, S. Spencer & M. Zanna (2015). "Two Brief Interventions to Mitigate a 'Chilly Climate' Transform Women's Experience, Relationships, and Achievement and Experience," *Journal of Educational Psychology*, Vol. 107, No. 2, pp. 468-485.

Weinberger, C. (2014). "The Increasing Complementarity between Cognitive and Social Skills," *The Review of Economics and Statistics*, Vol 96, No. 5, pp. 849-861.

Weisberg, Y., C. De Young & J. Hirsh (2011). "Gender Differences in Personality Across the Ten Aspects of the Big Five," *Frontiers in Psychology*, Vol. 2, Article No. 178.

Wickert, L. & W. Pohlmeier (2010). "Female Labor Force Participation and the Big Five," ZEW Discussion Papers 10-003, ZEW - Leibniz Centre for European Economic Research.

Women on Boards Davies Review (2015). "Improving the gender balance on British Boards."



CHAPTER 5

New Ways of Teaching and Learning

By Marcelo Cabrol

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The 21st century presents us with questions about the future of work and the type of education needed in a world restructured by the fourth industrial revolution.

21st century skills require a paradigm shift in teaching and learning.

It is amazing that in a world with access to virtual reality tools, low-cost 3D printing, and broadband videoconferencing, **education** has experienced **very little change over the last hundred years**. A group of 30 to 50 students sit facing a professor teaching a rudimentary lesson, reciting uncontested truths from a textbook (which, in a best-case scenario, is updated once every five years). Students take notes and ask a question here and there.

This paradigm, which Joel Rose defined as a “factory-model” (Rose, 2012), seeks to replicate identical copies of the textbook in each student’s head, preparing them for predictable and repetitive jobs in a world which, if significant assumptions hold, will remain constant throughout their lives. We could ask ourselves whether that educational model ever worked, but regardless, the immutability of the assumption is less likely now than ever before.

Climate change, migratory flows, increases in life expectancy, and reductions in mortality rates create problems that are either new or have reached magnitudes not yet encountered in human history. These phenomena jeopardize social welfare systems and the role of the state. Automation, artificial intelligence, and the reorientation towards a data economy²⁶ present us with questions about the future of work and the type of education needed in a world restructured by the fourth industrial revolution.

In this chapter, we delve into new (or perhaps not so new) ways to educate citizens. They are essential to adapt to a world radically different from the one our parents knew, one that presents us with baffling changes every day. This chapter is structured as follows: What should we learn, and how can transversal skills help us (Section 1); what are the main obstacles we must overcome, and how do we overcome them (Section 2); and in what ways can new technologies help us address these obstacles (Sections 3 and 4).

For more than twenty years, we have known that 21st century skills require a paradigm shift in teaching and learning. For years, we have predicted that technological disruption would result in an **education revolution**. Nevertheless, we have not experienced the anticipated changes. Where did we go wrong? **How can we revolutionize education?** How can we connect 21st century skills to technology?

What Should We Learn?

Living Knowledge: Growth and Obsolescence

More than just a trend, **acquiring and teaching transversal skills to improve learning is a critical issue among those concerned with education innovation**. Let’s see why. A “**half-life period**” is a term coined and used in nuclear physics to describe the radioactive decay of atomic particles as they lose energy. It indicates the time that it takes for the quantity of something to reduce by half. Applied to knowledge (Arbesman, 2012), it is **the rate at which half of all the ideas and information assumed to be accurate are replaced or substituted**.

²⁶ Data has become the world’s most valuable resource, the new oil. See <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>.

Half-life periods are different in each knowledge area and are affected by two related phenomena: **growth** and **obsolescence**. Growth occurs when we acquire a more in-depth understanding of an issue or establish new research fields. Obsolescence occurs when the knowledge is refuted, or the implementation method is changed due to technological innovations, including improved processes and automation. The technical capacity to complete a task loses its relevance.

Neither growth nor obsolescence are static phenomena; as time progresses, the speed of development changes and is influenced by innovation, culture, and the rate at which society shares information. In recent years, in many knowledge areas such as medicine and coding, the growth rate has increased exponentially. In the 1950s, estimates indicated that it would take seven years to double the amount of knowledge in the medical field; by 2010, this estimate had been reduced to four years. According to the Transactions of the American Clinical and Climatological Association, by 2020, information is projected to double every 73 days (Densen, 2011). It is true that much of this information is not applied and does not modify day to day operations. However, doctors must continuously make more effort to remain up-to-date with innovations to improve their patients' quality of life.²⁷

Figure 5.1. Rate of Medical Knowledge Production



Infoxication or When Information Becomes a Problem

In 1964, Bertram Gross described one of the problems that would govern our times as **“information overload”** (Gross, 1965). This phenomenon occurs **when a system receives information that exceeds its processing capacity**. This happens because of the quantity of information or a complex and intricate network of interrelations. In this scenario, the more information we have, the less we can discern between useful information and noise, which leads us to make worse decisions.²⁸

Information overload can be observed in activities as common as going to the supermarket and choosing from a limited vegetable selection. Given the information easily accessible via cellphones, a rational behavior would be to consider the nutritional properties of lettuce and broccoli, conduct a cost-benefit analysis on a tomato, and analyze this in light of the environmental impact of monocrops on farms in Latin America.

²⁷ This is known as “lifelong learning” and describes a learning or a voluntary, continuous improvement process that extends beyond traditional education and persists throughout our lives.

²⁸ The 2016 elections in the United States reminded us that we have an information overload and encounter fake or low-quality information.

A key component of future work will be a human-machine collaboration, allowing a worker to focus on areas requiring more nuanced considerations or creative efforts and to improve their ability to make better decisions.

Barry Schwartz calls this the **“paradox of choice”** (Schwartz, 2004), where a plethora of options, instead of leading to increased happiness, **creates more stress** due to the higher probability of making a wrong choice. As a result, we now have more recommendation systems integrated with, for instance, music and movie streaming services. What’s better than having an algorithm sift through a sea of options and curate your perfect playlist? These “digital agents” have started to flood other decision-making spheres and will eventually become ubiquitous. For this reason, a key component of future work will be a human-machine collaboration, allowing a worker to focus on areas requiring more nuanced considerations or creative efforts in some instances and to improve their ability to make better decisions in others.

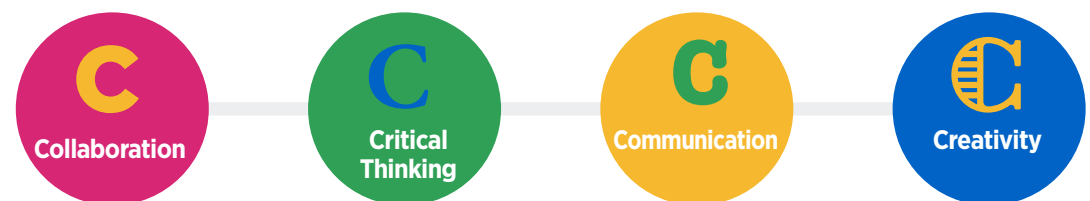
Transversal Skills to the Rescue

In this context, we need to develop transversal skills that allow us to focus, not on memorizing information with an expiration date, but on learning how to utilize the information provided by digital agents in creative, collaborative, and context-adaptive ways that ultimately engender social change.

The call to reorient education and 21st century skills started almost two decades ago in the United States. In 2002, the National Education Association created, together with other institutions, businesses, and educators, the **Partnership for 21st Century Skills** (P21). It published a document defining the 21 transversal skills needed for the new century. The document summarized the four skills, known as **the 4Cs**, which are easy to remember:

1. **collaboration**, the practice of working together to achieve a common objective
2. **critical thinking**, finding solutions to problems
3. **communication**, the practice of transmitting ideas quickly and clearly
4. **creativity**, the practice of thinking in a different way.

Figure 5.2. The four C’s



Transversal skills allow us to use the information provided by digital agents in creative, collaborative, and context-adaptive ways that ultimately engender social change.

The Inter-American Development Bank has adopted the skills listed in this classification and added teamwork, problem-solving, and critical thinking. These skills are transversal because they are not sector- or occupation-specific and are essential to adapt and live in today’s world.²⁹

It is clear to us that **the need to pass on and learn these skills is as relevant today as it was twenty years ago** and that, throughout this time, we have not been able to pass them on at scale. The question thus remains: **how can we learn these skills?**

²⁹ To learn more about this initiative, visit <https://www.iadb.org/es/trabajo-y-pensiones/el-futuro-del-tra-%20baio-en-america-latina-y-el-caribe>

How Can We Learn to Learn?

Socrates 2.0

In recent years, **initiatives have resurfaced** to move from a standardized education approach prioritizing memorization by students who passively consume information, to one in which active interaction is expected. This approach places the education process at its core and recognizes that everyone has different ways of learning.

Constructivist learning theory establishes that learning utilizes previous experiences to integrate or understand new knowledge.

“Active learning” is not a new education theory. Socrates used to say that a teacher’s role is not to plant truths in his students’ minds. Just as a midwife assists a baby’s birth, a teacher’s role is to help students discover or rediscover³⁰ truth. **The Socratic method**, called maieutics, **draws on the basic principles of educational constructivism.** The teacher poses a series of questions and allows students to present arguments and raise questions, while she/he listens attentively. Then, by asking new questions, the teacher guides students to identify possible logical errors without revealing the answer or truth the student seeks.

Constructivist learning theory tries to explain the nature of human knowledge. It establishes that learning occurs iteratively by incorporating previous experiences in mental abstracts and using them to integrate or understand new knowledge. Therefore, knowledge acquisition is a unique and individual process for each student.

Active Learning Works

A 2014 **meta-analysis** conducted by Scott Freeman, a professor at the University of Washington, compiled and analyzed **255 independent studies comparing active and traditional learning designs** in STEM fields (Freeman et al. 2014). This study found that, on average, a student’s probability of failing a class increased by 50% if a traditional approach was used instead of active learning strategies.³¹



When a traditional approach is used, there is a **50%** increase in a student’s probability of failing a course.

There are an endless number of constructivist approach strategies centered on different active learning elements which have been shown to strengthen the transversal skills included in the 4Cs.

There are an endless number of constructivist approach strategies centered on different active learning elements that have been shown to strengthen the transversal skills included in the 4Cs.

For instance, **project- or inquiry-based learning** seeks to make students learn by facing challenges and real-life problems in a teamwork environment that promotes leadership and collaboration. **“Productive failure”** is a concept which normalizes failure as a natural step in the learning process. It challenges students to explore an issue or a

³⁰ Socrates believed that the soul was immortal. Therefore, knowledge came from past lives.

³¹ These results were consistent across all subjects analyzed and showed no significant differences in biology, chemistry, computer science, engineering, geology, mathematics, physics courses, and psychology.

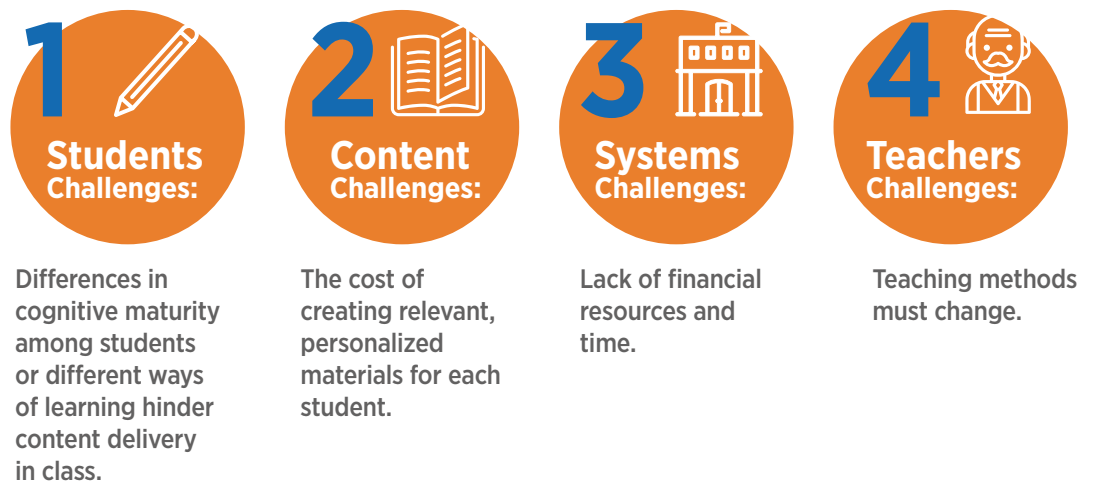
situation without guidance and eventually learn from their mistakes. Finally, in **personalized learning**, the objective is to cater to study plans based on students' needs and strengths, allowing them to make decisions based on their learning interests.

Gradually, **studies have measured the impact of these methodologies on students**,³² consistently showing that **active learning increases students' motivation, interest, academic performance (particularly in the 4C's), and improves their interaction with the teacher.**

What is Stopping Us?

If, in pedagogical terms, we conclude that active learning is advisable and studies prove its effectiveness, why is it not more widespread in education systems?

To answer this question, Dr. Susan Edwards explored some of the challenges in implementing these methodologies (Edwards, 2015). Among these, we find **challenges** in terms of:



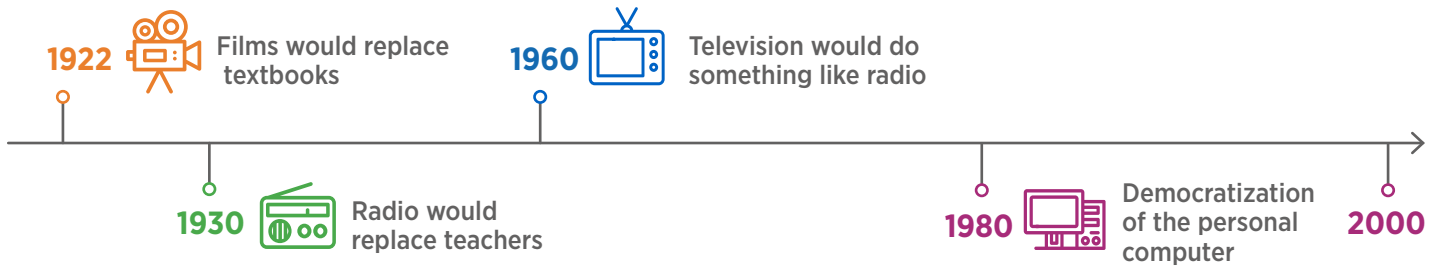
Currently, we see an explosion of interest in these methodologies, and many people believe that technological advancements will help make educational transformation a reality. Let us explore the **role of technology in education** and how these four challenges can help us address it.

The Long-Awaited Technological Disruption

The Textbook is Still King

Over the last hundred years, multiple technological breakthroughs have promised educational transformation. In 1922, Thomas Edison said that movies were destined to revolutionize the education system and replace textbooks. In 1930, people said radio would replace teachers with electronic devices, providing education in remote areas. From 1960 to 1980, the television held similar promise, and from 1980 to 2000, the personal computer “democratized” education and monopolized all #edtech news (Oppenheimer, 2004).

³² See <https://www.edutopia.org/pbl-research-annotated-bibliography#condliffe>



While there is no doubt that some technological breakthroughs have changed how new generations learn, traditional mediums such as textbooks are still relevant as ever. They can be found in schools in New York, Guerrero's rural mountains, or the Huma-huaca Ravine.

The obsolescence rate of this ancient object is among the slowest in modern history. Do you remember the Walkman or the iPod? Those objects experienced the cycle of creation, massification, and disappearance in less than ten years when the industry replaced them with something better. What is the difference? Is there nothing better than textbooks to help students learn?

The first logical theory is, perhaps, that books have low printing and sale costs for students. This is far from reality. A 2018 survey by Morning Consult, a United States company, concluded that textbooks cost each student 579 dollars per year and are among the primary sources of financial stress for families, disproportionately affecting students from minority groups.³³ This is hard to believe when all books published, from those about Ancient Greece to the Spanish Golden Age, can be downloaded legally for free to a USB thumb drive.

While these technological breakthroughs have changed how new generations learn, traditional mediums such as textbooks continue to be as relevant as always.

Maybe, instead of predicting the disappearance of **textbooks** and their replacement with updated technologies, we should first understand the **reasons for their longevity**. **Textbooks were the first instrument that included activities and open questions** for readers, **inviting them to discover reality independently, and providing examples and diagrams to reinforce didactic material**. To understand information, beyond reading it, we must engage in free and active experimentation practices.

Norm Friesen, a professor at Boise State University, lists some of the reasons why textbooks have been the backbone of learning for so long. He argues that books can still provide interactive and personalized experiences despite being fixed and lacking sound effects. Many textbooks include questions that each student can answer. Students only need a sharpened pencil to write personal ideas and draw diagrams on the margins about what they learned to customize the textbook and make it different from the rest (Friesen, 2018).

When we think about it, the difference between annotating a book and writing on a tablet should not significantly affect learning. A 2016 experiment, carried out with

³³ See <https://www.prnewswire.com/news-releases/new-survey-college-students-consider-buying-course-materials-a-top-source-of-financial-stress-300687138.html>

undergraduate students from level three pharmacology and physiology classes compared the teaching efficacy of a three-dimensional animation vs. still images (Daly et al., 2016). The treatment group attended a class that used animated images, while the control group viewed a series of still images. At the end of the lesson, both groups answered a questionnaire assessing their content knowledge. Without any doubt, most people assumed that an animation would outperform still images in teaching something complicated like how an organ works. However, no significant effects were found on learning across groups. In other words, students learned the same seeing a still image as they did watching a three-dimensional animation (Daly et al., 2016). These results can be explained by how students consume the information they receive. If you consider a still image, you are forced to imagine organ's complicated muscular movements actively. When you are presented with an animation, it is likely you are captivated and will not stop until you learn everything.

We always say that we are about to change everything, but nothing ever changes. Maybe the problem is that we wait for change to happen in areas with nothing to do with education.

Is This Our Technological Disruption?

Unlike radio and TV, new technologies are genuinely innovative and can support an educational revolution. And no, this has nothing to do with the novelty of virtual reality or augmented reality. Its importance lies in the potential to solve two of the most significant challenges to implement active learning (as previously mentioned), student and content challenges. How so?

Artificial intelligence systems and **the study of students'** habits will help us create pedagogic profiles and ultimately **automate content production tailored to each student**. As such, content automation will provide students with examples and practice questions that reinforce specific points that challenge them. It will also allow, for instance, the creation of realistic simulations of practical cases and enable students to make decisions based on real problems, ultimately allowing them to learn from their mistakes in controlled environments.

Rebuilding the Classroom

Little by Little and from Within: The Keys to the Education Revolution

New pedagogical methods, as well as technology use, require teachers and the education system to approach education differently. In other words, we not only need reforms but an education transformation that is less standardized and more personalized. We face **two challenges** in **applying active learning in schools—systemic and teacher challenges—perhaps the most complex ones**.

Unlike other consumer goods in which a final user either likes or dislikes the product, formal education sectors are very complex systems. Formal education is “consumed” **by students and parents**, while the providers include **those who design school materials, schools, teachers, and even unions**. Each of these stakeholders has an agenda and interests, making the **education reform process particularly slow and convoluted**.

Children's education is a sensitive topic because it affects their cognitive development and life outcomes. This explains why parents want to make sure that educational mod-

New pedagogical methods, as well as technology use, require teachers and the education system to approach education differently.

LAC must incentivize the implementation of pilot projects and produce case studies on different countries in the region.

els based on active learning generate positive results. The region must incentivize the implementation of pilot projects and produce case studies on different countries in Latin America and the Caribbean to achieve this. Similarly, events and conferences can be organized to help disseminate these concepts and implementation results.

For **teachers** and **unions**, the transition will not always be smooth. They have not been trained to educate students in a context that requires interpersonal skills such as empathy and innovation. They are also not comfortable with technology use. For this reason, an immediate change in study plans will always be a bad idea that will constantly meet resistance from interest groups. First, **teachers should be trained to reduce existing disparities in digital and interpersonal skills**. We should create transition plans that use **blended practices** that are not as technology-heavy or that limit teachers' responsibility. Such plans should include advisors and mentors focused on assisting students in technology use. An example of these methodologies is the **"flipped classroom"** model, in which traditional learning tasks are flipped from school to home. Homework then becomes a series of videos and conferences that students must review, while students spend classroom time doing exercises and providing examples to reinforce learning.

However, we must not forget **that this transition can also have positive effects on teachers**, who, in the current system, report feeling more stressed than workers in similar occupations.³⁴ This stress is caused by the demand to implement extensive activity programs, the pressure to improve standardized test results, and increased exposure to scrutiny from parents and school principals. These innovations (if successfully implemented) can reduce pressure on teachers and improve their work-life balance.

Everything looks good on paper until you try to implement it. However, some initiatives have already started to operate using these ideas. We can learn from mistakes and successes to improve the application of such ideas. In the case of personalized learning, one of the most well-known projects is **"Summit Learning,"** a US program financed by Facebook, whose implementation in 19 schools in 2015 grew to 380 schools in 2019. The program provides students with **long-term mentors** and a **technology platform** to organize the structure of their approach. While an impact evaluation has not yet been carried out,³⁵ the organization has already produced different case studies,³⁶ **reporting increases in scores, student engagement, attendance, and improvements in behavior.**

Nonetheless, it has also been met with considerable resistance from schools in New York, Kansas, Pennsylvania, and Connecticut.³⁷ Approximately 18% of schools that started the program in 2015 have, to date, abandoned it.³⁸ Among the complaints,

34 <https://www.theguardian.com/education/2019/feb/25/teachers-experience-more-stress-than-other-workers-study-shows>

35 <https://chalkbeat.org/posts/us/2019/01/17/summit-learning-research-harvard/>

36 <https://blog.summitlearning.org/tag/case-studies/>

37 Leonie Haimson, New York public school activist, has been monitoring the Summit project for two years, and claims that parents in 15 states have reached out to her with complaints. <https://nycpublicschool-parents.blogspot.com/2018/11/brooklyn-students-fight-against-summit.html>

38 <https://www.chalkbeat.org/posts/us/2019/05/23/summit-learning-the-zuckerberg-backed-platform-says-10-of-schools-quit-using-it-each-year-the-real-figure-is-higher/>

parents and students claim that the **program is too computer-oriented, and materials don't relate to state assessments and standardized tests**. They also reported serious concerns about personal data collection,³⁹ such as scores, disciplinary records, and demographic information. Catherine Madden, head of communications at Summit Learning, has argued that these problems are due to how schools implement the program rather than the design.⁴⁰

Personalized education strategies require collecting personal data such as student scores, disciplinary records, and demographic data. Therefore the region **must invest in creating a comprehensive legal framework that considers issues such as storage, personal data protection, and algorithmic auditing of artificial intelligence**. Such frameworks are absent or insufficient in many countries in Latin America and the Caribbean, leaving students in a vulnerable position.

Finally, and something must be said, many communities in the region remain technologically isolated. Technology inclusion projects must move forward to prevent the technological gap from increasing education disparities.

Throughout this text, we have discussed **what we must learn, the most efficient ways to achieve such learning, the role of technology in the process, and strategies to introduce these changes in education systems gradually**. As we have seen, there are many challenges associated with incorporating 21st century skills and active learning in curricula. Moving from public policy theory to practice is not an easy task, but these challenges provide learning opportunities. If we want to improve the education system in the region, we have to start somewhere.

39 <https://www.fastcompany.com/90269809/after-rapid-growth-zuckerberg-backed-school-program-faces-scrutiny-over-effectiveness-and-data-privacy>

40 https://blogs.edweek.org/edweek/DigitalEducation/2018/11/brooklyn_new_york_city_students_pro-test_facebook_summit_learning_program.html

References

Arbesman, S. (2012). The Half-Life of Facts. Current.

Daly, C. J., Bulloch, J. M., Ma, M., & Aidulis, D. (2016). "A Comparison of Animated Versus Static Images in an Instructional Multimedia Presentation." *Advances in Psychology Education*. Vol.40, Issue 2, pp. 201-2015. Available on <https://www.physiology.org/doi/full/10.1152/advan.00053.2015>

Deci, E. L. & Ryan, R. M. (2008). "Self-Determination Theory: A Macrotheory Of Human Motivation, Development, And Health." *Canadian Psychology*, 49(3), 182 - 185.

Deci, E. L., & Ryan, R. M. (2000). "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behaviour." *Psychological Inquiry*, 11(4), 227-268.

Densen, P. (2011). "Challenges and Opportunities Facing Medical Education." *Transactions of the American Clinical and Climatological Association*; 122: 48-58. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3116346/>

Edwards, S. (2015). "Active Learning in the Middle Grades Classroom: Overcoming the Barriers to Implementation." *Middle Grades Research Journal*, v10 n1 p65-81 2015. Retrieved from <https://eric.ed.gov/?id=EJ1144346>

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth M. P. (2014). "Active Learning Increases Student Performance in Science, Engineering, and Mathematics." *PNAS*. 111 (23) 8410-8415.

Friesen, N. (2018). "Despite Predictions of Their Demise, College Textbooks Aren't Going Away." *The Conversation*, August 23rd, 2018. Available on <https://theconversation.com/despite-predictions-of-their-demise-college-textbooks-arent-going-away-99931> [Accessed 23/11/2019]

Froiland, J. M. (2011). "Parental Autonomy Support and Student Learning Goals: A Preliminary Examination of an Intrinsic Motivation Intervention." *In Child & Youth Care Forum* (Vol. 40, No. 2, pp. 135-149). Springer US.

Gross, B. M. (1964). *The Managing of Organizations: The Administrative Struggle*, Vols. I and II. New York: Free Press of Glencoe, 1964.

Hume, S., O'Reilly, F., Groot, B., Selley, E., Barnes, J., Soon, Z., Chande, & R., Sanders, M. (2018). *Retention and Success in Further Education*. Research Report, The Behavioural Insights Team.

Kalil, A. (2015). "Inequality Begins at Home: The Role of Parenting in the Diverging Destinies of Rich and Poor Children." In *Families in An Era of Increasing Inequality* (pp. 63-82). Springer, Cham.

Moè, A., Katz, I., & Alesi, M. (2018). "Scaffolding for Motivation by Parents, and Child Homework Motivations and Emotions: Effects of a Training Programme." *British Journal of Educational Psychology*, 88(2), 323-344

Murphy, P. K., Rowe, M. L., Ramani, G., & Silverman, R. (2014). "Promoting Critical-Analytic Thinking in Children and Adolescents at Home and in School." *Educational Psychology Review*, 26(4), 561-578.

Oppenheimer, T. (2004). "The Flickering Mind." *The New York Times*. January 4th, 2004. Available on <https://www.nytimes.com/2004/01/04/books/chapters/the-flickering-mind.html> [Accessed 08/25/2019]

Patall, E. A., Cooper, H., & Wynn, S. R. (2010). "The Effectiveness and Relative Importance of Choice in the Classroom." *Journal of Educational Psychology*, 102(4), 896 - 915.

Piaget, J. (1955). *The Language and Thought of the Child*, Nueva York, New American Library.

Rose, J. (2012). "How to Break Free of Our 19th-Century Factory-Model Education System." *The Atlantic*, May 9th, 2012. Available on <https://www.theatlantic.com/business/archive/2012/05/how-to-break-free-of-our-19th-century-factory-model-education-system/256881/> [Accessed 08/25/2019]

Reeve, J. (2006). "Teachers as Facilitators: What Autonomy-Supportive Teachers Do and Why Their Students Benefit." *The Elementary School Journal*, 106(3), 225-236.

Schwartz, B. (2004). *The Paradox of Choice: Why More is Less*. New York. Harper Perennial.

Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). "Motivating Learning, Performance, and Persistence: The Synergistic Effects of Intrinsic Goal Contents and Autonomy-Supportive contexts." *Journal of Personality and Social Psychology*, 87(2), 246 - 260.

Yeager, D. S., Purdie-Vaughns, V., García, J., Apfel, N., Brzustoski, P., Master, A., ... & Cohen, G. L. (2014). "Breaking the Cycle of Mistrust: Wise Interventions to Provide Critical Feedback Across the Racial Divide." *Journal of Experimental Psychology: General*, 143(2), 804 - 824.



CHAPTER 6

Tackling the Challenge of Measuring Socioemotional Skills

By Suzanne Duryea
and Marta Rubio-Codina

CHAPTER 6

Tackling the Challenge of Measuring Socioemotional Skills

By Suzanne Duryea and Marta Rubio-Codina

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While policymakers and some Nobel prize-winning economists have issued a clarion call for more investment in socioemotional skills, in this chapter, we discuss the reasons why measuring such skills can be challenging. **Various studies show that socioemotional skills are equally or more important than cognitive or technical skills.** However, while numerous measures have been collected to compare populations in outcomes as diverse as the Intellectual Quotient (IQ) or the Body Mass Index (BMI), **population-wide data is not systematically collected to compare socioemotional skills across countries.** In part, this reflects the remaining gaps in evidence regarding which socioemotional skills are most critical to maintain a positive trajectory in school, labor markets, and family relationships. But it also reflects the additional challenges of measuring these skills.

Being able to measure transversal skills is also important at the programmatic level so that project managers can monitor progress over time as well as measure program impacts. A recent analysis of youth programs, for example, indicates that rather than focus on a unified set of skills, programs are very tailored with their particular “theories of change” emphasizing specific transversal skills. This makes drawing conclusions about cost-effectiveness very difficult, since programs not only focus on different outcomes but often also lack the credible control group needed for a rigorous evaluation.

This chapter reflects on the literature about the benefits of transversal skills, and addresses state-of-the-art advances that measure 21st-century skills in Latin America and the Caribbean (LAC), while acknowledging that **more rigorous research is required to determine which skills and programs keep children, youth, and adults on positive trajectories for success in school, work, and family life.** In the following sections, we will explain how to measure socioemotional skills so that the data collected is valid and reliable. We will discuss specific steps to consider before selecting a particular instrument and the main challenges that arise during and after data collection.

This chapter addresses state-of-the-art advances that measure 21st-century skills in Latin America and the Caribbean.

How to Choose the Measurement Instruments?





Knowing What We Are Measuring

For many years, economists lumped together socioemotional skills, personality traits, and behaviors under the term “noncognitive skills.” This reflected the existing confusion about the concept of socioemotional abilities and caused further confusion. While these concepts do overlap and/or differ in nuanced ways, it is important to begin any measurement exercise with a clear definition of the skill to be measured. In other words, **the choice of the measurement instrument depends on the skill being measured.**

Table 6.1 shows a simplified classification of socioemotional skills. **Interpersonal skills** are related to **being able to understand and communicate with others**, while **intrapersonal skills** refer to the **ability to understand oneself** and assess one’s strengths and limitations. **Externalizing behaviors**, such as disruptive or argumentative conduct and aggression, are classified as a subcategory of interpersonal skills. In contrast, **self-regulatory skills** are associated with executive functioning and are classified under **intrapersonal skills**.

Self-esteem is the belief in one’s overall worth, whereas **self-efficacy** refers to the confidence in one’s ability to perform specific tasks. **Conscientiousness, diligence, and thoroughness** in tasks are related to self-control and thus classified as self-regulatory **abilities**. **Inhibitory control** is the ability to override an internal predisposition or external temptation. **Self-control** is the willful regulation of emotion, attention, and behavior to align with specific goals. This list is indicative rather than exhaustive and only provides a few examples of skills for each subcategory. However, it helps illustrate the diversity of skills in the “noncognitive skills” category, and how their classification may be unclear. It is important to keep in mind that **there often is more than one measurement tool (instrument) for each of the mentioned skills**, increasing the complexity of the challenge to measure socioemotional skills, especially when drawing comparisons both within and across populations.

Table 6.1. Typology of Socioemotional Skills

Interpersonal skills	Intrapersonal skills
<div><p>General interpersonal skills</p><ul style="list-style-type: none">• Empathy• Communication• Agreeableness• Extroversion</div>	<div><p>General intrapersonal skills</p><ul style="list-style-type: none">• Self-esteem• Self-efficacy• Grit• Emotional stability</div>
<div><p>Externalizing behaviors</p><ul style="list-style-type: none">• Aggression• Conduct problems• Disruptive behaviors</div>	<div><p>Self-regulatory skills</p><ul style="list-style-type: none">• Inhibitory control• Self-control• Conscientiousness• Future orientation• Planning skills</div>

Note: As shown in Table 8.11 from Duryea et al., 2017. This list is indicative, not exhaustive.

Tackling the challenge of measuring socioemotional skills, first starts with considering the overall objective of the measuring exercise.

Selecting the Test Instrument

Tackling the challenges of measuring socioemotional skills starts first by considering the **overall objective of the measuring exercise**. Instrument choice depends on whether the exercise aims to:

- i. collect comparable measures to track progress within and across populations
- ii. screen individuals at risk for certain outcomes or behaviors
- iii. collect measures for program evaluation.

When measurement is related to monitoring or evaluating a specific program, the skill(s) measured should be directly related to the **program's theory of change** (i.e., the program mechanisms that would transform communication or self-control outcomes). In addition to the **subject's age**, another key factor is the **target population's background**. For instance, does the test instrument, typically a set of questions, require a minimum level of literacy? If it is administered via a tablet or computer, does it require prior exposure to this technology? **Adaptation requirements to ensure suitability** vary substantially from test to test and from context to context and are worth keeping in mind when choosing one test over another. The **cost** of administering an instrument can also vary widely as some instruments charge fees associated with copyrights and/or require administration by specially trained interviewers. Another two critical factors to consider are the instrument's **psychometric properties**, addressed below, and **easiness of result interpretation** using performance standards or other techniques.

Psychometric Properties: Reliability and Validity

Reliability and validity are an instrument's most essential attributes.

If I step on a scale to weigh myself, I might think—"Is this accurate? If I step off and try again, will I get the same result? Is it displaying my weight in pounds or kilos?" An entire psychology discipline exists to address the **psychometric properties of instruments**, or in other words, to **assess measurement quality**. **Reliability** and **validity** are an instrument's most essential attributes. **Reliability** is the ability to **replicate a result** and **validity refers to the instrument's ability to measure the proposed concept**. Generally, in psychometric testing, validity is considered the most important element because it concerns the **meaning of test results**.

The internal reliability of an instrument assesses the instruments' subpart' consistency, regarding the attribute that we are measuring.

Most instruments include a series of questions (items) around a central theme. For example, the Basic Empathy Scale (BES) includes 20 questions designed to measure empathy in youth and adults (Jolliffe and Farrington, 2006). The **internal reliability** of an instrument assesses the **instruments' subparts' consistency**—this is, whether they all contribute to the same construct (concept or attribute). For example, the level of internal reliability (or internal consistency) of BES indicates if all 20 questions are related to empathy. Most researchers use the **Cronbach alpha coefficient to assess internal consistency**. Instruments with coefficients below 0.60 are below the standard threshold for internal consistency, while scores above 0.70 are acceptable. Another particularly important aspect of reliability involved in measuring socioemotional skills is **stability or test-retest reliability**. It relates to the extent to which the measure is stable over time. The relevant period may vary depending on the context and the socioemotional skill. For example, one might expect empathy to be rather stable over a prolonged period. Apathy or self-esteem may vary as a result of the intervention, yet are likely to remain stable between two measurements collected a week apart (unless something out of the ordinary happened, such as a job promotion).

Stability relates to the extent to which the measure is stable over time.

Construct validity assesses whether the instrument captures the concept measured. **Convergent validity and discriminant validity** are subsets of construct validity. Concurrent, convergent validity captures whether a test correlates with another pre-established measurement (or instrument) that evaluates the same construct. For instance, BES scores have been compared to an established scale, the Interpersonal Reactivity Index (Davis, 1983) and positive correlations above 0.4, support construct validity (Jolliffe y Farrington, 2006). The convergent predictive validity of an instrument is the ability of a test to accurately measure a future skill. It is less analyzed because

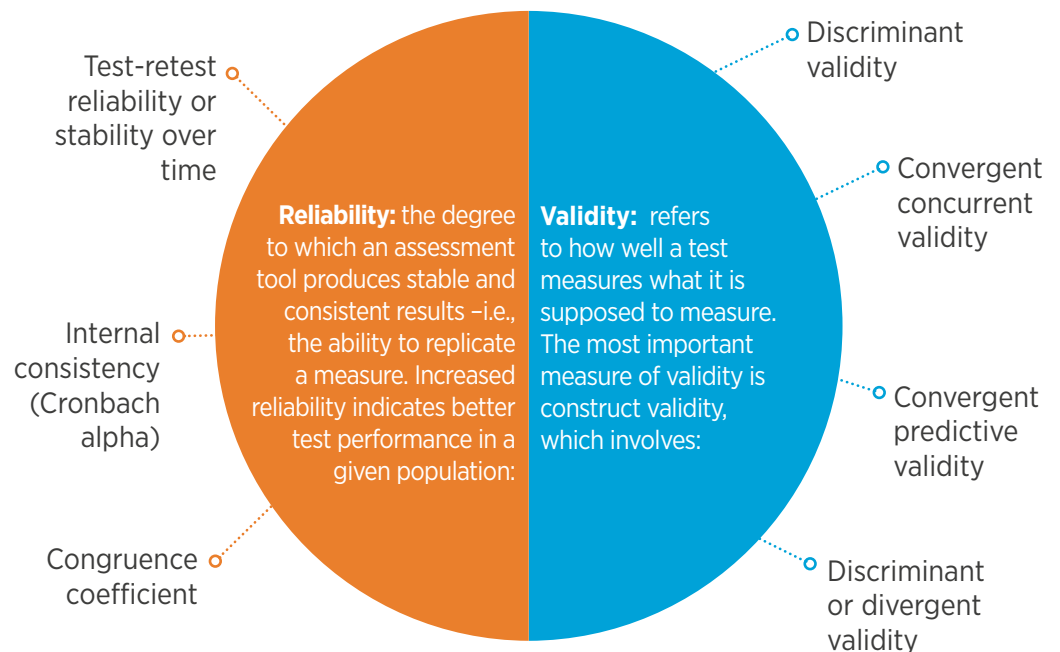
researchers often lack longitudinal data. However, with many companies applying psychometric tests in hiring panels, the predictive power of pre-hiring assessments could be validated, for instance, by using supervisor and peer performance evaluations. Assessing an instrument's **discriminant (or divergent) validity** means ensuring that constructs that should have no relationship are, in fact, unrelated. For example, empathy and communication skills should not be related (or only slightly). **Instruments with poor reliability or poor validity should be redesigned.**

Adapting the Instrument to New Contexts

If an instrument is applied in a new context, it should first be adequately adapted. Then, it should be tested and validated among a smaller population.

Instrument selection should consider psychometric properties and whether they have been applied in the same country and demographic group. If an instrument is applied in a new context, it should first be adequately adapted. It should then be piloted and validated among a smaller population before being applied at large. This ensures that reliability and validity in the new context can be established. This is all the more relevant if the language or some of the content of the test has been modified (for instance, if some items or questions have been rewritten, removed, or reordered). **It is important to ensure the modified/adjusted test's comprehension and functional equivalence, as well as its cultural relevance, in the new context.** In these cases, it might be helpful to check the **congruence coefficient**, another measure of reliability which establishes the correlation between the factor loadings (or contribution of the items to the scale/construct they belong to) in a given context compared to the factor loadings in the context for which the test was originally designed.

Figure 6.1. Measures of Reliability and Validity



Review and Approval of Ethical Considerations

Protecting the **ethical treatment of human subjects** is key to designing data collection survey instruments and protocols. The research team cannot decide whether test instruments have the potential to inflict emotional damage. An **appropriate ethics committee** should review and approve the survey instrument and data collection protocol before data is collected. This authority may be, for instance, a national review committee or a panel of professors at a local university. Protocols should provide information about how to communicate results to study participants and details about whether/how individuals who fail to meet criteria will receive referrals. Surveys should include a **section that informs subjects of the study objective**, the **risks associated with data collection**, and should also collect the **informed consent** for adult respondents (or guardians) and assent for minors below legal age. These must be recorded and archived appropriately.

Social science research increasingly protects human subjects. A growing number of academic journals and funding institutions require that an ethics committee review and approve research protocols. As Table 6.2 shows, the list of top tier education, health, and other social science journals with an ethics review prerequisite continues to grow. This indicates that forthcoming studies that lack ethics approvals will have restricted publishing options.

Table 6.2. Journals Requiring Internal Review Board (IRB) Ethics Review Across Various Disciplines*

Journal name and discipline	Require ethical review/IRB
Education	
Economics of Education Review	Required
International Journal of Educational Development	Required
Health / Public Health	
BMJ	Required
Social Science Medicine	Required
Prevention Science	Required
Multidisciplinary	
PLOS One	Required
Nature	Required
Economics	
AEA Journals	Disclose result or explain why not requested

*Note: This list is indicative, not exhaustive.

Box 6.1. Summary of the Main Elements to Consider in the Process of Selecting and Administering a Test

Before selecting a specific instrument, consider the following questions:

- i. What is the objective of the measurement exercise? To collect population diagnostics? For program M&E? For individual screening of risk or vulnerability?
- ii. Which skills are measured? In the case of M&E, the choice should reflect the program “theory of change,” e.g., the channels of influence of the program.
- iii. What is the individual’s age?
- iv. How will the instrument be administered? Self-reported or collected by interviewers, on-paper, by computer, cellphone, or phone?
- v. Does the target population have the appropriate profile for the type of test administered (i.e., basic literacy and numeracy, or exposure to computers in the case of self-administered computerized instruments)?
- vi. Is there a performance standard that requires informing parents or health authorities? Are referral services available?
- vii. Do interviewers require specific training or certification for the instrument? Does the instrument have a copyright?
- viii. Have the test instruments and study design passed an ethics review? Does data collection include informed consent for adults and assent for minors?

The choice of a specific instrument must consider:

- i. Has the instrument been applied and validated in the same context, i.e., the same country and demographic group?
- ii. Does the instrument have favorable psychometric properties (internal and external validity)? Are there any instruments with better properties?
- iii. If an instrument is applied in a new context, it must first be piloted and validated among a smaller population sample.

Before extensive data collection begins, the following should occur:

- i. The wording or translation of the instrument should be pre-tested for cultural sensitivities and relevance in the same country and demographic group.
- ii. Pre-test the full data collection logistics.

Data collected by interview or by self-administered tests may be biased.

Main Challenges

How to Identify and Avoid Biases or “What People Say vs. What People Do”

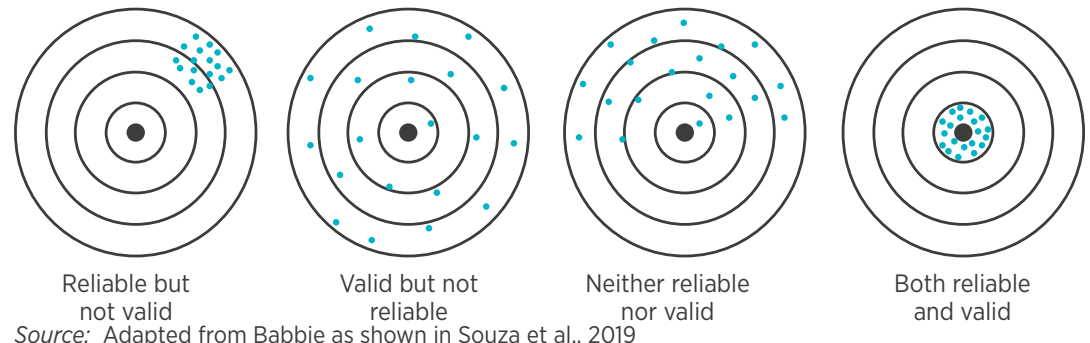
Data collected by interview (report to an interviewer) or by self-administered tests may be biased by **social desirability bias, misinterpretation of the question, or reference bias**. The creator of the GRIT instrument, Angela Duckworth,⁴¹ points out that there are a few options to explore bias. For example, if the concept measured is self-control, it may be feasible to ask children or youth to self-report and then ask a similar question about the child’s behavior to a teacher or parent (and then compare both reports). Some instruments involve a task such as a set of instructions or activities that the subject executes. For example, can a child exhibit inhibitory control when asked to assemble a puzzle or play a computer game? **This provides an opportunity to measure “what individuals do” and “what they say.”** It is a way to identify bias in self-reported data. While some test batteries highlight task-based measures (directly administered

⁴¹ Psychologist Angela Duckworth coined this term to refer to the mixture of passion, perseverance and courage that she considers the key to success. Duckworth, A. (2016). *I screamed. The power of passion and perseverance*. Urano Editions.

Experts recommend investing in the development of innovative performance-based measures of socioemotional skills, allowing us to avoid potential biases

to the subject), the focus has been on measuring cognitive and technical skills rather than socioemotional skills. Duckworth and other researchers recommend investing in the development of innovative performance-based measures of socioemotional skills administered directly to subjects (Duckworth and Yeager, 2015).

Figure 6.2. Aiming for Reliability and Validity



An Example of What Could Go Wrong: The Big Five and the Non-WEIRD Population

Socioemotional instruments are collected and validated to a larger extent in the United States, Europe, Canada, and Australia. A recent study examines the validity of the most common instrument, the Big Five, outside of White Educated Industrialized Rich and Democratic populations (WEIRD) (Laajaj et al., 2019).

The study analyzes data from **23 countries** and raises a **red flag** about **weak result interpretations** that **lack evidence on the instrument's validity in the new context**. The authors found that face-to-face interviews from nationally representative surveys and impact evaluation surveys failed to measure the intended personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism). This contrasts with the high validity results from self-selected⁴² internet surveys in the same countries, and suggests that the level of education and other contextual elements such as the interaction with the enumerator can influence results. Other studies show a marked difference in youth responses when peers are present during test administration and data collection, even if they do not directly view the responses (Albert et al. 2013).

These studies underscore some **biases that affect the reliability and validity of a measurement**, such as **social desirability bias** (which results from the desire to please others). Biases also include **systematic response bias** or **acquiescence bias** (responding yes to everything), which may result in respondents agreeing with two contradictory statements. **Enumerator bias** occurs when interviewers have a systematic effect on the outcome because of how they administer the test. There are also biases related to the “social distance” between interviewee and interviewer, which may also worsen the mentioned sources of bias.

These study results reinforce the importance of **establishing test reliability and validity before using them in a country, context, culture, or language other than the one in which they were developed. This ensures that the tests continue measuring what they were intended to measure.**

⁴² Unrepresentative respondent selection technique, where the respondent decides their participation in the survey, questionnaire or investigation.

Box 6.2. Measurement Instruments and Cultural Considerations

Cultural considerations extend far beyond language. The American Psychological Association ethical standards (2010) state that “psychologists use assessment instruments whose validity and reliability have been established for use with members of the population tested.” Scholars note the tendency for researchers to take concepts that have been measured well for certain populations and apply them to other cultural and ethnic groups without exploring the instrument’s psychometric properties. This leads to poor construct validity (Uzzell et al., 2002). Cultural considerations can be complex and very nuanced, which is why they are often better addressed in work with sociologists and anthropologists. Measuring the ability to perceive emotions via facial photos with instruments such as the “Reading the Mind in the Eyes” test or the DANVA (Diagnostic Analysis of Nonverbal Accuracy) test, clearly illustrates the complications associated with importing instruments without previous validation studies. A photo that could be interpreted as showing a smiling, happy face in Nebraska might not be interpreted similarly in other cultures. A study found that a photo showing a gasping face suggested submission and fear in tests applied in Western samples. Yet, an ethnic group in Papua and New Guinea associated it with threatening behavior (Crivelli et al., 2016). Other research has found that people who smile are perceived as more competent, friendly, and happier in WEIRD societies but may be perceived as less intelligent in other countries (Krys et al., 2016).

Interpreting Outcomes

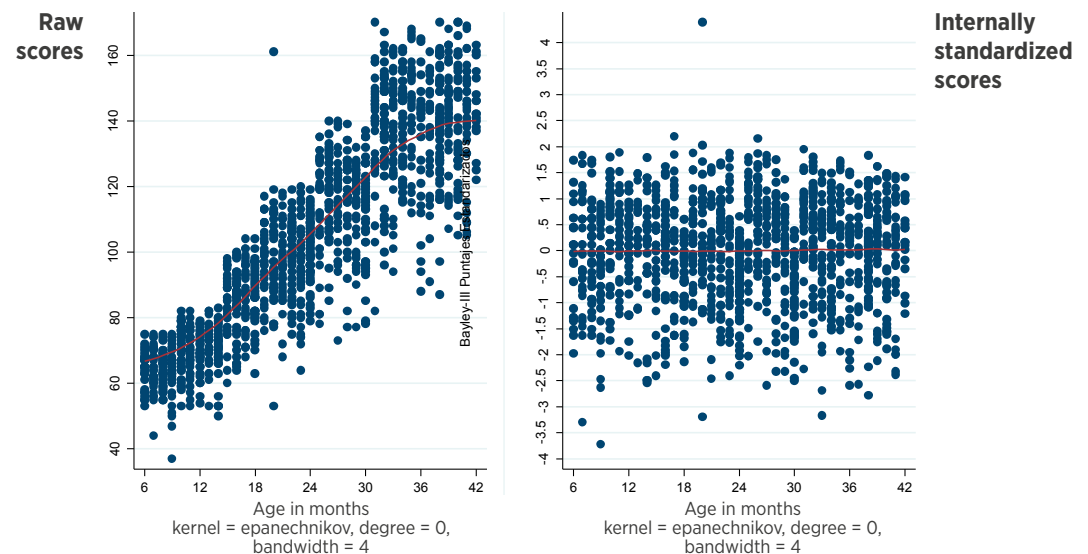
Many socioemotional skills have a developmental trajectory that naturally improves with age. For example, ten-year-olds typically have a higher degree of self-control than three-year-olds. United States data shows that the Flanker—a measure of inhibitory control—increases from age three through age 15 (Zelazo et al., 2013). Similarly, while it does not cover the life cycle, baseline project data for the evaluation of the Venezuela’s National System of Youth and Children’s Orchestras (El Sistema) demonstrated a strong positive age gradient in the Flanker and other measures of self-control and self-regulation across sample ages 10–16 (Stampini et al., 2018). Some instruments may provide **reference population norms** that **facilitate comparing results across age and populations**. While these provide a quick and easy way to interpret results, we recommended **caution** in using them to measure other populations. **The reference population may not be appropriate for the study** and, consequently, the results may not be transferable. An alternative to using reference population external norms (a method known as **external standardization**) to avoid the influence of age, is to standardize results by age among the target population and construct z-scores (a procedure known as **internal standardization**). The z-score represents how many standard deviations a measurement deviates from the mean. Figure 6.3 shows how internal standardization eliminates the effect of age in Bayley-III⁴³ raw scores of the socioemotional development scale among children six to 42-months-old.

Many researchers prefer internal standardization given the risk of using an inappropriate external reference group. Internal standardization avoids making assumptions about the comparability of populations that are scarcely comparable. Nonetheless, internal data standardization comes with a limitation: results are not directly comparable across different populations. Hence, the need for globally comparable tests.

Many researchers prefer internal standardization given the risk of using an inappropriate external reference group. Internal standardization avoids making assumptions about the comparability of populations that are scarcely comparable.

⁴³ The Bayley-III scale is an instrument to evaluate the mental, psychomotor, and socioemotional development of infants under 42 months.

Figure 6.3. Raw Scores and Internally-Standardized Scores for the Bayley-III Scale of Socioemotional Development Among Children Ages six-42 months



Source: Own calculations based on Rubio-Codina et al. (2015) in Bogota.

Measuring Skills in Young Children: A Challenge With an Expiration Date

Measuring socioemotional skills is particularly challenging among very young children, for whom the evaluation of cognitive and language skills at large scale and in a comparable manner across populations is already very complex. Nonetheless, there are currently two initiatives under development that aim to respond to the Sustainable Development Goals (SDGs), and specifically to objective 4.2.⁴⁴ The first of these efforts is the **Global Scale for Early Development (GSED)**, a working group led by the **World Health Organization (WHO)**. It seeks to **create a measurement of global early childhood development** (meaning based on the global population) for three-year-old children. The GSED will include two tools: a short form to assess cognition, language, and motor development for monitoring and tracking purposes, and a longer form aimed at program evaluation. Both will include a psychosocial scale to measure socioemotional skills. This scale is being developed separately due to observed differences in the development of socioemotional abilities with respect to the development of cognitive, language, and motor skills. **UNICEF** leads the second effort, which aims to **improve and extend the Early Childhood Development Index in the Multiple Indicator Cluster Surveys (MICS-ECDI)** for children 24-59 months (UNICEF 2017). It will cover health, learning, and psychosocial well-being (i.e., socioemotional development). Both efforts will provide global open-access, freely available, easy-to-use, valid, and reliable instruments to use in studies and surveys. This will represent a significant step toward measuring socioemotional skills amongst children under five-years-old globally in a comparable manner.

Weak Measurements or Weak Hypotheses?

A common assumption researchers, parents, and policymakers make is that children in homes with more education and a higher family income will develop stronger socioemotional skills. This includes improved emotional and behavioral self-regulation and more motivation and direction. An extensive body of literature has established

⁴⁴ Target 4.2 from the SDGs is to “ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.”

strong family background gradients for cognitive skills, with the expectation of similar socioemotional skill results.

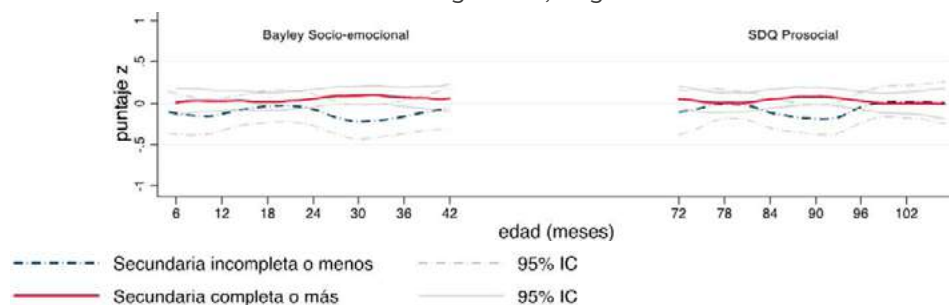
However, emerging evidence does not support the hypothesis that children from less-educated families lag far behind children from more educated households. Figure 6.4 shows the results of a study in Bogota that applied the Bayley-III socioemotional scale at ages 6 months to 3-and-a-half-years-old, and the SDQ Prosocial scale⁴⁵ at ages 6-8 years. These results show that there are no significant differences between groups. The Regional Project on Child Development Indicators (PRIDI)⁴⁶ found no significant differences in Costa Rica and Nicaragua but some in Paraguay and Peru. Other studies that analyzed primary school children have not found strong evidence of children's socioemotional gradients by family income (Behrman et al., 2017). In general, studies have found systematically stronger gradients for cognitive skills than socioemotional ones, but most of this literature has focused on young children.

Does this mean that the hypothesis has been debunked, or does it suggest that the instruments do not capture children's socioemotional skills? After all, a researcher cannot very well ask a four-year-old to respond to the question on a scale of one to five, "I am not really interested in how other people feel". Or whether they feel their future is in the hands of external forces. While caregivers can provide information about children's characteristics and behaviors, they often face difficulties because they are not well-versed in development processes or measurement standards.

Parents' income and education do not seem to correlate systematically with young children's socioemotional skills in LAC. However, emerging research shows that family characteristics do matter. Factors such as the "quality of the home environment"—as measured by the availability of play activities, materials, and the quality of interactions at home—are positively correlated with young children's socioemotional skill development (IDB, 2019). While we wait for new studies to shed light on the implication of gaps in socioemotional skills, as traditionally measured, there is no doubt that parents and families play an important role in their formation.

Figure 6.4. Gaps in Emotional Development Associated with Maternal Education

Panel A. Differences in Children's Socioemotional Development (Bayley and SDQ indices) Across Mothers with Educational Backgrounds, Bogota

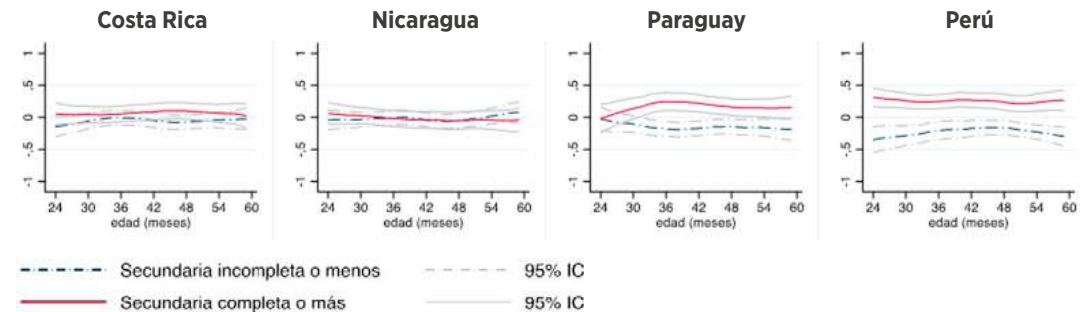


Source: Own calculations based on Rubio-Codina et al. (2015) and Rubio-Codina et al. (2016) in Bogota. Data is not nationally representative.

45 The Strengths and Difficulties Questionnaire (SDQ) detects potential cases of behavioral disorders in children in ages 2 to 17-years-old.

46 The Regional Project on Child Development Indicators (PRIDI) is an initiative launched by the Inter-American Development Bank that aims to generate high quality and regionally comparable data on the development of children age 2 to 5-years-old.

Panel B. Differences in Children’s Socioemotional Development (Engle Index) Across Mothers with Educational Backgrounds, PRIDI Countries (Costa Rica, Nicaragua, Paraguay, and Peru).



Source: Verdisco et al., 2014. Data is representative at the national level.

Longitudinal Studies: A Video Versus a Snapshot

The chapter has focused on measuring socioemotional skills validly and reliably, addressing specific steps to take into consideration before selecting a specific instrument and after data collection. However, **good instruments are not sufficient to ensure that we make accurate inferences based on the data available.** Researchers often collect data about socioemotional skills because they seek to establish causal relationships. For instance, to show that improving self-esteem reduces school dropout rates, or that students with better communication skills will have better job opportunities as they transition from school to the labor market. Unfortunately, **most data collection occurs as a “snapshot”**, with studies examining contemporaneous outcomes such as self-esteem and school attendance. However, the studies do not measure earlier or later outcomes such as previous levels of self-esteem or engagement in other activities after school dropout. As such, **the direction of the causality is unclear.** It could be the case that students not attending school dropped out because they had lower self-esteem, but it could also be the case that their self-esteem fell after dropping out of school.

Analyzing longitudinal data helps to address causal relationships. Measuring skills at earlier ages helps to avoid these “ex-post rationalizations.” The United Kingdom, the United States, Germany, and Australia have cohort studies that have yielded tremendous insights about intertemporal patterns. With longitudinal data, labor market studies can use skills that are measured “pre-market” and are not contaminated by the outcomes they measure. For example, in numerous studies in the U.S. and Germany, higher self-esteem in teen years is associated with higher adult wages (Fortin 2008, Heckman et al. 2006; and Heineck and Anger, 2010). Similarly, Daly et al. (2015), using the British Cohort Study, find that low self-control measured at age seven and 11 is highly predictive of subsequent adult unemployment.

While the region has some short-term panel data, typically one-year in duration, **longitudinal studies that follow the same cohort over a long period are scarce in LAC.** As Table 6.3 shows, some progress has been made with small samples, typically starting with very young children. The region needs to support and expand these efforts to maximize what we can learn from measuring socioemotional skills.

Analyzing longitudinal data helps to address causal relationships.

Table 6.3. Survey and Longitudinal Studies in LAC With National or Near-National Representativity

Country	Survey	Rounds	Age	Socioemotional skills	Institutions
Chile ⁴⁷	Longitudinal Early Childhood Survey	2010, 2012, 2017	0-4 years (2010)	Executive Function (various tests, e.g., Pencil Tapping Task) Socioemotional Development (ASQ: SE)	Ministry of Education (2017) Ministry of Work and Social Security (2012) Ministry of Social Development (2017)
	(Encuesta Longitudinal de Primera Infancia, ELPI)		0-6 years (2012) 0-11 years (2017)		
Colombia ⁴⁸	Colombian Longitudinal Survey (Encuesta Longitudinal Colombiana, ELCA)	2006, 2010, 2013	3-9 years	Socioemotional Development (ASQ: SE, 3-6 years)	Center for Economic Development Studies (CEDE) Universidad de los Andes
Peru ⁴⁹	Young Lives	2002, 2006, 2009, 2012 and 2016	Follows two cohorts of children over 15 years (from ages of 1 and 8, respectively)	Self-esteem, self-efficacy, aspirations	University of Oxford Ministry for International Development, UK https://www.younglives.org.uk/
Uruguay ⁵⁰	Nutrition, Development, and Health Survey	2013, 2015, 2019	0-47 months (2013)	Communication and problem-solving (ASQ-3)	Joint initiative between the Ministry of Social Development, the Ministry of Health, the Ministry of Education, the Children and Adolescents Institute, and the National Institute of Statistics, led by Uruguay Crece Contigo.
	Estudio Nacional de Desarrollo Infantil y Salud, (ENDIS)		2-6 years (2015) 6-10 years (2019)	Socioemotional Development (ASQ: SE and CBCL)	
Uruguay ⁵¹	Longitudinal Study of Wellbeing in Uruguay Estudio Longitudinal de Bienestar en Uruguay (ELBU)	2004, 2006, 2011/12 and 2015/16.	Follows a sample of children in their first year of primary school	Strengths and Difficulties (SDQ)	http://fcea.edu.uy/estudio-del-bienestar-multidimensional-en-uruguay.html

47 For more information, visit <http://observatorio.ministeriodesarrollosocial.gob.cl/elpi.php>

48 The urban sample represents strata 1-4 in five geographic regions. The rural sample is representative of small producers in four microregions. For more information, visit: <https://encuestalongitudinal.uniandes.edu.co/es/>

49 The sample includes urban and rural areas located in the country's three geographic regions (coast, mountain, and rainforest).

50 For more information, visit: <http://www.ine.gub.uy/encuesta-de-nutricion-desarrollo-infantil-y-salud-en-dis-2018->

51 The sample only includes areas with more than 8,000 residents.

REFERENCES

- Albert, D., Chein, J., & Steinberg, L. (2013). "Peer Influences on Adolescent Decision Making." *Current Directions in Psychological Science*.
- American Psychological Association. (2010). "Ethical Principles of Psychologists and Code of Conduct: 2002." doi:10.1037/e305322003-001. Retrieved from <http://apa.org/ethics/code/index.aspx>
- Behrman, J., Contreras, D., Palma, I., & Puentes, E. (2017). "Wealth Disparities for Early Childhood Anthropometrics and Skills: Evidence from Chilean Longitudinal Data." PIER Working Paper 17-019.
- Crivelli, C., Russel, J., Jarillo S., & Fernández-Dols, J. (2016). "The Fear Gasping Face as a Threat Display in a Melanesian Society." *Proceedings of the National Academy of Sciences (PNAS)*.
- Daly, M., Delaney, L., Egan, M., & Baumeister, R. F. (2015). "Childhood Self-Control and Unemployment Throughout the Life Span: Evidence from Two British Cohort Studies." *Psychological Science*, 26, 709–723.
- Davis, M. H., 1983. "Measuring Individual Differences in Empathy: Evidence for a Multi-dimensional Approach." *Journal of Personality and Social Psychology*.
- Duckworth, A. & Yeager, D. (2015). "Measurement Matters: Assessing Personal Qualities Other Than Cognitive Ability for Educational Purposes." *Educational Researcher*.
- Duryea, S., Frisancho, V., & Hincapie, D. (2017). "Adolescence. Difficult Challenges at a Difficult Age," in Learning Better: Public Policy for Skills Development, Eds. M. Busso, J. Cristia, D. Hincapie J. Messina, and L. Ripani.
- Fortin, N. (2008). "The Gender Wage Gap among Young Adults in the United States: The Importance of Money versus People." *Journal of Human Resources*.
- Heckman, J., Stixrud, J. & Urzúa, S. (2006) "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior," *Journal of Labor Economics*, 24(3), 411-482.
- Heineck, G. & Anger, S. (2010). "The Return to Cognitive Abilities and Personality Traits in Germany." *Labour Economics*.
- IDB (2019). *Education and Early Childhood Development Sector Framework Document*. Social Sector. Retrieved from <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=40398589>
- Jolliffe D. & Farinngton, D. P. (2006). "Development and Validation of the Basic Empathy Scale." *Journal of Adolescence*.

Krys, K. et al. (2016). “Be Careful Where You Smile: Culture Shapes Judgments of Intelligence and Honesty of Smiling Individuals.” *Journal of Nonverbal Behavior*.

Lajaaj, R. et al. (2019). “Challenges to Capture the Big Five Personality Traits in non-WEIRD Populations.” *Science Advances*, 5(7): eaaw5226

Rubio-Codina, M., Attanasio, O., Meghir, C., Varela, N. & Grantham-McGregor, S. (2015). “The Socioeconomic Gradient of Child Development: Cross-Sectional Evidence from Children 6–42 Months in Bogota.” *Journal of Human Resources*.

Rubio-Codina, M. & Grantham-McGregor, S. (2019). “Evolution of the Wealth Gap in Child Development and Mediating Pathways: Evidence From a Longitudinal Study in Bogota, Colombia.” *Developmental Science*, 22(5): e12810.

Souza, A. C., Costa Alexandre, N. M., & De Brito Guirardello, E. (2017). “Psychometric Properties in Instruments Evaluation of Reliability and Validity.” *Epidemiologia e serviços de Saude*.

Stampini, M., Duryea, S., Alemán, X. & Insfran, S. (2018). “Which Skills Predict Dropout from Youth Programs? Findings from an After-School Social Program in Venezuela.” *IZA Institute for Labor Economics*.

UNICEF, (2017). “Development of the Early Childhood Development Index in MICS Surveys.” *MICS Methodological Papers*.

Uzzell, B., Ponton, B., & Ardila, A., (2002). *International Handbook of Cross-Cultural Neuropsychology*.

Verdisco, A., Cueto, S., & Thompson, T. (2016). Early Childhood Development: Wealth, the *Nurturing Environment and Inequality*. IDB Working Paper 716.

Zelazo, P. & Bauer, P. (2013). *National Institutes of Health Toolbox – Cognition Battery (NIH Toolbox CB): Validation for Children Between 3 and 15 Years*. Monographs of the Society for Research in Child Development.



CHAPTER 7

Socioemotional Skills Development in Education Systems in Latin America and the Caribbean

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What Are Socioemotional Skills and Why Are They Important for the Development of the Region's Children and Youth?

What Are Socioemotional Skills?

As mentioned in previous chapters, socioemotional skills help people to identify and manage their own and others' emotions (Busso et al., 2017). **Socioemotional skills are 21st-century skills** that seek to respond to this century's extremely dynamic educational, social, and work context (Mateo-Berganza et al., 2019). There are many ways to refer to these skills (e.g., noncognitive, soft, civic competencies). Each of these characterizations is based on different theoretical perspectives or emerge from diverse disciplines or subject areas, such as psychology, economics, or public health (Berg et al., 2017; S. M. Jones & Doolittle, 2017; Blyth, Jones, & Borowski, 2018).⁵² The Big Five⁵³ personality traits are a widely known taxonomy at the international scale. They describe the most basic traits by which one can characterize an individual and that are used to classify more specific dimensions of each skill (Goldberg, 1993; Almlund et al., 2011).

The Collaborative for Academic, Social, and Emotional Learning (CASEL) developed another widely used framework. It is a not-for-profit organization that generates high-quality, evidence-based knowledge about socioemotional learning. **The CASEL framework** defines socioemotional learning as “the process through which children and adults understand and manage their emotions, set and achieve positive goals, feel and demonstrate empathy for others, establish and maintain positive relationships, and make responsible decisions.” This framework identifies **five basic competencies** that can be taught in different contexts (districts, schools, classrooms, families, communities) and many ways. They are **self-management, self-awareness, social awareness, relationship skills, and responsible decision-making**. Table 7.1 describes this and other international frameworks.

52 An American Institutes for Research (AIR) study identified 136 frameworks associated with 14 different subject areas. They refer to cognitive skills, intrapersonal and interpersonal, and other competencies, such as connection to community and social justice (Berg et al., 2017).

53 The Big Five personality traits are not free from criticism. According to Almlund et al., (2011), one of the main weaknesses is that it is a taxonomy derived from a non-theoretical model and therefore, does not have a strong biological grounding. Moreover, psychologists find that the categories are too basic to be useful. Estimates based on the Big Five can conceal relationships between the specific skills in each factor and the results of the estimate.

Table 7.1. Reference Frameworks for Socioemotional Skills

Reference Framework	Institution/ Organization	Dimension	Skills
Big Five		Openness	Curiosity, tolerance, and creativity
		Conscientiousness	Achievement-oriented, responsibility, self-control, and persistence
		Extraversion	Sociability, assertiveness, energy
		Agreeableness	Empathy, confidence, cooperation
		Emotional stability	Resistance to stress, optimism, emotional regulation
Socioemotional learning	CASEL	Self-awareness	Emotion identification, self-confidence, self-efficacy, precise self-perception
		Self-management	Impulse control, stress management, achievement-oriented, self-motivation
		Social awareness	Perspective, empathy, appreciation for diversity, respect for others
		Relationship skills	Communication, social commitment, cooperation, conflict resolution, teamwork
		Responsible decision-making	Problem identification, evaluation, ethical responsibility
Social and Emotional skills	OECD	Achieving goals	Perseverance, self-control, passion for achieving goals
		Working with others	Sociability, respect, care for others
		Managing Emotions	Self-esteem, optimism, self-confidence
21 st Century Skills	National Research Council	Cognitive	Critical thinking, problem-solving, decision-making, creativity, innovation
		Intrapersonal	Openness, adaptability, personal and social responsibility, perseverance, citizenship, emotional stability, self-regulation
		Interpersonal	Collaboration, teamwork, empathy, conflict resolution, extraversion, leadership

Socioemotional skills have become increasingly relevant in the education sector, partly because of evidence confirming their **importance for children and youth's development and their relevance in the labor market**. There has been progress in defining and categorizing socioemotional skills, and the emergence of new technologies has allowed us to identify skills demanded by employers. Nonetheless, the diversity of reference frameworks and definitions have hindered program evaluation with standardized measurements (see Chapter 6) and rigorous effectiveness evaluations. **Without a common framework that clearly identifies socioemotional skills and how they are measured, it is hard to systematize research on the effectiveness of interventions in this field and make evidence-based decisions.** For example, there could be different frameworks that refer to the same concept or skill but with different

names, or they might refer to two conceptually different skills with the same name (Blyth, 2018; Blyth et al., 2018; S. Jones, Bailey, Brush, & Nelson, 2019; S. Jones, Bailey, Brush, Nelson, & Barnes, 2016). **This has led to the creation of initiatives to face the challenge of framework multiplicity.** An example is the **Taxonomy Project** led by the Harvard Graduate School of Education (HGSE), which seeks to **create a network to organize, describe, and connect different frameworks and terms used to describe socioemotional skills across various disciplines** (S. Jones et al., 2019).

Despite the challenges associated with the lack of a standard reference framework, it is critical that policymakers, practitioners, and all involved in socioemotional skills development use evidence about the **most effective practices and programs that develop these skills in children and youth.** In this chapter, we use such evidence as a starting point to provide an overview of the importance of these skills in children and youth's education (Section 1). We discuss the best way to incorporate them in a school setting (Section 2), and how they are introduced in school systems across Latin America (Section 3). We also look at the challenges policymakers often face when incorporating socioemotional skills in schools.

Socioemotional skills are associated with increased well-being, mental health, and better interpersonal relationships and interactions.

Why Are They Important for Individual Well-Being?

Socioemotional skills are important per se because they contribute to improving the general well-being of individuals. Evidence shows that having socioemotional skills is associated with increased well-being (Friedman *et al.*, 2010; Sánchez-Álvarez *et al.*, 2016), better mental health indicators (Malouff, Thorsteinsson, & Schutte, 2005; Martins, Ramalho, & Morin, 2010), and better interpersonal relationships and social interactions (Lopes *et al.*, 2004, 2011). The socioemotional skills development is critical to learn and adapt to the changing circumstances that individuals will face throughout their lives.

The literature shows that non-cognitive skills also have a substantial impact on education and labor market outcomes. These include schooling, wages, productivity, access to and progress in the workplace, and occupational decisions. They **can also reduce risky behaviors**, such as drug and alcohol consumption, crime, and teen pregnancy (Heckman *et al.*, 2006; Carneiro, Crawford, & Goodman, 2007; OECD, 2015). Studies also point to the fact that these effects are equally or even more important than those associated with cognitive skills (Heckman *et al.*, 2006; OECD, 2015).

Socioemotional skills are important because they are in high demand in the labor market (Bassi, Busso, Urzua, & Vargas, 2012; Cunningham & Villaseñor, 2016; World Economic Forum, 2016; Prada, Rucci & Urzua, 2019; Ospino, 2019). Evidence shows that labor market returns on social skills in the United States have increased in the last decades (Deming, 2017). Similarly, occupations that require high levels of social interaction have also increased. In the future, social skills could be in higher demand than technical skills across all industries (World Economic Forum, 2016; Amaral *et al.*, 2018).

Finally, from a **public policy perspective**, socioemotional skills are important because **they can be developed and shaped over a longer period during an individual's life.** Socioemotional skills have shown to be malleable during childhood, adolescence, and even the early adult years (Cunha, Heckman & Schennach, 2010; Prada et al., 2019). Moreover, **"skills create skills,"** meaning that skills acquired strengthen the

School interventions can be very effective in developing socioemotional skills.

capacity to accumulate more skills in the future, while also making later investments more productive (Cunha & Heckman, 2007; Heckman & Kautz, 2013; Busso *et al.*, 2017). Evidence has also documented that socioemotional skills **promote cognitive skills development** (Cunha & Heckman, 2008), which means they can help improve academic performance and cognitive development in general. This has opened new areas of action for education systems, which could not be conceived a few years ago. As we discuss in the following section, emerging evidence demonstrates that school interventions can be very effective in developing this type of skills.

A School for Life: Socioemotional Skills Development in the School Context

Can Socioemotional Skills Be Developed in the School Context? Lessons Learned From the International Literature

A Wide Variety of Programs

Nowadays, there are a **wide range of programs promoting socioemotional skills**: from early childhood development programs to those for employed and unemployed young adults. All of these programs have in common that they pursue a large **variety of objectives**. For example, until recently, interventions in school settings were designed with goals such as improving student learning, preventing risky behaviors, and reducing dropout rates, and youth unemployment. Socioemotional skills development was only an additional and indirect effect. This variety of objectives translates into a broad range of components, implementation strategies, and, ultimately, results and outcomes (Sanchez *et al.*, 2016).

Another distinctive characteristic of these programs is the **environment in which they are implemented** (homes, schools, specialized institutions, the workplace), as well as whether they have more than one **component** (training for families or communities, in-class training, experiential learning). Programs also differ according to **the stage in the life of beneficiaries on which they focus**, as well as their **target population** (vulnerable students, unemployed youth, people in the workforce, etc.).

School: The Best Space to Develop Socioemotional Programs

Traditionally, literature has classified programs according to the stage of the life cycle when they were implemented: (i) programs that take place before children start school; (ii) in-school programs; and (iii) out-of-school programs (Kautz *et al.*, 2014; Sanchez *et al.*, 2016). **Before-school programs** usually target children under five and revolve around children and their families. Most programs measure outcomes associated with academics, risk factors, health, and economic returns. They also have long follow-up periods. In-school programs include a broader age range of beneficiaries (from preschool to the end of secondary school). These programs generally measure outcomes associated with risk factors (such as cooperation or the level of aggressiveness towards classmates) and academic outcomes. **Out-of-school programs** targeted youth ages 14-30 and their main objective is to improve labor market outcomes (Sanchez *et al.*, 2016).⁵⁴

⁵⁴ Busso *et al.* (2017) use an alternative categorization for youth programs that captures the main characteristics of programs and the interaction among stakeholders. The latter includes teaching-based programs, activity-based programs, mentorship programs, psychosocial interventions, parent and family-centered and integral programs.

Since **children** and **youth** spend most of the day at school, **developing socioemotional skills in this context is key**. In addition, school-based programs have a series of advantages. First, working with a group already in an organized school environment comes with operational and practical advantages. A **structured environment** with a positive school climate facilitates socioemotional program implementation. Second, these are **spaces where frequent children and adults** (teachers and school staff) frequently interact socially, and these interactions can potentiate the socioemotional skills development. Third, these can be **lower-cost programs that take advantage of the economies of scale generated by schools**. For instance, it is possible to train teachers to implement programs instead of hiring specialized external professionals. Moreover, the **socioemotional skills development can be directly incorporated into different subjects** (such as reading or math). Finally, and unlike other interventions where beneficiaries must be motivated to be active participants, in-school programs can **reduce attrition rates among beneficiaries** (Sanchez *et al.*, 2016).

What Does the Evidence Tell Us?

Evidence from socioemotional skills programs implemented in schools offers some **lessons to consider as we move towards policies that promote these skills in the education system**. However, it is important to proceed with caution, since many of these practices can work well in smaller settings but can face difficulties when scaled-up. For instance, the lack of financial or human resources can make these programs less efficient or ineffective on a large scale. Additionally, the majority of meta-analyses reviewed are based on evaluations of interventions in the United States and other developed countries. There are country and context-specific factors that can influence program implementation. For this reason, it is important to promote research that determines and assesses their effectiveness and guides the design and implementation of evidence-based public policies.

What have we learned from the evidence up to now? **What should a good in-school socioemotional skills program look like?** We would like to highlight five important lessons.

1 Successful programs have an approach called **SAFE** (Sequenced, Active, Focused, and Explicit). This approach involves: (i) **sequenced activities** that lead, in a coordinated way, socioemotional skills development; (ii) **active forms** of learning that allow children to practice and master new skills; (iii) **focused time** for the development of one or more socioemotional skills; and (iv) they are **explicit** about the skills they intend to develop (Durlak *et al.*, 2011).

2 Interventions that are built into the routine: evidence shows that **interventions can be incorporated into regular educational practices** run by regular teachers after providing them with the appropriate tools via training. It is not necessary to rely on external actors to be effective. Similarly, **the most successful interventions promote socioemotional skills development as part of the general study plan of subjects**, instead of offering independent subjects or modules (OECD, 2015; Sánchez *et al.*, 2016). They also prioritize consistency in implementation across different actors involved (teachers, parents, school staff, and communities).

3

Positive learning environment: successful programs take place in a **positive learning environment**. This refers to student-teacher **relationships that are warm and supportive and serve to strengthen students'** commitment and attachment to school. Relationships among students and their peers are healthy and reinforce the socioemotional skills development. In a positive learning environment, teachers can manage classrooms better and promote cooperative learning (Durlak *et al.*, 2011).

4

Relationships with parents and communities: another lesson learned is the importance of recognizing that **socioemotional skills develop in a broader social context that includes parents and communities**. Successful in-school programs generate relationships between different actors and other spaces outside the classroom (home and district).

5

Teachers' socioemotional skills: **they are key to successful interventions. We must promote socioemotional skills among teachers** while they incorporate pedagogical practices that develop such skills in their students (S. Jones, Barnes, Bailey, & Doolittle, 2017).

Figure 7.1. Effective Programs in a School Setting



Source: Own elaboration based on Durlak *et al.*, 2011; Sánchez *et al.*, 2016; Taylor, Oberle, Durlak, & Weissberg, 2017; S. Jones, Brush, *et al.*, 2017.

Nonetheless, consider these lessons with caution as the **evaluation of these programs faces technical challenges** worth mentioning.

First, socioemotional skills evaluations programs are often limited by a common factor. They tend to focus on developing such skills **rather than measuring them directly in an**

impact evaluation. They tend to measure more complex results that could have been affected by these skills, such as academic performance⁵⁵ (S. Jones, Barnes *et al.*, 2017; Sánchez *et al.*, 2016).

Second, when evaluations include a direct measurement of socioemotional skills, they often **use instruments which might have some biases**, such as questionnaires self-reported by students (Taylor *et al.*, 2017). While this can be more cost-effective, it is important to reduce bias by complementing evaluations with other instruments (for instance, public attendance records) or additional interviewees (parents and teachers).

Lastly, intervention evaluations often have **follow-up periods that are too short** and focus on a subgroup of program beneficiaries. Most evaluations follow students for a year or less after implementation started, and the few evaluations with longer follow-up periods barely reach five years (Durlak *et al.*, 2011; Sánchez *et al.*, 2016). In addition, many evaluations **look at students only in the grade levels covered by the program**.⁵⁶ Both factors affect our ability to assess the program's impact and make it difficult to understand the cumulative and long-term impact of interventions.

Adapting existing practices to promote socioemotional skills in traditional subjects would allow schools to improve socioemotional learning without requiring many additional resources.

What Socioemotional Skills Can Be Developed in School?

In the previous section, we covered some essential elements to achieve successful programs for socioemotional skills development in school. **The most effective programs tend to incorporate the development of these skills as part of the curriculum.** Many schools do not have the capacity or the resources to introduce extracurricular activities. Thus, adapting existing practices to promote socioemotional skills in traditional subjects would allow them to improve socioemotional learning without requiring many additional resources (OECD, 2015). **Socioemotional skills must be incorporated into learning standards in the region.**

What Are Learning Standards, and How Do They Work?

The main objective of learning standards⁵⁷ is to articulate specific goals for student learning in a subject and grade. They result from the selection and organization of the most relevant knowledge that schools should prioritize, considering society's characteristics, needs, and aspirations. They cover the objectives and purpose of education, study plans and programs, teaching and learning activities, as well as guidance for learning assessments (Amadio, Opertti, & Tedesco, 2015). Traditionally, learning standards or curricula have guided the knowledge and skills that students develop.

The **learning standards** used by countries in the region face **two main challenges**. On the one hand, **accelerated and increased access to information** has led standards

⁵⁵ In the meta-analysis carried out by Durlak *et al.*, (2011), only 32% of programs evaluated socioemotional skills as an outcome, even when it was essential to confirm that a program was successful at achieving one of their main objectives.

⁵⁶ For instance, a school might implement a program that develops socioemotional skills for students in grades one to eight, but only assess the effect on students in grade five.

⁵⁷ This document uses learning standards as a comprehensive concept that includes curricula and curricular frameworks.

Socioemotional skills must become an essential element of the school curriculum.

to become quickly outdated. On the other, learning standards **have traditionally prioritized the accumulation of information and knowledge**, and, as previously mentioned, **these are not sufficient to prepare students for their future lives**. Students must develop other competencies, such as socioemotional skills, which are important for life, work, health, and general well-being (Stabback, 2016).

How to Incorporate Socioemotional Learning Into Learning Standards

Fortunately, **learning standards can incorporate socioemotional learning in different ways. These include making them a part of the general objectives of school instruction** or a part of the **objectives of other subjects**, so that socioemotional learning is understood as an element central to learning. They can also be included as **an additional subject or specific module**. Regardless of how it is introduced, socioemotional skills must become an essential element of the school curriculum. Socioemotional learning is essential to academic and cognitive learning and influences future outcomes (Dusenbury *et al.*, 2015; Dusenbury & Weissberg, 2016).

There is scarce evidence on the most effective way to incorporate socioemotional learning into learning standards. Evidence from the United States on the incorporation of socioemotional skills into state learning standards shows that this is successful when it: (i) **develops strategies and tools to improve implementation**, such as incorporating professional development plans for teachers; (ii) **ensures integration and alignment** with learning standards for academic content; for instance, some socioemotional skills are part of regular subjects (such as math or language) instead of specific modules; (iii) **incorporates guidelines on teaching practices** that support social and emotional behavior; (iv) **sets clear learning objectives that are age appropriate**, from preschool to secondary; (v) includes guidelines on how to foster a positive learning environment; and (vi) is **culturally and linguistically appropriate** (Dusenbury *et al.*, 2015; Dusenbury & Yoder, 2017a, 2017b).

The Role of Teachers in Socioemotional Learning

The Teacher: A Key Player and Role Model

The success of any program designed to develop socioemotional skills depends on teachers' capacity to implement it properly. International evidence suggests that teacher quality is the most important factor for student learning (Elacqua, Hincapié, Vegas, & Alfonso, 2018; Bruns & Luque, 2014).

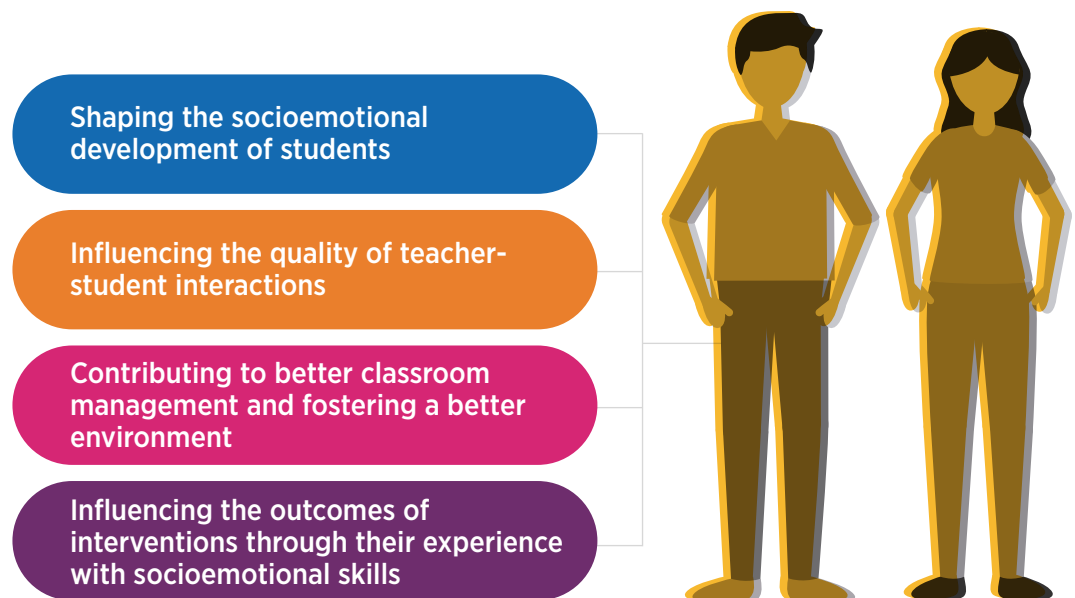
Teachers are key actors in socioemotional skills development in classrooms and schools for at least four reasons:

- 1 Teachers' socioemotional skills and well-being can affect the socioemotional development of students.** Teachers are role models for students, and, as such, students learn from how they deal with stressful situations and how they manage the classroom (S. M. Jones, Bouffard, & Weissbourd, 2013; Cheng & Zamarro, 2018).
- 2 The socioemotional ability of teachers can influence the quality of interactions and student-teacher relationships.** Teachers who generate warm, supportive relationships can have a positive impact on students' academic achievement

(McCormick, O'Connor, Cappella, & McClowry, 2013) and their socioemotional development (O'Connor, Dearing, & Collins, 2011; Merritt, Wanless, Rimm-Kaufman, Cameron, & Peugh, 2012).

- 3 Teachers with socioemotional skills have more **tools to manage the classroom and create adequate learning environments** to develop students' socioemotional skills (Jennings & Greenberg, 2009; S. M. Jones *et al.*, 2013).
- 4 Teachers can use their perception, commitment, and support to **influence the impact of interventions to develop socioemotional skills** (Schonert-Reichl, 2017).

Teachers' socioemotional skills are important for:



The Importance of Pedagogical Tools

To ensure that socioemotional skills can be developed at school, teachers must have these skills, as well as the pedagogical tools and skills needed to develop them in their students. For this to happen, it is important that both their initial and in-service training include socioemotional skills. **Teacher training centers and universities must redesign study plans to incorporate socioemotional learning.** This can be accomplished via the practical application of such concepts involving supervised teaching experiences for future teachers, classroom-based video examples, roleplaying, and out-of-school tutoring (Schonert-Reichl, Hanson-Peterson, & Hymel, 2015). It is also important to **include subjects related to “child and adolescent development”** that allow them to design better learning experiences that support social, emotional, and academic competence (Schonert-Reichl, 2017). Similarly, **opportunities for in-service professional development through training** should integrate socioemotional learning into existing

Successful programs for socioemotional skills development incorporate training, mentorship, supervision, and feedback to teachers.

There is still a lack of rigorous evidence on the key characteristics and skills that teachers must possess to promote social-emotional learning in their students.

While most countries recognize the importance of socio-emotional skills, they refer to them implicitly and without a precise approach.

pedagogical practices. Lastly, it is important to have the **support of other actors**, such as more experienced teachers, colleagues, and school principals who can provide **feedback** on teachers' practices, as well as other support tools.

Successful socioemotional skills development programs have traditionally incorporated **training, mentorship, supervision, and feedback for teachers** that are oriented towards these skills (Durlak *et al.*, 2011; Sánchez *et al.*, 2016). Similarly, programs that develop socioemotional skills for teachers have a positive impact on their skills and students' socioemotional skills and academic outcomes (Marchant, Milicic, & Alamos, 2013, 2015).⁵⁸

How to Promote Socioemotional Learning Among Students?

We can identify best practices to promote socioemotional skills among students based on evidence about effective in-school programs. While the evidence is not exhaustive, it can be used to support positive learning environments, socioemotional skills, and academic learning. Some of these practices include: (i) **student-centered discipline**; (ii) teachers refer to their students using encouraging language (so-called **teacher language**); (iii) teachers allow students to make responsible decisions about their work in the classroom (**responsibility and choice**); (iv) teachers create a **warm and supportive environment** where students know that professors and their peers care about them (warmth and support); (v) **cooperative learning** is promoted; (vi) students are given the tools to foster **classroom discussions**; (vii) students are asked to think actively about their own work through **self-reflection and self-assessment**; (viii) teachers maintain a balance between individual learning and **collaboration (balanced instruction)**; (ix) **high expectations and academic pressure** are maintained so that students are motivated but also held accountable for their academic success; and (x) promote the development of competencies based on modelling, feedback, and coaching (competence building) (Yoder, 2014).

Even if there is some level of consensus on the importance of teachers who help students' cognitive and socioemotional learning, more rigorous evidence is needed. What are the most critical characteristics and skills teachers need to foster socioemotional learning among their students?

⁵⁸ In Latin America, some programs for alternative entry into a teaching career that recruit motivated professionals with leadership characteristics have had positive effects on the noncognitive skills of students exposed to this type of teacher. For example, the "Teach for Mexico" (*Enseña por México*) impact evaluation found that being exposed to the program's teachers was associated with improvements in socioemotional skills in secondary school. The evaluation also showed a reduction in lateness and absenteeism across all education levels analyzed (Peña & Chacon, 2017). Similarly, the evaluation of the "Teach for Chile" program (*Enseña Chile*) suggests that students whose teacher completed the program yielded better results in math and reading than those who had traditional teachers. At the same time, they also improved their non-cognitive skills such as self-esteem and self-efficacy (Alfonso, Santiago, & Bassi 2010; Alfonzo, Bassi, & Borja, 2012).

Best practices to promote socioemotional skills in students:



Socioemotional Skills Development and Measurement in Education Systems in Latin America⁵⁹

In this section, we analyze the incorporation of socioemotional skills in education systems in the region. In particular, we examine how seven countries in the region are including the development of these skills in their normative frameworks or regulations and learning standards. We also discuss how they measure students' socioemotional skills.⁶⁰

While most countries recognize the importance of socioemotional skills, they refer to them implicitly and without a precise approach.

Socioemotional Skills and Education System Regulations Important but Undefined

While most education systems in the region recognize the importance of developing socioemotional skills in their normative frameworks, learning standards, curricula, and guiding documents, they often refer to them implicitly and without a clear approach (see Table 7.2). **In all countries surveyed, socioemotional skills are part of the general education system objectives** which are usually reflected in their normative frameworks (or education laws). Despite not being included explicitly, these objectives often emphasize a comprehensive or holistic approach to students' education. They take into consideration traditional academic areas and the physical, ethical, moral, social, and affective aspects of children and youth's lives, which relate directly to socioemotional skills. Additionally, empathy and respect towards others, a culture of non-violence, and conflict resolution strategies are often described as democratic and civic principles that the education system should develop in a society.

⁵⁹ This analysis is based on information from the "Survey of Socioemotional Skills in the Education Systems in the Region," as well as documents referenced in these surveys and additional information obtained from national evaluation agencies and/or Ministries of Education official websites. The goal of this 2017 survey was to present results at the Second Regional Meeting for the Measurement and Development of Socioemotional Skills organized by the Inter-American Development Bank and the Agency for Education Quality of Chile. Seven countries participated in this meeting: Argentina (Autonomous City of Buenos Aires), Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay.

⁶⁰ We have indicated in the text where some countries have updated their responses.

Curricula (or learning standards/foundations/curricular guidelines) in Latin American countries often include socioemotional skills. These skills are normally included implicitly as part of the general competencies that students are expected to develop, or as part of the graduate's profile for different school levels. However, there are some exceptions.

One example is the case of **Colombia**, which, despite not having a national curriculum, has developed **Curricular Standards for Citizenship Competencies** (*Estándares Curriculares de Competencias Ciudadanas*). These standards provide parameters for “emotional, communicative, and integrative” competencies that students acquire in each grade across education levels and are associated with empathy and anger management skills, among others.

Similarly, **Peru** includes socioemotional skills in the subject “**Vocational education**” (*Educación para el Trabajo*) for high school students. This subject promotes socioemotional competencies development to strengthen and ensure student employability. The socioemotional skills prioritized are emotional self-regulation, perseverance, teamwork, adaptability, and tolerance. In addition to these standards, the approach includes assessment strategies and guidelines for teachers.

Another way to incorporate socioemotional skills in the curriculum is to create special subjects to promote their development. This is the case of **Chile**, which, since 2012, **has included** the “**Guidance**” (*Orientación*) subject in primary education and lower secondary education, and it has been compulsory since 2015. This subject seeks to provide students with a comprehensive education to promote personal, affective, and social development.

Table 7.2. Socioemotional Skills Inclusion in Normative and Curricular Frameworks

Country	Normative framework	Curricular framework / curricular foundations or guidelines
Argentina (Buenos Aires)	◊	◊
Brazil	◊	In progress
Chile	◊	◊
Colombia		◆
Ecuador	◊	◊
Peru	◊	◊
Uruguay	◊	◊

Source: Own elaboration based on 2017 national surveys and literature reviews.

Note: ◆ = Yes, explicitly; ◊ = Yes, implicitly; ✕ = Not evaluated; — No data available.

Note 2: Institutional sources: Ministry of Education of the Government of Buenos Aires; UEUCEE/Argentina; Ayrton Senna Institute (Brazil); Agency for Education Quality (Chile); Colombian Institute for Evaluation in Education (ICFES) and Universidad de Los Andes (Colombia); National Institute for Education Assessment (INEEd) and Office for the Measurement of Learning Quality (Peru); National Institute for Education Assessment (INEEd) and Plan Ceibal (Uruguay).

Most countries in Latin America and the Caribbean do not carry out systematic and large-scale socioemotional skills assessment in schools.

How Are Socioemotional Skills Measured in Latin America and the Caribbean?

Most Latin American and the Caribbean (LAC) countries do not carry out systematic and large-scale socioemotional skills assessment in schools. However, **some countries have incorporated some skills as part of their learning assessments, mainly through complementary questionnaires on students’ standardized tests.** Some examples include **Argentina, Chile, Colombia, and Uruguay** (see Table 7.3). **Determination, self-control, self-esteem, and responsibility are** among the most commonly measured skills.

Measurement instruments are, for the most part, self-reported questionnaires delivered to students. As we saw in the previous section, the **measures are unreliable** since they **show reference biases** or social desirability bias. In addition to self-reported questionnaires, some countries employ **other instruments and interviewees** (such as teachers or parents). In **Chile**, for instance, students receive questionnaires during the national learning assessments. Schools also **use administrative records from the Ministry of Education and the Agency for Education Quality to build Social and Personal Development Indicators.** Such indicators are related to socioemotional skills such as self-regulation, self-awareness, emotional stability, extroversion, kindness, and responsibility. Some countries are planning to **measure new skills via teacher interviews (Colombia) or instruments such as video games and collaborative task-completion (Buenos Aires).**

On the other hand, standardized measurements in the region center exclusively on measuring students’ socioemotional skills. This approach is limited because it only considers the individual as a unit. New evaluations should incorporate school and classroom assessments to gain information on education practices, student-teacher interactions, learning environments, etc.

Given the critical role that **teachers** play in the development of socioemotional skills at school, it is also important to **measure the skills they have developed as well as the tools and practices they employ to develop such skills in their students.**

Table 7.3. Socioemotional Skills Measurement in the Education System

Country	Socioemotional Skills Measurement	
	Students	Teachers
Argentina (Buenos Aires)	◊	—
Brazil	—	—
Chile	◆	—
Colombia	◆	—
Ecuador	✖	◆
Peru	✖	—
Uruguay	◆	—

Source: Own elaboration based on 2017 national surveys and literature reviews.
Note: ◆: There is a document or framework for assessment; ◊ = Some dimensions related to socioemotional skills are measured; ✖ =Not measured; — No data available.

Box 7.1. Socioemotional Skills Measurement Among Students in Latin America

Chile. The annual assessments carried out in the Chilean education system measure Personal Development Indicators through self-reported questionnaires for students, parents, and teachers. These indicators include: (i) **school environment**, which considers the perceptions and attitudes that students, teachers, and parents have about whether the school environment is respectful, structured, and safe; (ii) **civic education and participation**; (iii) **academic self-esteem and school motivation**, which considers, on the one hand, students' self-perception in relationship with their ability to learn; and on the other, the perceptions and attitudes that students have about learning and academic achievement; and (iv) **healthy life habits**.

Colombia. The Colombian Institute for Educational Assessment (ICFES) evaluates students' "citizenship competencies" through the **Actions and Attitudes questionnaire**, which aligns with the Basic Standards for Citizenship Competencies. The goal of this questionnaire is to measure students' "emotional and integrative" competencies in grades five and nine. These are centered around three areas of citizenship: peace and coexistence; diversity, identity and appreciation of differences; and democratic participation and responsibility. Emotional competencies are assessed by the capacity to show empathy and identify, regulate, and express emotions constructively for oneself and society. Integrative competencies are instead assessed via actions (which reflect students' day-to-day behavior in society) and attitudes (understood as an individual's cognitive and affective dispositions to approve or disapprove of behavior or social situations).

Uruguay. The **Aristas test**, first carried out in 2017, is a **multidimensional assessment** designed for students in the sixth year of primary education and the third year of secondary education. This assessment, aside from generating information about students' performance in reading and math, aims to explore their socioemotional skills and opinions about the school environment, coexistence, and participation in school activities. The test considers a series of dimensions that measure different socioemotional skills for each school cycle. Among the specific dimensions of the test are: (i) motivation and learning self-regulation; (ii) interpersonal relations; (iii) intrapersonal skills; and (iv) risky behaviors (secondary only).

Source: Socioemotional skills in the Education System questionnaire. National Institute for Education Assessment (INEEd): <https://www.ineed.edu.uy/nuestro-trabajo/aristas.html>, Agency for Education Quality: <https://www.agenciaeducacion.cl/evaluaciones/indicadores-desarrollo-personal-social/>

Box 7.2. Programs That Promote Socioemotional Skills Development in Latin America

Some countries have implemented programs that, without necessarily having the socioemotional skills development as their main objective, do include them as a key component.

In Chile, the **Skills for Life (Habilidades para la Vida)** program is a **psychosocial intervention to detect and prevent the risk** that promotes strategies for self-care and develops coexistence skills among the different actors in the school community. The program aims to reduce the negative impacts on mental health and increase well-being and personal skills to improve academic performance, reduce repetition and school dropout rates. The program works by activating school and community networks to coordinate mental health actions among children, adolescents and significant adults in their lives, such as parents and teachers. The intervention **targets children from preschool to grade four** attending schools that receive public funding (i.e., not private) and have a **high socioeconomic and psychosocial vulnerability index**.

In other countries, there are private (or public-private) initiatives that promote socioemotional skills development in schools. Non-for-profit foundations, universities, and other institutions develop these programs and implement them on different scales and with distinct intervention units. As we will see in the chapter dedicated to citizenship programs, **“Classrooms for Peace” (Aulas en Paz)** is a Colombian initiative implemented via a partnership between the Universidad de los Andes and the *Corporación Convivencia Productiva*. It has received public (via municipal secretaries of education) and private funding. **Classrooms for Peace is a multi-component program that seeks to foster peaceful relationships and prevent aggressiveness through the development of citizenship competencies.** To achieve this, they use three mechanisms: (i) a curriculum to develop citizenship competencies in the classroom; (ii) extracurricular support for heterogeneous groups of two initially aggressive and four prosocial children; and (iii) workshops, visits, and phone calls to fathers/mothers.

Source: Socioemotional Skills in the Education System 2017 Questionnaire. Chile Crece Contigo (<http://www.crececontigo.gob.cl/beneficios/programa-habilidades-para-la-vida/>), Aulas en Paz (<https://aulasenpaz.uniandes.edu.co/index.php/com-docman-submenu-config/aulas-en-paz>)

Where Do We Go From Here?

The last decades have seen significant progress in socioemotional development inclusion in education systems in LAC. However, there is still work to be done. In this sense, and considering the factors mentioned, **what are the main challenges the region faces to incorporate socioemotional skills in schools successfully?**

First, given the diversity of frameworks, definitions, and concepts used to refer to socioemotional skills, **it is important to define a common framework that clearly identifies what socioemotional skills are and which ones are the most important for students’ development.** In addition, education systems must review existing evidence

on the importance of each of these skills. They need to prioritize the development of those fundamental to reach the country's education system objectives and develop pedagogical practices that effectively incorporate these skills. Second, the variety of concepts and definitions of socioemotional skills has hindered the development of large-scale, standardized assessments that are comparable and consistent. It is true, however, that progress has been made in this direction, such as the assessment of some skills through the OECD's Programme for International Student Assessment (PISA). Nonetheless, it is important to **develop a regional socioemotional skills assessment. It will show comparisons across countries, track progress over time, and above all, capture our region's context and idiosyncrasies.**

Finally, the successful incorporation of socioemotional skills in the education systems inevitably depends on teachers' capabilities. One of the main challenges that countries face is how to **prepare teachers with the socioemotional skills and pedagogical tools needed to implement programs effectively and develop these abilities in their students.** Incorporating socioemotional skills during pre-service and in-service training is key to advancing children's and youth's socioemotional skills in the region.

1



Move towards defining a common framework that clearly identifies what socioemotional skills are and which ones are the most important for students' development.

2



Develop a regional socioemotional skills assessment that allows comparisons across countries, tracks progress over time, and captures the context and idiosyncrasies that define our region.

3



Provide teachers with the socioemotional skills and pedagogical tools needed to implement programs effectively and develop socioemotional skills in their students.

References

- Alfonso, M., Santiago, A. & Bassi, M. (2010). *Estimating the Impact of Placing Top University Graduates in Vulnerable Schools in Chile*. Inter-American Development Bank.
- Alfonzo, M., Bassi, M. & Borja, C. (2012). *La enseñanza de habilidades socioemocionales en las escuelas latinoamericanas*. El rol de los docentes no tradicionales. IDB Education
- Almlund, M., Duckworth, A. L., Heckman, J. & Kautz, T. (2011). "Personality, Psychology and Economics." *Handbook of the economics of education* (Vol. 4).
- Amadio, M., Opertti, R. & Tedesco, J. C. (2015). *The Curriculum in Debates and in Educational Reforms to 2030: For a Curriculum Agenda of the Twenty-First Century*. IBE Working Papers on Curriculum Issues, UNESCO.
- Amaral, N., Eng, N., Ospino, C., Pagés, C. & Rucci, G. (2018). *¿Hasta dónde pueden llevarte tus habilidades?: cómo utilizar los datos masivos para entender los cambios en el mercado laboral*. Inter-American Development Bank. Technical Note No. 1501.
- Arias, E., Jaureguiberry, F. & Martínez, V. (2017). *¿Mejoró la educación en la última década?* CIMA.
- Bassi, M., Busso, M., Urzúa, S. & Vargas, J. (2012). *Desconectados: Habilidades, educación y empleo en América Latina*. Washington DC: Inter-American Development Bank.
- Berg, J., Osher, D., Same, M. R., Nolan, E., Benson, D. & Jacobs, N. (2017). "Identifying, Defining, and Measuring Social and Emotional Competencies." *American Institutes for Research*, 264.
- Blyth, D. (2018). SEL Frameworks - Practical Challenges and Opportunities (Frameworks Briefs No. 2).
- Blyth, D., Jones, S. & Borowski, T. (2018). SEL Frameworks - *What are they and why are they important?* (Frameworks Briefs No. 1). Establishing Practical Social-Emotional Competence Assessments Work Group.
- Bruns, B. & Luque, J. (2014). *Profesores excelentes. Cómo mejorar el aprendizaje en América Latina y el Caribe*. World Bank Group.
- Busso, M., Cristia, J., Hincapié, D., Messina, J. & Ripani, L. (2017). *Aprender mejor: políticas públicas para el desarrollo de habilidades*. Inter-American Development Bank.
- Carneiro, P., Crawford, C. & Goodman, A. (2007). *The impact of early cognitive and non-cognitive skills on later outcomes*. Centre for the Economics of Education.
- Cheng, A. & Zamarro, G. (2018). "Measuring teacher non-cognitive skills and its impact on students: Insight from the Measures of Effective Teaching Longitudinal Database." *Economics of Education Review*, 64, 251-260. <https://doi.org/10.1016/j.econedurev.2018.03.001>

Cunha, F. & Heckman, J. (2007). "The Technology of Skill Formation." *The Economics of Human Development*, 97(2), 17.

Cunha, F. & Heckman, J. J. (2008). "Formulating, Identifying and Estimating the Technology of Cognitive and Noncognitive Skill Formation." *Journal of Human Resources*, XLIII(4), 45.

Cunha, F., Heckman, J. J. & Schennach, S. M. (2010). "Estimating the Technology of Cognitive and Noncognitive Skill Formation." *Econometrica*, 78(3), 883-931.

Cunningham, W. & Villaseñor, P. (2016). *Employer Voices, Employer Demands, and Implications for Public Skills Development Policy Connecting the Labor and Education Sectors*. World Bank Group, (7582), 39.

Deming, D. J. (2017). "The Growing Importance of Social Skills in the Labor Market." *The Quarterly Journal of Economics*, 132(4), 1593-1640. <https://doi.org/10.1093/qje/qjx022>

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D. & Schellinger, K. B. (2011). "The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions." *Child Development*, 82(1), 405-432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>

Dusenbury, L., Newman, J. Z., Weissberg, R. P., Goren, P., Domitrovich, C. E. & Mart, A. J. (2015). "The case for Preschool through High School State Learning Standards for SEL." *Handbook of social and emotional learning. Research and Practice* (pp. 532-548). New York: Guilford Press.

Dusenbury, L. & Weissberg, R. P. (2016). *Development and Implementation of Standards for Social and Emotional Learning in the 50 States*. 5. CASEL.

Dusenbury, L. & Yoder, N. (2017a). *Key Features of High-Quality Policies and Guidelines to Support Social and Emotional Learning*. 6. CASEL.

Dusenbury, L. & Yoder, N. (2017b). *The Collaborating States Initiative (CSI) Recommended Process for Developing State Policies and Guidelines to Support Social and Emotional Learning*. 7. CASEL.

Elacqua, G., Hincapié, D., Vegas, E. & Alfonso, M. (2018). *Profesión: profesor en América Latina. ¿Por qué se perdió el prestigio docente y cómo recuperarlo?* Inter-American Development Bank.

Friedman, H. S., Kern, M. L. & Reynolds, C. A. (2010). "Personality and Health, Subjective wellbeing, and Longevity." *Journal of Personality*, 78(1), 179-216. <https://doi.org/10.1111/j.1467-6494.2009.00613.x>

Foro Económico Mundial. (2016). *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*.

García Cabrero, B. (2018). “Las habilidades socioemocionales, no cognitivas o “blandas”: aproximaciones a su evaluación”. *Revista Digital Universitaria*, 19(6). <https://doi.org/10.22201/codeic.16076079e.2018.v19n6.a5>

Goldberg, L. R. (1993). “The Structure of Phenotypic Personality Traits.” *American Psychologist*, 9.

Hallman, L. (2016). *Getting Smart: Measuring and Evaluating Social and Emotional Skills*. Salzburg Global Seminar.

Heckman, J. J. & Kautz, T. (2013). *Fostering and Measuring Skills: Interventions that Improve Character and Cognition*. NBER working paper series.

Heckman, J. J., Stixrud, J. & Urzúa, S. (2006). “The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior.” *Journal of Labor Economics*, 24(3), 411-482. <https://doi.org/10.1086/504455>

Jennings, P. A. & Greenberg, M. T. (2009). “The Prosocial Classroom: Teacher Social and Emotional Competence in Relation to Student and Classroom Outcomes.” *Review of Educational Research*, 79(1), 491-525.

Jones, S., Bailey, R., Brush, K. & Nelson, B. (2019). *Introduction to the Taxonomy Project: Tools for Selecting & Aligning SEL Frameworks* (Frameworks Briefs N.o 1).

Jones, S., Bailey, R., Brush, K., Nelson, B. & Barnes, S. (2016). “What is the Same and What is Different? Making Sense of the «Non-Cognitive» Domain: Helping Educators Translate Research into Practice.” *Harvard Graduate School of Education*, 15.

Jones, S., Barnes, S., Bailey, R. & Doolittle, E. J. (2017). “Promoting Social and Emotional Competencies in Elementary School.” *The Future of Children*, 27(1).

Jones, S., Brush, K., Bailey, R., Brion-Meisels, G., McIntyre, J., Kahn, J. & Stickle, L. (2017). “Navigating SEL from the Inside Out: Looking Inside & Across 25 Leading SEL Programs: A Practical Resource for Schools and OST Providers.” *Harvard Graduate School of Education*, 349.

Jones, S. M., Bouffard, S. M. & Weissbourd, R. (2013). “Educators’ Social and Emotional Skills Vital to Learning.” *Phi Delta Kappan*, 94(8), 62-65. <https://doi.org/10.1177/003172171309400815>

Jones, S. M. & Doolittle, E. J. (2017). “Social and Emotional Learning: Introducing the Issue.” *The Future of Children*, 27(1), 3-12.

Kautz, T., Heckman, J. J., Diris, R., Ter Weel, B. & Borghans, L. (2014). “Fostering and Measuring Skills: Improving Cognitive and Non-cognitive Skills to Promote Lifetime Success.” *OECD Education Working Papers*, (No. 110).

Kyllonen, P. C. (2012). *Measurement of 21st Century Skills Within the Common Core State Standards*. 24.

Lopes, P. N., Brackett, M. A., Nezlek, J. B., Schütz, A., Sellin, I. & Salovey, P. (2004). "Emotional Intelligence and Social Interaction." *Personality and Social Psychology Bulletin*, 30(8), 1018-1034. <https://doi.org/10.1177/0146167204264762>

Lopes, P. N., Nezlek, J. B., Extremera, N., Hertel, J., Fernández-Berrocal, P., Schütz, A. & Salovey, P. (2011). "Emotion Regulation and the Quality of Social Interaction: Does the Ability to Evaluate Emotional Situations and Identify Effective Responses Matter? Emotion Regulation Ability." *Journal of Personality*, 79(2), 429-467. <https://doi.org/10.1111/j.1467-6494.2010.00689.x>

Malouff, J. M., Thorsteinsson, E. B. & Schutte, N. S. (2005). "The Relationship Between the Five-Factor Model of Personality and Symptoms of Clinical Disorders: A Meta-Analysis." *Journal of Psychopathology and Behavioral Assessment*, 27(2), 101-114. <https://doi.org/10.1007/s10862-005-5384-y>

Marchant, T., Milicic, N. & Alamos, P. (2013). "Impacto en los niños de un programa de desarrollo socioemocional en dos colegios vulnerables en Chile." *Revista Iberoamericana de Evaluación Educativa*, 20.

Marchant, T., Milicic, N. & Alamos, P. (2015). "Competencias socioemocionales: capacitación de directivos y docentes y su impacto en la autoestima de alumnos de 3o a 7o Básico." *Revista Iberoamericana de Evaluación Educativa*, 16.

Martins, A., Ramalho, N. & Morin, E. (2010). "A Comprehensive Meta-analysis of the Relationship between Emotional Intelligence and Health." *Personality and Individual Differences*, 49(6), 554-564. <https://doi.org/10.1016/j.paid.2010.05.029>

Mateo-Berganza, M., Buenadicha, C., Bustelo, M., Duryea, S., Heredero, E., Rubio-Codina, M. & Becerra, L. (2019). *Habilidades del siglo XXI: desarrollo de habilidades transversales en América Latina y el Caribe*. Inter-American Development Bank.

McCormick, M. P., O'Connor, E. E., Cappella, E. & McClowry, S. G. (2013). "Teacher-Child Relationships and Academic Achievement: a Multilevel Propensity Score Model Approach." *Journal of School Psychology*, 51(5), 611-624. <https://doi.org/10.1016/j.jsp.2013.05.001>

Merritt, E. G., Wanless, S. B., Rimm-Kaufman, S. E., Cameron, C. & Peugh, J. L. (2012). "The Contribution of Teachers' Emotional Support to Children's Social Behaviors and Self-Regulatory Skills in First Grade." *School Psychology Review*, 41(2), 20.

O'Connor, E. E., Dearing, E. & Collins, B. A. (2011). "Teacher-Child Relationship and Behavior Problem Trajectories in Elementary School." *American Educational Research Journal*, 48(1), 120-162. <https://doi.org/10.3102/0002831210365008>

OECD. (2015). *Skills for Social Progress: The Power of Social and Emotional Skills* (OCDE Publishing). <https://doi.org/10.1787/9789264226159-en>

Ospino, C. (2019). *El rol de las habilidades socioemocionales para la productividad en los mercados laborales del siglo XXI*. Inter-American Development Bank. Technical Note No. 1687.

Peña, P. & Chacon, A. (2017). "The Impact of 'Enseña por Mexico' on Student Socioemotional Skills." *Microanalítica*, 46.

Prada, M., Rucci, G. & Urzúa, S. (2019). *Training, Soft Skills and Productivity: Evidence from a Field Experiment in Retail*. Inter-American Development Bank. Working Paper Series No. 1015

Roberts, R., Martin, J. E. & Olaru, G. (2015). *A Rosetta Stone for Noncognitive Skills. Understanding, Assessing and Enhancing Noncognitive Skills in Primary and Secondary Education*.

Sanchez, M. L. S., Valerio, A. & Gutiérrez, M. (2016). *Taking Stock of Programs to Develop Socioemotional Skills*. World Bank, 201.

Sánchez-Álvarez, N., Extremera, N. & Fernández-Berrocal, P. (2016). "The Relation Between Emotional Intelligence and Subjective wellbeing: A Meta-analytic Investigation." *The Journal of Positive Psychology*, 11(3), 276-285. <https://doi.org/10.1080/17439760.2015.1058968>

Schonert-Reichl, K. A. (2017). "Social and Emotional Learning and Teachers." *The Future of Children*, 27(1), 19.

Schonert-Reichl, K. A., Hanson-Peterson, J. L. & Hymel, S. (2015). "SEL and Preservice Teacher Education." *Handbook of Social and Emotional Learning. Research and Practice* (pp. 406-421). New York: Guilford Press.

Stabback, P. (2016). *Qué hace a un currículo de calidad*. International Bureau of Education, UNESCO.

Taylor, R. D., Oberle, E., Durlak, J. A. & Weissberg, R. P. (2017). "Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects." *Child Development*, 88(4), 1156-1171. <https://doi.org/10.1111/cdev.12864>

UNESCO. (2018). *School Violence and Bullying: Global Status and Trends, Drivers and Consequences*. 16.

Yoder, N. (2014). *Teaching the Whole Child. Instructional Practices that Support Social-Emotional Learning in Three Teacher Evaluation Frameworks*. Center on Great Teachers & Leaders.



CHAPTER 8

Citizenship

By Mercedes Mateo Díaz*

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CHAPTER 8

Citizenship

By Mercedes Mateo Diaz

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Looking for Global Citizens to Fix the World

The first chapter of this report describes a complex world in transformation. Current challenges are not only economic, but they are demographic, environmental, social, and political. Disruptive technologies, digitalization, globalization, climate change, aging population, and migratory flows are among the challenges we face as 21st century citizens. They have led to phenomena that are substantially changing the world order we have experienced until now.

Radical transformations, brought on by digital technologies and the information society, signal significant advances in all aspects of life and have also changed the ways in which individuals interact with each other and their environment. Such changes, in some cases, nurtured less empathetic and more antisocial behaviors, and the access to unlimited amount of information often led to media illiteracy, paradoxically making individuals more susceptible to hoaxes and fake news (OECD, 2018b). Meanwhile, migratory processes bear multicultural societies where ethnic and cultural conflicts as well as racism and discrimination are increasingly latent.

Education in the 21st century must respond to the new demands of a global society that is interconnected and in constant change.

As these dynamics usher in the new century, they influence and shape the lives of young people around the world. They constitute a constant challenge, but also a great opportunity for children, young people, and adults to seize and capitalize on. And this can be learned. Education in the 21st century must respond to the new demands of a global society that is interconnected and in constant change. This is the context in which **civic and global competencies come into play. They include a set of skills and attitudes that allow people to understand the world they live in and take advantage of opportunities, while being respectful of the environment.**

School plays a fundamental role in helping children develop these competencies. It can help them critically think and examine the most relevant occurrences and processes that affect the world and their lives. It can foster their sensitivity to other cultures by organizing and encouraging intercultural experiences. It can also teach them to use information online and social networks in a more critical and responsible manner (OECD, 2018b). Ultimately, schools can educate girls, boys, and youth to be more conscientious of their place in the world so that they become citizens who behave responsibly in their community; active citizens who organize and participate in their communities to improve the environment they live in; **citizens driven by social justice who question and view their surroundings with a critical eye, try to understand the source of problems, and seek solutions to improve the society;**⁶¹ and **global citizens capable of collaborating with people from different cultures to find transformative and creative solutions to 21st century challenges.**

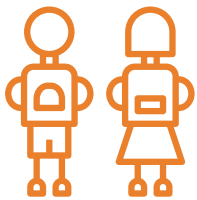
However, the reality of school is somewhat different. Traditionally, educational investments have focused on transversal skills with a strong emphasis on cognitive skills (literacy, mathematics, and science). In many cases, soft skills have been considered, in a best-case scenario, secondary or supplementary, and they have not been updated. Nor has there been a system to regularly measure and validate such skills, as has been the case with cognitive skills. Nowadays, these programs are essential and oftentimes carried out at a relatively low cost in contexts with low institutional capacity.

⁶¹ Joel Westheimer distinguishes three kinds of citizens: the personally responsible, the participatory, and the justice-oriented (Westheimer 2015).

Recently, however, these competencies are gaining more relevance. Few years ago, leaders of the College Board, the United States-based administrators of college entrance exams (the SAT), asked themselves what knowledge and skills are most important among those evaluated as they relate to college and life success. Their study identified that the most significant predictors of student success were based on their capacity to master “two codes.” The first was computer science, which is seemingly obvious with the rapid advancement in technology. The second was much less intuitive – to know the United States Constitution (Engle, 2019). What does this mean? Understanding the constitution is a civic skill that implies understanding the political system, its rights and duties, and understanding the world in which we operate and influence.

Another interesting example comes from Europe via the Erasmus program. It is a European-wide academic exchange initiative that in each year, mobilizes nearly 300,000 students from one university to another, opening the door to one of the best schools for life. Erasmus students spend an average of six to nine months living and studying with students from different cultures outside of their country and away from their immediate surroundings. The theory states that such experiences foster responsibility, independence, and maturity, which make people be more open and tolerant of other cultures and understand different perspectives. The data seems to support this theory. A report by the European Commission measured program results through 77,000 surveys and found that nine out of ten Erasmus students claimed to have improved their communication and adaptability skills. Ninety five percent said they learned to get along better with people from other cultures, and 93% said they improved their ability to consider cultural differences. Half of the students said they strengthened their stance against discrimination, intolerance, xenophobia, and racism (European Commission, 2019). The acquisition of these skills is also reflected in their future careers. According to the same report, 79% of Erasmus students found jobs within three months of completing their studies and were more likely to develop an international career.

Nowadays, these programs are essential and oftentimes carried out at a relatively low cost in contexts with low institutional capacity.



Erasmus Program

9 out of 10 students report improvement in their communication and adaptability skills

95%

learned to get along better with people from other cultures

93%

improved their ability to consider cultural differences

50%

strengthened their stance against discrimination, intolerance, xenophobia, and racism

It is important to keep these two examples in mind because these skills, traditionally referred to as soft skills, and the programs that develop them such as citizenship programs, have an impact on children and the world. They affect not only at the socioemotional and relational levels nurturing coexistence, but those associated with hard skills and academic and professional performance (Durlak et al., 2011).

Citizenship is strengthened through education.

We need citizens who are ready to face the challenges of a new reality brought on by the technological revolution. Citizenship is strengthened through education that evolves and adapts to the changes that society experiences. This chapter defines and puts in perspective civic competencies (Section 1). It analyzes how civic education programs contribute to the development of 21st century skills (Section 2) and describes the experience of implementing these programs in Latin America and the Caribbean (Section 3). The last section (Section 4) considers lessons learned and challenges regarding program design and implementation.

What Skills Are We Talking about?

One of the most widespread myths about education is that education systems create citizens. Yet the evidence suggests that democratization has not necessarily increased the access to primary education, nor has it served exclusively for democratic purposes (Paglayan, 2018). In many cases, schools have been traditionally catered to training workers: people who can contribute to the economy and can actively develop themselves in the labor market. There were clear motives behind the universal access to education, such as maintaining the established order, supporting the building of nation-states, generating loyalty, and supporting industrialization processes.



Civic competencies have been recognized by different organizations and are increasingly included as part of education processes in various fields. Being included in the Sustainable Development Goals (SDG) represented an important step in this direction. Specifically, **SDG 4.7 details the importance of “ensuring that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and culture’s contribution to sustainable development”** (UN, 2015, 2019).⁶²

Specifically, the Organization for Economic Cooperation and Development (OECD) defines global competence as the capacity to examine and appreciate different perspectives and world views at the local, national, and international levels. This includes developing the skills necessary to maintain an open and respectful interaction with people from different cultural and socioeconomic backgrounds while always acting on behalf of collective well-being and sustainable development (OECD, 2018b).

How Do Civic Competencies Compare?

Given the growing presence of cultural and civic literacy as part of education and training that children and youth must receive, more efforts were placed to measure these skills.

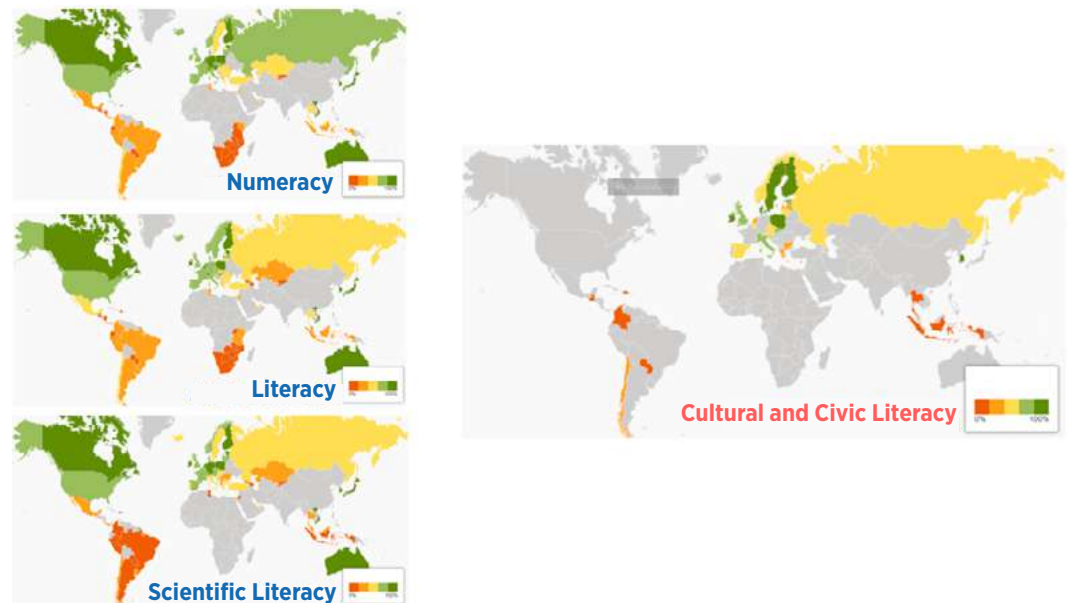
⁶² Find the Goals for Sustainable Development by following this link: <https://www.un.org/sustainabledevelopment/>. Similarly, UNESCO has defined global citizenship education as the education of children, from an early age, to become enlightened citizens who think clearly and participate in decisions that concern the society in which they live (http://www.unesco.org/education/tlsf/mods/theme_b/interact/mod07task03/appendix.htm).

The Programme for International Student Assessment (PISA) developed a framework for assessing global competence focused on students' capacity to examine local, global, and intercultural issues critically. It measures the capacity to understand and appreciate different cultural perspectives (including their own), manage differences and conflicts, and explore cultural differences with respect. Students with global competence are expected to show concern for the world, protect their environment, and have a positive impact on the lives of others. PISA also attempts to capture the level of inequality that exists across and within countries in terms of developing global competencies. It presents various approaches to global education assumed by different countries, discussing how these education systems prepared teachers to develop such competencies in their students (OECD, 2018b).

The International Association for the Evaluation of Educational Achievement (IEA) has a series of studies titled International Civic and Citizenship Education Study (ICCS).⁶³ The studies seek to confirm if students are prepared for life after high-school and ready to exercise their role as citizens. It includes accepting cultural diversity, human rights, social justice, as well as demonstrating active political participation (Schulz *et al.*, 2016).

A report by the World Economic Forum (2015) used ICCS, World Bank, and European Union data to measure cultural and civic literacy and analyzed the gaps in the acquisition of 21st century skills (Figure 8.1). There are many ways to read the graphics, but the data yields two interesting pieces of information: much less countries measure civic competencies compared to traditional skills, and the countries in the region that do measure them rate low in civic competency (a result not too different from the basic skills).⁶⁴

Figure 8.1. Development of Citizenship Skills Compared to Basic Skills



Source: World Economic Forum, 2015

63 IEA International Civic and Citizenship Education Study, <https://www.iea.nl/publications/study-reports/international-reports-iea-studies/becoming-citizens-changing-world>

64 Find an interactive version of the map and data at <http://widgets.weforum.org/nve-2015/chapter2.html>

Which countries are most advanced in civic education? According to this report, Denmark, Finland, Korea, and Sweden have the highest levels of cultural and civic literacy. At least 80% of students in those countries show critical perspectives, as well as global awareness and a clear understanding of civic concepts (World Economic Forum, 2015).

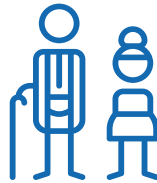
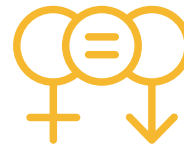
In terms of curriculum, countries impart these programs in different ways. Some do so as a distinct subject, taught by specialized teachers in civic and citizenship education, and in others, social science and humanities teachers are in charge. In many countries, these competencies are at least formally integrated into multiple subjects taught in schools. In some, however, they are taught as an extracurricular activity (Schulz et al., 2018).



Diversity



Environment

Intergenerational
EducationGender
ViolenceEducation
for Peace

How Do Citizenship Programs Contribute to the Development of 21st Century Skills?

Given the importance of civic education in training individuals to be responsible and committed to the world they live in, this section explores how relevant programs contribute to developing advanced cognitive (e.g., critical thinking) and socioemotional skills. We will do so by analyzing some of the initiatives and their international evidence on the impact. **From a variety of approaches that highlight various aspects of citizenship (human rights, multiculturalism, environment, gender, etc.), we will also see how children learn to be active, critical, and informed citizens.** They become citizens capable of transforming their reality reflecting the democratic and pluralistic values shared by the society. This section also analyzes how multicultural education programs can support the development of empathy, creativity, and critical thinking. Through environmental education, it looks at how children learn about commitment, motivation, and openness to new knowledge, and how education for peace can foster social aptitudes, self-control, and assertiveness. This is a new way of educating for a new reality.

Teaching to Incorporate Diversity

It is important to learn and see through someone else's eyes and help individuals think beyond a one-sided story. It is essential to see beyond a singular narrative that is told to you or that you tell yourself about someone, a city, a race, or a country, to see beyond a story that limits you and stereotypes the other.

The positive effects of incorporating multicultural education in school curricula have been analyzed in a meta-analysis of students ages 3 to 16. The results show that multicultural education tends to reduce students' racial attitudes and is more effective than reinforcement measures (specific activities with a behavioral approach, which are not part of the school curriculum and seek to change behaviors through positive or negative reinforcement). These effects were more pronounced in urban than suburban areas, and more significant on older students (ages 9 to 16) than the younger ones (ages 3 to 8) (Okoye-Johnson, 2011).

Along these lines, different global initiatives have emerged in recent years to help students develop skills that allow them to look beyond their immediate realities. Such initiatives develop their capacity to accept differences and create the empathy needed to put themselves in someone else's shoes and understand the perspective of others, regardless of how different they may be.

One of these initiatives is **Project Zero**, a Harvard University research center that focuses on the research topics such as the nature of intelligence, understanding, thinking, creativity, ethics, and other areas essential to human learning. **Their objective is to use projects, research, and publications to better understand and improve education for the global education community** (Project Zero, 2019). **"Re-imagining Migration"** is a research project undertaken in collaboration with the UCLA School of Education and Information Studies. It introduces the theory of global competence into the classroom through migration topics. Global competence means having the knowledge, skills, and willingness to understand and act on global issues. They also include processing, analyzing, and knowing how to utilize information.

The project works closely with teachers, education officials, and NGOs to document the best practices that help students identify, understand, and analyze the phenomenon of migration and develops relevant teaching materials and practices to apply in the classroom. The purpose is to ensure that children grow while understanding migration as a shared condition of our past, present, and future and develop the knowledge, empathy, and mindsets necessary to support and sustain the inclusive communities we wish to see in our society (Re-imagining Migration, 2019).

Using the theoretical framework of global competence, "Re-imagining Migration" encourages students to research the origins of the phenomenon and explore their own stories and those of their peers. Students also use libraries **to search for different narratives** with protagonists of different origins and races. They learn to interview, **analyze and interpret testimony**, and **create, share, and analyze stories**. In short: students gain perspective and learn to see migration as an opportunity for personal enrichment and learning rather than as a problem or threat.

Teaching How to Respect the Environment

Climate change is producing droughts, floods, devastating storms, desertification, and the extinction of ecosystems, animals, and plant species on our planet. Scientists have warned us for years that the time and resources on our planet are running out. Now more than ever, we must reverse these trends. And children are our primary asset. They are one of the groups most vulnerable to the effects of climate change (more than 500 million children live in flood-prone areas, and approximately 160 million live

“You’re never too small to make a difference.”

in countries where droughts are becoming more frequent UNICEF, 2015) and when we are no longer around, they will have to live and take care of our planet. Many have already started to do so: they scold their elders, criticizing them when they fail to recycle correctly and correcting them when they leave the faucet running. “You are never too small to make a difference,” said a young girl. Her name is Greta Thunberg, and she has managed to get **hundreds of thousands of children around the world to take to the streets and ask world leaders to take urgent action to stop global warming.**

On September 25, 2015, the General Assembly of the United Nations approved Agenda 2030, a plan with 17 sustainable development goals which included: “to take urgent action to combat climate change and its impacts.” Among its targets is “to improve education, awareness-raising and human and institutional capacity on climate change mitigation (...).”

“Rooting sustainability starts on the benches of schools.” In September 2017, the Director-General of UNESCO, Irina Bokova, inaugurated the IX World Environmental Education Congress (WEEC) with these words in Vancouver, Canada. The Director-General demanded **including environmental education in all school curricula around the world.**

“Rooting sustainability starts on the benches of schools.”

Said *Irina Bokova*
Director-General of UNESCO.

Environmental education programs teach children knowledge and concepts about the environment so that they can understand and appreciate the relationship between humans and their surroundings. The programs should cultivate **environmental consciousness** in them and **prepare** them so that they **understand and face the challenges which climate change has brought upon us** (UNESCO, 1989). It should **create committed and active citizens, capable of taking on these challenges.**

Environmental education programs also have many other **positive effects on learning different subjects and developing socioemotional skills.** The University of Stanford analyzed more than 120 studies that showed the impact of environmental education on **motivation, skill acquisition, empowerment, and learning in general** (Ardoin et al., 2016; NAAEE, 2018). For example, a research on secondary students in Florida found that students who participated in environmental education programs **earned significantly higher scores on critical thinking skills and were more likely to apply these skills in the future** (NAEE, 2018). A study implemented in schools in the Northeastern United States concluded that participatory methods of environmental education could increase student participation and involvement in class. It offered them a unique opportunity to practice **assertiveness, critical thinking skills, and openness to learning new knowledge** (Blatt, 2013). The benefits are not limited solely to students. A two-year study of a school in Ohio found that teachers who

participated in these programs used more innovative pedagogical practices and felt more confident in their professional aptitudes (Haney *et al.*, 2007).

There is also an evidence suggesting that environmental education teaches other skills such as problem-solving. Case in point, an experimental study of sixth-grade students found that, through ecology lessons, students strengthened their experimental **problem-solving** skills. They generated epistemic questions, planned two-factorial experiments, and identified correct experimental controls (Roesch, Nerb, & Riess, 2015). Another experimental study of primary students in Nigeria measured the impact of outdoor activities on learning. Outdoor activities, along with discussions, were effective in enhancing students' knowledge of environmental issues and problems. Furthermore, students **developed better physical skills and more mental energy and self-confidence** and became aware of how learning is real and closely related to their lives. (Ajiboye & Olatundun, 2010).

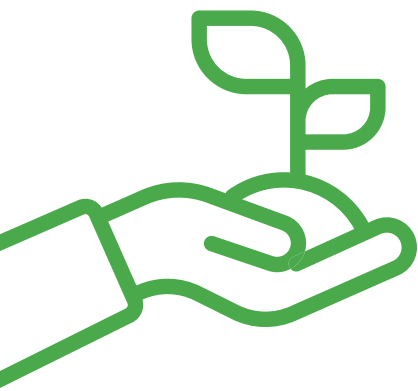
It is important to tap into children and youth's transformative capacity via environmental education and improve our surroundings, which can provide multiple benefits for all. Teaching children to take care of the planet as well as integrating nature as part of their daily life, ensures them to grow up being conscientious of the enormous importance of environmental protection and develop their capacity to lead efforts against global warming. They will become responsible, empowered, critical, conscientious, and active citizens along the way.

Contributing to Intergenerational Education

Children and youth throughout the world have begun to mobilize and demand stronger commitment and action from adults. A North Carolina State University study shows how children can influence their parents' opinions regarding climate change, regardless of their ideological allegiances (Lawson *et al.*, 2019).

A person's ideological identification tends to be a good predictor of how they perceive climate change. For example, conservatives are generally more skeptical of climate change, and therefore, their commitment to the issue is weak. They are generally less likely to act to mitigate climate change. This is not the case with children and youth, whose views regarding the problem are free of sociopolitical biases. As such, they may inspire adults to be more active and committed to the issue. The objective of the following experimental study was to see if intergenerational education (the transfer of knowledge, values, and attitudes, in this case, from children to their parents) could be a way to remove ideological barriers which impede the necessary actions to stop climate change. In this sense, researchers analyzed the beliefs and convictions of parents before and after their children participated in a special climate change program at school. This program motivated children to learn about climate change through activities and participation in a field project. It also asked children to speak and discuss climate change with their family at home and interview their parents on the topics related to climate change in the area.

The results have been promising. **Children who participated in the program substantially changed their parents' mindset** regarding climate change. Fathers (more so than mothers), especially the most conservative ones, changed attitude most significantly (nearly doubling their level of concern toward the topic). Also, girls were more effective than boys in convincing their elders.



Let's listen to our children – it can help us save the planet.

This study empirically confirms an isolated trend documented by some media. It provides hope and points to intergenerational education as a medium to generate a coordinated, global action to solve one of the gravest problems of our time. Let's listen to our children – it can help us save the planet.

Teaching Peaceful Coexistence in Schools

For thousands of students around the world, going to school is perceived a torment which often produces anxiety, depression, poor academic performance, problems with self-esteem, shame, and silence. Creating peaceful coexistence in schools has always been a big challenge for education. **Learning in unsafe environments is not easy, especially in those with social exclusion, where violence and conflicts are unfortunately frequent.**

Scientific evidence indicates that violence in schools is harmful to all those involved. Victims and perpetrators are at a higher risk of developing personality disorders and violent attitudes. Violence also interferes with children's cognitive skills development, as well as their future job opportunities. Studies have documented that being a victim of school bullying at age 14 reduces skill accumulation by up to 40% (Gutiérrez, Molina y Ñopo, 2018). Given the influence and serious consequences of this phenomenon, in recent years, **school bullying has become a matter of concern and analysis for researchers, public administrators, and civil society members.**

Despite the high level of consensus regarding its adverse effects, there is no agreement about the best strategies to address school bullying. However, there is growing evidence about successful interventions (accompanying rigorous impact evaluations) that help cultivate a harmonious environment in learning institutions. The first intervention took place in the school context in Norway during the 1990s. An information campaign about the effects of bullying directed at all school community members, decreased the number of victims by 50% (Gutiérrez, Molina y Ñopo, 2018).

A study in Valencia, Spain, evaluated the impact of an education program implemented at two early childhood and primary education centers (ages 3 to 12). The evaluation focused on older students (ages 8 to 12) and consisted of questionnaires administered to students and teachers. The results, based on teachers' and students' perceptions, suggest that the program improved school coexistence. Students and teachers reported significant improvements in compliance with the rules, integration and feelings of isolation among students, demotivation and boredom in the classroom, and fights between students (Grau, Garcia-Raga, & Lopez-Martin, 2016).

Finally, restorative practices are a series of exercises aimed at providing "reparative" responses to the conflicts that arise in a community. It seeks to transform the situation through the participation of the entire affected community. An experimental study of 13 schools in Maine (United States) with children between 11 and 12-years-old, showed that this approach could be useful to promote positive behavior and address verbal and physical bullying as well as cyberbullying at school. The students' self-evaluation responses predicted a significant improvement in school climate, as well as an increase in connection, bonding with peers, and social skills, which reduced the victimization caused by school bullying (Acosta *et al.*, 2019).

Teaching to Self-Regulation

Self-regulation skills are increasingly more recognized as factors that substantially contribute to school success. Self-regulation includes controlling feelings, thoughts, and behaviors, and is associated with academic achievement and social competence (Eisenberg et al., 2004). However, these skills are rarely taught in schools.

How do you teach children to pay attention and better regulate their emotions and impulses? This is the starting point of **Kindness Curriculum (KC)**, a series of lessons for preschool children created by the Center for Healthy Minds at the University of Wisconsin-Madison. It was made available at no cost for all schools that wish to apply it in the classroom. An experimental study carried out in six elementary schools in a city in the Midwestern United States saw favorable results with the application of these types of programs. Specifically, the intervention group showed improvements in social competence and obtained higher scores in learning, health, and socioemotional development. Students also showed advantages in cognitive flexibility and delayed gratification (Flook, Goldberg, Pinger, & Davidson, 2014).

The design and implementation of **mindfulness programs** in primary schools **also seem to have a positive influence on children's cognitive, emotional, and behavioral development.** The **Master Mind program**, designed to be applied in the last two years of primary school, is one of them. Its impact evaluation analyzes how teaching mindfulness in class influences functional skills as well as emotional (e.g., anxiety) and behavioral (e.g., aggressiveness) skills. The results indicate that students who participated in the program have better functional skills than the control group. They also demonstrate fewer social problems and aggressive behaviors. In the case of boys, a marginally significant increase in self-regulation skills was observed, and for girls, fewer anxiety problems (Parker *et al.*, 2014).

These positive results also appear in another study conducted in California with low-income and ethnic minority students who were enrolled in a five-week mindfulness program. Results suggest that students improved behavior in the classroom, paid more attention, had self-control, participated in activities, and cared for and respected others (Black & Fernando, 2014).

Teaching to Eliminate Gender Violence

Gender violence is a phenomenon in Latin America and the Caribbean, where it affects one in every three women, according to the World Health Organization. Some figures point to a particularly shocking reality. For example, 53.3% of Bolivian women have reported suffering intimate partner violence at some point in their lives, while 16.6% of Colombian women have been victims of sexual violence. In Jamaica, 2.9% of women justify being beaten by their husband or partner for any reason and in Ecuador 38.2%. Similarly, the percent of women in favor of a wife obeying her husband, even if she disagrees with him, ranges from over a quarter in urban Paraguay to almost three-quarters of rural Guatemalans (Pan American Health Organization, 2013). These statistics paint a complicated picture from the basic human rights point of view as well as considering the repercussions they have on other areas like health, education, and the economy.

Violent behaviors have an intergenerational transmission effect that perpetuates them.



Girls are

2.5

times more likely to
be involved in violent
relationships.

It has shown that **these violent behaviors have an intergenerational transmission effect that perpetuates them.** When a minor witnesses violence at home, they replicate the patterns of their elders. Thus, girls multiply the risk of being involved in violent relationships by 2.5, and boys have a higher probability of committing abuse.

How to stop this cycle? There is evidence of successful programs to prevent violence against women in adolescents. Young people are more malleable than adults (Linde, 2017). Theory and empirical evidence indicate that poor communication, poor conflict management skills, traditional gender norms about women, and the acceptance of violence, are directly related to perpetration and victimization in a romantic relationship (Sosa-Rubi *et al.*, 2016). **It is imperative to intervene with preventative programs so that adolescents learn to identify toxic behaviors and acquire the knowledge and skills to build healthy relationships with their partners.**

Civic Competencies in Latin America and the Caribbean

In addition to the challenges shared by the rest of the world, Latin American and Caribbean countries must also confront problems specific to the region. They are related to, among other things, deep economic and social inequalities, skill gaps, armed conflicts, violent contexts, institutional weakness, and lack of confidence of citizens in those institutions. These problems must be addressed via the potential for innovation. In this sense, civic education programs have proven promising in solving some of the most urgent problems: emotional intelligence during early childhood, citizenship and leadership training for youth, socioemotional skill development for victims of conflict, anti-bullying programs, environmental education, and development of gender equality to prevent violence. How do these programs work? What are their main effects? Let's see.

Civic education
programs have
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in solving some of
the most urgent
problems in the
region.

Building Citizenship Starting in Early Childhood

“No child is born hating another human being for the color of their skin or any other factor. A child has to learn to hate. If you can teach a child to hate, you must also be able to teach them to love. That's Think Equal.” Filmmaker Leslee Udwin, creator of “Think Equal,” paraphrases Nelson Mandela, adapting his quote to explain her pedagogical program in a simple manner. It promotes social and emotional learning for children between ages 3 to 6 and is implemented in schools on five continents.

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In 2015, Leslee Udwin recounted the brutal rape and murder of a girl by six men in the documentary *India's Daughter*. The testimonies of the guilty and their lawyers turned her stomach. All the perpetrators thought that the girl had brought it on herself. They thought going to the movies with a friend was her biggest mistake. This made Leslee reflect deeply about how someone can grow up thinking that a young girl does not have the right to go out and enjoy a movie purely because she is a girl. Furthermore, they believed that she should be brutally beaten and killed for doing it. Udwin concluded that the root cause of the problem was socio-cultural “programming” of inequality. From childhood, we are instilled to value certain people and apply rules differently depending on gender, race, religion, or any other distinctive characteristic. Udwin understood that the only way to change this is through education. But the education must be different. That's how **“Think Equal” was born, a program that**

promotes education based on socioemotional learning for children between three and six-years-old.

The sooner the socioemotional learning process begins for children, the more significant the effects will be, in terms of increasing prosocial behaviors and decreasing disaffection, violence, and discriminatory behaviors in adolescence and adulthood. In other words, we cannot afford to waste a single second to change mindsets and prevent violence, discrimination, injustice, insensitivity, and self-centeredness. A child builds social intelligence in their first years of life. Yet this cannot be learned naturally or spontaneously – it must be taught deliberately. For this reason, in terms of curriculum, it is essential to attribute the same importance to social and emotional learning as to numeracy and literacy.

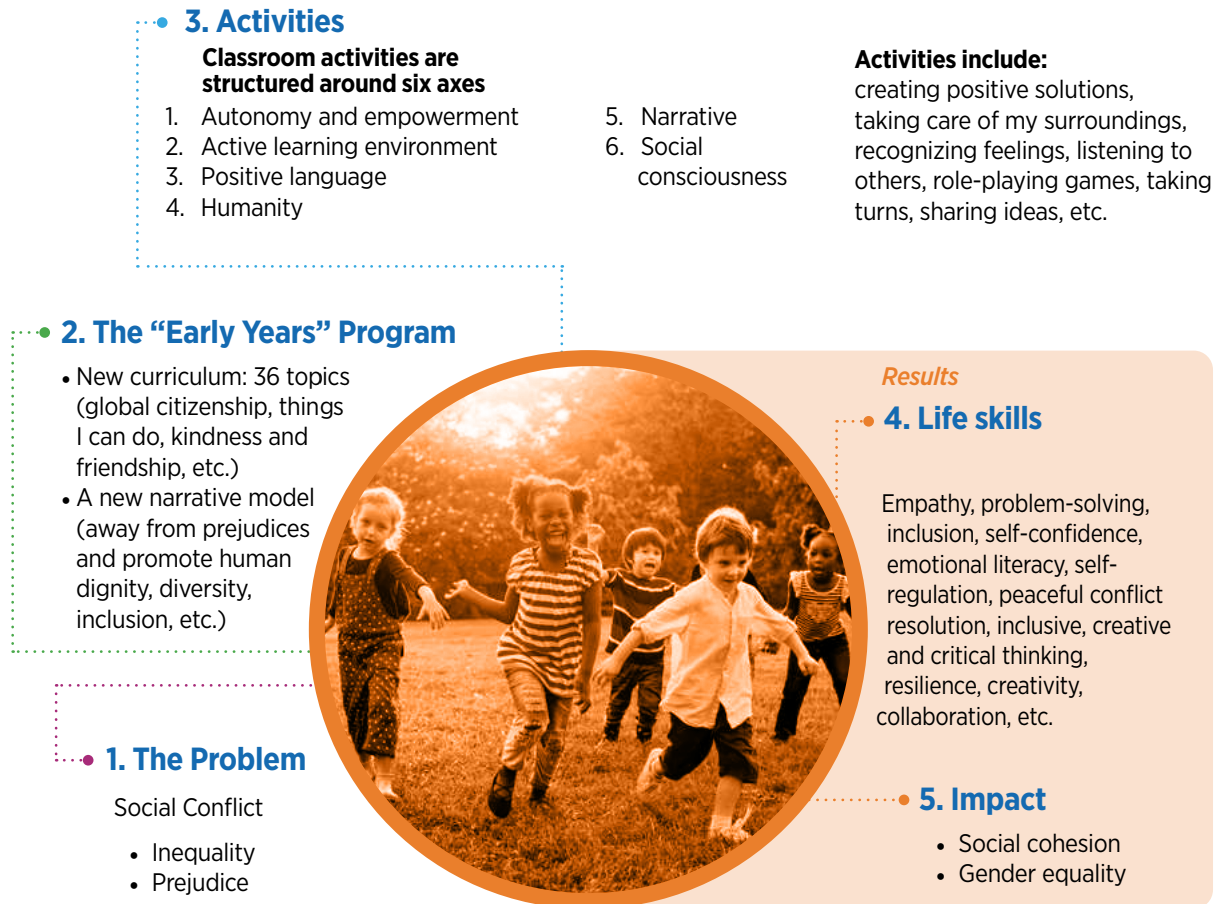
For this reason, in terms of curriculum, it is essential to attribute the same importance to social and emotional learning as to numeracy and literacy.

The program design is based on six fundamental principles. It is organized around different activities that lead to the acquisition of different competencies. These principles are:

- 1** The child as an empowered being
- 2** An active, constructive learning environment
- 3** The use of positive, factual language
- 4** The concept of Ubuntu (humanity towards others)
- 5** The process of narrative as the central methodology axis
- 6** Social cognition or the way we think and relate to our social context

Based on these principles, the program builds 36 thematic areas for children to work on in class. These include concepts such as global citizenship, self-esteem, diversity, listening to others, caring for nature, inclusion, and empathy. The narrative is a fundamental tool that helps students connect with their own stories and those of others. It will generate positive changes in children's stories, and these changes will, in turn, impact the stories of all people around them. This ultimately leads to changes in society's narrative, improving cohesion and promoting an environment free of hate and discrimination.

Each level contains 90, 30-minute lessons taught three times a week during the school year. The organization provides the materials free of charge to any center that wants to implement the program.

Figure 8.13. Think Equal Methodology

The program has been implemented in 13 countries, and the results, measured by the Yale Center for Emotional Intelligence, are promising in terms of increasing socioemotional skills and decreasing antisocial behaviors.

Specifically, an impact evaluation of the program implementation in Botswana found that children exposed to Think Equal were more socially and emotionally skilled. They were less likely to become angry or demonstrate aggressive, anxious, or withdrawn behaviors than their peers who had no access to the program (Bailey & Rudolph, 2018).

Education for global citizenship “provides [students] with knowledge and experiential understanding of values and life skills or competencies such as empathy, inclusion, self-confidence, emotional literacy, self-regulation, peaceful conflict resolution ...” (Think Equal, 2016, p. 2). In Botswana, the impacts were significant, and for some outcomes, made a difference of one-and-a-half standard deviation between students exposed to Think Equal and those in control classes. Some educators offered additional testimony to support these conclusions. For example, one teacher saw one of her four-year-old students trying to stop a fight between two older children on the playground by saying, “Stop. Breathe. What are you feeling? Name your feeling” (Bailey & Rudolph, 2018).

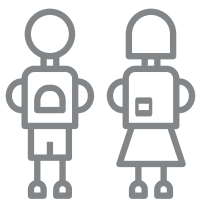
In 2019, the program will be implemented in Colombia through an association between Escuela Nueva (The New School)⁶⁵ and Think Equal with support from the IDB and the ECD Innovation Fund.⁶⁶

As a country impacted by conflict, there have been many programs that have tried to improve socioemotional skills of students in Colombia. One program we will later discuss is “Classrooms in Peace” (Aulas en Paz) (Ramos, Nieto & Chaux, 2007; Profuturo, 2018). More recently, the Secretariat of Education of Bogota launched the “Emotions for Life” (Emociones para la vida) program to strengthen first through fifth-grade students’ socioemotional competencies, offering materials for teachers and parents (Kudo & Mejia, 2018). In Manizales (Caldas), the “Active Urban School” (Escuela Activa Urbana) program promotes the development of social and emotional competencies from preschool up to secondary school by implementing an active, participatory, and collaborative pedagogy. It has reached 23 public schools and 21,497 students (Luker Foundation, 2018).

Nevertheless, none of these programs have been aimed at children from ages 3 to 5. Think Equal is one of the first programs to promote social and emotional learning (SEL) catering to early childhood and be implemented in the region. **This pilot program will offer more knowledge on the effectiveness of this type of program for this age range and provide evidence for its potential scalability.**

The Active Urban School program has reached

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Building Citizenship for Youth in Schools

Five-hundred Paraguayans gather in groups of ten. They exchange opinions, discuss, participate, and conclude that low-quality education and corruption have the most impact on their environment. And it doesn’t end there. They propose solutions, talk with the community, gather information, do research, and seek partnerships. This dynamic might sound like something organized by political professionals or a group of activists, but that’s the best part: the protagonists are youth from 16 educational institutions in the city of Asuncion, Paraguay. They united to be agents of social change in their communities.

How is this accomplished? In Paraguay, approximately six out of ten students fail to complete secondary school. In a world with a constantly growing need for a qualified workforce to cope with automation, this is very bad news. Additionally, high levels of inequality and low social mobility increase the chances of these students ending up like their parents. When we look at why youth abandon school, it is clear that they drop out due to economic reasons but also, they have high levels of disinterest in learning. **Students feel that school does not have the capacity to change their destiny. And yet, it does have the potential to do so...**

In the first chapter, we talked about the importance of mindset. Children from low-income families with a well-calibrated mindset perform better than children from higher-income families with a poorly calibrated mindset (McKinsey, 2018). Social origin

⁶⁵ For more on the Escuela Nueva Foundation and Program: <http://escuelanueva.org/portal1/en/>

⁶⁶ For more on the Early Childhood Development Innovation Foundation and their partners: <https://www.iadb.org/en/sector/social-investment/e.cd-innovation-fund/home>

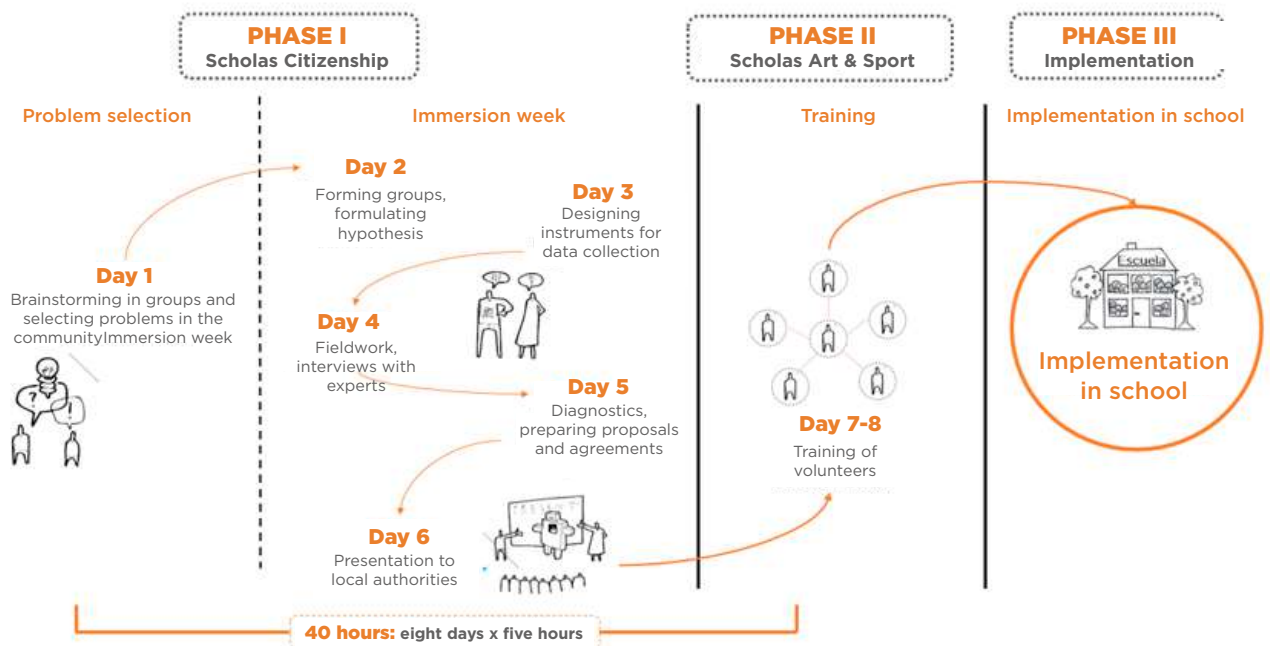
does not have to define your destiny if your mental architecture is well established. This is what Paraguay's Ministry of Education is trying to achieve by extending the school day and incorporating programs to develop 21st century skills in public schools throughout the country. These programs include a citizenship and leadership project implemented by the Scholas Occurrentes Foundation.⁶⁷

Social origins do not have to define your destiny if your mental architecture is well established.

This is not a simple task in communities and schools where there are limited resources. Some do not have enough teachers to address all the needs or lack training to ensure that classes are not limited to traditional subjects but incorporate art, sports, innovation and technology, and civic values. Yet, despite these challenges, new generations of students, as well as the management teams and teachers who work at their schools have shown that they are ready for this change.

The program started with schools that are part of the marginalized riverside population of El Bañado, an environment with high levels of crime, delinquency, overcrowding, and addiction. It focuses on schools and communities in vulnerable condition, where these actions can become a valuable tool to support formal education systems. They aim to reduce the risk factors of school dropouts (such as violence or adolescent pregnancy) and develop skills necessary to facilitate the school to work transition.

Figure 8.3. Phases of Implementation for the Citizenship and Leadership Project in Paraguay



67 For more information on the Foundation at <https://www.scholasoccurrentes.org/>

The program is developed in three phases, and in the first, students gather to identify the problems that they feel most affect their lives and communities. For one week, they identify solutions to solve these problems by discussing and doing fieldwork, and on the final day, they present their findings to local authorities. In this phase, adolescents reconnect with their surroundings, their families, schools, and community. Once this reengaging phase is complete, they receive training in art, sports, and technology as part of the second phase. Finally, in the third phase, they implement what they have learned in school, helping teachers with primary school children to provide access to sports, art, and coding programs, among others. **This intervention positively influences intrapersonal and interpersonal skills such as self-esteem, aspirations, expectations, locus of control, school commitment, and aggression. In other words, the program seeks to change children's mindset.**

“The most important thing that the children take home after these experiences is to recognize themselves as capable and useful citizens who discover the value that each of them has in their communities,” says Margarita Amarilla, principal of Republic of Bolivia National School (Colegio Nacional República de Bolivia).

“I used to feel that what I said was not useful. There were also times when I wasn't interested in participating, so I didn't speak. Now I want to motivate the younger kids, so they realize what's around them.” Juan Manuel Velasquez, a student from Juan Ramon Dahlquis School (Colegio Juan Ramón Dahlquist), participated in the first gathering in 2015 and is now a facilitator helping younger kids who join the program.

Juan and many like him are examples of how the program can channel young students' talent and potential across generations. By playing football, serving as mentors, and helping upcoming cohorts, they become a reference and an example for boys and girls between 6 and 13-years-old.

“The most important thing that the children take home after these experiences is to recognize themselves as capable and useful citizens who discover the value that each of them has in their own communities.”

According to the experimental impact evaluation results, the program improved students' commitment to school and their sense of control over their future and increased the time youth spent on cultural activities.

Yet, we also know that this impact goes beyond the indicators. School can be the starting point for progress that can be carried out [innovatively and creatively](#). Youth have already set the pace for this change. Now we are counting on other players to pass the ball to these boys and girls so they can score goals and reach their dreams.

Citizenship for Victims of Violence

Is it possible to develop socioemotional skills among victims of armed conflict? How can we promote self-control, empathy, or teamwork skills in people who suffer from poverty and exclusion because of displacement and the psychological consequences of deeply traumatic events?

Every individual who has lived in a society exposed to conflict has been directly or indirectly affected by the conflict (Chaux, 2009). In this context, more than any other, developing socioemotional skills is fundamental to reconstructing the social fabric, as well as rendering violence unnatural again, reducing prejudice and discrimination, and promoting peaceful relationships (OECD, 2018).



The armed conflict in Colombia, for example, has left behind nearly six million people in displacement. According to the Internal Displacement Monitoring Center (IDMC), 80% find themselves below the poverty threshold, and 33% are in conditions of extreme poverty. They have no electricity, no drinkable water, no schools, and no health care centers.

“Transform Yourself” (TransFormate) is a training program launched by Colombia’s Ministry of Labor in 2014. It offers **young victims of armed conflict** (between 16 and 29-years-old) the **possibility to strengthen their skills** to facilitate participation in social activities, be productive, and generate income. The program does so through **training modules on socioemotional skills and technical skills** that last 12 to 18 months, leading to a vocational diploma.

A program evaluation was implemented, which focused on two objectives:

1. **Support the curriculum design of the program, particularly on that of socioemotional activities.** This was done with the International Youth Foundation (IYF) and its tool **Passport for Success, a life skills training curriculum for vulnerable or at-risk youth that has been tested in 30 countries.** The program uses an interactive pedagogical methodology to develop socioemotional skills such as trust, teamwork, and perseverance. IYF licenses vocational training institutions that provide technical training for young people, trains their facilitators in this methodology and strategies for trauma management, and conducts follow-ups to verify whether the curriculum is being taught properly.
2. **Evaluate the first TransFormate pilot to analyze its strengths and weaknesses and use them to improve the program design.** They worked together with the University of Los Andes to: (i) collect basic information from beneficiaries, which sheds light on the gaps and challenges experienced by the target population, and (ii) follow up on the results. To this end, information on the socioeconomic conditions, educational and work experience, and measures of cognitive and socioemotional abilities were collected from 807 beneficiaries through computerized tests.

The study revealed significant weaknesses in cognitive training and high expectations from beneficiaries regarding the program’s effectiveness. Nonetheless, one-third left the program before completion. **Of those who completed it, 41% found formal employment in six months after finishing the program.**

However, the most relevant results had to do with post-traumatic stress. The study showed that a significant percentage of beneficiaries who had been exposed to traumatic events experienced high level of stress, and this was associated with lower socioemotional skills and being less likely to graduate or find employment after the program.

What Should We Conclude From These Results?

First, **that victims of violence have been exposed to traumatic situations that are detrimental to key skills** (long-term commitment, self-regulation), and that they struggle to make the most of the training programs. Also, their traumatic exposure

reduces their ability to use compensation resources or entrepreneurship programs effectively.

Second, that social-emotional skills training offered to beneficiaries exposed to traumatic and violent events must accompany psychosocial assistance as they shape deep noncognitive skills (such as patience, self-regulation, or identity) and determine violent behaviors (Blattman et al., 2014)



75.3%

of Peruvian children and

73.8%

of adolescents
had experienced
school violence at
least once.

Since 2014, the program has been implemented in 11 regions and benefitted almost 5,000 youth.

Citizens Against School Bullying

One of the first interventions developed in Latin America was carried out in late 2015 in public schools in **Peru**. That same year, 75.3% of children and 73.8% of adolescents in the country experienced some form of school violence at least once. Their goals included offering more evidence on the interventions on school bullying, going beyond standing up to bullying (e.g., helping victims, ending passive bystander behavior, and increasing the reporting of violent incidents) and providing the school community the means to do so.

The **“Show Violence the Red Card”** (Sácale tarjeta roja a la violencia) program consisted of theoretical workshops on the effects of bullying and practical activities (poster-making, games, or parades) which reinforce the lessons learned from the workshops and the distribution of information materials. The message of the activities was always the same: **to encourage students to stand against bullying, to help victims, and to report acts of violence**. The second component of the intervention was based on a **digital reporting platform launched by the Peruvian government** so that students, parents, friends, or any witness to a violent incident could report it anonymously. The platform, called **Siseve** (“Yes, we see it”)⁶⁸ includes relevant information about existing community resources to protect children and adolescents from any form of violence. The role of the intervention was to ensure that schools registered to use the platform, teach school communities to use it, and launch an information campaign.

The results of the experiment (Gutierrez et al., 2018) show that students’ passive bystander behavior towards bullying was reduced, and their willingness to report violence increased. It also reduced the likelihood of switching schools or dropping out and improved grades on mid-term exams. The impact, however, was much more modest for children exposed to domestic violence. Thus, while depression and isolation were significantly reduced among those students not exposed to domestic violence, these effects vanished among children living in violent environments.

A multi-component program was developed in Colombia called **“Classrooms for Peace”** (Aulas para la Paz). It included a **classroom component**, for primary grades two to five, based on the development of civic competencies such as aggression, conflict, intimidation, empathy, effective anger control, and assertiveness. Additionally, it had a family component that comprised family home visits for the most aggressive students, to have parents develop the same skills as children. Finally, there were **heterogeneous**

⁶⁸ The platform can be accessed through this link: <http://www.siseve.pe/>

groups made up of two students with high levels of aggression and four students who stand out for their prosocial behavior. The program's impact evaluation found, according to teacher-reported information, that students substantially decreased the frequency of aggressive behavior and increased the prosocial behavior. According to student responses, assertiveness increased, and verbal aggression decreased (Chaux *et al.*, 2017).

Citizenship for the Environment

We know that **change begins with children**, which is why the regional program **“Rise Up” (Súbete) was created to combat climate change and improve global sustainability through children**. “Rise Up” is an environmental education program that attempts to motivate children and youth to use their creativity and energy to actively participate in projects that promote and improve sustainability in their communities.

Explain greenhouse effects through experiments, become a weatherperson, research the climate in our region, design infographics, and make superhero videos...“[Rise Up](#)” teaches children in an innovative, positive, and fun way to learn about climate change and what we can do to reverse it. It provides a green kit to motivate the school community to take on climate change and multimedia resources including guides, videos, games, and lesson plans for teachers and parents to teach sustainability concepts interactively and dynamically. This is how we learn the causes of climate change and its consequences on water, energy, landscape, soil, and our health. We can do this individually and collectively to live more sustainable and healthier lives. These resources are free and available, both in English and Spanish, on this [initiative website](#). A [teacher training course](#) on climate change education is also available online.

But the initiative goes way beyond this. It is learning by doing. By directly participating in projects that benefit their community and seeing how their actions improve quality of life, students develop and strengthen attitudes and values such as teamwork, organization, coexistence, as well as a participatory culture. Students learn to listen, take risks, propose solutions, and act. It helps children become, ultimately, the people the world needs.

Citizenship for Gender Equality

Can adolescent attitudes and behaviors about violence be changed? Is it possible to dismantle gender stereotypes deeply anchored in centuries-old social and cultural structures? Can young people act as agents of change to break the cycle of intergenerational violence? In response to these questions, results from the “Love, but the Good One” (Amor, pero del bueno) pilot program implemented in two schools in Mexico City in collaboration with the IDB, showed a resounding “yes.”

In a regional context where one in three women experience gender-based violence, Mexico is no exception. In this country, surveys provide revealing data on young people. Of the 79% of third-year secondary school students involved in a dating relationship, 24% have experienced psychological violence, 17% physical violence, and 7% sexual violence.

24%

psychological violence

17%

physical violence

7%

sexual violence

The goal of the “Love, but the Good One” (Amor, pero del bueno) program is for the school community to take a critical stance against gender-based violence by promoting inclusive, equal, and non-violent coexistence among young people. It consists of two components:

1. **Student workshops:** through **16 weekly 1-hour sessions**, young people face their gender conceptions and stereotypes, share their concerns, and discuss dating violence and its consequences. They also discuss sexist messages and social stereotypes and learn about the resources available to address gender-based violence situations.
2. **Improve the school environment:** through an **awareness campaign** created and implemented by students and a **training workshop** for school staff.

An impact evaluation (Sosa Rubi *et al.*, 2016) provided **promising findings** for school prevention programs against gender-based violence. Specifically, the evaluation found that the “Love, but the Good One” program **reduced psychological violence perpetrated by the young men who participated in the workshops by 55%. The program reduced acceptance and justification of violence by 5% and the acceptance of sexist attitudes in dating by 8% among youth.** Strongly motivated teenagers became agents of change in their families and surroundings.

5%

reduction in acceptance
and justification of partner
violence

8%

decrease in acceptance
of sexist behavior in
relationships

The program showed that it is possible to implement interventions in the school environment that contribute to changing attitudes about gender roles among youth. It also made it clear that **by motivating students via program content and methodology, they strengthen communication skills and can disseminate information, prevent acts, and denounce actions.** They thus become the citizens that the 21st century demands and contribute to improving society.

Where Do We Go from Here?

Throughout this chapter, we have seen how a series of education and training programs that emphasize different aspects of citizenship such as human rights, multiculturalism, diversity, or the environment, teach children, youth, and adults to learn and internalize concepts such as respect, peaceful coexistence, and inclusion. These concepts help participants build key skills (like empathy, self-regulation, responsibility, compromise,

problem-solving, or teamwork), which allow them to thrive in the dynamic 21st century. To have an impact on a complex world, one must first learn to understand it.

Civic and democratic values are put to the test every day. It is even more so in challenging contexts which include transformation and changes in the economic, demographic, social, cultural, political, or institutional spheres, and we live in such a moment today. Strengthening these values through education helps to protect them. The 21st century needs a generation of new leaders who can find large-scale solutions to the challenges we are facing. To do this, we must transform education as we know it today. As the old saying goes, “if you want different results, don’t always do the same things.” Today children, youth, and adults need skills and competencies that are nothing new but have become more important than ever.

If you go to a school where all students are descendants of generations of neighbors who have known one another their entire lives, they speak the same language, have had the same experiences, and share similar stories. They eat the same, talk about the same things, share holidays, rituals, and traditions. In such a situation, it’s easy to communicate and be understood. For children, many of whom have left countries because of political violence or economic reasons, their reality has little to do with that of their new peers. They are just beginning to learn the language of their new country, and they have other customs. In this context **communication and the construction of a narrative that unifies them through their differences requires substantially more social and emotional skills. It requires them to step outside of their comfort zone and try to listen, understand, and put themselves in each other’s place. Without understanding and proximity, conflict levels increase, bringing the political system and social contract into question.**

Until now, most of our interactions with machines have been limited to the use of computers, telephones, and other basic electronic and digital devices. Increased automation means that we live together daily, at home, at work, and in the streets with robots that can do our shopping, find the song we want to hear, tell us the weather for the day, what route and how long we will take to get to our offices, in addition to doing many of the tasks we used to do at work.

In other words, living with automatons is becoming an integral part of our everyday lives. We speak and live with them as they increasingly occupy more spaces and require more interactions. This opens a world of possibilities: we can stop doing routine tasks that do not add value to us as individuals and free up time for leisure, family, and friends. However, for good or for bad, we are also delegating decisions that used to be always made by humans. As artificial intelligence is progressively more autonomous, and we relinquish part of the decision-making process, we face important ethical dilemmas that demand our capacity to define clear and shared ideas about the world we want to build. **Individuals need specific technical abilities to understand these machines and to program and control them. However, we also need advanced cognitive and socioemotional skills and ethical values to decide how to program these machines so that automated decisions not only improve efficiency and productivity, but also serve to improve well-being, prosperity, equity, respect, and humanity.**

Lessons Learned

What do the results of the implemented programs tell us? What conclusions can we draw from these experiences?

1

Yes, it is possible. Overall, the results are promising and show that encouraging children, youth, and adults to stand against bullying, social inequality, discrimination, gender-based violence, or climate change, and equipping them with the means to do so, can have beneficial effects. These effects are not only on their wellbeing and that of their surroundings, but also on school and work performance, even in the most vulnerable and violent environments.

2

A relatively simple and low-cost intervention can achieve great results, even in contexts with low institutional capacity.

3

We need more practice-based evidence. The existing evidence is promising, but more ideas and accumulated experience are needed to be more effective in the various stages of a person's lifecycle.

4

We must go beyond the public sphere and reach homes. This is particularly important in violence prevention programs, but also applicable for others, including environmental programs. Violent environments, including those that lack respect for diversity, and home environments, can counteract the potentially positive effects of programs implemented in the public sphere such as schools.

5

In cases where the individual has been exposed to intensely violent situations and suffered post-traumatic stress, skill-development programs must be accompanied by psychosocial assistance. The exposure to traumatic and violent events hinders skill acquisition. In such cases, whether due to post-conflict contexts, domestic violence, school bullying, or participation in organized groups, it is not sufficient to focus exclusively on developing cognitive and socioemotional skills. Programs must provide psychosocial services to help restore individual mindsets to acquire and develop new skills.



References

- Acosta, J., Chinman, M., Ebener P., Malone, P. S., Phillips A. & Wilks A. (2019). Evaluation of A Whole-School Change Intervention: Findings from a Two-Year Cluster-Randomized Trial of the Restorative Practices Intervention. *Journal of Youth and Adolescence*, 48, 876-90. <https://doi.org/10.1007/s10964-019-01013-2>
- Ajiboye, J. O., & Olatundun S. A. (2010). *Impact of Some Environmental Education Outdoor Activities on Nigerian Primary School Pupils' Environmental Knowledge Applied Environmental Education & Communication*, 9(3), n149-158. <https://doi.org/10.1080/1533015X.2010.510020>.
- Almeida, R., Behrman, J., & Robalino, D. (2012). *The Right Skills for the Job? Rethinking Training Policies for Workers*. Washington: The World Bank.
- Almlund, M., Duckworth, A. L., Heckman, J., & Kautz, T. (2011). Personality Psychology and Economics. Handbook of the Economics of Education. In E. Hanushek, S. Machin, & L. Woessman, (Eds.), *Handbook of the Economics of Education*, (pp. 1-181). Amsterdam: Elsevier.
- Ardoin, N. M., Bowers, A. W., Roth, N. W. & Holthuis, N. (2016). Environmental Education and K-12 Student Outcomes: A Review and Analysis of Research. *Journal of Environmental Education*, 44(1), 1-17. <https://doi.org/10.1080/00958964.2017.1366155>.
- Bailey, C. S., & Rudolph, M. (2018). *Think Equal*. Interim Report: Botswana Child Outcomes.
- Belfield, C., Bowden, A. B., Klapp, A., Levin, H., Shand, R. & Zander, S. (2015). The Economic Value of Social and Emotional Learning. *Journal of Benefit-Cost Analysis*, 6(3), 508-544. doi:10.1017/bca.2015.55.
- Black, D. S., & Fernando R. (2014). Mindfulness Training and Classroom Behavior Among Lower-Income and Ethnic Minority Elementary School Children. *National Institute for Health*, 23(7), 1242-1246. 10.1007/s10826-013-9784-4.
- Blatt, E. N. (2013). Exploring Environmental Identity and Behavioral Change in an Environmental Science Course. *Cultural Studies of Science Education*, 8(2), 467-488. <https://doi.org/10.1007/s11422-012-9459-2>.
- Blattman C., Jamison J. C. y Sheridan M. (2014). Reducing Crime and Violence: Experimental Evidence from Cognitive Behavioral Therapy in Liberia. *American Economic Review*, 107(4), 1165-1206. 10.1257/aer.20150503.
- Chaux, E., Barrera, M., Molano, A., Velásquez, A. M., Castellanos, M., Chaparro, M. P. & Bustamante, A. (2017). Classrooms in Peace within Violent Contexts: Field Evaluation of “Aulas en Paz” in Colombia. *Society for Prevention Research*, 18(7), 828-838. 10.1007/s11121-017-0754-8.

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and Passion for Long-Term Goals. *Journal of Personality and Social Psychology*, 92(6), 1087-101. 10.1037/0022-3514.92.6.1087.

Duckworth, A., & Seligman, M. (2005). Self-discipline Outdoes IQ in Predicting Academic Performance of Adolescents. *Psychological Science*, 16(12), 939-44. 10.1111/j.1467-9280.2005.01641.x.

Durlak, J., Dymnicki, A., Schellinger, K., & Weissberg, R. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development*, 82(1), 405-432. 10.1111/j.1467-8624.2010.01564.x.

Duryea S., & Robles, M. (2017). *Social Pulse in Latin America and the Caribbean 2017: Family Legacy, Breaking the Mold or Repeating Patterns?* Retrieved from: <https://publications.iadb.org/en/social-pulse-latin-america-and-caribbean-2017-family-legacy-breaking-mold-or-repeating-patterns>

Eisenberg, N., Spinrad, T., & Smith, C. (2004). Emotion-Related Regulation: Its Conceptualization, Relations to Social Functioning, and Socialization. *In The Regulation of Emotion* (pp. 277– 306). Mahwah, NJ: Erlbaum.

Engle, J. (2019). What Are the Most Important Things Students Should Learn in School? *New York Times*. Retrieved from <https://www.nytimes.com/2019/02/21/learning/what-are-the-most-important-things-students-should-learn-in-school.html>

European Commission (2019). Erasmus + Higher Education Impact Study. Retrieved from <https://publications.europa.eu/en/publication-detail/-/publication/94d97f5c-7ae2-11e9-9f05-01aa75ed71a1/language-en>

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting Prosocial Behavior and Self-Regulatory Skills in Preschool. *Developmental Psychology*, 51(1), 44-51. 10.1037/a0038256.

Grau, R., García-Raga, L., & López-Martin, R. (2016). Towards School Transformation. Evaluation of a Coexistence Program from the Voice of Students and Teachers. *New Approaches in Educational Research*, 5(2), 137-146. <https://doi.org/10.7821/naer.2016.7.177>.

Gutiérrez, I. A., Molina, O., & Ñopo, H. (2018). *Stand Against Bullying: An Experimental School Intervention*. Retrieved from <https://www.iza.org/publications/dp/11623/stand-against-bullying-an-experimental-school-intervention>

Haney, J. J., Wang, J., Keil, C., & Zoffel, J. (2007). Enhancing Teachers' Beliefs and Practices Through Problem-Based Learning Focused on Pertinent Issues of Environmental Health Science. *Journal of Environmental Education*, 38 (4), 25-33.

Heckman, J. J., & Kautz, T. (2012). Hard Evidence on Soft Skills. *Labour Economics*, Elsevier, 19(4), 451-464. 10.3386/w18121.

Heckman, J. J., & Rubinstein, Y. (2001). The Importance of Noncognitive Skills: Lessons from the GED Testing Program. *American Economic Review*, 91(2), 145-149.

Heckman, J.J., & Kautz, J. (2013). *Fostering and Measuring Skills: Interventions that Improve Character and Cognition*. In J. Heckman, J.E. Humphries and T. Kautz (Eds.) In *The Myth of Achievement Tests: The GED and the Role of Character in American Life*. pp. 341-430. Chicago, IL: University of Chicago Press.

Heckman, J.J., Stixrud, J., & Urzua, S. (2006). The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior. *Journal of Labor Economics*, 42(3), 411-482. 10.3386/w12006

Herrera, L., Buitrago, R., Lorenzo, O., & Badea, M. (2015). Socio-Emotional Intelligence in Colombian Children of Primary Education. *An Analysis in Rural and Urban Settings. Social and Behavioral Sciences*, 203, 4-10. <https://doi.org/10.1016/j.sbspro.2015.08.251>.

Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness. *American Journal of Public Health*, 105(11), 2283-2290. <https://doi.org/10.2105/AJPH.2015.302630>

Kautz, T., Heckman, J. J., Diris, R., ter Weel, B., & Borghans, L. (2014). *Fostering and Measuring Skills: Improving Cognitive and Non-Cognitive Skills to Promote Lifetime Success*. *National Bureau of Economic Research*. 10.3386/w20749.

Kudo, I., & Mejía, J. F. (2018). *Repositorio Institucional Secretaría de Educación del Distrito*. Retrieved from <http://repositorios.educacionbogota.edu.co/jspui/handle/123456789/10541>

LaFreniere, P. J., & Dumas, J. E. (1996). Social Competence and Behavior Evaluation in Children Ages 3 to 6 Years: The Short Form (SCBE-30). *Psychological Assessment*, 8(4), 369-377. <https://doi.org/10.1037/1040-3590.8.4.369>.

Lawson, D. F., Stevenson, K. T., Peterson, M. N., Carrier, S. J., Strnad, R. L., & Seekamp, E. (2019). Children Can Foster Climate Change Concern Among Their Parents. *Nature Climate Change*, 9, 458-462. <https://doi.org/10.1038/s41558-019-0463-3>.

Linde, P. (2017). Qué funciona para prevenir la violencia contra las mujeres ¿Y si hablamos de igualdad? Blog. Retrieved from <https://blogs.iadb.org/igualdad/es/que-funciona-para-prevenir-la-violencia-contra-las-mujeres/>

Luker Foundation. (2018). *Escuela Urbana Activa*. Retrieved from <https://fundacionluker.org.co/portfolio/escuela-activa-urbana/>

McKinsey. (2018). *How to Improve Student Educational Outcomes?* Retrieved from <https://www.mckinsey.com/industries/social-sector/our-insights/how-to-improve-student-educational-outcomes-new-insights-from-data-analytics>

Mead, L. (2015). *Opportunity, Responsibility, and Security: A Consensus Plan for Reducing Poverty and Restoring the American Dream*. Retrieved from <https://www.brookings.edu/wp-content/uploads/2016/07/Full-Report.pdf>

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., & Ross, S. (2011). A Gradient of Childhood Self-Control Predicts Health, Wealth, and Public Safety. *Proceedings of the National Academy of Sciences*, 108 (7) 2693-2698. <https://doi.org/10.1073/pnas.1010076108>

NAAEE. (2018). *The Benefits of Environmental Education for K-12 Students*. Retrieved from <https://naaee.org/eeepro/research/eeworks/student-outcomes>

OCDE. (2015). *Skills for Social Progress: The Power of Social and Emotional Skills*. Retrieved from <http://www.oecd.org/education/skills-for-social-progress-9789264226159-en.htm>

OCDE. (2018a). *Social and Emotional Skills: Well-being, Connectedness and Success*. Retrieved from [https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20\(website\).pdf](https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20(website).pdf)

OCDE (2018b). *PISA Preparing our Youth for an Inclusive and Sustainable World*. Retrieved from <http://www.oecd.org/pisa/Handbook-PISA-2018-Global-Competence.pdf>

Okoye-Johnson, O. (2011). Does Multicultural Education Improve Students' Racial Attitudes? Implications for Closing the Achievement Gap". *Journal of Black Studies*, 42(8), 1252-1274. <https://doi.org/10.1177/0021934711408901>

Panamerican Health Association. (2013). *Violencia contra la mujer en América Latina y Caribe. Análisis comparativo de datos poblacionales en 12 países*. Retrieved from https://www.paho.org/hq/index.php?option=com_docman&view=download&category_slug=violencia-5197&alias=24353-violencia-contra-mujeres-america-latina-caribe-analisis-comparativo-datos-poblacionales-12-paises-353&Itemid=270&lang=en

Paglayan, A. (2018). *Democracy and Educational Expansion: Evidence from 200 Years*. Retrieved from <http://www.lse.ac.uk/lacc/publications/PDFs/Paglayan-Democracy-and-Educational-Expansion-130618.pdf>

Parker, A., Kupersmidt, J. B., Mathis, E. T. Scull, & Sims, C. (2014). The Impact of Mindfulness Education on Elementary School Students: Evaluation of the Master Mind Program. *Advances in School Mental Health Promotion*, 7(3), 184-204. 10.1080/1754730X.2014.916497.

Phillips, D. A. & Shonkoff, J. P. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, DC: National Academy Press.

Pickens, J. (2009). Socio-emotional Programme Promotes Positive Behaviour in Preschoolers. *Child Care in Practice*, 15(4), 261-287. <https://doi.org/10.1080/13575270903149323>.

Profuturo. (2018). *Recuperado de habilidades socio-emocionales para una convivencia escolar pacífica: Aulas en Paz de Fundación Telefónica Colombia*. Observatorio Innovación Para La Inclusión. Retrieved from <https://observatorio.profuturo.education/blog/2018/03/07/habilidades-socio-emocionales-para-una-convivencia-escolar-pacifica-aulas-en-paz-blended-de-fundacion-telefonica-colombia/>

Project Zero. (2019). Retrieved from <http://www.pz.harvard.edu/who-we-are/about>

Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of Fine-Grained Aspects of Toddler Temperament: The Early Childhood Behavior Questionnaire. *Infant Behavior and Development*, 29(3), 386-40. 10.1016/j.infbeh.2006.01.004.

Ramos, C., Nieto, A. M., & Chaux, E. (2007). Aulas en Paz: Preliminary Results of a Multi-Component Program. *Inter-American Journal of Education for Democracy*, 1(1), 36-56.

Re-imagining Migration, 2019. Retrieved from <https://reimaginingmigration.org/>

Roberts, B., Walton, K., & Viechtbauer, W. (2006). Patterns of Mean-Level Change in Personality Traits Across the Life. *Psychological Bulletin*, 132(1), 1-25. 10.1037/0033-2909.132.1.1

Roesch, F., Nerb, J., & Riess, W. (2015). *Promoting Experimental Problem-Solving Ability in Sixth-Grade Students through Problem-Oriented Teaching of Ecology: Findings of an Intervention Study in a Complex Domain*. *International Journal of Science Education*, 37(4), 577-598. <https://doi.org/10.1080/09500693.2014.1000427>

Schady, N. (2006). *Early Childhood Development in Latin America and the Caribbean*. World Bank Policy Research.

Shields, A., & Cicchetti, D. (1997). *Emotion Regulation Among School-Age Children: The Development and Validation of a New Criterion Q-Sort Scale*. *Developmental Psychology*, 33(6), 906-16. 10.1037//0012-1649.33.6.906

Schulz, W., Ainley, J., Fraillon, J., Losito, B., Agrusti, G., & Friedman, T. (2018). *Becoming Citizens in a Changing World. IEA international Civic and Citizenship Education Study 2016 International Report*. Amsterdam: International Association for the Evaluation of Educational Achievement (IEA).

Sosa-Rubi, S.G., Saavedra-Avendaño B., Piras, C., Van Buren, S. J., & Bautista-Arrendondo, S. (2016). True Love: Effectiveness of a School-Based Program to Reduce Dating Violence Among Adolescents in Mexico City. *Prevention Science*, 17(7), 804-817. 10.1007/s11121-016-0718-4

Think Equal. (2016). *Early Years Curriculum Framework*. London, UK: Think Equal.

UNICEF. (2015). *Unless We Act Now. The Impact of Climate Change on Children*. Retrieved from https://www.unicef.org/publications/index_86337.html

Westheimer, Joel, 2015. *What Kind of Citizen? Educating Our Children for the Common Good*. Columbia University: Teachers College Press.

World Economic Forum. (2015). *New Vision for Education: Fostering Social and Emotional Learning Through Technology*. Retrieved from http://www3.weforum.org/docs/WEF_New_Vision_for_Education.pdf



CHAPTER 9

Digital Programs

By Juanita Caycedo,
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New technologies like Artificial Intelligence (AI), blockchain, the Internet of Things (IoT), and Biotechnology are generating **demands for advanced skills**. Such demands increase the **pressure** on companies to **innovate**, on the **education system** to **update training models**, and on **individuals** to take the reins of **their own learning and development process**.

The need to change or update the way we live is not new and has been on the table since the first industrial revolution. However, the current speed of change due to transforming technologies increases the difficulty of predicting what the future will bring.

The challenge before us is clear: a new revolution is **increasing global inequality** minute by minute and creating millions of job positions that frequently demand **advanced digital skills**, but individuals lack the necessary abilities to fill them (ITU, 2018).

The good news is that the Latin American and Caribbean population carries the “innovation gene”, and they often turn complex challenges into opportunities for change and growth (Muruzabal, 2018). But they cannot do it alone. **Governments, the private sector, and civil society must combine efforts to provide individuals with digital competencies**. Although they were previously optional, they are now essential. They allow people to reinvent themselves, to adapt to new jobs throughout their lives, and to avoid being left out of the labor market.

The good news is that Latin American and Caribbean populations have the “innovation gene” and often turn complex challenges into opportunities for change and growth.

In this context of change, skills gaps, and opportunities, what is Latin America and the Caribbean doing to level the digital playing field?

This chapter starts to answer this question by defining and characterizing digital skills (Section 1); analyzes the importance of computational thinking and provides new methods of developing it (Section 2); present some new programs for digital skill acquisition for youth and adults (Section 3); present opportunities for women in the new digital era (Section 4); and finally, describes the disruptive training systems used to teach advanced digital skills effectively (Section 5).

What Are Digital Skills?

There is a current global concern amongst industry leaders, including those in less conventional sectors, about the lack of workers with digital skills. Such skills enable workers to push innovation and technological transformation.⁶⁹ This concern is not alien to our region. **Latin American companies are converting into “intelligent” companies**. They are progressively employing more digital resources, applying Big Data Analytics to take advantage of new growth sources, and utilizing Machine Learning to complete routine tasks (Accenture, 2018).

But, what exactly do we mean when we refer to digital skills?

Digital skills allow an individual to use technology to learn, participate socially, analyze, explore, and share information (Pavón, 2018).

⁶⁹ Global Innovation Barometer, 2018.

Ultimately, technology is infiltrating all levels of business, and soon, digital skills will be imperative even for the simplest tasks.

42%

of people between 25 and 34-years-old can complete simple technology-based tasks.



1 in 10 adults between 55 and 65 years-old can do it

Technology is permeating all levels of business and soon digital skills will be imperative even for the simplest tasks.

The organization “[Jobs for Youth](#),” classifies digital skills into three basic categories:

Basic digital skills: skills related to effective technology use are necessary in nearly all professions. These include web research, online communication, use of professional platforms, and digital financial services.

Mid-level digital skills: these are related to skills in graphic design, digital marketing, advertising, and social media management both for job and entrepreneurship opportunities.

Advanced digital skills: these are skills needed to create, manage, and analyze technological information. They implicate the use of coding to develop software, computer applications, network management, open data, machine learning, cybersecurity, the Internet of Things (IoT), and blockchain technology.

The current labor force is comprised of a majority of people who, despite being born before widespread internet use, have operated for years in an increasingly interconnected world and have developed foundational digital skills (Pavón, 2018). Nevertheless, it is difficult to say that all people are digitally competent. For instance, merely 42% of people between 25 and 34-years-old can complete simple technology-based tasks (e.g., completing an online form), and only one out of ten adults between 55 and 65 can do so (OECD/CEPAL/CAF, 2016). **Knowing how to use technology is important, but understanding its potential and applying it in a safe, critical, and responsible way is fundamental.**

Individuals who cannot navigate the complex digital world cannot participate fully in the new economic, social, and cultural landscape (OECD, 2015). A society that is ill-prepared to embrace the new industrial revolution cannot be sustained by any type of economy, especially in Latin America, where the [skills gap is the largest in the world](#).

For these reasons, education plays a critical role in building a future where the word “intelligent” does not apply only to machines, but continues to describe humanity as well (Muruzábal, 2018).

We must also be conscientious of the fact that the digital skills needed today are light-years ahead of what was considered necessary a few years ago. Education systems must evolve to prepare individuals, regardless of their stage of life. They must help people adapt to automation, work with robots or any other artificial intelligence technology, develop technology-based solutions to social problems, and become active citizens responsible for their digital identities. **We must first teach minds and then teach machines** (Muruzábal, 2018).

Computational Thinking in the Classroom

Imagine a class divided into groups. Each group is given a recipe to make fruit skewers. The recipe is an algorithm, that is, a series of instructions to facilitate completing a specific task. These groups must analyze the algorithm and replicate the proposed sequence to reproduce the skewers that the recipe describes. This exercise, called “Robot Chef” (Cocinero Robot), provides students the opportunity to identify a

variety of possibilities to execute an algorithm and practice a method of trial and error in search of an optimal solution (Gurises Unidos, 2017).

Despite not involving any technology, this dynamic allows teachers to simulate the execution of a computer program and is an example of “**computational thinking**.” This system, which arises from computer science but is not restricted to code or programming, offers a way of learning that is different yet complementary to traditional knowledge (CEIBAL, 2017). Additionally, computational thinking goes beyond teaching students to **be technology users and consumers by empowering them to become creative producers**.

It also promotes transversal skills development such as critical thinking, problem-solving, persistence, collaboration, and creativity, among others. These skills benefit the individual in all aspects of life.

It is not sufficient to be aware of what machines can do for us nor which jobs they will replace. **Students must learn how machines function and how to program them to solve salient problems.** They must become capable of controlling any technology, including those that do not yet exist.

What is happening in the region in this regard?

In the following section, we present two interventions in Latin American and the Caribbean that promote computational thinking for vulnerable students. In Paraguay, students learn through play with “Albert,” a robot that teaches coding to students during the additional hours of the extended school day. As for youth in the Caribbean, they learn programming via “Code Caribbean.”

Coding During the Extended School Day

With a population of 6.7 million people and a growing economy, Paraguay has made significant progress in expanding education access. Nevertheless, the educational quality gap presents a persistent challenge. On the SERCE⁷⁰ exam, a regional student skills assessment, 30% to 45% of Paraguayan students have not mastered basic language skills, and nearly half lacked basic mathematics skills. According to TERCE⁷¹, Paraguay performs below the average for Latin America and has a concerning achievement gap between urban and rural students.⁷²

Additionally, most public schools operate on a short-day schedule of merely four hours. Due to schedules, Paraguayan children go to school either in the morning or in the afternoon. They tend to spend the remainder of the day at home or on the streets, usually without adult supervision. Unfortunately, the probability that these children will receive positive stimulation outside of school hours largely depends on their socioeconomic status. But there is good news: Paraguay is making a significant effort to change these conditions.

⁷⁰ Second Comparative and Informative Regional Study by UNESCO.

⁷¹ Third Comparative and Informative Regional Study by UNESCO.

⁷² Of the 15 countries that participated in 2013, Paraguay was the one with the broadest distribution of scores. Performance discrepancies between urban and rural school schools were 74 points in language, 33 points in mathematics for 6th-grade students, and 49 points in language skills for 3rd-grade students (UNESCO, 2015).

Computational thinking promotes transversal skills development, such as critical thinking, problem solving, persistence, collaboration, and creativity.

50%
of Paraguayan students lack basic mathematics skills

The Ministry of Education and Science (MEC - Ministerio de Educación y Ciencias) has developed an [ambitious education reform](#) plan to deal with low attendance, as well as high dropout and repetition rates, which stagnate learning. The plan seeks to extend the school day from four to eight hours. **It emphasizes the use of ICT (Information and Communication Technologies) in teaching and school management to increase access to quality education.** Ultimately, students will receive extra schooling in core subjects, but will also receive additional hours of instruction in new subjects that make learning more valuable, such as coding.

The IDB supports this ambitious reform agenda with technical assistance (financed by the Korean government) that seeks to implement **coding classes in 100 schools**, all of which are implementing the extended school day (Mateo and Iribarren, 2016). This additional time in school provides the space needed to introduce this new discipline in the formal education system, and promotes the development of transversal skills in highly vulnerable populations.

Thanks to the donation of 900 Albert robots from SKTelecom, one of the largest telecommunication companies in South Korea, **children in Paraguay will learn to code by playing.** Albert is a small, intelligent robot that has an Android smartphone as a brain and sensors to read customized coding cards. Children use the cards to program a series of commands for Albert to perform. It is a simple tool that motivates students to work in teams, develop critical thinking, enhance executive function, and improves problem-solving skills. These competencies are important not only to cultivate proficient students but are also critical to produce citizens capable of living fulfilled lives.

Despite such potential, the success of classroom ICT tools largely depends on whether teachers can facilitate such learning for their students effectively. Although Paraguay has promoted ICT inclusion in the education system by mandating its implementation through national policy,⁷³ much work must still be done to develop content and training teachers, especially when only 7% of teachers have received any in ICT-based pedagogy (MEC, 2013).

Given these circumstances, the pilot program will be implemented with the extensive collaboration of experts from the Korean Education and Research Information Services (KERIS). They will develop the learning materials and modify them for the Paraguayan context. KERIS experts will also equip the teacher workforce with flexible and creative pedagogical strategies to make use of available classroom resources (including non-technological resources) to teach coding. Additionally, to facilitate classroom dynamics, teachers will rely on assistance from secondary school students who will also be trained to support younger peers in the learning process.

An impact evaluation will measure the effects of the pilot program on learning for children from vulnerable families. The evaluation will yield critical evidence to enhance decision making regarding how to expand the program and take it to scale in the near future.

⁷³ Policy for the Incorporation of ICT in the National Education System (Política de Incorporación de TIC en el Sistema Educativo Nacional).

Highly skilled workers are thought to be more apt at generating ideas and adopting technologies to improve existing products or processes.

The rate of unemployment in the Caribbean is

31%

Code Caribbean: Creating the Next Generation of Caribbean Computer Specialists, Inventors, Innovators, and Engineers

The rate of innovation in the Caribbean region is relatively low. On average, 19% of Caribbean companies reported having engaged in some form of innovation in the past three years. Additionally, 35% indicated their intention to undertake technological innovation in the next two years, while only 10% of these currently house an innovation department (Khadan, 2018).

Innovation in a country or business requires human capital capable of producing and applying knowledge and ideas. In fact, studies have found that innovation at the business level is positively associated with workforce skills and training expenditure. Highly skilled workers are thought to be more apt at generating ideas and adopting technologies to improve existing products or processes. However, **Caribbean companies** have consistently identified an **“inadequately educated labor force,” as the primary impediment to enhance their performance** (Khadan, 2018b).

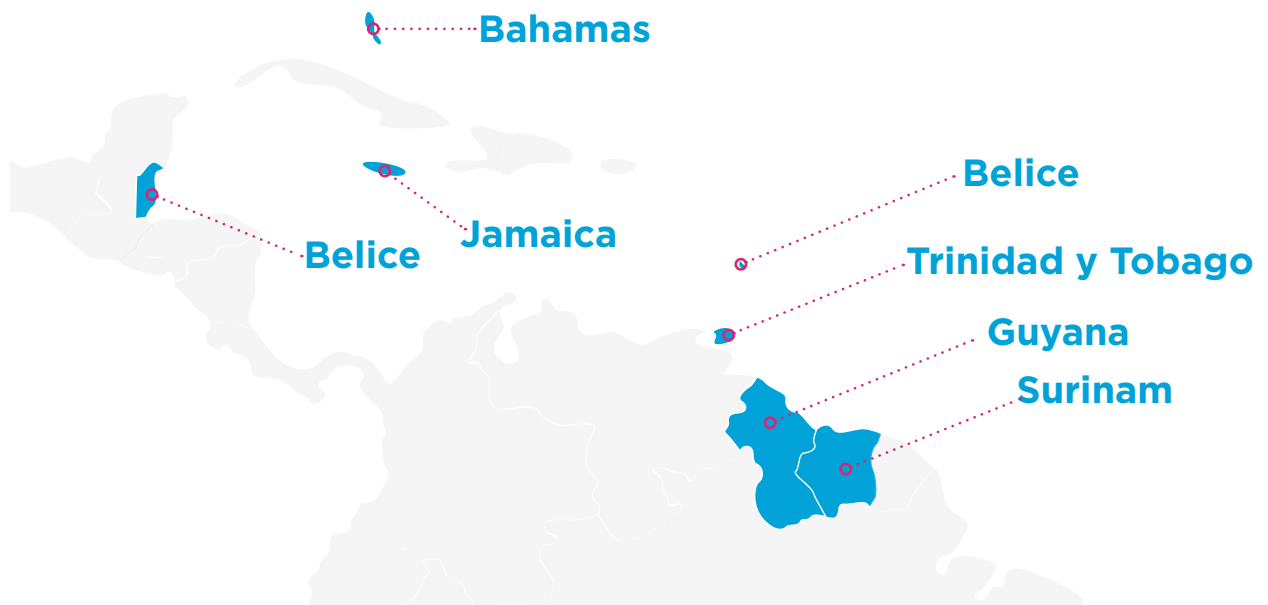
Even though governments throughout the Caribbean have prioritized education, learning performance is persistently low, and the gap between rich and poor students continues to increase. For example, in Trinidad and Tobago, a student from a high-income home tends to acquire 2.5 more years of education than their lower-income peer (PISA, 2015). Additionally, the region has a significant gender gap with females outperforming their male peers in science, mathematics, and reading, but they show little interest in STEM careers. Furthermore, there are weak ties between the private sector and the education system, resulting in a 31% unemployment rate, one of the highest in the world (Caribbean Development Bank, 2015).

To tackle these problems, the IDB has launched “Code Caribbean,” an adaptation of the “CodeNext” program developed by the MIT Media Lab in collaboration with Google. The purpose of the program is to expand and develop transversal, digital, and entrepreneurial skills among the most vulnerable Caribbean students and enhance employability in digital economies.

Code Caribbean offers learning experiences and coding curriculum content to prepare a future generation of computer specialists, inventors, innovators, and engineers. Participating students can acquire basic knowledge in computer science and become creative and computational thinkers.

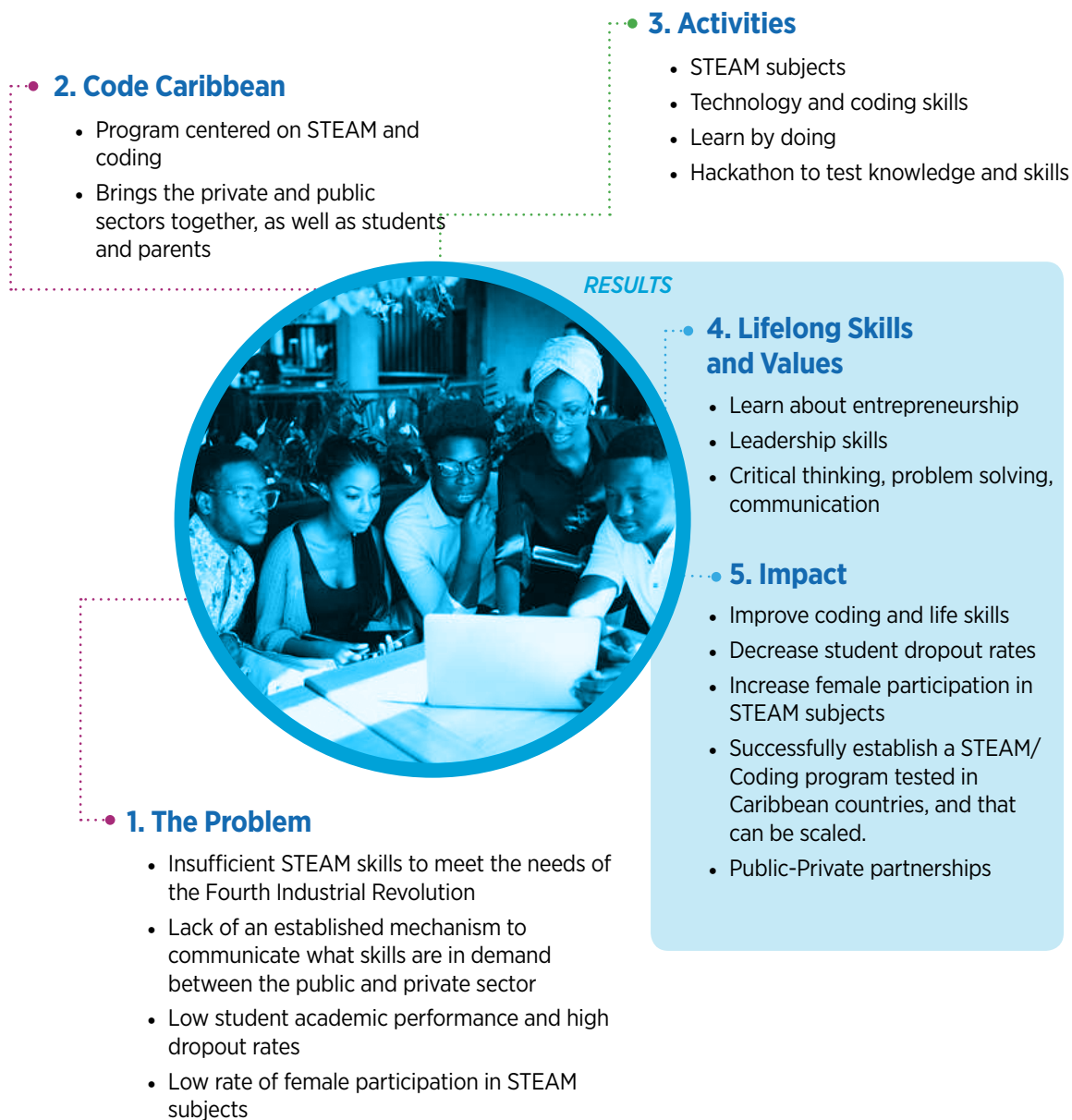
The seven countries participating in the program are The Bahamas, Barbados, Belize, Guiana, Jamaica, Surinam, and Trinidad and Tobago. Their participation will last two years and will roll-out in four distinct phases.

Countries Participating in Code Caribbean



- I. A diagnostic evaluation of STEAM and information and communication technologies (ICT) efforts will be carried out in secondary schools in the seven participating countries.
- II. Based on the results of this evaluation, two countries will be selected to implement a pilot program in a minimum of three secondary schools, resulting in the participation of 2,520 students between the ages of 13 and 16-years-old.
- III. An impact evaluation will be implemented to document the results and lessons learned.
- IV. The program will be scaled to the national and regional levels.

Classroom practices development will be planned according to the knowledge and skills obtained the previous semester. For example, students will begin with zero knowledge and subsequently learn coding languages like Python and Java. Classes will combine programming content with science-based subjects. As such, the program also includes scientific simulations to promote student interest in scientific careers and even includes a tutoring system to address gender-specific barriers and increase female interest in technology-related professions. Furthermore, the program includes a parent component to improve their appreciation of the importance of digital skills and technology-based careers.

Figure 9.1. How Code Caribbean Works

x3
The juvenile unemployment rate triples that of the adults.

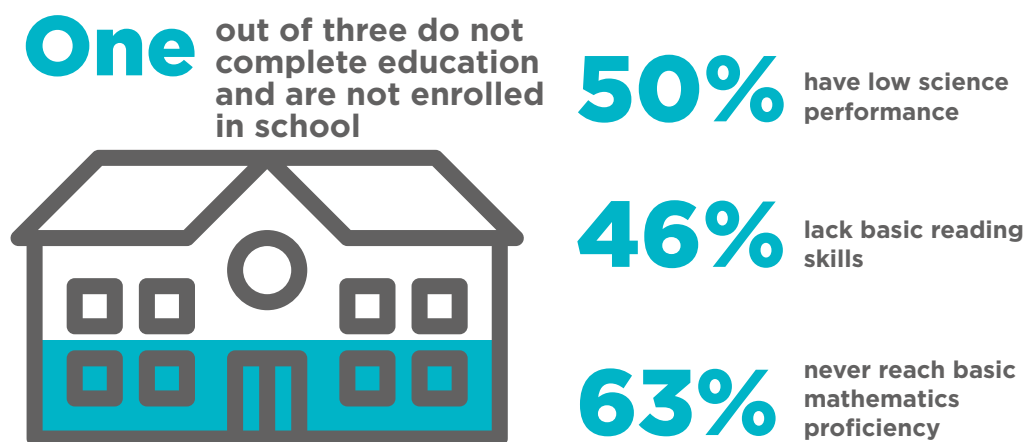
To guarantee the program's sustainability once the IDB financing ends, the Ministers of Education for the selected countries will identify local organizations responsible for program execution and training instructors in the "Code Next" methodology. Instructors can be advanced secondary school students and/or university students with interest in working with youth.

Digital Skills for Youth in the Labor Market

How is it possible that in a labor market where 50% of companies report unfilled vacancies due to lack of qualified candidates (CEPAL, 2017), the youth unemployment rate is 19.5%? (OIT, 2017). This rate, three times that of adults, means that in Latin America and the Caribbean, one in five youths looking for work cannot find it.

Latin America is a region of many youth. One in four Latin Americans is between 15 and 29-years-old, that is, 163 million youth who symbolize significant economic opportunities. Nevertheless, one-fifth of these youth work in the informal sector while another fifth neither study, work, nor train. It is precisely regarding the latter point where the imbalance between employer needs and youth unemployment resides.

Latin American youth abandon the education system far too early: one-third (43 million) have not completed secondary education and are not enrolled in school (CEPAL, 2017). Of those who graduate, 50% lack the basic skills to obtain employment (PISA, 2015). Half of the students have low science performance, 46% lack basic reading skills, and 63% never reach basic mathematics proficiency. Meanwhile, 80% of employers also mention that the most difficult skills to find are those relating to behavior and attitude (Bassi *et al.*, 2012).



Countries in the region need to strengthen education systems in two ways. They need to improve basic cognitive competencies and foster socioemotional skills that enhance employability. This will give students the tools to develop the capacity to adapt, organize, communicate, lead, and work in teams.

The following section presents interventions the IDB is developing to close the training gap that limits opportunities for millions of Latin American and Caribbean youth.

Neo: One Million Opportunities for Youth

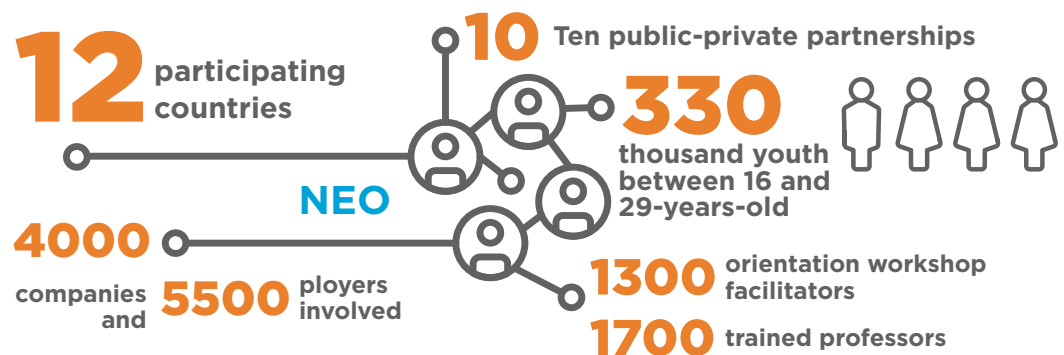
NEO was created to improve human capital and enhance the employability of vulnerable youth in the region. It is led by the Multilateral Investment Fund (Fondo Multilateral de Inversiones - FOMIN, in Spanish) of the IDB, the Labor Market division, and the International Youth Foundation (IYF). The program plans to benefit one million youth through public-private partnerships that close the gap between skills and labor market demands.

NEO revolves around five action items:⁷⁴

- 1 Create alliances** among businesses, government, and civil society to develop and implement projects that improve youth employment opportunities.
- 2 Improve the quality** of training and employment services by adhering to quality standards designed by the proper program.
- 3 Co-finance innovative** solutions that maximize the number of youth reached.
- 4 Mobilize employers** to offer more job-posts and internships.
- 5 Share** lessons learned through rigorous evaluations and publications.

With an investment of USD \$137 million (BID, 2019), we present the following results:

- NEO exists in **12 countries**.
- **10 public-private partnerships** to implement youth employment projects.
- **330,000 youth** between the ages of 16 and 29-years-old, half of them women, are preparing for employment.
- More than **4,000 companies** and **5,500 employers** committed to offering internships and work opportunities for youth.
- More than **1,300 professors, coaches, and facilitators** are conducting workshops in alignment with NEO Quality Standards.⁷⁵
- **1,700 professors** have been trained in innovative teaching methodologies.



Today, 60% of beneficiaries are employed within six to nine months of graduation. Half obtain formal labor with social benefits, and seven of every ten participants receive a salary equal to or above minimum wage.

Thinking beyond the numbers, NEO is helping transform the lives of Latin American youth. These are young people who live in vulnerable situations with few opportunities to access education, formal work, or respectable salaries.

⁷⁴ <https://www.youthneo.org/WhatWeDo.aspx>

⁷⁵ NEO standards include training in vocational orientation services, labor market entry, and socioemotional skills.

Uruguay: Youth Programming!

Technology is present in each and every action and endeavor in nearly every aspect of our daily lives. Software has become a subject of vital importance, both in terms of how it works and its parlance, and thus programming language must become accessible to all people. Given that, as with any complex subject, it requires practice and a basic grasp of mathematics and reading comprehension. However, learning to program is more viable than we can imagine.

One of the main objectives of **Youth Programming** (JAP⁷⁶), an initiative by Uruguay's Ceibal Plan supported by Uruguay's Chamber of Information Technology and the IDB Lab, is **to dispel myths that only geniuses who are trapped behind a computer screen can do programming.**

The program, which started in 2017, trains youth 18 to 30-years-old in programming (Genexus, .net, Python), web development and troubleshooting, and has already amassed more than 1,400 participants.

JAP is a **free training program** for youth who have completed a basic middle school education. It operates with the goal to awaken their interest in technology and enhance their employability in ICT sectors. These youths must qualify for entry by passing an exam that measures basic mathematical, logical thought, and literacy skills. The training consists of three basic elements: technical training, socioemotional skills, and English. The program is blended and uses videoconferencing to reach all regions of Uruguay.

One of the program's strong points is that **facilitators are employees of the world's most prominent technology companies and professionals with experience in the topics they teach.** As such, they have in-depth knowledge of how their respective sectors function and are always up-to-date on which skills are in demand to enter the labor market. The program also **offers labor intermediation services** that make students familiar with the technology sector environment and culture as well as manage and broker employment opportunities.

Passion, desire, and commitment are the characteristics most often mentioned by employers as the traits that distinguish successful JAP candidates. That's not a coincidence, as passion, desire, and commitment are all that is needed to begin to speak the language of the future.

EmpleaTECH: The Most Effective Link Connecting Training to Employment.

What happens when an institution like the IDB joins forces with a technology giant, a leading NGO that specializes in youth job training, and an expert company in talent and human capital management?

The answer is EmpleaTECH, an initiative that aspires to train 2,400 youth over the next three years and ensure that 50% of them are either employed or launching a business in that time frame. The initial program implementation in Guatemala, El Salvador,

⁷⁶ For its Spanish acronym "Jóvenes a Programar." To learn more, visit: <https://www.jovenesaprogramar.edu.uy/>

and the Dominican Republic has shown that it has the potential and capacity to be replicated in any country in the region. The project seeks to cultivate innovation and employment for youth in vulnerable contexts in the knowledge economy.

The \$3 million investment to support the initiative was introduced in late 2018 by its most prominent advocates: The Multilateral Investment Fund (FOMIN), the Junior Achievement Americas NGO (JA Americas), SAP, one of the largest technology companies leading business management software solutions, and ManpowerGroup, which will collaborate as a strategic partner in youth entry into the labor market.

The *EmpleaTECH* proposal is a combination of initiatives developed by contributors such as the educational program Latin Code Week (LCW), which promotes learning content that fosters lifelong skills, negotiation skills, and proficiency in technology use. It incorporates sessions on Design Thinking, SAP product and tools training (Business One and Fiori), English classes, and training in open-source coding such as HTML. These provisions seek to prepare participants to be hired as technology consultants.

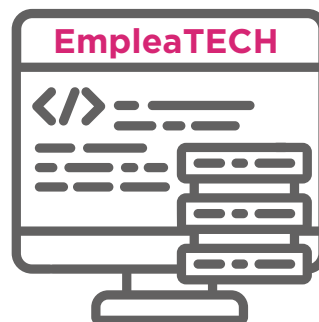
Having completed the first phase of this innovative work, which connects training with labor market needs, we can now provide evidence of its effects on 628 graduates from the first year of implementation.

29%

of graduates have completed work internships, and

10%

have stable employment.



768

youth started training and, within a few months, began to enter the labor market.



Approximately

60%

of beneficiaries are women.

I Am the Change: Training the New 21st-Century Workforce

Would deactivating a bomb make you more employable? What role does blockchain technology play in optimizing youth employment? Can geckos help foster socioemotional skills?

The boys and girls enrolled in “I Am the Change” (“Soy Cambio”), a Monge Foundation initiative, know that the answer is “yes.” With augmented reality goggles, they can deactivate bombs, blindly trusting their peers and learning the benefits of teamwork first-hand. As for Geekonia, a virtual reality game consisting of six episodes, small lizards teach important skills like critical thinking, teamwork, communication, and problem solving. Finally, blockchain technology allows students to secure their registration information and ensure the authenticity and permanence of all certifications (coursework, internships, employment, etc.) to communicate skills to the labor market easily.

These initiatives are all part of the **project “fostering skills in the knowledge economy labor market,”** which seeks to serve as an employment training and placement program. It is based on virtual reality and gamification, and is aimed at Costa Rica’s vulnerable youth between 16 and 20-years-old. The program provides recipients with the opportunity to develop technical and socioemotional skills that enhance the future workforce in rigorous knowledge sectors.

The project will benefit 800 students from vocational high-schools (500), academic high-schools (250), and participants of the “I Am the Change” program who specialize in advanced manufacturing (50). A primary objective of these programs is to construct and share a youth employment model that contributes to the creation and improvement of public policies in Costa Rica and throughout the region.

In addition to cultivating 21st-century competencies and skills, the programs offer youth economic assistance and mentoring, technical certification in manufacturing and English (level B2 certification), monitoring and accompaniment throughout the program, site visits to relevant businesses, and guidance and advice for labor market entry and assimilation. Finally, the program hopes to place 680 youth in businesses connected to advanced manufacturing.

“I Am the Change” is another step in a journey that the Monge Foundation has been undertaking for many years through its Program for Student Leadership and Employability. This initiative seeks to improve conditions and increase opportunities for youth in Central America by encouraging participants to complete secondary education, choose a technical career, compete in the labor market, and ultimately improve their chances to break the cycle of poverty.

The program revolves around three core axes: an economic one, which offers living assistance conditioned on permanence and performance in the program as well as compliance with other responsibilities; the second which focuses on monitoring and accompaniment, to identify and intervene in situations where the risk of dropping out of the program is high; and the third is employability wherein students are coached to improve their resume (e.g., acquiring 21st-century competencies, English proficiency, and technical experience), and facilitate entry into the labor market.

Making Dreams a Reality

This is the case for Valeria who completed culinary studies and used the money she earned while working at a coffee shop to become a laboratory technician. Now, she takes care of her home, studies with the Red Cross, and is completing a residency in a hospital. Or in the case of Luis, who went from looking at boats and dreaming of driving cranes in the harbor, to being a proud electric handcar driver. And Yanina’s dreams, which thanks to skills acquired through participation in the Forge Foundation, came true when she doubled her salary after being promoted at a hospital from a waitress at a coffee shop to a receptionist.

To be able to see life through a different perspective, learn to ask questions, to listen and believe in yourself. These are just some of the things that young participants learn when they join the **Forge Foundation Certification and Work Program to help them understand the workplace environment and have confidence during interviews. This**

program places socioemotional skill development, as well as positive habits and behaviors, front and center in preparing young people to enter the workforce.

The program helps at-risk youth between the ages 16-22 to build bridges that connect education to secure employment in five Latin American countries: Argentina, Chile, Mexico, Peru, and Uruguay.

The focus of the program is to develop socioemotional skills such as communication, teamwork, presentation, competency and self-management in learning, and problem solving, among others. Furthermore, it includes basic technical training components that allow beneficiaries to access distinct fields and markets.

Throughout the program, young people encounter different challenges that improve their performance incrementally as they pass through new levels. By advancing, participants build self-esteem, work in groups, conduct self-reflection, and plan personal projects. They also receive training and a variety of resources, including company visits, workshops, and mock interviews. The goal is to turn students into viable job market competitors.

8.120
students trained,
60%
of whom were women.

In the last level of training, participants begin to apply for jobs with the help of mentors who provide personalized assistance throughout their education and integration into the workforce and support them while employed.⁷⁷

A recently presented impact evaluation proved that contracting youth participating in the program saved companies US\$2,500 per employee per year due to their high productivity, among other things.

The program is free for participants and companies, and it complements formal education, promoting its continuity. In fact, many participants have gone on to pursue university degrees after completing secondary education.

During the 2018 program implementation, 8,120 students graduated from the program, and of these, 60% were women, which represents a four-fold increase in just six years.

With support of the IDB Lab, who they recently agreed to collaborate with, Forge is digitizing operations to offer the program through blended and e-learning platforms that can reach more than 100,000 young people with disruptive technologies.

Closing the Gender Gap

Throughout history, women have contributed significantly to science and technology advancements. They have contributed to discoveries in physics, mathematics, chemistry, and computer science. But the majority of these contributions have gone unacknowledged. Did you know it was a woman, [Ada Lovelace](#), who laid the foundations for programming language? Without another woman, Hedy Lamarr, we would not have Wi-Fi? (Binder, 2019) Nevertheless, the former went under an alias to publish her ideas while the latter could “only” secure her place in history as one of the most beautiful actresses in the world.

⁷⁷ <https://fondationforge.org/que-hacemos/el-programa/>

The most famous and recognizable names in the digital revolution are Mark Zuckerberg, Bill Gates, and Steve Jobs. This is not surprising, because for many it is clear that men, generally white and middle-class, have dominated the technology world. **Where are the women? Are they not interested in technology? Or do they lack the required skills to support and develop new technologies?**

The lack of female visibility and the stereotypes associated with women in tech careers are only some of the barriers that currently impede the aspirations of girls and participation of women in technology industries. Despite numerous efforts to promote their participation, the gender gap continues to grow.

Looking closely at the statistics, **only 35% of STEM students in higher education globally are women** ([UNESCO, 2017](#)). **As for the Latin American technology labor market, the proportion drops to only three women in every ten STEAM workers.** Female participation rates are even lower in Bolivia, where only one of every 10 STEAM workers are women. In Ecuador and Paraguay, these numbers are only slightly better, where nearly two of every ten such employees are women (Sánchez, 2019).

38%

of the total skills demand in Latin America is related to computational professions, and

1.25 millones

million developers are needed by 2025.

Computational professions represent 38% of the total skills demand in Latin America, and it is estimated that by 2025, the region will need more than 1.25 million developers (Henríquez and Suazuábar, 2017). We are talking about only six years! And if we continue down the current path, men will take advantage of nearly these opportunities.

At a time when digital skills are increasingly more important, the world cannot afford to deprive itself of women's talent.

Allowing women to access science and technology-based fields where they are severely underrepresented would enhance their access to economic, political, and social rights. For example, IT engineers are among the most well-paid professions in telecommunications.

Throughout history, women have contributed significantly to advances in science and technology, but most of these contributions have gone unnoticed.

What are we doing in the region to level the playing field?

The following section presents a variety of projects that combine education and technology to improve employability for women, particularly those who previously did not have access to quality education.

Valentina: A Rocket Ship of Opportunities for Guatemalan Youth

On June 16, 1963, Valentina Tereshkova made history when she became the first female to travel to space. Today, the Guatemalan program named in her honor offers vulnerable youth the opportunity to receive training, certification, and find high-quality employment in the technology sector.

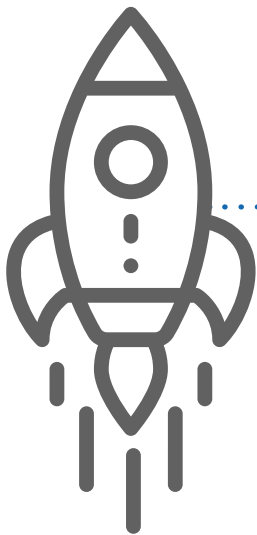
The ICT sector in Guatemala has experienced rapid growth. In the last 15 years, 30,000 jobs have been created, and an additional 100,000 are expected in the near future (AGEXPORT, 2011). Despite these trends, only 163 schools out of 34,000 have access to the internet, and merely 4,000 have technology in the classroom (FUNDESA, 2019).

Technology evolves quickly, and education systems ought to keep pace. One of the Valentina Program's fundamental goals is to **minimize the gap between youth**

competencies and technology industry needs. The Sergio Paiz Andrade Foundation (FUNESPA) created the program.

Young people between the ages of 16 and 24 must have a basic proficiency in English, have ambition, a positive attitude, and commitment. For three months, they receive training in socioemotional (80%) and technical skills (20%). Since launching in 2014, **Valentina have become Guatemala's most impactful and innovative program in terms of training, certification, and job placement in the tech industry.**

Over the last two years, the program has awarded nearly 700 certificates to youth, of whom 60% were women, and have found high-quality jobs (jobs that pay at least twice the minimum wage) for 240 participants. The program is taught in six different national locations: Guatemala City, Sacatepéquez, Suchitepéquez, Alta Verapaz, Chimaltenango, and Totonicapán. Its scalability and sustainability are bolstered by a pay-it-forward economic model, meaning that there is no risk for either youth participants or contracting companies for two reasons: First, they only pay if a youth is employed at their company. Second, they receive funds to train five more participants for each placed youth.



700

youth certified by
Program Valentina

60%

are women

240

found high-quality
employment

It has been 56 years since one woman broke the mold, had confidence in her talent, and turned a deaf ear to those seeking to dissuade her. She mounted a rocket ship and launched into history. Today, the women of Guatemala who pass through the organization that bears her name are also called Valentinas because, in many ways, they are also being launched in a rocket to success.

Laboratoria: Women Programming Their Future

When Mariana Costa, a young Peruvian entrepreneur, joined two partners in founding a web development agency in Lima, she noticed two things. First, **it was not easy to find web developers in the country**, and second, that **women were scarce in the technology sector**. Why was this the case? Of course, there are ubiquitous stereotypes that society holds (even women) that say women are not adequately prepared to thrive in the technology sector. **Education** also plays a role, as the education system has yet to adapt to the dynamic changes brought on by the technology revolution.

Mariana decided to take a shot at solving the problem. She wanted to show that women born to few educational or employment opportunities could become web designers in as short a period as four months. Moreover, she wanted to prove herself and show that these young women could get an internship at a technology company,

Laboratoria has shown that women born with few educational or employment opportunities could become web designers in as short a period as four months.

thus starting a career with exponential success (TED, 2015). This is how **Laboratoria was born. It's a learning space, a place for creation and experimentation for young women with limited access to resources.**

In 2014, with help from friends and a lot of determination, they launched a pilot version of the program with six young women who did not even know what an internet browser was. They quickly learned the **transformational potential of acquiring technology skills.** The young women began feeling empowered as they observed their initial progress. **They gained confidence.** For the first time in their lives, they felt that the future was in their hands. They had a superpower. **They learned values that they could incorporate into their lives and those of their families and communities.** **The program decided to make personal transformation a fundamental component** (TED, 2015).

Today, five years after the initial pilot, Laboratoria has five headquarters in four countries (Mexico City, Guadalajara, Lima, Santiago, and Sao Paulo). During this time, they have trained more than 800 women with an 80% job placement rate and can count on more than 200 client companies who employ talent directly from the program.

+800 women
trained in
Laboratoria

+200 companies
contract
graduates

They identify and select young women who show potential and train them to become web developers or user experience (UX) designers. Participants take an intensive six-month seminar where they create more than 40 web products and develop the technical and socioemotional skills needed to work in highly productive technology teams. Finally, they organize a job-fair where companies come to recruit talent.

The Latin American technology sector is undergoing a moment of expansion that has the potential to be a significant source of opportunities for women in the region. The benefits are mutual, because no sector that wants to thrive can exclude 50% of the region's talent from their workforce. Laboratoria knows this and is going to show it to the world.

Advanced Digital Skills: New Ways of 21st-Century Learning

Advanced skills have been the focus of much of the IDB's work in developing digital skills. The skills needed to turn on a computer, send an email, or navigate a web page are considered important for the general population. They open the doors to an increasingly diversified world of activities and services offered in the digital world.

As previously mentioned, **advanced digital skills** are related to **programming to develop software, applications, network management, open data, machine learning, cybersecurity, the internet of things (IoT), and blockchain technology.** For a long time now, these skills have been considered extremely sophisticated and accessible exclusively to small groups of software engineers and academics. This is no longer the case.

In a recent report, Burning Glass Technologies revealed **an increasing labor market demand for computational skills**. In terms of remuneration, computational skills make up 60% of the highest-paid competencies as well as the one with the most growth, particularly in these five areas: data analysis, manufacturing and engineering, design, marketing, and information technology (IT). Given these trends, it's surprising that only 18% of job announcements in these five areas require a degree in computer science (Restuccia, Liu, and Williams, 2017). This opens a world of possibility for workers with different training backgrounds who, by acquiring the demanded digital skills, can take advantage of opportunities to participate in the technology labor market.

But **traditional institutions that provide digital skills training**, such as universities and some non-university institutions, **do not seem to have the critical mass nor the flexibility to solve the digital skills shortage problem**.



This has created a market niche for those who practice unconventional training methods. The emergence of these new actors, often in partnership with government, business, or traditional education institutions, is only just beginning, particularly in Latin America. However, their relative novelty and unconventionality does not preclude that these new training methods are worse than traditional ones. Some have extremely high potential. In the following section, we analyze one of these: the well-known **coding bootcamps**.⁷⁸

Coding Bootcamps

You could say these are skill accelerators. They are intensive programs, ranging in duration from three to six months, that offer training in the fundamental practices of computer coding and the digital skills related to these practices. It is a hands-on learning environment that combines traditional vocational training with socioemotional and technology skills to train students for employment in entry-level tech positions (Mulas et al., 2017).

In the technology industry, bootcamps are founded on a relatively familiar concept, and professionals frequently attend them for specialization, as is the case with programming language, for example. Yet, in the last few years, the phenomenon has become increasingly important and associated with a new concept: coding bootcamps for people outside the industry with little experience in coding. These programs have spread rapidly throughout the world. Generally, they consist of intensive seminars provided by commercial or social businesses operating outside of the formal education system of the countries in which they operate (UIT, 2016, 2018). Some bootcamps are considered training startups that seek to disrupt the technical education market by utilizing innovative technologies and radical business models.

Are Bootcamps Effective?

It is relatively early in the development of **this phenomenon to have reliable evidence from randomized trials**. In 2018, the World Bank made the first attempt to conduct an impact evaluation of one of the more “veteran” coding bootcamps, located in Medellín, Colombia, and now in its fourth year of operation. The evaluation produced

⁷⁸ The rest of this section is based heavily on the IDB publication: Cathels, A. & J.C. Navarro “Disrupting Talent.” <https://publications.iadb.org/en/disrupting-talent-emergence-coding-boot-camps-and-future-digital-skills>

inconclusive results due to the methodological challenges of evaluating a relatively new program with few graduated participants.

Nevertheless, results from other sources give cause for optimism:

The job-search website Indeed conducted a 2017 survey with 1,000 human resource managers and recruitment specialists in different United States companies to ask what they thought of employees recruited from bootcamps. Nearly 80% of survey participants had contracted employees straight from bootcamps to work in the technology sector. Of these, 99.8% said they would return to look for new employees at bootcamps. In general, these employers appear to be satisfied with the work performance of bootcamp graduates and even compare them favorably to computer scientists with college degrees (Indeed, 2017). Specifically:

- **72%** claimed that the work performance of bootcamp graduates was equal to those with a bachelor's degree in computer science.
- **12%** indicated that bootcamp graduates outperformed their peers with a bachelor's in computer science.

The bootcamp graduation statistics are surprising, especially considering that not all come from the computer science field, even if a significant proportion do. The statistics for well-paid job placement are equally impressive, as employment rates for nearly all graduating cohorts have exceeded 80% in the first two months.

Of course, there is always some **skepticism**. Some people claim that bootcamp job-placement results are exaggerated. It is important to interpret the results with caution. For example, according to a 2018 Stack Overflow survey of software developers, approximately 45% of bootcamp enrollees claimed to have worked as developers before attending the bootcamp (Swanner, 2018). Jay Wengrow, executive director of Actualize, is very critical of the idea that coding skills can secure immediate job placement. He points to some of the most important coding boot camps in the industry, and the case of Flatiron, which received a substantial fine for augmenting their statistics to show higher job-placement rates than those observed (Wengrow, 2018).

Given the importance of reliable statistics, the bootcamp industry has implemented mechanisms to control information quality – a compelling case in which an industry seeks to regulate itself. As such, nearly half of the most prominent coding bootcamps (identified per quality standards set by [SwitchUp.org](https://switchup.org)) have their results verified by a third-party inspector. In 2014, SwitchUp began assisting prospective students in considering and deciding among the different training programs available. This important industry development represents the arrival of a quality control mechanism that does not originate from the public sector. Rather, it is a result of market pressures and their influence on the industry.

One of the resources SwitchUp offers is to rank coding bootcamps. To be considered for the 2019 rankings, coding bootcamps needed to offer professional orientation services, have at least 30 verified reviews from students and alumni, and be rated

at least four of a possible five-star ranking at the time of publication. Though some healthy skepticism is justified, coding bootcamps provide a model to offer digital skills worth consideration.

Latin America Bootcamps and the Role of the IDB and IDB Lab

The presence of bootcamps in Latin America is still limited,⁷⁹ though there are signs that the situation could change rapidly.

Accelerating the spread of this type of training model represents a substantial challenge for public policy, which could protect social and economic interests in at least two ways:

- Create public policies to attract bootcamp initiatives (local and international) to cities and countries throughout Latin America and the Caribbean.
- Create conditions (e.g. scholarships) in which students who are attracted to and accepted in coding bootcamps can receive financial aid, thus enhancing social and gender diversity in the digital talent pool.

For this reason, countries throughout the region can find inspiration in public policy precedent from developed countries that have made some advancement in these regards. Meanwhile, private initiatives seem to be moving in the direction of general bootcamp development. At least, this is what a recent competition by IDB Lab seems to demonstrate. They received entries from 50 different candidates from virtually all Latin American and Caribbean countries.

Therefore

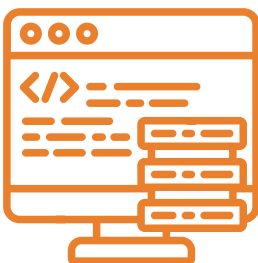
As long as computer technologies advance, the Bank will continue to provide technical and financial support to the region. This will support public policies and program implementation to promote digital skills acquisition for future generations, the existing workforce, and an underutilized talent pool disconnected from the labor market.

The well-known Fourth Industrial Revolution cannot take us by surprise. **Governments, the private sector, and civil society need to share responsibility to guarantee that advances in technology do not increase economic inequality.** They must ensure that less-qualified workers are not left out of the workforce at rates similar to the way new phones quickly become outdated.

Also, technology and digital literacy must help society strengthen ties and build bridges that connect marginalized people, their problems, and the entities that can help solve them. Putting technology and innovation at the service of people and communities in need has never been more probable. It will be even more probable if we can equip youth with advanced digital skills and have them be:

1. Motivated to seek professionalization throughout their lives.

Technology and digital literacy must allow society to strengthen ties and build bridges between marginalized people, their problems, and the entities that can help to solve them.



⁷⁹ A 2018 review showed less than six bootcamps in Latin American and the Caribbean (compared to more than 300 at the international level).

2. Prepared to adjust to the nature of change in the workplace.
3. Committed to playing a significant role in their communities.

This way, we can reduce the skills gap, generate inclusive and more productive labor markets, and develop [new economies](#).

Digital skills:

- Are a **new language** and we must learn to ride the wave of opportunities brought on by the digital era.
- Are **necessary** in all professions and demanded at all business levels.
- Are the **heart of innovation** and they transform us into producers and critical consumers.
- Are an **opportunity** to close the gender gap and increase female participation in new economies.
- Are **disruptive** and they are changing traditional training models and facilitating access to education for millions of people.

References

- Accenture. (2018). *América Latina: habilidades para el trabajo en la era de las máquinas inteligentes*. Retrieved from <https://www.accenture.com/t00010101t000000z w / ar-es/ acnmedia/pdf-79/accenture-latam-workers-pov-esp-final.pdf>
- AGEXPORT (Guatemalan Export Association). (2011). *Guatemala: Sede del talento digital*. Retrieved from <http://portal.export.com.gt/portal/competitividad/Cap0IndiceCartadePresentacionResumenEjecutivo.pdf>
- Bassi, M., Busso, M., Urzúa S. & Vargas J. (2012). *Disconnected: Skills, Education, and Employment in Latin America*. Retrieved from <https://publications.iadb.org/publications/english/document/Disconnected-Skills-Education-and-Employment-in-Latin-America.pdf>
- Binder, I. (2019). Capítulo 1: La tecnología (también) es cosa de mujeres. Retrieved from <https://radioslibres.net/la-tecnologia-tambien-cosa-de-mujeres/>
- Caribbean Development Bank. (2015). *Youth Are the Future: The Imperative of Youth Employment for Sustainable Development in the Caribbean*. Retrieved from <https://www.caribank.org/publications-and-resources/resource-library/thematic-papers/study-youth-are-future-imperative-youth-employment-sustainable-development-caribbean>
- CEIBAL. (2017). *¿Qué aporta el aula al pensamiento computacional?* Retrieved from <https://www.ceibal.edu.uy/es/articulo/que-aporta-al-aula-el-pensamiento-computacional>.
- Deloitte Digital. (2015). *Building Your Digital DNA: Digital Transformation in Progress*. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/be/Documents/technology/deloittedigital/Deloitte-Digital-BE_Building-your-digital-DNA_download_HR.pdf
- FUNDESA (Guatemala Foundation for Development). (2019). Retrieved from <http://fundesa.org.gt/blog/237-valentina>
- Gurises Unidos. (2017). *Pensamiento computacional: Un aporte para la educación de hoy*. Retrieved from <http://www.gurisesunidos.org.uy/wp-content/uploads/2017/11/PensamientoComputacional.pdf>
- Henríquez, P. & Suazuábar, C. (2017, December). De átomos a bits: ¿Cómo navegar la transformación digital en América Latina? *Blog Puntos sobre la i*. Retrieved from <https://blogs.iadb.org/innovacion/es/trasformacion-digital-en-america-latina/>
- Indeed. (2017, May). What do Employers Really Think about Coding Bootcamps? *Indeed Blog*. Retrieved from <http://blog.indeed.com/2017/05/02/what-employers-think-about-coding-bootcamp>.
- International Labour Organization (ILO). (2017). *2017 Labour Overview of Latin America and the Caribbean*. Lima, Peru. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_618120.pdf

Inter-American Development Bank. (2019). *Report on the NEO Initiative 2018*. Retrieved from <https://publications.iadb.org/en/2018-report-neo-initiative>.

ITU (International Telecommunications Union). (2018). Digital Skills Toolkit. *Digital Inclusion*, ITU. Ginebra, 2018. Retrieved from <https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/ITU%20Digital%20Skills%20Toolkit.pdf>

Khadan, J. (2018). *Estimating the Effects of Human Capital Constraints on Innovation in the Caribbean*. Retrieved from <https://publications.iadb.org/en/estimating-effects-human-capital-constraints-innovation-caribbean>.

Khadan, J. (2018b, August). How Much do Workforce Skills Matter for Innovation in the Caribbean? *Caribbean DEVTrends Blog*. <https://blogs.iadb.org/caribbean-dev-trends/en/8925/>

Mateo, M. & Iribarren, M. L. (2016, March). ¿Cuáles son las ventajas de la jornada escolar extendida? *Enfoque Educación Blog*. Retrieved from <https://blogs.iadb.org/educacion/es/paraguay-jornada-escolar-extendida/>

Mulas, V., Paradi-Guilford, C.M., Allende Letona, E., & Dalphond, Z. V. (2017). *Coding Bootcamps: Building Future-Proof Skills Through Rapid Skills Training*. Retrieved from <http://documents.worldbank.org/curated/en/795011502799283894/pdf/118627-WP-PUBLIC-P163475-78p-CodingBootcampsFutureProofSkills.pdf>

Mulgan, G. (2016). *Lifelong Learners*. Retrieved from www.nesta.org.uk/feature/10-predictions-2017/lifelong-learners.

Muruzábal, C. (2018, March). *For Latin America to Thrive in the Digital Era, It Must First Teach Minds, then the machines*. *World Economic Forum on Latin America*. Retrieved from <https://www.weforum.org/agenda/2018/03/here-s-how-latin-america-can-thrive-in-the-digital-era/>

OCDE/CEPAL/CAF. (2016). *Latin America Economic Outlook 2017: Youth, Skills, and Entrepreneurship*. OECD Publishing, Paris. <https://doi.org/10.1787/leo-2017-en>.

Orlik, J. (2017). *Delivering Digital Skills: A Guide to Preparing the Workforce for an Inclusive Digital Economy*. London, United Kingdom. Retrieved from https://readie.eu/wp-content/uploads/2018/04/Delivering-Digital-Skills_Large-file_1904-1-2.pdf

Pavón, F. (2018, May). Se buscan trabajadores con habilidades digitales. *Factor Trabajo Blog*. Retrieved from <https://blogs.iadb.org/trabajo/es/se-buscan-trabajadores-con-habilidades-digitales/>

Restuccia, D., Liu, P.C., & Williams, Z. (2017). Rebooting Jobs: How Computer Science Skills Spread in the Job Market. *Burning Glass Technologies*. Retrieved from <https://www.burning-glass.com/research-project/rebooting-jobs/>

Sánchez, D. (2019, June). Mujeres en tecnología, una cuestión de programación. *Factor Trabajo Blog*. Retrieved from <https://blogs.iadb.org/trabajo/es/mujeres-en-tecnologia-una-cuestion-de-programacion/>.

Stack Overflow (2018). *Developer Survey Results 2018*. Retrieved from <https://insights.stackoverflow.com/survey/2018/#company-type>

Swanner, N. (2018, March). *Many Bootcamp Grads Have Trouble Finding Jobs: Survey*. Dice. Retrieved from <https://insights.dice.com/2018/03/14/bootcamp-grads-trouble-finding-work>

Switchup.org. (2018). *The Best Resource for Tech Bootcamps*. Retrieved from www.switchup.org.

TED [Mariana Costa]. (2015, May 29). *Desarrolladoras: una oportunidad de desarrollo*. [Video file]. Retrieved from <https://www.youtube.com/watch?v=auX2U98aAaU>.

Umoh, R. (2017, November). *Why IBM Wants to Hire Employees Who Don't Have a 4-Year College Degree*. CNBC. Retrieved from www.cnbc.com/2017/11/07/why-ibm-wants-to-hire-employees-who-dont-have-a-4-year-college-degree.html

Wengrow, J. (2018, February). *The State of Coding Bootcamps in 2018*. *LinkedIn*. Retrieved from www.linkedin.com/pulse/state-coding-bootcamps-2018-jay-wengrow

World Bank. (2018). *Coding Bootcamps for Youth Employment: Evidence from Colombia, Lebanon, and Kenya*. Retrieved from <http://documents.worldbank.org/curated/en/274491523523596058/pdf/125169-WP-P156294-PUBLIC-decoding-bootcamps.pdf>



CHAPTER 10

Music Programs

By Suzanne Duryea

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Music for Life: The Transformative Power of Music

In 2008, Venezuela's National System of Youth and Children's Orchestras received the Prince of Asturias Award for the Arts for a project that achieved the highest artistic quality with deep ethical conviction for the improvement of the social reality. They trained the highest-level conductors and interpreters driven by confidence in the educational value of music for human dignity (Princesses of Asturias Foundation, Jury Record, 2008).

As the region continues to battle high dropout rates and teen pregnancy, as well as one of the highest rates of youth violence in the world, music programs are a promising vehicle to keep children and youth on a positive route to success.

Today, with these same ideals in mind, a growing consortium of **music programs serving children and youth** define **music education** with broad **objectives that promote socioemotional skills development to encourage social inclusion**. Learning about music and how to interpret it, in this case, is more a path than a destination. It is a path that brings us closer to creating a better society.

As you have seen in previous chapters, socioemotional skills are critical to keeping youth on positive school and career trajectories. As the region continues to battle high dropout rates and teen pregnancy, as well as one of the highest rates of youth violence in the world, music programs are a promising vehicle to keep children and youth on a route to success.⁸⁰ This chapter examines how music and musical education can contribute to cognitive and socioemotional skills (Section 1), reviews the evidence (Section 2), and analyzes various programs developed in Latin America (Section 3).

Virtuosos Beyond Musical Performance: Music Education Improves Cognitive and Socioemotional Skills

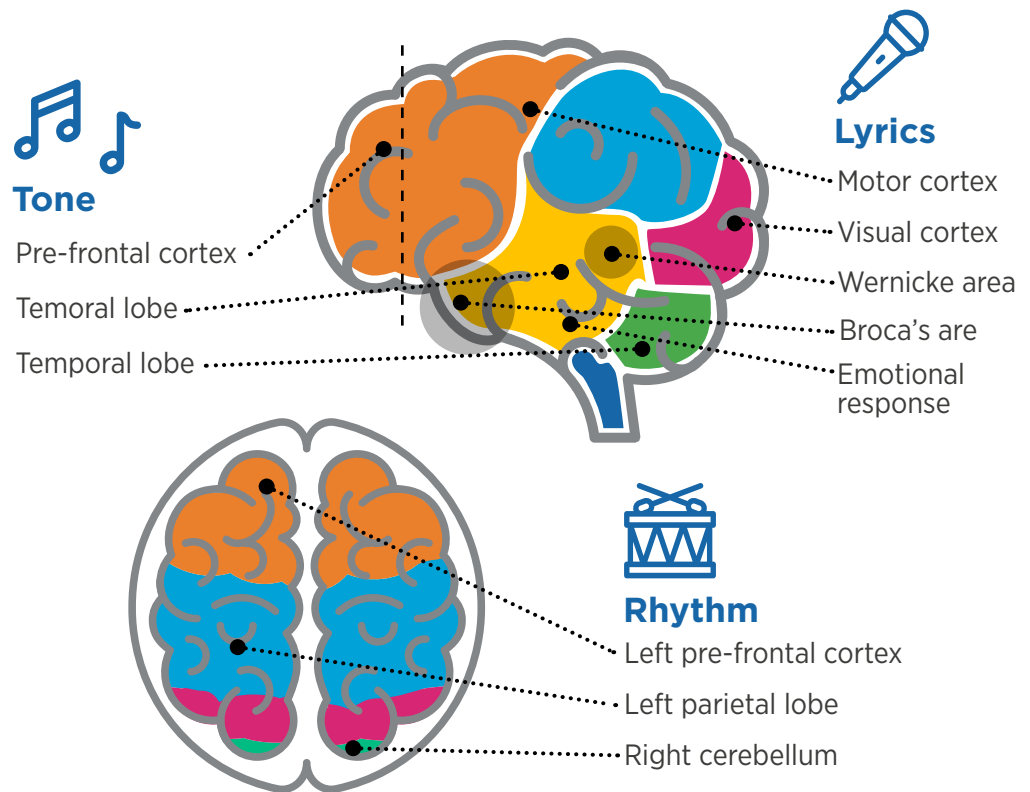
What Does Music Do to Your Brain?

Magnetic resonance imaging scans have shown that participation in music programs changes neural networks, increases brain plasticity, and produces conditions that improve skill acquisition.

For a long time, **parents, teachers, and academic experts have touted the benefits that playing an instrument has on academic skills** (particularly memorization, mathematics, and language). Playing music requires shifting between tasks.⁸¹ Doing so, one develops mental flexibility associated with the capacity to adapt cognitive functions (Diamond, 2013). Advances in neuroimaging have allowed us to see how brain structure changes when we participate in musical activities. Through magnetic resonance imaging (MRI), scans have shown that participation in music programs changes neural networks, increases brain plasticity, and produces conditions to facilitate improved skill acquisition. These activities produce “near- transfer” learning (directly related to the activity) such as fine motor skills associated with playing an instrument and “far- transfer” learning (the capacity to solve problems outside the scope of initial learning), such as mathematics and verbal skills (Hyde *et al.*, 2009).

⁸⁰ This chapter focuses on socioemotional skill development rather than on musical training. Academic literature has not evaluated the impact of different approaches to musical education.

⁸¹ Task switching is an executive function that involves the ability to shift attention from one task to another subconsciously.

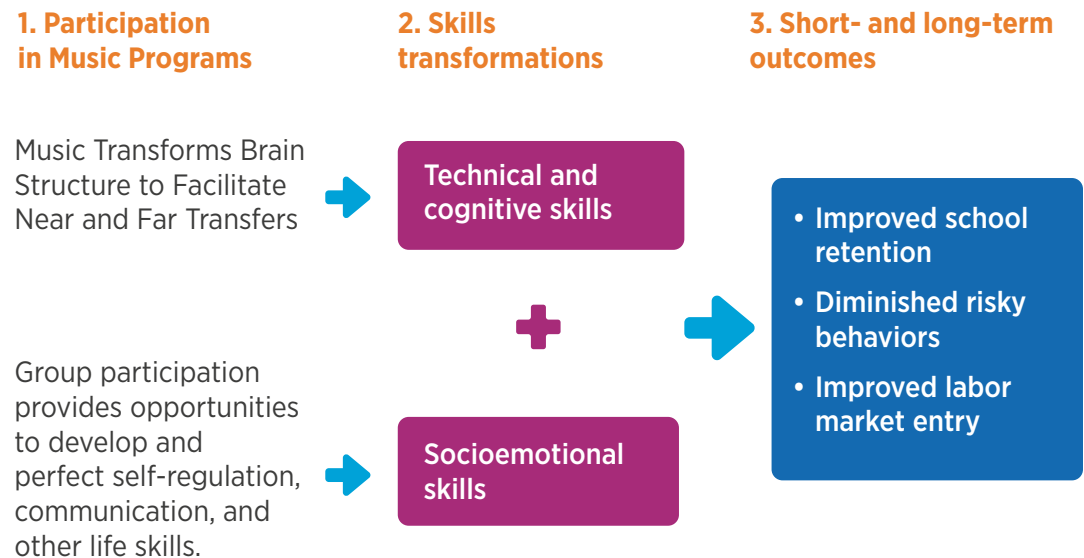
Figure 10.1. How Your Brain Functions on Music

Source: The Psychology of Music, University of Florida.

The transformative potential of a musical program depends on the nature of the program. The most important characteristic is how children interact with their teacher and with one another.

The transformative potential of a musical program depends on the nature of the program. Programs can be carried out in schools (during or after the school day) or community facilities after the school day. The most important characteristic is how children interact with their teachers and peers rather than where the programs take place. In programs focused primarily on **individual lessons** and study, time spent playing a musical instrument has long been considered a practice that develops **self-discipline**.

In contrast to individual experiences, transformations are much more profound when group music programs are considered (Figure 10.2). **Playing an instrument with a group of people in** orchestras or choirs **helps develop listening and communication skills**. It requires being able to coexist amicably with peers in cramped spaces. Youth can exercise and develop inhibitory control. While they wait their turn to play, they moderate their playing and physical reactions in interaction with others. This **improves emotional and behavioral self-regulation** and can **help reduce aggressiveness**. Taking part in a collective musical experience can also help build a sense of belonging, which may improve school attendance and study habits.

Figure 10.2. The Theory of Change for Music Training Programs

Source: Adapted from Alemán *et al.*, (2016).

Supporting Autonomy or Producing Automaton?

Psychological theories posit that **executive function, skills associated with self-regulation and planning**, develops more effectively when children and adolescents participate in complex interactions that facilitate the development of personal goals as opposed to those which promote compliance to predetermined rules (Deci and Ryan, 1985; Deci *et al.*, 1991). In other words, the development of these skills is **enhanced in environments where children can pursue personal growth** supported by adults instead of participating in highly regulated adult-directed activities. **Music programs** that provide opportunities for **self-expression and self-determination can strengthen planning and performance skills as well as executive function**. They can do this by allowing participants to pick the music they play, to compose their version of music, or allowing them to interpret pieces selected by others.

Allegro ma non troppo: Evidence of Transformation in Music Education Programs

The Need for More Rigorous Evidence

In many youth programs, various hypotheses driven by theories of change have not been rigorously evaluated via empirical studies. **Observational and correlational** studies may find that music program participants have better cognitive and socioemotional skills. Still, with a few exceptions, **these studies have several limitations as they lack a valid control group or have insufficiently large sample sizes**. Generally, young people who actively participate in a program cannot be compared with those who do not. Despite controlling for observable characteristics (age, gender, parental income, etc.), there will always be unobservable characteristics, like motivation, parent involvement, or musical skills that invalidate the comparisons. One way to offset this bias is to

Evidence regarding the effects of music programs on cognitive and academic skills is mixed.

randomize children into treatment and control groups, such that observable and non-observable characteristics are balanced. However, in the randomized control studies, a majority have sample sizes that are too small to render randomization reliable or do not have the strength to enable valid conclusions across the two groups.

Given these challenges, perhaps it is not surprising that there are mixed results regarding program effects on academic and cognitive skills. In a meta-analysis of 15 quasi-experimental and experimental studies on the impact of music on cognitive skill transfer in children, Sala and Gobet (2016) claim that musical training does not reliably increase academic or cognitive skills. They argue that the positive results are due to defective study design. For example, one article compared school performance between students in a music program in Germany and peers who did not participate in the program. After controlling for a wide range of observable student and household characteristics, the study found that music students had higher verbal scores. However, the study did not control for non-observable characteristics (Hille and Schupp, 2013). Nevertheless, a recent study with a larger sample size (10,548 program students randomly assigned to 42 schools in Houston, Texas⁸²) showed that participation in music and arts during primary and secondary school significantly improved writing performance (Bowen & Kisida, 2019).

Rigorous and sufficiently powered studies that analyze the impact of music programs on socioemotional skills are even more rare. There are two notable exceptions: **a randomized evaluation of the Youth Orchestra Program in Venezuela** (Alemán *et al.*, 2016) and the **Symphony for Peru Program** (Sinfonía por el Perú) (Díaz & León, 2014 and 2018) which closely resembles the Venezuelan program. Both studies found evidence of **a significant impact on socioemotional skills and risky behaviors**.



25

countries globally have replicated “El Sistema’s” model.

Positive Effects on Self-Control and Aggressive Behavior

The National System of Youth and Children’s Orchestras in Venezuela, or “El Sistema,” as it is known, is a music program for Venezuelan children and youth. It was founded in 1975 by conductor and economist José Antonio Abreu. Today, more than forty years after its founding, El Sistema has earned international awards and has been fully or partially replicated in more than 25 countries globally. As a social program, the primary objective of **El Sistema is to promote social inclusion and the integral development of the person.**⁸³

The program is usually implemented at community centers, and the directors of each center follow a national curriculum that they can be modified to suit local interests. In their first year, children receive training that prepares them to participate in choir recitals and start playing an instrument, usually a flute and/or percussion instrument, and later can move on to other instruments. The students meet at the center numerous times per week⁸⁴ and practice in small groups, individually, and with the entire ensemble. Informal performances and competition with others is a central curriculum component.

⁸² The second most common student activities were musical activities. The first were activities related to theater while dance and visual arts were in third and fourth place, respectively (Bowen and Kisida, 2019).

⁸³ The description for El Sistema program and the evaluation results were taken from the published article (Alemán, Duryea, Guerra, McEwan, Muñoz, Stampini, and Williamson, 2016).

⁸⁴ In the referenced survey, 35% claimed to have convened five times a week, and 47% reported having done so between two and five times per week.



370

centers in Venezuela
operated by the Youth
Orchestra Program

Despite expanding to more than 370 centers throughout Venezuela and having reached **hundreds of thousands of young people in only one year**, the program was not rigorously evaluated until 2012. In 2012, an interdisciplinary team of psychologists, economists, engineers, and sociologists worked with the Simón Bolívar Foundation (Fundamusical), which administers the program. They outlined the transmission of potential effects of “El Sistema”, and formulated an experimental design to identify the program’s causal impacts rather than correlations.

In the experimental design of the Venezuela program, 2,914 children from 6 to 14-years-old were assigned randomly to 16 music centers.⁸⁵ Approximately half received an offer for the program in September of 2012 (treatment group), while the other half received an offer in September of 2013 (control group). **The experimental evaluation showed that after one year self-regulation skills had significantly improved** by .1 standard deviations more than the control group, and problematic behaviors decreased by .08 standard deviations in favor of the treatment group. **The results were more pronounced for the most vulnerable children**, including those with less-educated mothers, and **children exposed to violence before the beginning of the program**. This latter group also showed a significant reduction in aggressive behavior.

Symphony for Peru has a similar focus, given that it’s **modeled on the Venezuelan program**. Students begin by receiving basic musical instruction through choral compositions before selecting their instruments. Children attend four days a week, for an average of three hours per day. While the focus of the program is on children, parental behaviors have also been shown to be influenced through contact with other parents in the program. The program stimulates and incentivizes parents to participate and supervise their child’s work. In 2012, the Peru program underwent an experimental evaluation in which 701 applicants between 6 and 16-years-old were randomly assigned to two music centers. The first study found that the program improved some socioemotional skills, like perseverance and self-image.⁸⁶ Similar to the Venezuela study, results showed that **the music program improved external conduct, such as reduction in aggression, physical violence, and disciplinary problems in school** (Díaz and León, 2014). A 2018 survey comparing children assigned to the treatment and control groups found no effects on socioemotional skills, but did show a significant reduction in risky behaviors (particularly unprotected sex for women and teenage pregnancy) as well as **increased aspirations for educational attainment**⁸⁷ (Díaz and León, 2018).

Additional rigorous studies are necessary to measure the medium- and long-term impact to consolidate the external validity of the results. However, the work done by the IDB in implementing musical programs over the last decade has produced significant insight (see Table 1 and Figure 1 for a detailed description of each program). Musical projects implemented in Colombia, Ecuador, Nicaragua, Peru, and Venezuela have an excellent track record in attracting both boys and girls, whereas some extracurricular programs struggle to achieve gender balance. These studies have found a higher impact on the most vulnerable students.

⁸⁵ Randomization occurred among tutors at each center to keep siblings together in treatment or control groups.

⁸⁶ In some instances, “self-image” is used as a synonym for self-esteem, but whereas the former refers to a general awareness of one’s self, self-esteem is more about regard for one’s worth.

⁸⁷ These statistics are based on estimations of a 2018 program assessment of part of the control group.

Figure 10.1 . Summary Table of Music Programs Supported by the IDB

Country	Program	Primary objective
Venezuela	<i>Apoyo al Centro Nacional de Acción Social por la Música.</i>	Social inclusion
Nicaragua	<i>Prevención de la violencia a través de la música.</i>	Prevention against aggressive behavior
Guatemala	<i>Orquesta Sinfónica Juvenil Femenina “Alaíde Foppa”.</i>	Women’s empowerment
Colombia	<i>Música y vida: escuela de música para juventud en riesgo.</i>	Social inclusion
Mexico, Peru, Ecuador, and Colombia	<i>Programa de Educación Musical Interactiva.</i>	Promotes access to quality music education
Ecuador	<i>Apoyo a la Creación de un Sistema Nacional de Orquestas Sinfónicas.</i>	Social inclusion
Paraguay	<i>Asociaciones Público-Privadas para la innovación educacional en Paraguay</i>	Promotes citizenship through skill development

The implementation of these programs has revealed several **key challenges** that must be addressed. As is generally the case with youth programs, **dropout rates are high** throughout the year: 40-50% in the Peru and Venezuela programs (Díaz & León, 2014; Alemán *et al.*, 2016). Another significant challenge is the **high cost** of distributing and maintaining high-quality instruments without charging the beneficiaries. As such, to reduce general costs, some orchestra programs **have tried to focus their curriculum on choral compositions while others use innovative technologies to reach more students** (Box 10.1).

Box 10.1. Technology in Service of the Dream of Music

A lack of resources should not impede talented youth from accessing musical training. High-quality programs should also reach low-income, marginalized students. These are the objectives of the **Interactive Music Education Program**, carried out by the Education Division of the IDB, in collaboration with the Korean Fund for Poverty Reduction and the Berklee College of Music, one of the most prestigious music education institutions in the world.

For **four years** (from September 2014 to September 2018), the program has supported and cultivated, together with local institutions, **the creation of a network capable of promoting music programs aimed at young people in vulnerable situations**. They have done so in an **innovative way** using face-to-face seminars combined with powerful interactive online tools. They provided the curriculum and experience of a great institution like Berklee to several Latin American cities.

More than 62,000 students have participated in **14 MOOC** courses (six translated into Spanish, six translated into Portuguese, one originally produced in Portuguese and one in Spanish) launched by Berklee Online. The education **portal PULSE** (Pre-University Learning System Experience), designed by Berklee, which students can use to study, improvise, and practice using interactive modules, has been partially translated into Spanish. **Nearly 100 teachers have been trained** to implement it in Colombia, Chile, Mexico, and Ecuador. A total of **150 youth musicians** received a **scholarship** to participate in **Berklee Latino Workshops**. Berklee staff held **six presentational workshops** in different cities in **Colombia, Mexico, Peru, and Ecuador**. The program has also organized promotional activities to inform others of the program objectives and attract potential sponsors.

Though the program has not been evaluated, students who participated in the MOOC and other program activities provided feedback and quantitative evaluations. They suggest that the program's innovative focus, together with the natural benefits of music education, has significant benefits for marginalized students. Their instruction offers us a valuable guide to follow in developing and investing in this type of education.



62.000

students participating
in the four-year
program

14

courses

six translated into
Spanish and six into
Portuguese



100

professors trained in
Colombia, Chile, Mexico,
and Ecuador



100

scholarships for
youth to participate
in the Berklee Latino
Workshops

The IDB Experience

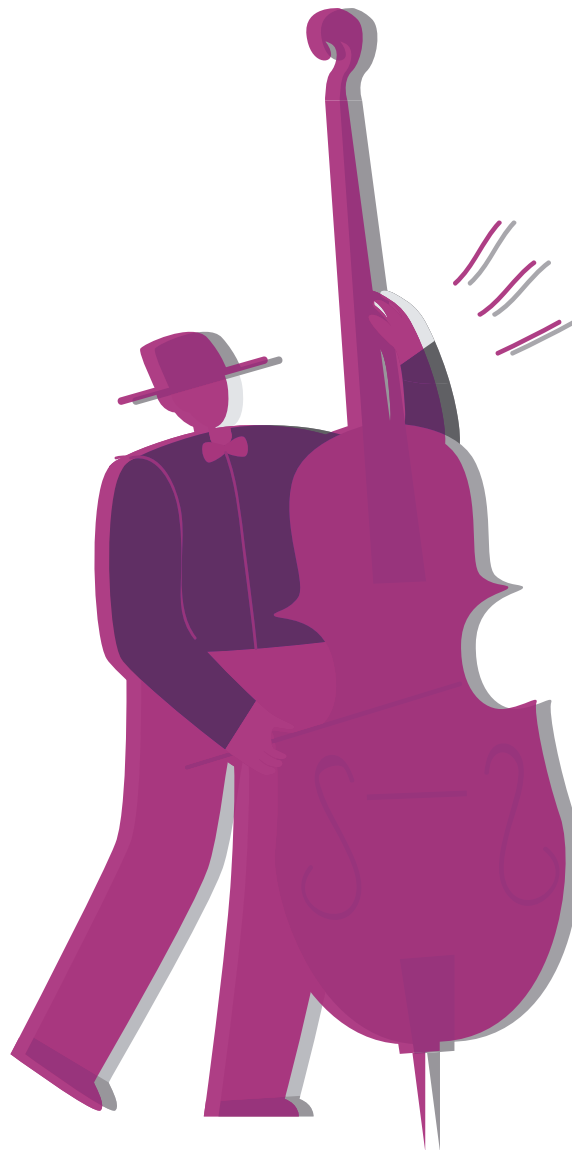
In the last 15 years, with the help of the IDB, there have been more than eight music programs implemented in the region advancing different objectives. The following section reviews some of these and draws conclusions and shares lessons learned.

Supporting the Creation of a National Orchestra System in Ecuador

In 2008, through the Korean Fund for Poverty Reduction, the IDB helped the government of Ecuador and the Ecuador Youth Symphonic Orchestra Foundation

(Fundación de Orquestas Sinfónicas Juveniles del Ecuador - FOJSE) **to develop a “National Orchestra System,”** in the image and likeness of the Venezuelan model. The objective was to implement a program **expansion strategy** that would allow children and adolescents between the age of six and 18-years-old to experience personal growth through music education and to train them to be able to use music as an income source.

The program has directly benefited 350 children, their families, and communities, as well as approximately 60 professors. They have done it by enhancing FOJSE musical education activities, training approximately 60 professors, and financing instrument acquisition. They also facilitated the expansion of the orchestra system at the national level, preparing operation plans for center implementation and a manual for music education. Finally, they implemented a financial training strategy to secure the System’s current and future activities.



350 children

benefitted from the
program

60

professors
were trained



Facilitated the expansion of
the orchestra system at the
national level with a manual



Alaíde Foppa
(1914-1980)

Music for Women's Rights and Participation in Guatemala

The feminist poet and writer Alaíde Foppa disappeared in Guatemala one day in December 1980. She was taken at gunpoint by men as she went out to do some shopping. Today, the **Women's Youth Symphonic Orchestra and Choir Alaíde Foppa** (Orquesta Sinfónica Juvenil Femenina y Coro Alaíde Foppa) carries her name. The orchestra is composed of only women and youth in music school. This is a declaration of hope and an homage to Foppa and all women who have been victims of armed conflict in Guatemala.

Guatemala is a country with a very youthful population that faces **serious human development limitations, especially for women**. These limitations, mostly but not exclusively in education, expose them to risks like **teen pregnancy, violence, human trafficking, and involvement in activity associated with youth gangs and cartels (known as "maras")**. Such circumstances require interventions that allow life skills development and remove them from vulnerable situations. Consequently, inspired by the experience in Venezuela, the Memorial for Association for La Concordia (Asociación Memorial para la Concordia) created an orchestra and music school exclusively for women. **It brings attention to the situation women in Guatemala face and calls on all sectors to find a solution.**

The IDB has collaborated with them through a technical cooperation that seeks **to promote human rights, development, and life skills as well as increase the civic participation of women in Guatemala**. Specifically, women from 12 to 20-years-old in highly vulnerable or high-risk situations (e.g., those who live in communities with heavy gang presence or human trafficking) or **indigenous women**. This cooperation is centered primarily on the integration of indigenous and non-indigenous youth into society to disrupt the segregation, which many indigenous youth experience. The program also has an important citizenship building component focused on gender and culture of peace. This component is evident in the Orchestra program in areas related to sex education, diversity and equality, women's rights, crime prevention, or social inclusion in education and work, among others.

Nicaragua: Violence Prevention Through Music

Two fundamental components of the Violence Prevention through Music Program include developing musical skill development for children and youth and training them to repair musical instruments. This program seeks to eradicate domestic violence and societal violence while simultaneously developing children's creativity, principles, and values, such as teamwork, discipline, and perseverance.

The Nicaraguan Culture Forum (Foro Nicaragüense de Cultura) has implemented the program for almost three years (from April 2015 to December 2018) with the help of the IDB and the Japanese Fund. It has reached 350 children and adolescents in the Nicaraguan cities of Diriá, Managua, Masatepe, and San Marcos.

Using the Suzuki or Orff Schulwerk method, music pedagogy promotes student participation, learning from others, teamwork, and family collaboration, among others. Together with a psychosocial intervention to prevent violence, **the program has had a positive impact on participants**. The program evaluation highlights the following:

350

youth and adolescent
participated in the
Violence Prevention
through Music
Program

- a Development of listening skills in interpersonal relations, as well as respect and tolerance of diversity of ideas and opinions.
- b Integration of music in future aspirations as a practice for self-realization.
- c Strengthening of self-confidence and motivation.
- d The need to practice moral and social values and ethical principles to enjoy communities without violence.
- e Social skills development.
- f Strengthening family dynamics.
- g Improvements in school and academic performance.
- h Improvements in oral communication.

Lessons Learned

Although evidence is still scarce, the positive assessments of the programs suggest that music programs are a very promising approach to skill development that merit additional investment in research and evaluation to ensure impacts are well-documented for the design of future programs. What factors should be considered when implementing music education to achieve socioemotional skills and social development? In the following section, we recap some lessons learned in the implementation and evaluation of some successful programs:

1

More evaluations to produce rigorous evidence

As we have seen, the **evidence** about how music education programs affect cognitive and non-cognitive skills **is scarce**. Many studies involve music and skills, but in almost all cases, the evidence comes from correlations and not causal relations between program factors and outcomes. It is necessary to invest in statistically significant evaluations with sufficiently large sample sizes and extended exposure to the program. Such evaluations will produce estimates of the medium- and long-term effects (some studies suggest that the cognitive impact of music training is more accelerated in the second year of treatment – Kraus *et al.*, 2014).

2

Develop monitoring systems to prevent dropout and provide customized follow-up

It is imperative to **improve monitoring of key indicators**, ones easily measured (e.g., program retention rates based on the history of parent educational attainment), and allow the collection of salient information. Such actions will increase registration rates and perseverance in the program for the poorest and most vulnerable children and youth. It is necessary to standardize the information regarding student socioeconomic levels, attendance rates, and activity types implemented to help identify cases in which individualized follow-up is needed (Alemán *et al.*, 2012).

These programs should enhance inclusion for children at risk of marginalization, as they are the ones who benefit most from these programs (Alemán *et al.*, 2016). The region should prioritize increasing the breadth and scale of these programs to reach the most vulnerable populations.

3

Concentrate on impoverished communities with vulnerable populations

4

Programs adapted to the specific sociodemographic characteristics of each population. sociodemographic specificities of distinct populations

Basic awareness of the characteristics of students to whom the program is directed is important. This information includes the economic background of students and parents and their educational attainment, motivations, community environment (in case of dangers or challenges regarding transportation to the education centers), student motivation, and expectations. With this knowledge, program design can be improved, and factors that increase the risk of dropping out of the program can be anticipated.

Partnerships between the public and private sectors, as well as with educational institutions and international organizations, can facilitate improved program development, implementation, and financing.

5

Strategic alliances

6

New Technologies that Serve Art and Creativity

As is evident in the case of the program developed in partnership with the Berklee College of Music, new technologies can play a critical role in helping increase program reach. They can reach many people and places while simultaneously decreasing implementation costs.

Music to Save the World

As we have seen, the **body of evidence** on these and other programs suggest that **participation in music programs can improve socioemotional skills in the short-term**. They specifically improve **self-control** and **reduce aggressive tendencies**. There is a critical need for more rigorous evidence with reliable statistics, especially impact evaluations that measure long-term effects like changes in dropout rates or labor market entry. Additionally, it is important to improve the monitoring of key indicators, which can be easily measured (e.g., program retention rates based on the parent educational attainment history).

“I want to make good citizens, noble human beings. If a child hears fine music and learns to play it himself, he develops sensitivity, discipline, and endurance. He gets a beautiful heart.” These are the words of Shinizi Suzuki, the inventor of the revolutionary method for music education that carries his name. Whoever has listened to a group of children interpreting music knows there is no fear and no negative feelings. There is play, joy, and emotion. These are special and safe connections.

Pau Casals, a famous cellist, learned this after seeing a children’s orchestra group. He was deeply moved and said, “Perhaps this music will save the world.” Let’s listen to him. Continuing to grow and scale these programs to reach the most vulnerable people, those who also stand to benefit most from music education, should be a priority in the region. In this way, we will let music save the world.

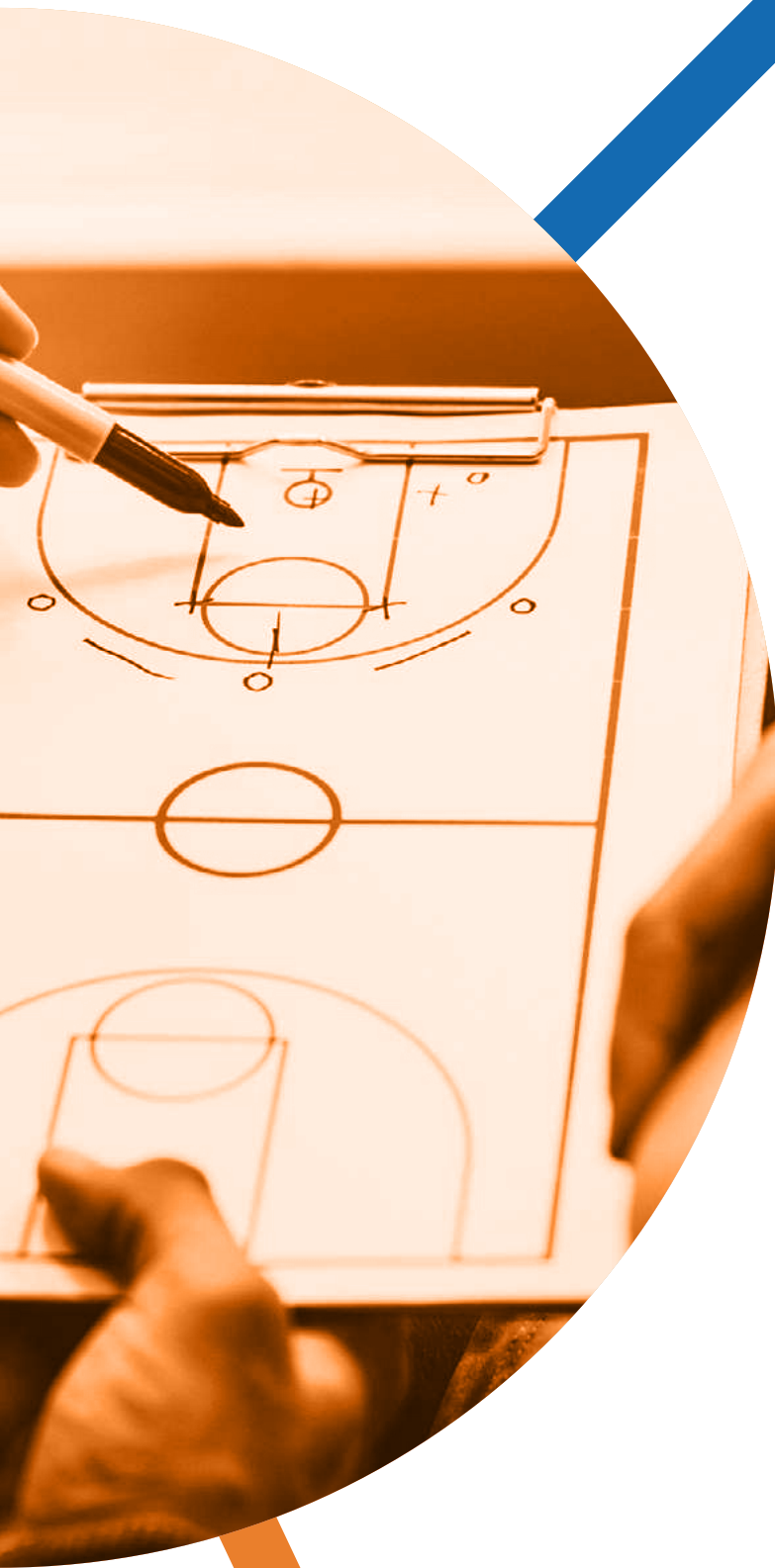
References

- Alemán, X., Duryea, S., Guerra, N., ... & Williamson, A. (2016). The Effects of Musical Training on Child Development: A Randomized Trial of El Sistema in Venezuela. *Prevention Science*, 18(7), 865-878. 10.1007/s11121-016-0727-3.
- Bowen, D. & Kisda, B. (2019). Investigating Causal Effects of Arts Education Experiences: Experimental Evidence from Houston's Arts Access initiative. *Houston Independent School District Research Report*, 7(4).
- Deci, E. & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E., Vallerand, R., Pelletier, L., & Ryan, R. (1991). Motivation and Education: The Self-Determination Perspective. *Educational Psychologist*, 26(3 & 4), 325-346.
- Díaz, J. J., & León, J. (2014). *Consultoría para la elaboración de perfil de entrada, medición y análisis de indicadores de impacto y procesos y cálculo de rentabilidad social del Proyecto Sinfonía por el Perú: Música e inclusión social*. Final Report. Retrieved from <https://www.grade.org.pe/novedades/entrevista-a-juan-jose-diaz-en-rpp-sinfonia-por-el-peru-que-impacto-tiene-la-musica-en-la-inclusion-social/>
- Díaz, J. J. y León, J. (2018). *Consultoría para la elaboración de la segunda evaluación de impacto del programa música e inclusión social: Persistencia de efectos y nuevos ámbitos de impacto*. Final Report. Retrieved from https://issuu.com/sinfoniaporelperu/docs/sinfoni_a_por_el_peru
- Elpus, K. (2013). Is it the Music or is it Selection Bias? A Nationwide Analysis of Music and Non-Music Students' SAT Score. *Journal of Research in Music Education*, 61(2), 175-194. <https://doi.org/10.1177/0022429413485601>
- Hyde K. L., Lerch, J., Norton, A., ... & Evans, A. C. (2009). Musical Training Shapes Structural Brain Development. *The Journal of Neuroscience*, 29(10), 3019-3025. <https://doi.org/10.1523/JNEUROSCI.5118-08.2009>
- Roden, I., Zepf, F. D., Kreutz, G., Grube, D. & Bongard, S. (2016). Effects of Music and Natural Science Training on Aggressive Behavior. *Learning and Instruction*, 45, 85-92. <https://doi.org/10.1016/j.learninstruc.2016.07.002>
- Foster, E. M., & Marcus Jenkins, J. V. (2017). Does Participation in Music and Performing Arts Influence Child Development? *American Educational Research Journal*, 54(3), 399-443. <https://doi.org/10.3102/0002831217701830>
- Hille, A. & Schupp, J. (2015). How Learning a Musical Instrument Affects the Development of Skills. *Economics of Education Review*, 44, 56-82. <https://doi.org/10.1016/j.econedurev.2014.10.007>
- Sala, G. & Gobet, F. (2017). When the Music's Over. Does Music Skill Transfer to Children's and Young Adolescents' Cognitive and Academic Skills? A Meta-Analysis. *Educational Research Review*, 20, 55-67. <https://doi.org/10.1016/j.edurev.2016.11.005>

Schellenberg, E. G. (2004). Music Lessons Enhance IQ. *Psychological Science*, 15(8), 511-514. <https://doi.org/10.1111/j.0956-7976.2004.00711.x>

Slater, J., Tierney, A. & Kraus, N. (2013). At-Risk Elementary School Children with One Year of Classroom Music Instruction Are Better at Keeping a Beat. *PLoS ONE*, 8(10), 1-9. doi:10.1371/annotation/b6182e63-7d3d-42d7-9624-65c2ce771ae4.

Southgate, D. E. & Roscigno, V. J. (2009). The Impact of Music on Childhood and Adolescent Achievement. *Social Science Quarterly*, 90(1), 4-21. <https://doi.org/10.1111/j.1540-6237.2009.00598.x>



CHAPTER 11

Sports Programs

By Carlos Scartascini⁸⁸

⁸⁸ This chapter is based on a publication by Jaitman, L. and Scartascini, C. (2017), Sports for Development. Washington, DC: Inter-American Development Bank. <https://www.iadb.org/en/research-and-data/sports-development>.

CHAPTER 11

Sports Programs

By Carlos Scartascini

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Much More Than a Game

A soccer pitch and the game played on it are a good metaphor for life's richness and complexities. The playing field can be transformed into a place where children learn important life lessons like trust (in themselves and others), teamwork, collaboration in pursuit of common objectives, and building a society through games. It can seem like sports are simply a game, but they are much more. Sports are one of the most powerful tools to weave the social fabric and develop the skills needed to confront an ever-changing world.

By playing sports and engaging in physical activity, a person can learn **cooperation, communication, respect, conflict resolution, leadership, the value of effort, playing fair, self-esteem, honesty, self-love, tolerance, perseverance, and discipline** ([UNICEF, "Sports for development and peace," 2003](#)). These skills are always important to help youth develop. In recent years, they have been recognized as fundamental to personal growth and 21st-century society development. People employ these competencies throughout their lives to learn from and adapt to the increasingly volatile circumstances that are characteristic of a digital society ([BID, "21st century skills," 2019](#)).

These programs prioritize skills transfer that allows youth to coexist harmoniously in society, experience personal growth, and enhance employability.

Countries throughout the region have tried to maximize sports' potential to transform societies. They have made it a component of programs that target children and adolescents to prepare them to be productive in the future. Since 2004, with assistance from the IDB and **more than 20 private and non-governmental partners, 18 countries in Latin America and the Caribbean have enacted sports programs**. These programs prioritize the transfer of skills that allow youth to coexist harmoniously in society, experience personal growth, and enhance employability. Countries with sports programs have benefited from social and economic development, such as conflict resolution, gender equality, and violence prevention. The versatile nature of these efforts has advanced education, health, and social inclusion.

Despite this transformation potential, some Sports for Development (SFD) programs still suffer from significant **gaps between evidence and practice** (Sanders, 2008). This is due to, among other things, the fact that **many programs have not been rigorously evaluated**. The need for evidence remains one of today's most significant challenges, as programs must be designed to facilitate evaluation. Such results allow us to diagnose the state of programs accurately. Given this lack of evidence, it is important to design small programs that can be evaluated and scaled once they are proven. Decision-makers must know what works and what doesn't to develop scalable and effective public policy. From there, they can build an international knowledge pool of SFD programs that allows us to systematize implementation and to plan what steps to take next. With support from the IDB, countries in the region have decided to take on this challenge by becoming international leaders in program assessment.

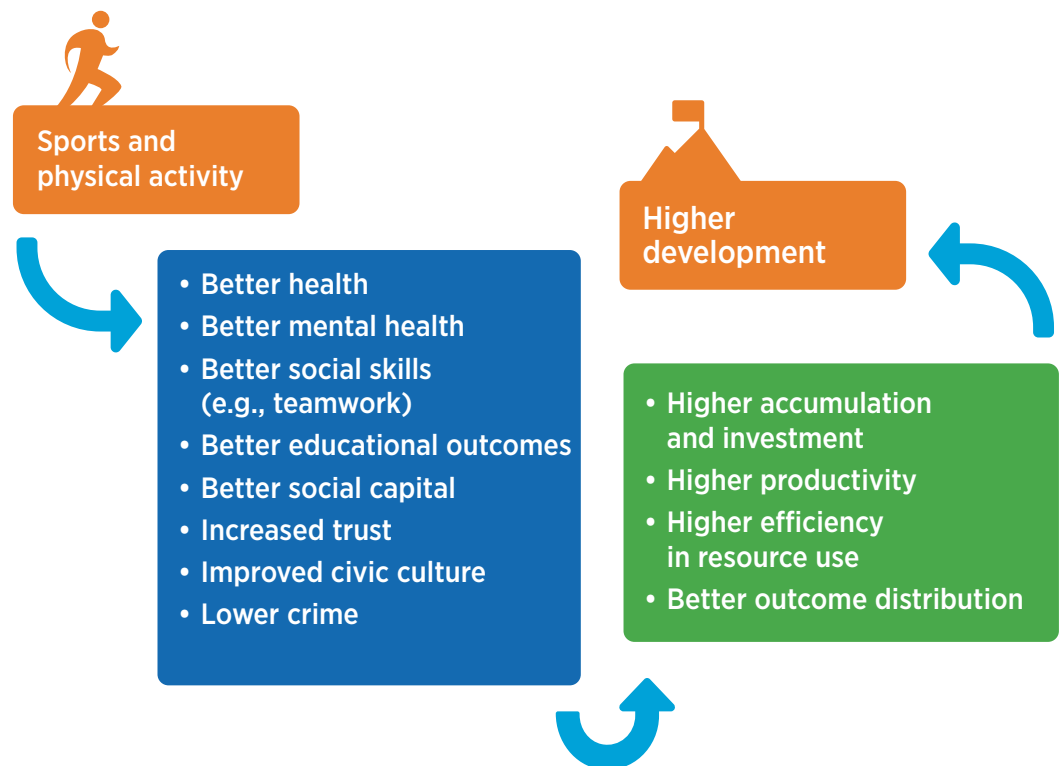
Decision-makers must know what works and what doesn't, and from there, build an international knowledge pool of SFD programs.

How can we make the most of sports as a tool for change? What features are necessary to design Sports for Development programs? What works? This chapter responds to these questions based on evidence about the impact of sports on development, in general, and more specifically, in the development of transversal skills (section 1). It reviews some programs supported by the IDB and implemented in Latin American and

Caribbean countries, and evidence of their impact (section 2). In doing so, we offer an overview of SFD programs, highlight the relative advantages they provide, and identify the challenges that professionals and policymakers should address. The goal is to learn from this evidence and serve as a guide for countries and institutions that believe sports can change the world and people's lives.

What Does the Scoreboard Say?

The Virtuous Circle of Sports



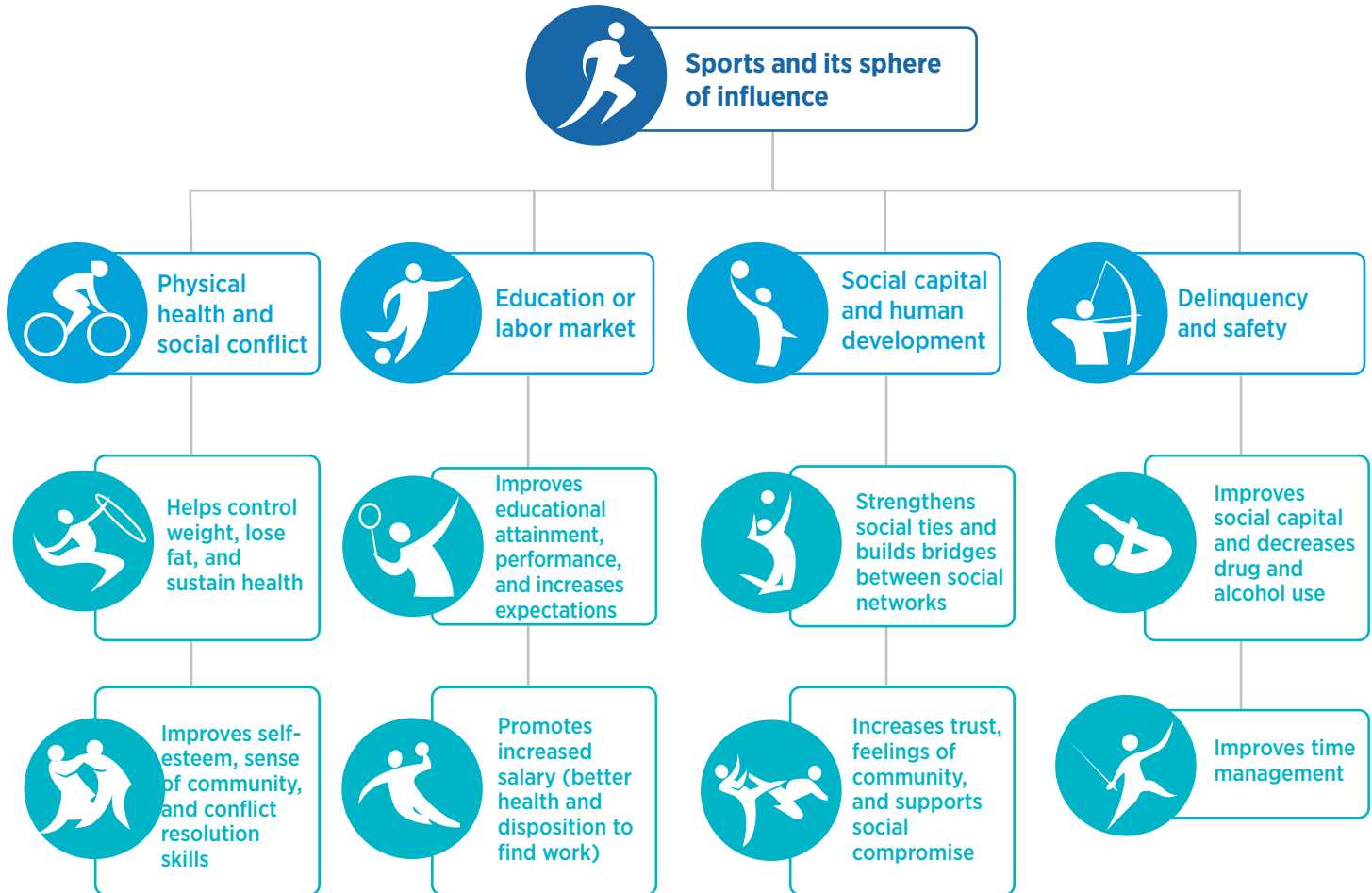
Design Matters

As we have said, **evidence** on the efficiency and effectiveness of Sports for Development (SFD) programs is **scarce**. We need to undertake a more concerted evaluation effort to make final recommendations. There is convincing evidence to support the positive relationship between sports and specific areas like physical and mental health. However, there is still a lack of evidence about the effects of SFD programs on cognitive and academic development and the tendency to engage in risky behavior such as crime, absenteeism, and disengagement.

Therefore, the way programs are designed and executed is critical. Such considerations can determine whether the program is successful. Countries seeking to implement such programs should do so with caution. First, they should run pilot programs and evaluate their impact. Then they can use the evidence derived from such evaluations to plan. Only then should programs be scaled to have a broader reach.

In the following section, we will see which characteristics and circumstances are necessary to ensure that these programs promote personal and social development.

Let's Take to the Field



Can Sports Improve Health and Benefit Society?

In terms of physical health, **sports benefit the body in many ways**. For instance, sports help control weight, muscle growth, reduce fat, and contribute to maintaining a healthy cardiovascular, immune, and endocrine system. Sports also promote strong bone, muscle, and joint development and decrease obesity risk (U.S. Department of Health and Human Services, 2008).

Sports affect child and adolescent mental health and **antisocial behavior** in a nuanced manner. For instance, sports seem **to positively impact social conduct (to strengthen self-esteem, sense of community, assertiveness, and conflict resolution)** (Mahoney & Stattin, 2000). **However, sometimes sports can produce the exact opposite result**, becoming a breeding ground for antisocial behavior if the sport brings together participants who possess anti-social behaviors (Mahoney *et al.*, 2004; Sandford *et al.*, 2008). Thus, the more successful facilitators are creating a safe environment focused on positive skill acquisition, the higher the probability that they will affect positive development (Gould *et al.*, 2011). It is important to design and structure programs well

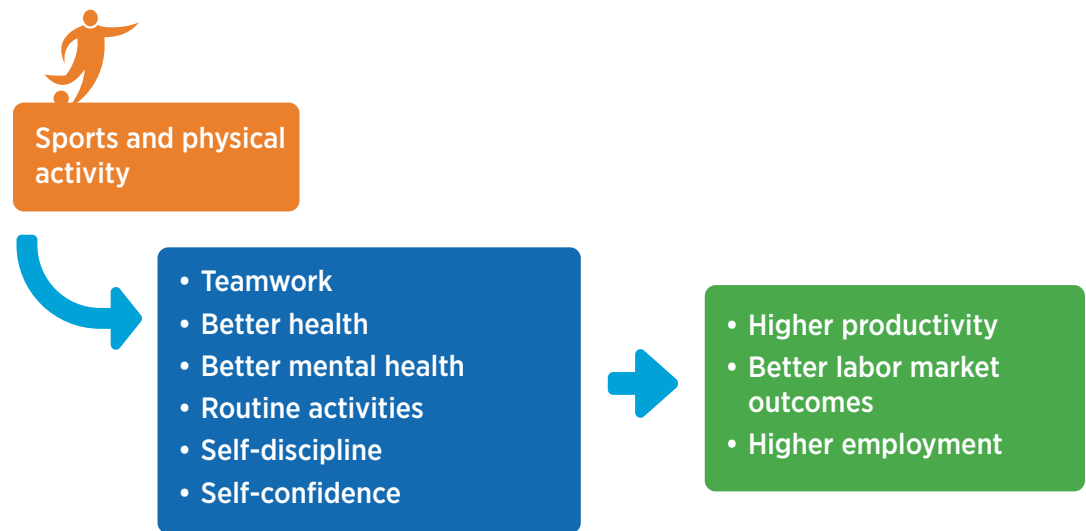
To prevent sports activities from producing antisocial behaviors, it is important that they are well structured and designed.

People who participate in physical activity have higher educational attainment, achievement, and educational aspirations.

to ensure that participation in sports does not foster anti-social tendencies (Sandford *et al.*, 2008). Sports programs should adapt to student needs, involve them in the implementation process, and foster positive relationships between students and program leaders. The type of sport is also important when thinking of developing positive social behavior for youth, as **sports involving power, fighting, and strength sports can engender violent tendencies off the field** (Endresen & Olweus, 2005).

How sports affect **drug and alcohol consumption** depends on the individual's gender and race. For example, some studies report a positive association between participation in sports and alcohol consumption for white males (Florida, Eitle, *et al.*, 2003; McHale *et al.*, 2005). The sport and the frequency of practice also influenced the results. While the practice of certain sports is associated with more drug and alcohol use, higher participation in sports does not produce more risk. On the contrary, up to a certain point, participation diminishes risk (Stansfield, 2015). Stansfield's findings suggest that there is a link between sports and drug and alcohol consumption, though the relationship does not appear to be causal.

Can Sports Improve Education and Labor Market Outcomes?

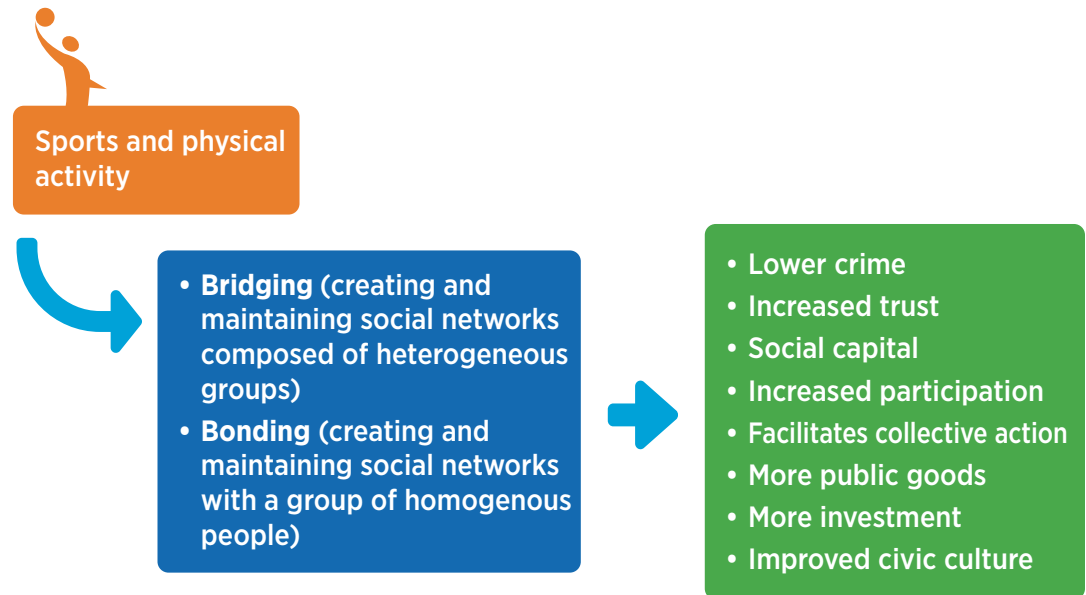


In general, people who participate in physical activity have **higher educational attainment**, achievement, and educational aspirations (Stevenson, 2010; Fredricks & Eccles, 2006). They also report lower levels of depression and higher self-esteem than those who do not participate in sports (Ibid). However, **the effects of sports on education are dependent on the context in which the sport is practiced**. For example, **in many societies, parents and teachers believe that success in sports produces benefits equivalent to those derived from educational success** (higher economic status and social mobility). They may even take their children out of school to provide them the opportunity to become professional athletes (Kwauk, 2016).

In terms of the **labor market**, sports appear to have a significant impact. For instance, by improving general health and well-being, sports **promote increased salaries**, which correlate with the higher education levels that athletes tend to obtain (Lechner, 2008;

Kosteas, 2011). Additionally, unemployed individuals who practice sports have a better general disposition and are more motivated when seeking new employment (Cabane, 2013). Of course, in part, the effect may be because sports participation acts as a signal to employers that the individual has social skills.

Can Sports Increase Social Capital, Inclusion, and Community Development?

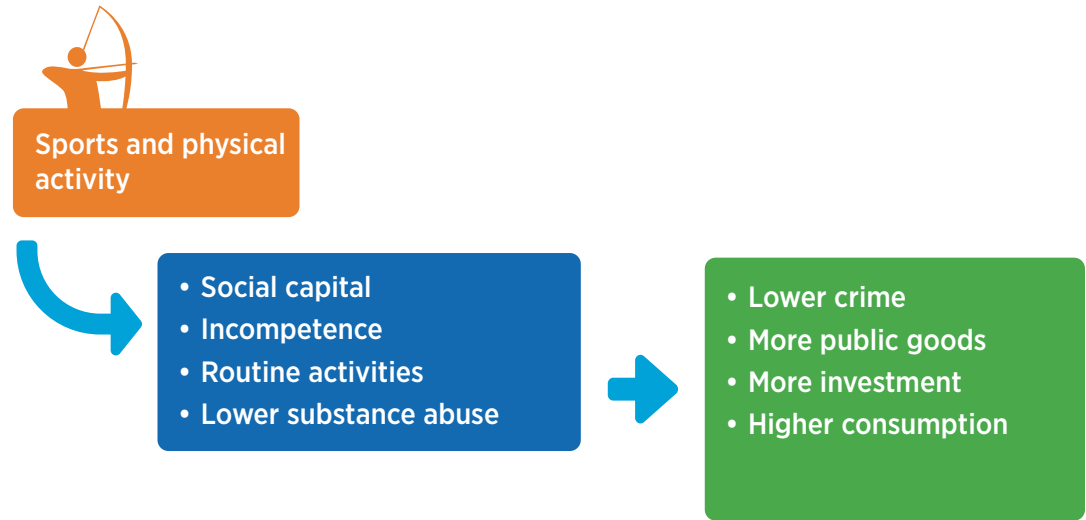


Sports can increase **social capital** (shared values and mutual understanding allow groups and individuals to trust each other and work together). Sports build bridges and create bonds among diverse networks (Brewer, 2016; Coalter, 2007), increasing inclusion and helping build communities around common objectives.

Overall, evidence suggests that sports enhance social capital development (**increase confidence, create a sense of community, and promote social compromise**). However, the effects depend on the intervention design. For instance, it seems to work best in large schools and institutions (Strybosch & Sherry, 2012; Delaney & Keaney, 2005; Okayasu, Kawahara, & Nogawa, 2010; Langbein & Bess, 2002). In some cases, sports can augment inequality and accentuate existing social divisions when segregation becomes a mechanism of participation. For example, people tend to prefer playing near their home, and with people they know (Verhagen & Boosta, 2014). In other cases, wealthy and educated parents influence their children’s activity choices (Seaman *et al.*, 2014).

Not all sports generate social capital, and not all organization methods have the same effect. Variables such as the frequency, number of participants, and group formation are important factors. Robert Putnam believes that **is not important whether you do or don’t practice bowling because to create social capital you just need to spend time at the bowling alley. He said, “League bowling, by requiring regular participation with a diverse set of acquaintances, represented a form of sustained social capital that is not matched by the occasional pickup game”** (Putnam, 1995).

Can Sports Help Reduce Delinquency Levels and Increase Social Safety?



There are multiple ways to explain the positive correlation between sports and a **reduction in delinquent behavior**. For example, participation in physical activity promotes social capital development or a decrease in alcohol and drug consumption (the latter is the leading cause of criminal activity). Sports can also reduce crime because of an **“incapacitation effect” (youth practicing sports can’t participate in illegal activities at the same time), by reducing boredom and idle time.**

Despite the lack of rigorous evidence, no indicators suggest that sports significantly reduce crime and delinquency, per se, even though they **suggest that it is important to learn to use time efficiently and effectively**. Youth can learn these skills, for example, by engaging in recreational activities that increase motivation or engaging **in activities during high-crime hours** (Caldwell & Smith, 2006; Hartmann & Depro, 2006). Evidence shows that physical education at school can help decrease aggressive behavior, especially in boys and young men, and teach life skills such as coping mechanisms and self-management. Physical education often teaches interpersonal, communication, critical thinking, and decision-making skills (Mandigo, Corlett, & Ticas, 2016).

Unfortunately, the results also indicate that, in some cases, programs can have a negative effect and increase delinquent behavior. For example, young, able-bodied males like sports, but they are also more likely to participate in illegal activities. The sports environment can facilitate peer pressure and the formation of gangs (Spruit *et al.*, 2016). Additionally, athletic involvement does not inhibit male violence, and in fact, there is a close relationship between contact sports, violence, and criminal behavior (Kreager, 2007). Studies conducted in the United States (Hartmann & Massoglia, 2007), New Zealand (Begg *et al.*, 1996), and Canada (Faulkner *et al.*, 2007) have confirmed this information.

Once again, to avoid unforeseen and unwanted consequences, program and activity design is key. For example, when coaches and facilitators are well qualified, participation in school and team sports is more likely to reduce or prevent delinquent behavior (Spruit *et al.*, 2016).

Evidence shows that physical education in schools can help decrease aggressive behavior, especially in boys and young men, and can teach life skills such as coping mechanisms, self-regulation, interpersonal, communication, critical thinking, and decision-making skills.

According to the few studies conducted, sports appear to be effective in **rehabilitating prisoners**. For example, among prisoners, positive effects have been observed on self-esteem and ethics because of sports participation. **Engaging in sports helps prisoners rehabilitate because participation prepares them for life outside of prison, improves attitudes, and helps them to abandon criminal activity** (Parker, Meek, & Lewis, 2014). However, it is important for activities to not emphasize winning so as not to promote negative behaviors associated with the desire to win at any cost. **Program design should be flexible to individual needs and accompanied by substantial positive feedback** (Andrews & Andrews, 2003).

In summary, rigorous and systematic studies evaluating the effects of sports participation on key developmental factors are rare and inconclusive. The first lesson learned from their implementation is that program design is vital to avoid adverse effects that run contrary to the program's goals. As has been shown, **a structured and positive environment can improve behavior, while an unstructured one can have the opposite effect**. Sports **can help reduce drug and alcohol abuse but can also increase their use**. Sports can **improve academic achievement**, but in many societies, parents and teachers consider them to be a substitute for formal education. Children lacking physical skills lag in education levels. **Some sports programs reduce delinquent behavior. However, others create conditions that increase social pressure and violent and delinquent tendencies**, promoting a *machista culture* in specific sports by bringing together at-risk youth.

A review of the evidence puts in perspective the daunting challenge mentioned at the beginning of this chapter – that it is imperative to conduct better studies to obtain data. This will improve SFD program implementation and develop better, more reliable quantitative methods and efficient evaluations (UNICEF, 2019). Development programs in the region, with IDB support, contribute to the gradual closing of the evidence gap by implementing carefully designed programs whose evaluations provide a path for reference and systematization.

The following section provides a review of these programs and draws some general conclusions. These serve as a guideline for whoever wishes to utilize sports to create a more prosperous society that improves living conditions and individual skills.

Sports Change the World

It is imperative to conduct better studies to obtain data. This will improve SFD program implementation and develop better, more reliable quantitative methods and efficient evaluations.

In Latin America and the Caribbean, one in five youth ages 15 and 24 are not enrolled in school or working. They are known as the “NEET” population ([The IDB Labor Market and Social Security Information System, 2019](#)). An estimated 20-30% of children and youth with disabilities attend school. Most do not complete secondary school ([Graduate XXI, IDB, 2019](#)). The self-esteem gap between boys and girls means that girls tend to believe they will perform worse on exams, underestimate their scientific skills, and opt-out of school and labor-market opportunities before attempting them (Aleman, 2014). Latin America is becoming one of the most obese and sedentary nations in the world. The rate of idle activity among school youth is 86.2%. **Can we change the situation? Can sports provide the answer? And if so, what role will sports play?**

The Region Takes the Lead

Given the ability of sports to attract, motivate, train, and retain youth in public programs, **in the last 15 years, countries throughout the region have developed multiple initiatives with IDB support.** With a multifaceted and integrated focus, these programs have used sports to attract and retain youth in programs to help them achieve more substantial goals, like increasing employability, life skills, education, health and well-being, violence prevention, social inclusion, and gender equality.

In **18 Latin American countries**, 17 different programs have been implemented **benefitting 89,000 people**, mostly children and adolescents. Evidence points to a potentially transformative effect that has improved the well-being of participants and their respective communities.

SFD Initiatives



89,000

beneficiaries, mostly
children and youth

18

Countries and
17 sports programs


-  Capacitación a Funcionarios Públicos
-  Centro Deportivo Carrefour
-  Centro Deportivo por la Esperanza
-  El Deporte y la Educación Inclusiva
-  En sus Marcas, Listos... Inclusión
-  Fútbol Net México
-  Deportes para la Paz
-  Mejoramiento de Resultados Académicos
-  Cartagena Sostenible
-  La Banda Celeste
-  Niñas Viviendo con Altura
-  Pescaito
-  Programa Árbol de la Vida
-  Proyecto Contra el Chagas
-  Maré que Transforma
-  A Ganar
-  Ilumina tu Vida



Making Dreams a Reality: Sports for Development Programs in LAC

Sports are a tool for improving education, skills, and labor market outcomes.

“A Ganar:” This sports-based youth employment program was implemented in **nine countries**,⁸⁹ and **benefitted more than 15,200 individuals between the ages of 16 and 24**. The objective is **to improve the socioeconomic circumstances of low-income youth by helping them find jobs, learn entrepreneurial skills, or re-enter the formal education system**. By implementing a three-phase methodology critical to the program’s success, “A Ganar” helps students apply lessons and skills developed through sports to build marketable job skills. The first phase imparts **employability and life-skills training** via an interactive sports-based curriculum. The second phase offers **market-based vocational-technical training**. Finally, the third provides internships or other practical experiences. The program evaluation has showed positive results (see table 11.2), and some employers interviewed claimed to be highly impressed by youth who participated in the program. They also mentioned that participants had positive work attitudes and better discipline and motivation than those who were hired but did not participate in the program.



40%
improvement
in literacy

“Tree of life” (Programa Árbol de la Vida): this program sought to transform the lives of over **9,000 low-income children and adolescents between the ages of 3 and 18** living in vulnerable communities in the Brazilian city of Betim. The results are promising. The program **substantially reduced the vulnerability of participants who participated and improved their social conditions and educational outcomes**. Preliminary evidence indicated a **40% improvement in literacy rates** and a **24% and 59% increase in primary and secondary education, respectively**.



940
beneficiaries
from 12 local
soccer schools

“Program for social inclusion and sustainability in Pescaíto” (Programa Pescaíto): In the Pescaíto area, located in the northern part of the **Colombian city of Santa Marta**, nearly all things revolve around soccer. This is where Pibe Valderrama and Radamel Falcao, famous Colombian soccer players, grew up and began playing soccer. This initiative targets adolescent boys and girls in at-risk situations defined by extreme poverty and high levels of violence. The project which was launched in late 2016 seeks to **promote equality of access to opportunities through sport and labor-market skills development**. The integrative and wide-reaching methodology **uses soccer pedagogy to teach peaceful conflict resolution, gender equality, drug use prevention, sex education, retention in formal education, proper use of leisure time, and labor-market skills**. It includes soccer training and competition and promotes interactions between families and Community Action Committees (Juntas de Acción Comunal) in hopes of expanding the program’s impact on the community. The program **benefits 240 children** and adolescents in the San Martín and Olaya Herrera areas, and more than **700 youth and 20 trainers at 12 nearby soccer schools**.

“Improving Academic Results and Lifelong Outcomes in Children and Youth in Manizales” (Mejoramiento Resultados Académicos y de Vida en Niños y Jóvenes en Manizales): The program’s goal in **Manizales, Colombia** is to increase equality of opportunity and overall life conditions (improving academic and life-long learning outcomes). This is done by integrating sports and physical activity in

⁸⁹ Brazil, Ecuador, and Uruguay implemented the pilot program. Later, Colombia, Haiti, Mexico, the Dominican Republic, Jamaica, and Argentina extended the program.

the education system. **It combines physical activity (soccer and other sports) with activities specifically designed to enhance cognitive and non-cognitive skills. It also combines socioemotional skills (such as self-esteem, conflict resolution, and perseverance), which help develop basic competencies for a better life.**

“Carrefour Sports Center” (Centre Sportif de Carrefour) gives children and youth the opportunity to participate in enjoyable sports- and activity-based learning opportunities to **improve their physical, cognitive, and emotional development.** The program is implemented in **Port-au-Prince, Haiti**, and has benefited nearly **14,500 Haitian children** between **the ages of 6 and 14** through a dual program (the school year program and the summer camp program). Via these two programs, the initiative introduces children and youth to diverse sport skills and disciplines to **foster positive values, teach life skills, and educate participants about a range of environmental and health issues relevant to their daily lives.** It also encourages participants to play an active and positive role in their communities.

“Hope Sports Center” (Centre Sport pour L’Espoir). This high-performance sports structure, operated by the International Olympic Committee in **Haiti**, provides youth free access to sports in high-performance training conditions. The program allows national federations to improve the quality of the nation’s elite sports. To date, the program has benefitted **280 athletes.** The center also offers access to **cultural, educational, and social development programs.** At the same time, the center is an arena **to promote teamwork, fair play, and mutual understanding—** values that are important beyond the field of play. **The primary beneficiaries are young Haitians as well as schools and communities.**

+200

officials were
trained in sports
management

“Training Public Officials in Sports Management” (Capacitación para Funcionarios Públicos en Gerencia Deportiva) is a program in **Brazil** and **Argentina.** Via an online course and international seminars, the program has **trained more than 200 officials** to conduct new models of **collaborative governance, to evaluate** these new models, and **to share lessons learned in establishing** public-private partnerships.

Sports for Inclusion and Social Capital

“On your mark, ready, ... Inclusion” (En sus Marcas, Listos... Inclusión) promotes **access to sports for people with disabilities** by strengthening components of the National Paralympic Games. **Colombia, El Salvador, Ecuador, Nicaragua, Brazil, and Peru implemented** the program in mid-**2017.** In participating countries, two implementation areas were selected based on poverty high rates, exclusion and violence, the percentage of individuals with disabilities, and limited Paralympic development. The project involved private sector and civil society, and highlighted the social and economic contributions of people with disabilities.

“Sports and Inclusive Education as a Development Tool” (El Deporte y la Educación y la Inclusiva como Herramientas para el Desarrollo). Launched in **Panama** in May **2017**, this program benefits **children with disabilities** who study in **public primary (6-14-years-old) and secondary (15-18-years-old) schools.** Its objective is to implement the Unified School model (Unified Sports and Young Athletes Program)



5,500
beneficiaries in
Mexico, Brazil, and
Colombia

and **provide civil society, policymakers, and government officials with best practices to promote social inclusion through sports.** The preliminary results are promising and suggest that the program can transform schools and communities into more inclusive environments, increase interactions between disabled and non-disabled youth, and build leadership skills in students with intellectual disabilities.

“Football Net Program (I and II)” uses sports (specifically soccer) to promote social inclusion through an innovative pedagogy in which **dialogue is a key element** to form a **relationship of mutual respect** and **develop self-esteem and responsibility.** Each session focuses on a specific value and develops it through sports-based games. Participants play a soccer match in which they must practice a value in the best way possible. This methodology provides ample room for reflection during activities. For example, participants decide on the rules, play the game, and determine the game’s winner based on their teammates’ conduct. The program has benefited **5,500 youth in Mexico, Brazil, and Colombia.** Preliminary evidence shows significant participation rate **satisfaction** and **a decrease in aggressive behavior.**

Sports for Health, Well-being, and Social Outcomes

The “Regional Program for Chagas Disease Control” (Programa Regional contra el Chagas) seeks **to diminish the impact of the Chagas disease in communities throughout Gran Chaco, Argentina, as well as in Bolivia and Paraguay.** The project includes the development of sports activities as a vehicle for community mobilization and education. It includes **workshops, festivals, and sports activities to promote values and foster healthy habits** that prevent the Chagas disease. To date, the program has benefitted more than 12,000 children.

Sports Against Crime and Delinquency

+30,000
beneficiaries in
Peru, Mexico,
Colombia, and
Brazil

“Light up Your Life, Community Centers for Light” (Ilumina tu Vida, Centros Comunitarios de Luz): this program has benefited more than **30,000 people** in communities throughout **Peru, Mexico, Colombia, and Brazil.** It has helped **improve safety and social integration** by promoting children’s and youth’s participation in sports-based activities at night in well-lit, safe spaces.

“La Banda Celeste,” implemented in **Uruguay,** develops social skills that promote social integration for at-risk adolescents between the ages of 13 and 18-years-old who are neither study nor work (NEETs). It **helps prevent criminal behavior** and, to date, has benefitted **600 youth.** While there has not yet been a rigorous program evaluation, it appears to be effective in reducing violence among youth.

“Football for Hope (I)” (Fútbol para la Esperanza): applied in public facilities in **Bogota and Cali, Colombia,** this project contributes to the **social development of children and youth through soccer.** By cultivating healthy habits and teaching positive values through sports, the program promotes **education, school completion,** and **social inclusion** while simultaneously **preventing violence** and exposure to the **dangers of the streets** for more than **1,400 children and youth between the ages of 5 and 18-years-old.**

Sports for Gender Equality

3,600
beneficiaries in El Alto
expressed positive
results

“Girls Living with Altitude” (Niñas Viviendo con Altura), the **Bolivian municipality of El Alto developed a program** for girls to learn to practice **their rights via sports**. The program teaches them **values and various skills**, such as **leadership** and **self-esteem**, to prevent **gender-based violence**, among other benefits. **The program also teaches families, teachers, and the community the importance of female empowerment and gender equality**. The program has benefitted more than **600 girls and 3,600** community members. Despite the lack of a rigorous evaluation, the participants have reported an increase of between 66% and 79% in their ability to independently advocate with their peers and community members for their interests.

Box 11.1. Adapting to the Future: Sports, Technology and Development

Technology challenges 21st-century societies in increasingly more significant and imminent ways. Each day, we experience changes that have a more significant impact than those that preceded it, and such changes are unrelenting and dynamic. Our capacity to adapt to changes is constantly tested, and in this context, socioemotional and transversal skills are increasingly important. They are indispensable tools to adjust to the new realities that define the future. For youth to be employable in this new environment, they need strong digital and transversal skills.

“Technology and Sports: Education for the Future” (Tecnología y Deporte: Educación para el Futuro) is a new program launched by the IDB and the Olympic Committee. It has been implemented in **Colombia** (Barranquilla, Medellin, and Quibdo), **Argentina** (Bueno Aires), and **Ecuador** (Manta and Quito), and is geared to **increase employability and reduce gender gaps for more than 5,800 vulnerable adolescents between the ages of 12 and 18-years-old**. **The program strengthens their digital and transversal skills**, which are part of the Olympic values, including friendship, respect, and excellence. Additionally, **the program seeks to provide public systems in these three countries with a methodology for comprehensive digital training**.



Conclusions

Making a Difference

Intuitively, it seems like a good idea to invest in sports and promote physical activity. We all agree that sports improve health and can positively influence social development. Sports embody important values like responsibility and teamwork and promote social integration and economic development in a variety of political, geographic, and cultural contexts. Sports can also increase human capital and productivity by improving physical and mental health and contributing to improved educational outcomes. Organized sports can positively affect institutional accumulation of capital markets. They also promote social capital, confidence, culture, and crime reduction. And these effects are mutually beneficial.



We have seen **the scarcity of reliable evidence supporting the idea that sports practice improves development**. As in life, sports are not a black and white matter, and the colors are, in fact, nuanced. Details make the difference between programs that get children off the streets and reduce violence and those that unite youth in risky behavior. Details separate programs that prevent alcohol use from those which promote it.

Teamwork

Latin America and the IDB have kicked-off the match. In the last 15 years, 18 countries have implemented programs using sports to change the lives of nearly 100,000 people. It's possible to do it, but for it to work, we must count on the collaboration of all social sectors. The IDB has experience, networks, and talent in the 26 countries in the region. Together we can do more. We can design projects that can be evaluated, improve the evaluation of those implemented, and provide support where consensus exists. We can score the game-winning goal and change the scoreboard on poverty and exclusion.

Let's design programs that can be evaluated, improve evaluations of those implemented, and provide support where consensus exists.

What Have We Learned?

Sports can play an important role in a country's growth, productivity, and stability. We know that physical activity can produce improved health results in Latin America and the Caribbean, which includes some of the most inactive countries in the world. Therefore, improving conditions to increase access to physical activity is a necessary and important policy for development. In the following section, we provide some suggested actions to promote physical activity in countries in the region.



1. Increase public awareness regarding the role of physical activity in health and well-being. A society that moves is healthier.



2. Internalize (individually, collectively, and institutionally) the role and effects of practicing sports on society to encourage and design public policies that facilitate participation in physical activity (for example, when designing public spaces). City planning can permanently influence public access to physical activity.



3. Apply “nudging” (influence people's behavior through nuanced actions, so they make the most beneficial, easiest choice without prohibiting them from choosing other options). Evidence on the positive effect of such interventions on physical activity and other healthy practices exists.



4. Design programs that can be evaluated and improve data collection to make an accurate diagnosis. Gradually scaling pilot programs is a good first step to improving lives through sports.

Box 11.2. The Right Way “To Win”

The “Sports as an Instrument for Youth Employment” project, also known as “A Ganar (To Win),” is an example of how to apply a Sports for Development program successfully. The program is designed with clearly defined objectives and a comprehensive and structured methodology that leaves nothing to chance. The program has facilitated successful outcomes. “To Win,” started as a pilot project in 2005, and Brazil, Ecuador, and Uruguay implemented it on a small-scale. Once the program’s effects were carefully analyzed, results were verified, and its methodology improved, the IDB Lab approved a second wave of financing in March 2010. This financing expanded the program’s implementation to six new countries: Colombia, Haiti, Mexico, the Dominican Republic, Jamaica, and Argentina. Partners of the Americas and Virreyes Rugby Club implemented the program.

The Four Essential Phases

The program was for at-risk youth (boys and girls) between the ages of 16 and 24-years-old. It sought to affect three outcomes: employment, re-entering school, or entrepreneurship. During a period of seven to nine months, participants completed three training phases. The **first phase** consisted of employability and life skills training through the application of a sports-based curriculum (specifically team sports). The **second phase** of training provided market-based vocational technical training. In the **third phase**, participants completed internships or other practical experiences. Finally, in the **fourth phase**, students participated in a series of follow-up activities. During the training, youth participants are mentored by local professionals, and they do volunteer community service projects.

The Formula for Success

The program’s objective is for youth to be employed. Participants should acquire key employability skills to get and keep a job in the long-term. This is part of the personal transformation program participants experience. Feedback from employers highlights that program participants have a positive work attitude. Many employers emphasize that their skills, discipline, and motivation are favorable compared to youth who did not participate in the program. In many cases, employers also admit that without the help of “A Ganar,” these youths would not have received a job interview. Employers were surprised and impressed by the youth’s quality of professional and personal conduct.

The “A Ganar” methodology is one of the keys to its success. It combines the experience- and sports-based education that facilitated the first training phase. The methodology structure provides a holistic approach to teach employability skills, provide technical training, and help job placement. The connection to employment is meaningful because it is a primary objective, and motivates youth to participate in the program. The fusion of the three principal axes of the program makes it more productive than a simple training and job placement program or a program that solely seeks to teach life skills.

Teamwork

Additionally, “A Ganar” is an excellent example of how relationships and alliances in all community sectors can reinforce and enhance the daily function of cities and societies. The program is designed to meet the needs and opinions of youth. It also invites community organizations and businesses to work together to achieve program success. In life as in sports, together we can do more.

References

- Alemann, C. (2014, May). ¿Hay una brecha de autoestima entre hombres y mujeres? *¿Y si hablamos de igualdad? Blog*. Retrieved from <https://blogs.iadb.org/igualdad/en/gender-confidence-gap/>
- Andrews, J. & Andrews, G. (2003). Life in a Secure Unit: The Rehabilitation of Young People Through the Use of Sport. *Social Science & Medicine* 56 (3) 531–550. [https://doi.org/10.1016/S0277-9536\(02\)00053-9](https://doi.org/10.1016/S0277-9536(02)00053-9)
- Begg, D., Langley, J., Moffitt, T., & Marshall, S. (1996). Sport and Delinquency: An Examination of the Deterrence Hypothesis in a Longitudinal Study. *Br J Sports Med*, 30(4). 335-34.
- Brewer, J. (2016, January 16). “President Obama Offers Final Reminder about the Value of Sports in America.” *The Washington Post*. Retrieved from https://www.washingtonpost.com/sports/nationals/president-obama-offers-final-reminder-about-the-value-of-sports-in-america/2017/01/16/884975ba-dc0c-11e6-918c-99ede3c8cafa_story.html
- Cabane, C. (2011). Unemployment Duration and Sport Participation. *CES – Working Papers*.
- Caldwell, L., & Smith, E. (2006). Leisure as a Context for Youth Development and Delinquency Prevention. *The Australian and New Zealand Journal of Criminology*, 39(3), 398-418.
- Coalter, F. (2007). Sports Clubs, Social Capital and Social Regeneration: ‘Ill-Defined Interventions with Hard to Follow Outcomes’? *Sport in Society*, 10(4), 537-559. <https://doi.org/10.1375/acri.39.3.398>
- Da Silva, I., Hino, A., Payne, V., & Hallal, P. (2016). Physical Activity and Safety from Crime: A Systematic Review. *Journal of Physical Activity and Health*, 13(6), 663-670. 10.1123/jpah.2015-0156
- Delaney, L., & Keaney, E. (2005). *Sport and Social Capital in the United Kingdom: Statistical Evidence from National and International Survey Data*. Retrieved from <http://www.social-capital.net/docs/file/sport%20and%20social%20capital.pdf>
- Endresen, I. M., & Olweus, D. (2005). Participation in Power Sports and Antisocial Involvement in Preadolescent and Adolescent Boys. *Journal of Child Psychology and Psychiatry* 46(5), 468–478. 10.1111/j.1469-7610.2005.00414.x
- Executive Office of the United States of America (2011). *White House Task Force on Childhood Obesity. One-Year Progress Report*. Retrieved from https://letsmove.obamawhitehouse.archives.gov/sites/letsmove.gov/files/Obesity_update_report.pdf
- Faulkner, G. E. J., Adlaf, E. M., Irving, H. M., ... & Goodman, J. (2007). The Relationship Between Vigorous Physical Activity and Juvenile Delinquency: A mediating role for self-esteem? *Journal of Behavioral Medicine*, 30(2), 155-163. 10.1007/s10865-006-9091-2

Fredricks, J., & Eccles, J. (2006). Is Extracurricular Participation Associated with Beneficial Outcomes? Concurrent and Longitudinal Relations. *Developmental Psychology*, 42(4), 698–713. 10.1037/0012-1649.42.4.698

Graduate XXI (2019). Retrieved from <http://www.graduatexxi.org/>

Gould, D., Flett, R., & Lauer, L. (2012). The Relationship Between Psychosocial Developmental and the Sports Climate Experienced by Underserved Youth. *Psychology of Sport and Exercise* 13(1), 80-87. <https://doi.org/10.1016/j.psychsport.2011.07.005>

Hartmann, D., & Brooks, D. (2006). Rethinking Sports-Based Community Crime Prevention: A Preliminary Analysis of the Relationship Between Midnight Basketball and Urban Crime Rates. *Journal of Sport & Social Issues*, 30(2), 180-196. <https://doi.org/10.1177/0193723506286863>

IDB Database: Labor Market Social Security Information System. (Website). Retrieved from <https://www.iadb.org/en/sector/social-investment/sims/home>

IDB. (2019). Transversal Skills Development in Latin America and the Caribbean. Retrieved from https://publications.iadb.org/publications/english/document/21st_Century_Skills_en_en.pdf

Kawahara, I., Kawahara, Y., & Nogawa, H. (2010). The Relationship Between Community Sport Clubs and Social Capital in Japan: A Comparative Study Between the Comprehensive Community Sport Clubs and the Traditional Community Sports Clubs. *International Review for the Sociology of Sport*, 45(2), 163–186. 10.1177/1012690210362027

Kosteas, V. D. (2011). The Effect of Exercise on Earnings: Evidence from the NLSY. *Journal of Labor Research*, 33(2), 225–250. 10.1007/s12122-011-9129-2

Kwauk, C. (2016). Let Them See a Different Path: Social Attitudes Towards Sport, Education and Development in Samoa. *Sport, Education and Society*, 21(4), 644– 660. 10.1080/13573322.2015.1071250.

Langbein, L., & Bess, R. (2002). Sports in School: Source of Amity or Antipathy? *Social Science Quarterly*, 83(2), 436–454.

Lechner, M. (2008). Long-run Labour Market Effects of Individual Sports Activities. *IZA Discussions Paper*, No. 3559. <http://nbn-resolving.de/urn:nbn:de:101:1-2008062582>

Mahoney, J. L., & Stattin, H. (2000). Leisure Activities and Adolescent Antisocial Behavior: The Role of Structure and Social Context. *Journal of Adolescence*, 23(2), 113–127. 10.1006/jado.2000.0302.

Mahoney, J., Stattin, H., & Lord, H. (2004). Unstructured Youth Recreation Center Participation and Antisocial Behaviour Development: Selection Influences and the Moderating Role of Antisocial Peers. *International Journal of Behavioral Development*, 28 (6), 553–560. <https://doi.org/10.1080/01650250444000270>

Márquez, B., González, P., Gallo, L., & Ji, M. (2016). Latino Civic Group Participation, Social Networks, and Physical Activity. *American Journal of Health Behavior*, 40(4), 437-445. 10.5993/AJHB.40.4.5

McHale, J., Vinden, P., Bush, L., Richer, D., Shaw, D., & Smith, B. (2005). Patterns of Personal and Social Adjustment Among Sport-Involved and Noninvolved Urban Middle- School Children. *Sociology of Sport Journal*, 22(2), 119-136. <https://doi.org/10.1123/ssj.22.2.119>

Parker, A., Meek, R., & Lewis, G. (2014). Sport in a Youth Prison: Male Young Offenders' Experiences of a Sporting Intervention. *Journal of Youth Studies*, 17(3), 381-396. 10.1080/13676261.2013.830699.

Putnam, R. D. (1995). Bowling alone: America's Declining Social Capital. *Journal of Democracy*, 6(1), 65-78. 10.1353/jod.1995.0002

Richardson, A., Troxel, W., Ghosh-Dastidar, M., Beckman, R., ... & Dubowitz, T. (2017). One Size Doesn't Fit All: Cross-sectional Associations Between Neighborhood Walkability, Crime and Physical Activity Depends on Age and Sex of Residents. *BMC Public Health*, 17(97). 10.1186/s12889- 016-3959-z.

Ruopeng, A. & Liu, J. (2012). Local Labor Market Fluctuations and Physical Activity Among Adults in the United States, 1990–2009. *International Scholarly Research Network (ISRN) Public Health*, Volume 2012. 10.5402/2012/318610.

Sandford, R. A., Duncombe, R., & Armour, K. M. (2008). The Role of Physical Activity/ Sport in Tackling Youth Disaffection and Anti-Social Behavior. *Educational Review*, 60(4), 419-435. 10.1080/00131910802393464.

Sherry, E., & Strybosch, V. (2012). A Kick in the Right Direction: Longitudinal Outcomes of the Australian Community Street Soccer Program. *Soccer & Society*, 13(4), 495-509; 10.1080/14660970.2012.677225

Seaman, J., Sharp, E. H., McLaughlin, S., Tucker, C., ... & Rebellon, C. (2014). A Longitudinal Study of Rural Youth Involvement in Outdoor Activities Throughout Adolescence. *Research in Outdoor Education*, 12, 36-57. 10.1353/roe.2014.0003

Stansfield, R. (2017). Teen Involvement in Sports and Risky Behavior. *British Journal of Criminology*, 57(1), 172–193. <https://doi.org/10.1093/bjc/azv108>

Stevenson, B. (2010). Beyond the Classroom: Using Title IX to Measure the Return to High School Sports. *Review of Economics and Statistics*, 92(2), 284-301. 10.1162/rest.2010.11623

Trotta, Tiziana (2017, March 30). Las chicas que espantan a patadas las pesadillas de Boko Haram. *El País*. Retrieved from https://elpais.com/elpais/2017/03/15/album/1489604814_199622.html

UNICEF. (2019). Entrar en el juego. Entendiendo la evidencia sobre el deporte para el desarrollo centrado en la infancia. Retrieved from https://www.unicef.es/sites/unicef.es/files/comunicacion/Entrar_en_el_juego.pdf

UNICEF. (2003). Deporte para el desarrollo y la paz: Hacia el cumplimiento de los objetivos de desarrollo del milenio. Retrieved from https://www.un.org/sport/sites/www.un.org.sport/files/ckfiles/files/2003_UN_Task_Force_report_Spanish.pdf

Verhagen, S., & Boosta, N. (2014). Bridging Social Capital Through Sports: An Explorative Study on (Improving) Inter-Ethnic Contact at Two Soccer Clubs in the Netherlands. *Journal of Social Intervention: Theory and Practice*, 23(4), 23–38. 10.18352/jsi.423



CHAPTER 12

Entrepreneurship Programs

By Adrián Magendzo
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Entrepreneurship as a Tool to Develop 21st Century Transversal Skills

We have moved from an era of predictability to a time of more uncertainty.

The 21st century is dynamic, uncertain, and full of change. It has produced new knowledge, challenges, and trends at an extreme velocity. Such changes have created an **ephemeral reality** that requires **individuals to anticipate changes, overcome uncertainty, process the surrounding environment, and learn**. We are experiencing a paradigm shift. We are moving from an era of predictability, economies of scale, process efficiency, and replicability to a more uncertain reality. algorithms and intelligent machines determine efficiency, and information access obscures knowledge sources. This situation reminds individuals to **develop new skills to adapt to unique circumstances**. In this environment, people will replace knowledge and efficiency with the capacity to learn and adapt effectively. It is no longer about how much knowledge and experience you have, but how quickly you learn.

The new 21st century reality resembles the daily lives of entrepreneurs.

In this chapter, we argue that the 21st century reality resembles the daily lives of entrepreneurs. The survival of any entrepreneurial venture depends on how quickly entrepreneurs react to market conditions. For entrepreneurs, this represents an opportunity to add and sustain value, adjust to competition, and anticipate trends, technologies, or economic forces that could challenge the value proposition. These essential entrepreneurial skills include **the ability to learn and adapt quickly to confront uncertainty**. Can citizens learn and adopt the entrepreneurial spirit? Will such talents prepare society to face the future? Are educational systems, work environments, and society prepared for this distinct approach?

This chapter responds to these questions. We explored how to shift from a **paradigm** based on efficient replicability and economies of scale to one based on adaptability and accelerated learning. The new paradigm will **modify** the way we understand **efficiency** in the corporate and organizational world (Section 1). Following this, **we focus on entrepreneurs and analyze the skills** required to face 21st century challenges and the tools to develop them (Section 2).

This analysis focuses on the evolution of three challenges that reflect the paradigm shift we face:

- **From efficiency to empathy:** From an approach that emphasizes scalability, replicability, and efficiency to an approach based on curiosity and empathy that understands customer and user needs and struggles.
- **From searching for predictability to managing uncertainty:** Increasing uncertainty will require better risk management and adaptation, as well as higher tolerance for failure.
- **From replicability to balance between perseverance and adaptability:** Those who do not persevere do not succeed. A person who does not adapt and learn quickly does not survive. The key to finding the right balance is being comfortable with change and learning with agility.

Finally, we analyze the **entrepreneurial ecosystem** to understand how to build bridges between organizations. In addition, we want to understand how interactions among actors are key to promoting the flow of information. We can achieve a scalable learning approach via efficiency (Section 3). We conclude with public policy recommendations and areas where more research is needed (Section 4).

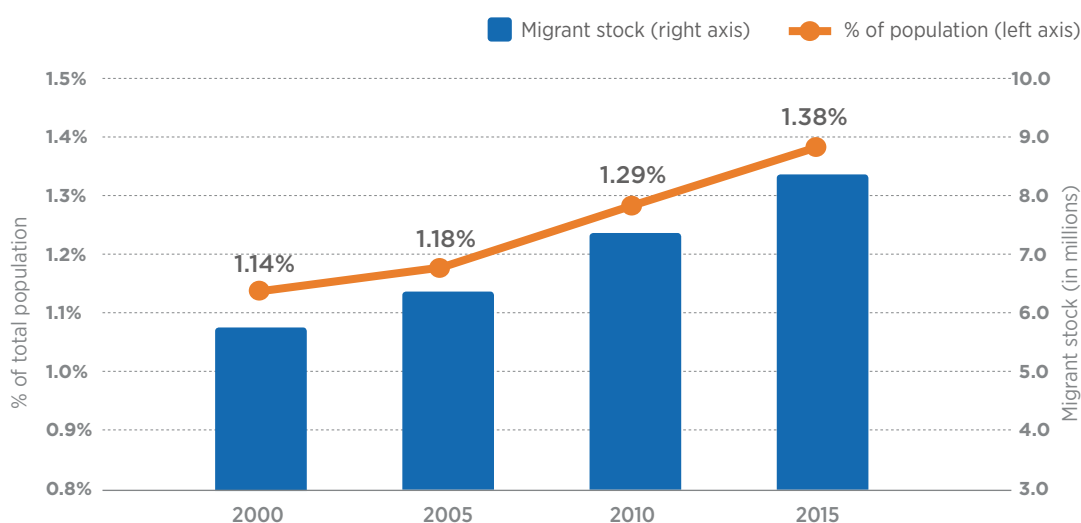
Change is the Only Constant

We live in an interconnected world where globalization and the digital revolution have densified commercial networks, talent, information, and capital flows. Technology acts as a catalyst. In such an interconnected, complex, and uncertain environment, learning is the only way to adapt. It is only possible to survive if we learn quickly.

Hagel III, Brown, Davison, and Deloitte developed an index that measures changes that have impacted business in the last 40 years (The Shift Index).⁹⁰ To understand the magnitude of changes that we face in the region, we analyze Latin America.

Figures 12.1, 12.2, and 12.3 display the migrant population (talent flows), direct foreign investment (capital flow), and internet traffic⁹¹ (information and technology flow) in Latin America in the past few decades.

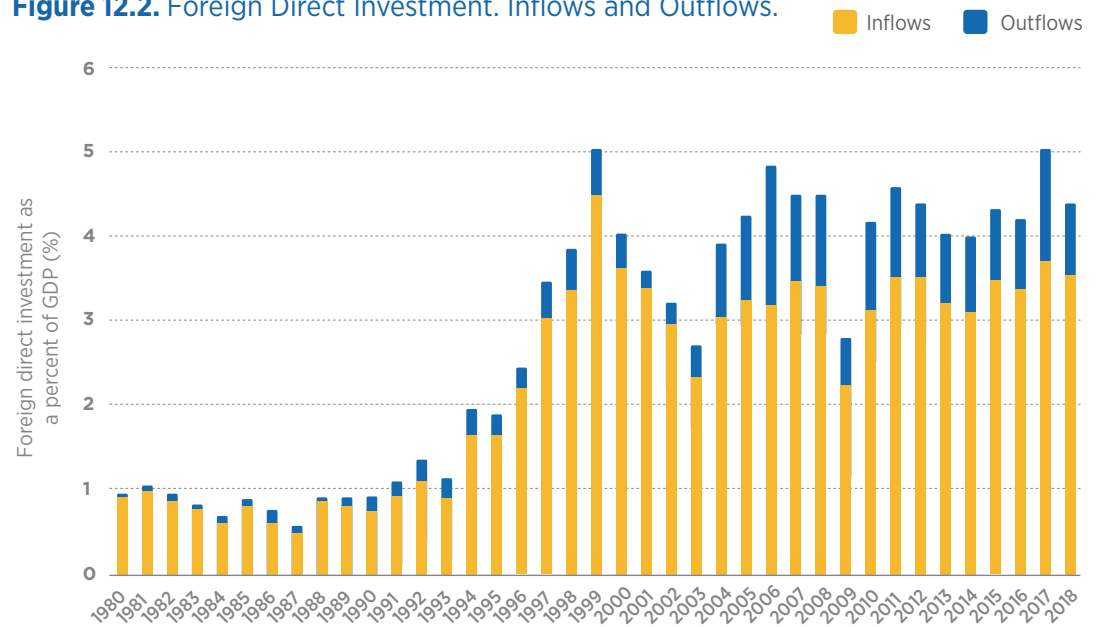
Figure 12.1. Migrant Stock



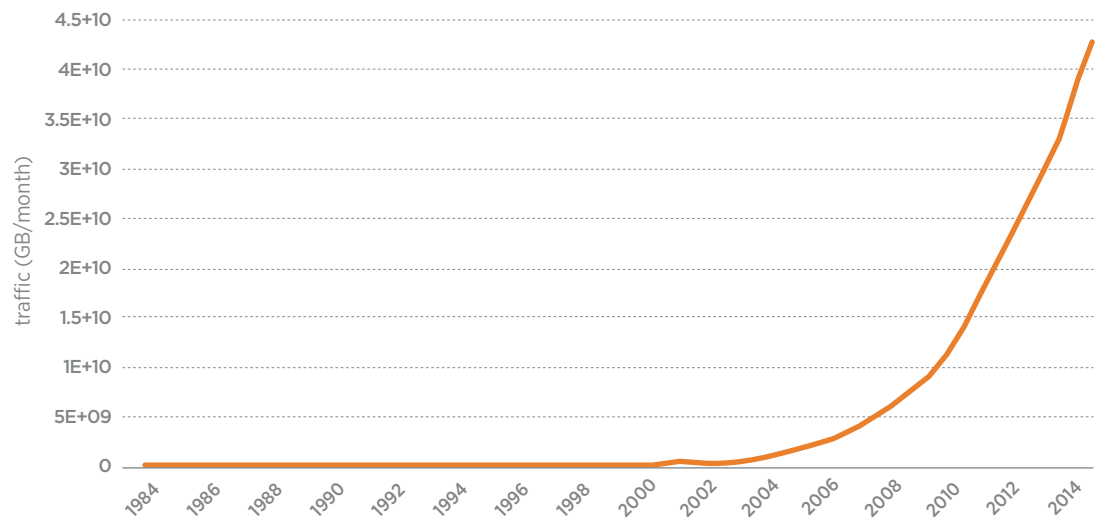
Source: The World Bank

⁹⁰ For a comprehensive review of the Big Shift Index methodology, see [the 2016 Shift Index](#).

⁹¹ The graph for internet represents global level information.

Figure 12.2. Foreign Direct Investment. Inflows and Outflows.

Source: The World Bank

Figure 12.3. Global Internet Traffic

Source: CISCO

The first graph (Figure 12.1) shows how **talent flows** have resumed an upward trend in recent years, increasing by 45% in terms of the number of migrants in the region. Similarly, in the second graph (Figure 12.2), see how **capital flows** have **quintupled** to more than 5% of the regional GDP.⁹² It is worth mentioning that the variability in these trends has notably increased in recent years. Figure 12.3 shows how **internet traffic** has grown **rapidly** in past decades. In 2014, total internet traffic was 2.4 billion times

92 For 2017.

higher than three decades earlier. That year, the average traffic per user was the same as total global traffic in 1984.

With these figures in mind, it seems indisputable that change in Latin America is inevitable and will progress faster (per global Shift Index predictions). Governments, organizations, and businesses experience the pressure to function in a more dynamic, changing environment. Since 1965⁹³ business productivity has doubled. However, the average return on corporate assets over the same period has declined by three-quarters (Hagel, Brown, & Davidson, 2009). These trends point to an essential change in how businesses add and capture value. A company that joined the S&P500⁹⁴ in the 1930s remained one of the 500 largest companies in the United States for 75 years on average. Today, a company that is part of this selective group can expect to remain there for 15 years before losing its position. The speed at which companies are formed, grow, and disappear is an example of the intense pace of change.

What can explain the **drastic decline in return on corporate assets** experienced over recent decades and the accelerated business cycle of the **largest corporations**? For years, senior corporate leaders have focused on increasing efficiency via economies of scale. In stable times, a company increases production to leverage fixed costs at higher volumes and reduce unit costs. Employees have been trained for years with this premise in mind. **Today, the workforce focuses on experience-based performance and replicability. Anyone who can produce more at a lower cost is more valuable.**

Winners are no longer those who grow the fastest—they adapt the fastest. And to adapt, you need to learn quickly and innovate.

The issue is that, under uncertain market conditions, in a hyper-competitive environment that demands customized products and services, **it is no longer sufficient** to increase production and leverage economies of scale to survive. A scheme that relies on stable, predictable demand projections can be a double-edged sword. Given increasingly sudden changes in market forces, this model has become the rule rather than the exception.

As a result, “scalable efficiency” (based on economies of scale) is incompatible with today’s world challenges. Winners are no longer those who grow revenue the fastest, but those who adapt the fastest. And to adapt, you need to learn fast and innovate.

A Paradigm Shift: From Scalable Economies to Scalable Learning

In the 20th century, management training focused on creating strategies and tools to standardize and achieve higher efficiency (Blank, 2013). A good manager maximized shareholder value by growing revenues and optimizing costs. Optimizing gains is still relevant. However, financial sustainability is now more relevant, even in environments outside the corporate world. Traditional management methods based on volume to achieve higher efficiency are less relevant in the current context.

As we generate more knowledge, the world innovates, creates, and transforms. And the fixed stock of knowledge loses value. **A company’s competitive advantage is based on the size and efficiency of production processes rather than how much it knows.**

93 2016 Shift Index: The Paradox of Flows: Can Hope Flow from Fear? Deloitte University Press. 2016. Page 24.

94 New York Stock Exchange Index, the 500 companies with the highest market capitalization.

Competitive advantage is based on **access to and use of new knowledge flows that can be updated to adapt and survive**. Only organizations that create processes to learn at an accelerated pace will create economic value sustainably. And only employees who can function as the motor for this **new generation focused on knowledge production, and accelerated learning will be at the forefront of new challenges**.

Only employees who can function as the motor for this new generation focused on knowledge production and accelerated learning will be at the forefront of new challenges.

Economies of scale and scalable learning are opposing forces. Corporations are accustomed to standardization, predictability, and rigidity to produce high efficiency. However, this is counter to the continuous learning model and limits exploration, improvisation, and experimentation. Institutions must transform and shift paradigms. Twenty-first-century workers must lead the transformation from an economies of scale model to learning at scale.



Economies of scale

(predictability and rigidity)

VS.



Learning at scale

(space for exploration, improvisation, and experimentation).

A model for learning at scale compels an organization to innovate systematically, keeping in mind that they are the heart of the transformation. **A systematic learning process** helps organizations face the threat of a complex world in which they are highly susceptible to unexpected changes. Organizations also balance the scales in their favor by taking advantage of a new, more dynamic reality to reinvent themselves and create better products, services, and processes. It is important to understand that new forms of structural organizations are necessary to be successful. They should focus on talent and new skills revolving around innovation. **Therein emerges a new ideal worker profile, one whose skills meet the requirements of a dynamic and changing world, a worker who asks questions, learns, adapts, and does not fear failure.**

A model for learning at scale compels an organization to innovate systematically, keeping in mind that workers are the heart of the transformation.

The Entrepreneur as the Protagonist

An entrepreneur's primary function is to innovate. In their constant quest to create value, an entrepreneur must create new products, services, and processes. This progression—the process of creating something better and with more value—is known as innovation. An entrepreneur is not someone who owns a new, small company. An entrepreneur assumes the challenge of generating value, regardless of whether it's via a new business idea, the transformation of an established corporation, or innovation in government or other institutions.

The verb “innovate” is not only applicable to Silicon Valley: anyone who has unwavering ambition to improve a process and who understands how to generate value is an innovator. **To innovate**, by definition, **one must anticipate market changes and take advantage of them**. One must learn to read the environment, adapt to difficulties,

and survive generating value. By nature, entrepreneurs have the skills to prevail and prosper in the 21st century.

**The very essence
of the entrepreneur
equips them to
prevail and prosper
in the 21st century.**

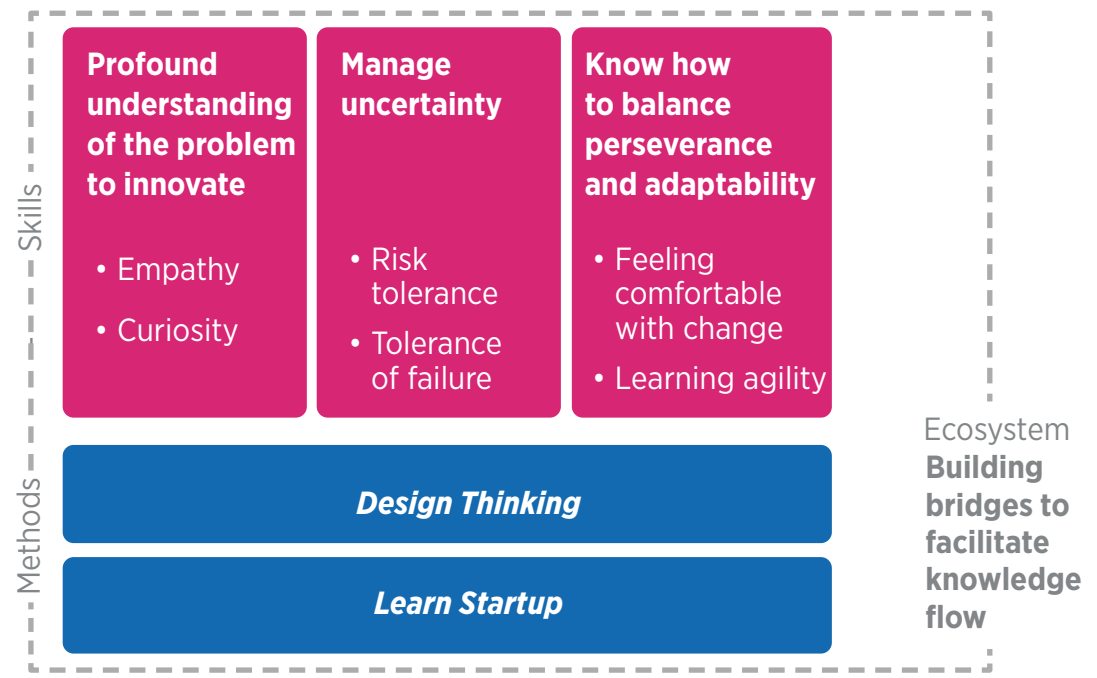
What are the attributes of the entrepreneur who must function on the brink of chaos?⁹⁵ A Stanford University study of some 4,000 entrepreneurs and 1,800 general managers (Blank, 2013) identified three categories to distinguish self-identifying entrepreneurs: i) they achieve a profound understanding of a problem and empathize with those who suffer from it, ii) they can manage uncertainty, and iii) they know how to balance perseverance and adaptability.

In this chapter, we dive deeper into **the three fundamental pillars that define what it means to be an entrepreneur:**

- 1** Understand a problem to innovate.
- 2** Manage uncertainty.
- 3** Know how to balance perseverance and adaptability.

Methodologically, we focus on two promising tools to develop these skills (they are not the only ones). The tools involve previously mentioned principles: i) **Lean Startup** employs a systematic and repetitive process to understand and adapt to market needs (market pains) via a value proposition that minimizes the costs associated with development and ii) **Design Thinking** is a tool that allows users to understand clients' needs more effectively via the construction of prototypes (Figure 12.4). It is no coincidence that these two methodologies are shaping a new generation of entrepreneurs. We will focus on each tool to better understand what skills to develop, from an entrepreneurial perspective, to confront unique 21st century challenges.

Figure 12.4. Entrepreneurship and 21st Century Skills



⁹⁵ On the Brink of Chaos is a commonly used term that refers to the state of chaos and order in an entrepreneurial ecosystem.

Curiosity, coupled with the motivation to explore, is what makes entrepreneurs driven and why they stand out when facing unprecedented situations.

Profound Understanding of a Problem: Curiosity and Empathy

Understandably, people often speak of innovation and entrepreneurship interchangeably. Innovation, regarded as the generation of value by making improvements related to what is available, is the entrepreneur's primary function. What distinguishes entrepreneurs is their curiosity – the ability to understand a system better and operate creatively. This curiosity, coupled with the motivation to explore, is what makes entrepreneurs driven and why they stand out when facing unprecedented situations.

The **intellectual curiosity of entrepreneurs** is their essential need to understand how a system works and understand a problem profoundly. It allows them —**via modern applications such as Lean Start-up and Design Thinking**— to propose solutions that generate opportunities and ultimately lead to innovation.

Entrepreneurs are connected to users. They must understand their audience to make the value proposition. **A good entrepreneur knows that no one understands a problem better than those who suffer from it.** Understanding the user requires empathy – putting oneself in the shoes of another who has a problem they need to solve. Curiosity drives them to learn, and empathy allows them to understand who they can teach. It is not a coincidence that the literature on entrepreneurship has developed methods to perfect skills to understand users better. Design Thinking, for example, focuses on creating empathy with users, being disciplined to create prototypes, and having tolerance for failure (Kolko, 2015).

Simply put, Design Thinking is a discipline that seeks to design a solution centered on the individual suffering from the problem – the user (Brown, 2018). The design thinker⁹⁶ places the individual⁹⁷ at the center. Therefore, it is crucial to establish a connection between the user and their reality. **Empathy becomes relevant in this process.** To see the problem through the user's eyes, one must be curious, willing, and determined to learn. Humility is needed to establish a genuine connection with the user.

This ability becomes especially relevant in today's world of dizzying change. Anyone who understands the problem and is curious and empathizes with the user, will be better equipped to respond to external issues that may impact reality. Likewise, people who are curious and learn constantly will anticipate changes that confuse others. It is no longer sufficient to look back and act systematically: one must look to the future and understand the problem. Only people who understand user difficulties will be at the forefront, including identifying their needs, innovating, and surviving.

The Ability to Manage Uncertainty

Many people consider **entrepreneurs to be risk seekers**. Unlike traditional managers, their proclivity for risk tolerance allows them to perform better and more effectively in uncertain situations. Several studies have shown that entrepreneurs are better at managing the anxiety caused by uncertainty, thus allowing them to achieve better results in unusual circumstances (Butler, 2017). What differentiates those who prevail

⁹⁶ Those who use the Design Thinking methodology.

⁹⁷ In this case, the individual user has a problem, and they need a solution.

Design Thinking is a discipline that seeks to design a solution centered on the individual suffering from the problem – the user.

What differentiates those who prevail in uncertain situations is openness to new experiences and the need to learn and explore. Others are unable to manage uncertain situations and ultimately fail.

Being successful requires perseverance, but excessive stubbornness can lead to failure.

in uncertain situations is an openness to new experiences and the need to learn and explore. Others are unable to manage unpredictable situations and ultimately fail.

In an increasing complex world where interactions become more entangled, knowing how to thrive in uncertain environments is important. Risk is only a measure of uncertainty, and uncertainty is nothing more than a broader spectrum of scenarios. As things become more complex, feasible scenarios also increase and, consequently, so does uncertainty. People who remain sharp, functional, and possess the tools to manage pressure will be better prepared to face looming changes.

Design Thinking also plays an important role here. Tolerance to uncertainty is a key aspect of the methodology. It “pushes” the thinking design to look for unique solutions, and it uses creativity to deal with the ambiguity of exploring and implementing untenable alternatives. **The method is designed to draw individuals out of conventional thinking and expand the threshold of possible solutions.** The methodology design helps the entrepreneur to confront **failure with a positive attitude.** The design generates a vast number of solutions, understanding that many ideas will be eliminated. Being comfortable with discarding and expanding possibilities to deal with uncertainty allows entrepreneurs to exercise risk management. **Tolerance of uncertainty is another critical component of the 21st century skillset.**

Know How to Balance Perseverance and Adaptability

Being successful requires perseverance, but excessive stubbornness can lead to failure. **Knowing how to balance perseverance and adaptability is an art that entrepreneurs must learn to build successful ventures.** You need to believe enough in an idea for it to take hold and develop, but not so much that you neglect better solutions. Replicability has no place in this scheme. **The trick is to be passionate about the problem and not to focus on what is believed to be the solution.**

Entrepreneurial ventures are not small versions of large companies. They do not operate following rigid, isolated plans. Successful ventures understand that you must move quickly from failure to failure while simultaneously adapting, repeating, and continuously improving. The fundamental distinguishing factor is that entrepreneurs see **failure as an opportunity to learn rather than a threat.**

In **hypothesis-driven entrepreneurship**, known in the literature as **Lean Startup**, an entrepreneur translates his/her vision about how to solve a problem into a Minimum Viable Product (MVP). The MVP is a prototype made with the minimum amount of resources needed to validate or reject a hypothesis about an idea’s functionality (Eisenmann, Ries, and Dillard, 2013). Based on user reactions and other key actors within the system, the entrepreneur makes decisions about what to keep and what to throw away. They pivot as they search for continuous improvement to reach a solution. In this situation, change is not only desirable—it is optimal.

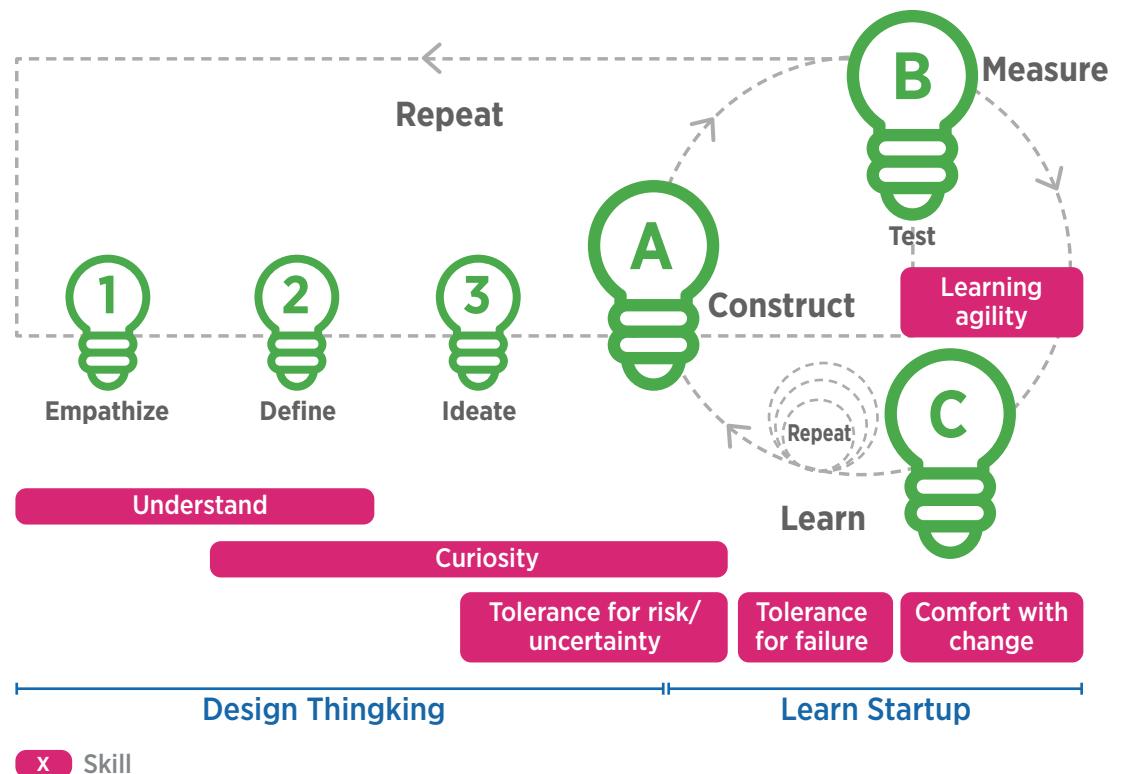
The Lean Startup method values experimentation over careful planning, user reactions over intuition, and an iterative design process over single prototype development. The solution is not developed in secret. On the contrary, it involves as many system actors as possible to include all relevant suggestions in future prototype iterations.



Agile learning and adaptability are two essential skills in this new scalable learning framework where continuous pressure and change forces you to learn more and faster.

Agility is key because one is not shielded from competition in this open experimentation method. This compels entrepreneurs to develop a product or service, pivot, and based on what they learn, develop a new prototype that improves the user's value proposition. It's simple – anyone who does not learn quickly, does not survive. Entrepreneurs fluent in this practice are better equipped to overcome the accelerated changes characteristic of today's world. Agile learning and adaptability are two essential skills in this new scalable learning framework where continuous pressure and change forces you to learn more and faster.

Figure 12.5. Design Thinking and Lean Startup Methodologies – Skills for the 21st Century



The Ecosystem as an Ally

Transitioning to a scaled learning scheme also requires redefining an operational model beyond the confines of an organization. No team will be able to learn at the required speed if they simply use the people and resources available where they are. It is imperative to have **access to diverse knowledge flows drawn from multiple sources to achieve a continuous accelerated learning model.** A genuinely efficient model of scaled learning requires structures to access knowledge networks that transcend organizational limits.⁹⁸ The ecosystem, nodes, and interconnections (in quantity and proximity) determine the learning potential of the organizations that constitute it.

An important aspect of entrepreneurship is that **entrepreneurs require an ecosystem,** which is nothing more than a set of actors and processes that, through their interaction,

⁹⁸ 2016 Shift Index: The Paradox of Flows: Can Hope Flow from Fear? Deloitte University Press, 2016.

catalyze organizational success. The term was coined in the 1980s when academics moved from conceptualizing entrepreneurs as individual, economically self-sufficient actors (Schumpeter's definition), to a more complex conception defined as a social process based on the interactions between distinct, diverse agents (Stam & Spigel, 2016). The transition from thinking of the entrepreneur as an individual to a more holistic and systematic conceptualization has not been trivial. This approach occurred in response to the impact the ecosystem has within the entrepreneurial process. The quality of the actors, but more importantly, the proximity between them, are strong determinants of success for entrepreneurs. **The information quantity and knowledge that flows through different nodes makes a network valuable.** Entrepreneurs experience this continuously. In their world—a world of risk, uncertainty, and change—any additional information can make the difference between organizational success and failure. Investors, entrepreneurs, government agents, providers, and even competitors should work together, sharing experiences, achievements, and failures to survive. As mentioned, entrepreneurs recognize that the quality of information flows benefits knowledge creation. Those who have been trained in this environment and principles have an advantage that it is instrumental in today's world.

Developing new skills in isolation is insufficient to address the profound changes that this new environment demands. To actively build knowledge flows requires a structural shift in mindset about how we relate to one another. Those who operate in isolated silos, in secrecy, focused on internal processes, will be unable to respond with speed demanded by a more dynamic environment. **The ability to build bridges, facilitate the exchange of knowledge, and strategically connect with others is useful to survive changes and take advantage of them. By generating better solutions, we participate in constructing a better world.**

Public Policy Recommendations

Every change brings inherent challenges, but every challenge represents an opportunity. The paradigm shift towards an accelerated learning scheme requires a reconsideration of what skill sets are needed to meet the challenges we face. In the previous sections, we delved into the skills that, from an entrepreneurial perspective, can be developed to overcome the new challenges intrinsic to this paradigm shift. The question now is: **what should governments do to encourage skills development? What policies should be promoted? What are the best practices for designing programs that facilitate new talent development? In this section, we propose three program areas that can be addressed through public policy,** ideally in a holistic manner, to promote entrepreneurial skills development. We begin **with large-scale entrepreneurial skills development and subsequently focus on the benefits of strengthening entrepreneurial ecosystems.** Benefits include building bridges between relevant actors to foster a culture that, ultimately, renders being an entrepreneur a social value and an aspiration.

Programs for Developing Entrepreneurial Skills

The **government plays a fundamental role** in promoting programs that develop entrepreneurial skills. It is important to distinguish between programs that build entrepreneurial skills and policies that strengthen the entrepreneurial ecosystems (thus strengthening entrepreneurship). The goal for the former program ought to be entrepreneurial skills development in the general population. Their goal is not necessarily

The goal is to cultivate an entrepreneurial mindset and culture that help individuals face 21st century challenges.

to increase the number of new companies, but instead, to equip individuals with these skills, and more importantly, to cultivate an entrepreneurial mindset and a culture that will help them face 21st century challenges. To accomplish this, governments should implement initiatives **transversally** throughout academic experience. **Cross-curricular programs** that develop entrepreneurial skills should start in the early years and go from **primary to high school** and into higher learning. **Practical modules** should be included in program content to facilitate the noncognitive skills development associated with an entrepreneurial mindset. This should be a student-led initiative through **“learning by doing”** activities that produce tangible results. The **goal** is for students to develop the skills, **confidence, and ability to identify opportunities and solutions, and put ideas into practice.**⁹⁹ **They will also develop empathy and curiosity and learn to manage uncertainty as they find the balance between perseverance and adaptability.**

Box 12.1. Finland – Entrepreneurial Skills for Better Citizenship

Finland is one of the few countries that offers, from primary to high school, a curriculum with compulsory entrepreneurship courses to develop entrepreneurial skills, . Their approach is one of the most innovative because they have designed several programs that use entrepreneurship tools to create better citizens.

For example, the program, “Civil participation and entrepreneurship” helps students see society through a variety of perspectives by developing empathy and curiosity. The program uses entrepreneurial methods to develop the skills for active citizenship.

Another program implemented in the early years of secondary education, “Me & MyCity,” seeks to develop entrepreneurial skills through practical experiences. Sixth-grade students become citizens, professionals, and consumers in a miniature city. The program lasts ten sessions, plus a full-day experience in the mini-city. While the program is not mandatory, nearly all Finnish students participate.

Source: Eurydice.

Strengthening the Entrepreneurial Ecosystem

There is no better way to learn than “learning by doing.” To this end, maximizing the number of participants in an entrepreneurial ecosystem is the best way to ensure that more people develop entrepreneurship skills. Based on this logic, strengthening the entrepreneurial ecosystem is crucial. **Governments should commit to strengthening entrepreneurship because it benefits economic growth and job creation.**¹⁰⁰ In

⁹⁹ The European Commission’s Education, Audiovisual and Cultural Exchange Agency (EACEA) developed this definition in its tender for Policy Experiments on Practical Business Practices.

¹⁰⁰ Since Adam Smith (1776), economists have emphasized how entrepreneurs improve life quality. For example, Schumpeter (The Theory of Economic Growth, 1911) argued that entrepreneurs catalyze economic growth by creating and introducing new goods, services, and production processes that replace outdated businesses. This is observed in Lucas’s talent allocation models (“On the Size

addition, starting and scaling an organization creates a workforce capable of facing 21st century challenges. A robust entrepreneurial ecosystem includes five elements: talent, capital, connectivity, cultural entrepreneurship, and legislation and institutions favorable to entrepreneurs. Attempting to strengthen the entrepreneurial ecosystem requires a holistic effort that simultaneously addresses these five areas. The government's role is decisive, especially in weak and precarious ecosystems, as they require the endorsement and trust that only a committed government can provide. New talent that emerges from such environments will have the skills to thrive in the new 21st century scalable learning paradigm.

Box 12.2. Rwanda: From Genocide to Africa's Leader in Entrepreneurship

Considering that less than two decades ago, nearly one million people were assassinated in less than 100 days in Rwanda, it is a miracle that they have a vibrant and innovative private sector that is head and shoulders above those of other African nations. In 2008, Rwanda placed 150th in the World Bank's "Doing Business" rankings. By 2019, it had moved to 29th place. No other country has experienced such a remarkable climb.

In 2001, the Rwandan government launched the National Innovation and Competitiveness Initiative, a holistic program that strengthens the fundamental pillars of entrepreneurship: talent development, improved legislation, capital attraction, and incentives to foster an entrepreneurial culture. Even though advances in the entrepreneurial ecosystem cannot be attributed to the country alone, one could argue that policies to develop entrepreneurship are part of the Rwandan economic development agenda and continue to play a critical role in progression.

Source: World Bank – Doing Business, Isenberg.

Building Bridges

In previous sections, we saw how creating networks to facilitate knowledge flow is crucial to learning at a 21st century pace. In this sense, governments should lead by example. The world is changing rapidly, and various influential economic actors must gather, coordinate, and collaborate. **The government's role is critical when it comes to facilitating building bridges that connect the academic community, private sector, and other relevant stakeholders. Thus, they can address the world's needs, challenges, and progress.** The skills described in this document are immediately necessary. However, today's reality will be much different than that of tomorrow. As has been said, the only constant in the 21st century is change. Consequently, **policies that strengthen talent must include update mechanisms to match the speed of**

The world is changing rapidly and various influential economic actors must gather, coordinate, and collaborate.

Distribution of Business Firms," 1978); Baumol ("Entrepreneurship: Productive, Unproductive, and Destructive," 1990); Murphy, Shleifer & Vishny ("The Allocation of Talent") and in growth rates.

changing trends and needs. Sharing knowledge generated by different influential actors ensures that skills development is directed properly.

Conclusions and Areas for Future Research

In this chapter, we argue that the **new dynamics of the 21st century are like the uncertain, complex, and changing entrepreneurship world.** This new reality compels us to rethink the economies of scale scheme based on sustained increases in last century's productivity and competitiveness levels. **Today, we face a new paradigm in which learning needs to be scaled.** Entrepreneurs teach us valuable lessons about how to learn actively and adapt to an accelerated, ephemeral, and risky environment. They teach us that empathy, curiosity, risk management, learning agility, and comfort with uncertainty are fundamental skills for the modern citizen.

Entrepreneurs teach us that empathy, curiosity, risk management, learning agility, and comfort with uncertainty are fundamental skills for the modern citizen.

This document is a first attempt at addressing how entrepreneurial methods can help us develop these skills. However, there is still a long way to go before fully understanding this phenomenon. We are proposing something innovative, and few programs worldwide have taken advantage of entrepreneurial talent to train more adept and better-prepared citizens. We still need to make a concerted effort to design programs that expand the reach of entrepreneurial tools beyond entrepreneurs. And above all, it is necessary **to measure the impact and benefits that this innovative model of education can provide to society.**

Latin America ought to be at the forefront of the 21st century. We must take advantage of changes in the rules of the game to innovate – to reinvent ourselves by creating citizens who surmount new challenges. Let's use entrepreneurship and its tools to prepare our talent better. But first and foremost, let us instill a learning mindset, an education that is not anchored in the past but focused on the future.



References

Blank, S. (2013, May). Why Lean Startup Changes Everything. *Harvard Business Review*. Retrieved from <https://hbr.org/2013/05/why-the-lean-start-up-changes-everything>

Brown, T. (2018, June). Design Thinking. *Harvard Business Review*. Retrieved from <https://hbr.org/2008/06/design-thinking>

Butler, T. (2017, March). Hiring an Entrepreneurial Leader. *Harvard Business School Publishing*, Retrieved from <https://hbr.org/2017/03/hiring-an-entrepreneurial-leader>

European Commission. (2016). Entrepreneurship at School in Europe. Eurydice Report. Retrieved from https://www.na.org.mk/tl_files/docs/eplus/eurydice/2016pub/195EN.pdf

Deloitte University Press. (2016). *The Paradox of Flows: Can Hope Flow from Fear?* 2016 Shift Index. Retrieved from <https://www2.deloitte.com/us/en/insights/topics/strategy/shift-index.html>

Eisenmann, T., Ries, E., & Dillard, S. (2013). Hypothesis Driven Entrepreneurship: The Lean Startup. *Harvard Business School Background Note* 812-095. Retrieved from <https://www.hbs.edu/faculty/Pages/item.aspx?num=41302>

Hagel, J. III., Brown J., & Davison, L. (2009, July). The Big Shift: Measuring the Forces of Change. *Harvard Business Review*. Strategy. Retrieved from <https://hbr.org/2009/07/the-big-shift-measuring-the-forces-of-change>

Isenberg, D. J. (2010, June). The Big Idea: How to Start an Entrepreneurial Revolution. *Harvard Business Review*. Retrieved from <https://hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution>

Kolko, J. (2015, September). Design Thinking Comes of Age. *Harvard Business Review*. Retrieved from <https://hbr.org/2015/09/design-thinking-comes-of-age>

Stam, E. & Spigel, B. (2016). Entrepreneurial Ecosystems. Utrecht University: *Discussion Paper Series*. Retrieved from https://www.uu.nl/sites/default/files/rebo_use_dp_2016_1613.pdf



CHAPTER 13

Applying Behavioral Insights to Boost Transversal Skills in the Classroom and at Home

By Bibi Groot

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Introduction

In a world full of distractions and temptations, how can we encourage people to take full advantage of educational opportunities?

This publication has introduced several promising programs to boost the transversal skills that every 21st-century citizen needs to flourish in our rapidly changing world. Initiatives such as sports, music, and citizenship programs can teach young people today how to be creative, work together as a team, or think critically. These initiatives, however, are intensive to deliver and require manpower and funding. This final chapter offers insights from the behavioral science field into how these 21st-century traits and behaviors can be improved through light-touch and low-cost interventions.¹⁰¹ They target the various psychological barriers that prevent young people from developing thinking skills and realizing long-term goals. The ideas we offer in the following pages are not silver bullets, however. **Incentivizing people to adopt better habits and attitudes requires behavior change over a long period, which is notoriously difficult.** Thus, we highlight several promising interventions, but encourage you to evaluate the effectiveness of the chosen intervention in your setting.

Behavioral insight researchers study how to help people make better decisions for themselves and society. This research is all based on one overarching observation: people behave predictably in suboptimal ways (Kahneman, 2011). We intend to live more healthily, read to our children at night, recycle plastic, and pay our bills on time, but often fail to act on these good intentions. It is also difficult not to get distracted by the many things happening in our lives all at once. Education is a prime example of a journey that is fraught with barriers to overcome. We ask ourselves: in a world full of distractions and temptations, how can we encourage people to take full advantage of educational opportunities?

Box 13.1. What Are Behavioral Insights?

Researchers and policy-makers use a combination of psychology, economics, and cognitive science, to design simple tweaks to help people to make better choices for themselves and society while maintaining their freedom of choice. These **‘nudges’** are now applied by governments and organizations worldwide to design innovative solutions to all sorts of problems, from reducing CO2 emissions, encouraging children to eat more healthily, or encouraging citizens to recycle more. In this publication, we focus specifically on behavioral insights applied to (character) skill development.

This chapter focuses on the barriers to learning success that are changeable, with simple and low-cost initiatives.

What Insights Does this Chapter Offer?

In this chapter, we offer **practical and evidence-based insights to help individuals, young and old, to overcome seemingly small barriers to educational success.** Importantly, this chapter does not focus on structural changes to the curriculum or the way the education system works. We do not review how the lack of funding or overcrowded classrooms create barriers to engagement and skill development. Instead, we focus on the barriers to learning success that are **changeable**, with simple and low-cost initiatives. Low confidence, not seeing the relevance of school, or not attending class are thought patterns and behaviors that can be tweaked and improved. In this chapter, we focus on the 21st-century skills that do not require intensive teaching programs. **We focus on small adjustments and short exercises that have a surprisingly significant effect.**

¹⁰¹ When we use the term “interventions,” we include programs, initiatives, and exercises that are tested in the field.

We do not offer a comprehensive review of all behavioral science applications to education. If you would like to read more exhaustive summaries of the latest ideas, we encourage you to look at Damgaard & Nielsen¹⁰² and Lavecchia, Liu and Oreopoulos.¹⁰³

Box 13.2. How Do We Know These Ideas Work? Introduction to Randomized Controlled Trials

Introducción a los Ensayos Controlados Aleatorios

In this chapter, we review many different studies to offer insights into the tools teachers and parents can use to help boost school success. We focus on interventions that have been **tested in real classrooms**, using a specific type of evaluation: **the randomized controlled trial (RCT)**.

Imagine a school with 500 students. The researchers want to test a new initiative. In an RCT, the researchers first divide the total pool of students into two or more groups through random allocation. The researchers randomly allocate (flip a coin, toss a die, or use a random number generator) all 500 students. This way, each student has just as much chance as everyone else to participate in either the business-as-usual (control group) or the new initiative (intervention group). Then the researchers implement the initiative. Once it is time to collect results such as grades or attendance rates, the researchers collect these from all 500 students. Finally, they compare the results, on average, for the students who received the new intervention against the students who did not. This is a robust way to test if the new approach has a positive effect.

Note: not every initiative needs to be tested in an RCT, and one can design ‘behaviorally-informed’ interventions, for example, by drawing on the existing literature. We do believe that it is helpful for teachers and policy-makers to make evidence-based decisions, and evaluate the quality of the study findings.

Teaching Transversal Skills Through Light-Touch Exercises and Nudges

Effective learning is not all about studying facts and figures. It is not only about knowing the capitals of all Latin American countries or being able to multiply 7 x 14. To succeed in the changing world, students also need to learn **“character skills.”**¹⁰⁴ For this publication, we use the term **“21st-century skills.”** With this term, we refer to skills and personal attributes that are essential to flourish both in school and work and to be able to contribute positively to the world. In this chapter, we review several skills: **persistence, self-control, critical thinking, problem-solving, and social skills**. These skills are sometimes seen as fixed personality traits, but recent studies show that they can be learned.

In this section, we introduce several strategies that can be taught using structured exercises. The strategies we introduce have been tested with groups of primary, secondary, or university students, but with a little adaptation, they could work for various

¹⁰² Damgaard, M. T., & Nielsen, H. S. (2018). Nudging in Education. *Economics of Education Review*, 64, 313-342.

¹⁰³ Lavecchia, A. M., Liu, H., & Oreopoulos, P. (2016). *Behavioral Economics of Education: Progress and Possibilities*. In *Handbook of the Economics of Education* (Vol. 5, pp. 1-74). Elsevier.

¹⁰⁴ Other terms used to describe these skills include noncognitive skills, soft skills, noncognitive abilities, and socio-emotional skills. See García, E. (2014). *The Need to Address Noncognitive Skills in the Education Policy Agenda* (Briefing Paper No. 386). Washington, DC: Economic Policy Institute.

age groups. They are all centered around making motivation and reflection a daily part of the student experience.

Persistence

There are many types of goals, and some are more effective at building 21st-century skills than others. For example, a 10-year-old's goal might be to do better in physics than her best friend, who sits next to her. Or she might have the goal to learn physics because she would love to become a scientist. In the first example, she set herself a **“performance goal,”** which is characterized by a normative comparison between herself and others. In the second example, she set a **“mastery goal”** of learning about a topic because she wants to, from within.

Researchers have found, time and time again, that **students with performance goals avoid challenges and feel helpless when they are struggling with a topic.**¹⁰⁵ In the physics student's case, it is not difficult to see why she might stop doing her homework once she realizes that her best friend has outperformed her on the last three tests in a row. If she instead has a mastery goal to do well in physics, she might continue to take up the challenge. In practical terms, it is important to help students whose most important goal is to avoid performing more poorly than others. These students have set “performance-avoidance goals.” As we showed in the example above, students who want to strengthen their understanding of the topic are more likely to gain skills and persist in completing the task. **Mastery goals can be encouraged through autonomy-supportive reflection exercises, as we will see next.**

Students who want to strengthen their understanding of the topic are more likely to gain skills and persist in completing the task.

Help Students Discover the Value of What They Are Learning

When you had to recite scientific formulas from memory, or learn about ancient history, did you ever question the point of memorizing it all? Teachers and parents alike will be able to relate many instances in which **children fail to see the relevance of what they are learning.** And rather than telling them that “this is just the way it is,” **we encourage you to emphasize the usefulness and relevance of learning materials.**

Let us imagine that students need to learn about solids, liquids, and gases in physics class. The teacher might try to convince students that it is useful to understand why condensation and evaporation happen. Now, imagine asking the students to think of reasons themselves. Would they be more interested to learn materials once they have reflected on and constructed their own reasons?

Researchers tested this premise with high school students in science class (Hulleman & Harackiewicz, 2009).

The exercise was simple: students wrote an essay about a topic they had studied in class.

- Group 1 (control): write a summary of what they had learned about the topic;
- Group 2 (intervention): **write about how the topic applied to their lives.**

The researchers predicted that the exercise would only benefit students who had low performance and low confidence. After all, it is a motivational intervention: only those

¹⁰⁵ This observation applies particularly to avoidance-performance goals: the desire to avoid performing more poorly than others do. These are characterized by Ames, C., & Archer, J. (1988). Achievement Goals in the Classroom: Students' Learning Strategies and Motivation Processes. *Journal of Educational Psychology*, 80(3), 260 - 267.



who need to boost motivation will be impacted. The results were striking, especially for students with low expectations of doing well in the class. They did much better when writing about how the topic applied to their lives than when writing just a summary. These students improved 2/3 of a letter grade. Students who already did well in the science class did not benefit quite as much as the students with poor initial grades. In summary, this exercise helped boost motivation for those who needed it most.

Box 13.3. Dear me

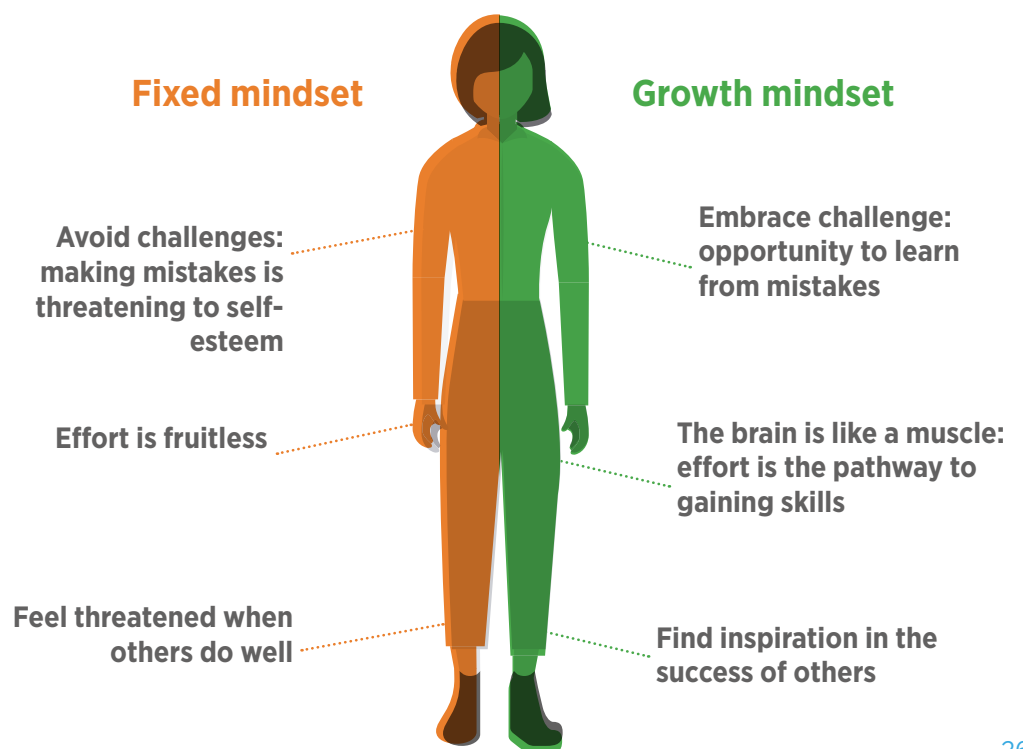
Writing a letter to yourself is a strategy used by many of the light-touch interventions we reviewed. Interestingly, self-expression and reflective writing are popular tools. We encourage teachers to use these tools in their lessons to help students discover the value that learning holds for their personal lives.

Students who believe they can *grow* their ability by putting in effort are more motivated to learn and do better than those who think ability is *fixed*.

Teach Students That to Struggle is to Learn

You have most likely heard of the concept of “**growth mindset**,” first coined by Professor Carol Dweck. Since her book, *Mindset* (Dweck, 2006), came out in 2006, teachers and parents all over the world have taken the message to heart. Essentially, Professor Dweck divides humans into two categories. Some believe that being able to get good at, say, for example, high-level math or professional sports, requires natural **ability**. In other words, they believe that it is all about having talent, about something that you simply do or do not have. On the other hand, others believe that any skill can be learned, or any challenging task overcome with a lot of practice and **effort**. Time and time again, researchers find that students who believe they can *grow* their ability by putting in effort are more motivated to learn and do better than those who think ability is *fixed* (Burnette *et al*, 2013).

Figure 13.1. Key Characteristics of a Fixed and Growth Mindset (Dweck, 2006):



Yet, **it has proven remarkably hard to teach a growth mindset.** Recently, over 5,000 children across 101 English schools learned how the brain could grow through effort in eight classroom sessions (Foliano *et al.*, 2019). Unfortunately, the program did not result in measurable improvements in language, math, or self-control skills. A large experiment with over 9,500 first-year university students found that an online mindset exercise does improve academic achievement, but only for economically disadvantaged students (Yeager *et al.*, 2016). Clearly, there is a lot more to learn about how to teach a growth mindset.



Low-income students are twice as likely as the highest-income students to hold a fixed mindset.

It is challenging that most of these studies focus on students in three developed countries: The United States, Canada, and England. Could it be that growth and fixed mindsets are culture-specific? Fortunately, two recent studies can shed some light on mindset in Latin America.

First, let's look at evidence from **Chile**. National data on all 10th-grade high school students shows that low-income students are twice as likely as the highest-income students to hold a fixed mindset (Claro *et al.*, 2016). Some good news: **poor students with growth mindsets did as well in school as high-income students with fixed mindsets.**

Second, there is evidence from **Brazil**. Researchers were interested in finding out how **mindset might be influenced by children's trust in the educational system.** Data from a few hundred public and private school children (9-10-year-olds) and adolescents (13-19-year-olds) in Brazil, showed that **students who believe the world is a fair place are more likely also to believe that effort is important** (i.e., growth mindset) (Thomas *et al.*, 2019). Schools should, first and foremost, make sure that the school environment is fair, and teachers are trustworthy. That way, they are setting the right conditions to nurture a growth mindset.

Box 13.4. Key Takeaways

- ➔ Encourage students to **reflect on, write about,** and apply the topics they are learning about to their lives.
- ➔ Encourage students to see **struggles** and **failures** as **a frustrating but necessary part of learning.** An effective way to do so is by providing feedback on students' effort on a task ("I can see you put in a lot of time, well done") instead of ability ("you are so smart!").
- ➔ The school should **prioritize values of fairness and** trustworthiness for students to be able to develop a growth mindset. After all, students need to see and feel that effort does lead to positive outcomes (rather than other factors like money or status).

Self-Control

Rethink Goal-Setting Strategies

Let us explore a specific technique to help **improve self-control.** The exercise is called **"mental contrasting and implementation intentions,"** or MCII. In this chapter, we use the popular **WOOP**-acronym (Wish, Outcome, Obstacle, Plan) created by Gabrielle

Oettingen, one of the original MCII authors. It is effective in many situations, including snacking less (Adriansen *et al.*, 2010), getting better grades (Duckworth *et al.*, 2011), attending class (Duckworth *et al.*, 2013), and reducing smoking (Oettingen *et al.*, 2010). It has worked well with relatively young children (9-10-year-olds), adolescents, and working-age adults. It consists of two parts. **“Mental contrasting”** (Gollwitzer, 1999) focuses on first **imagining an ideal future and then visualizing the obstacles we might find on our path**. Imagine this example.

WOOP: The Exercise

Rosa, a 14-year-old, **wants** to read ten foreign language books this summer.

- 1 Wish.** First, Rosa decides **her most important goal**. Is it finishing those books? Or is it completing an online course to learn coding skills? Does she want to do anything else?
- 2 Outcome.** Once Rosa decides on one goal she wants to achieve in the coming weeks, she could think about the **ideal outcome**. Imagine the result, what would it feel like to achieve? Let us take the example of finishing the reading list. The ideal outcome could be, “I would feel proud. It means I improved my language skills, so I can go to study to become a translator.” Rosa decides that it is realistic to read seven books. It is important not only to define the outcome well, but also **to spend a minute or two visualizing it**.
- 3 Obstacle.** Then she imagines **the obstacles that could hold her back**, that could stand in the way. It can be easier to identify **external reasons** (“I need to take care of my sisters every workday”) than to focus on **feelings, habits, or attitudes** that might prevent her from reaching her goal. For example: “I prefer to spend time with friends, and I get bored and distracted when reading.” Spend a minute or two visualizing it before moving to the final step.
- 4 Plan.** The final step is to generate a **specific plan to overcome the obstacles**, keeping in mind the when, how, why, and where. Rosa decides that “If I get bored or distracted with reading, I will remind myself that I really want to finish these books and can go play with friends right after.”



She Would Formulate the Following Plan:

If (obstacle she named),
then I will... (action or thought she named)

This exercise strengthens individuals’ commitment to a goal by visualizing how they would feel if they reached their goal. Importantly, it provides the individual a specific plan. Teachers and parents can try this exercise in the classroom or at home. It is important that each part of the exercise receives due attention to help the child really think through the steps and be as specific as possible. Try it out with different goals and obstacles. Final tip: once you have settled on a good plan, write it down, and put it in a visible place as a reminder. If you would like to learn more about WOOP, we recommend the WOOP My Life app (which will guide you through the steps) and Oettingen’s 2015 book, *Rethinking Positive Thinking: Inside the New Science of Motivation*.

Giving Advice

Do you remember the last time you gave someone an excellent piece of advice? How did you feel? Chances are that you felt proud of being able to offer your expertise, and that this act of giving advice boosted your self-esteem. It turns out that this simple idea can help boost student motivation. The experiment goes as follows. **Imagine two groups of students. One group** of middle school students (ages 11 – 15) **received** letters with advice from an expert teacher. The other group of randomly assigned students **wrote a letter giving advice** to a student the year below them. They were invited to give advice on how the younger student could spend more time learning vocabulary. Researchers collected information on how much time each student spent practicing vocabulary online during the month. It turns out that students who gave advice spent more time practicing than those who only received advice (Eskreis-Wrinkler *et al.*, 2019).

A much larger follow-up experiment tested the same idea with high school math students. Writing a letter to younger students requires time, so could we find an even more efficient way? Instead of receiving or writing a letter, students either wrote advice about study habits in an online exercise, or did not. The students giving advice were told that it would be used to help coach hundreds of students to succeed in school. The questions those who gave advice answered included:¹⁰⁶

- ➡ What advice would you give a student on how to avoid procrastination?
- ➡ How would you advise someone to reward themselves for studying?
- ➡ Tell us your best strategy to stay focused during a boring class so that we can share it with other students.
- ➡ What is your best tip for how to prepare for a big test?

Giving advice raised motivation and achievement.

A similar pattern appeared. The students who gave advice earned significantly higher grades than the students who did not give advice. And what is more, giving advice helped students with poor grades and good grades, boys and girls, youth and adults, and those from low- and high-earning families. Across all groups, giving advice raised motivation and achievement. It seems there is truth in the mantra “when we teach, we learn.”

Use Commitment Devices to Overcome Present Bias

Beyond giving feedback and having supportive conversations, what can teachers change in the classroom? What are some ways they can help students build essential skills such as self-control and persistence?¹⁰⁷

First, the literature on behavioral science shows that we have a natural tendency to focus on short-term rewards over long-term outcomes. We eat that delicious ice cream

¹⁰⁶ Reproduced from the supplementary materials, see <https://osf.io/b73td/>.

¹⁰⁷ Self-regulation is one of the transversal 21st century skills highlighted in this publication. It is the ability to monitor and manage your thoughts, feelings, and behavior in ways that help you achieve your (learning) goals. Schunk, D. H. (2008). Metacognition, Self-Regulation, and Self-Regulated Learning: Research recommendations. *Educational Psychology Review*, 20(4), 463-467.

We have a natural tendency to focus on short-term rewards over long-term outcomes.

now, and temporarily forget our commitment to eating healthily. We prefer to see our favorite film rather than study for tomorrow's exam, even when those grades might be important in the future. What is worse, **adolescents have an even stronger tendency to favor the present over the future than adults**. Different parts of the brain develop at different speeds in adolescence, which means that the excitement-seeking part is temporarily much stronger than the rational planning part (Blakemore & Robbins, 2012).

The first tool to help students overcome procrastination perhaps seems like a paradox. People benefit from imposing deadlines and restrictions on themselves when they know they might otherwise fail to achieve their goals. When people make **self-imposed deadlines** like, "I have to write 2,000 words by tomorrow, or else I won't allow myself to go to the beach," we call this a **commitment device**.

However, **children and adolescents may not spontaneously set deadlines**. Here, teachers can help. Researchers tested this idea in a university course. One group of college students was told that they had to complete several assignments and decide the deadlines as long as they were all completed by the end of the 14-week semester. The second group was told to set intermediate deadlines every few weeks. **Which group achieved better grades overall? Students who did not choose their deadlines did better** (Ariely & Wertenbroch, 2002). So, it turns out that it can motivate students to choose their assignments (see p. 18), but not to choose the deadlines for completing them.

Using Non-Monetary Rewards to Boost Success

Another effective nudge to help children overcome suboptimal behavior, is **to offer non-monetary rewards for their effort**. For example, Swedish researchers gave students (age 12-13) the chance to win a certificate and refillable pencil if they did well on an upcoming test. Girls performed better on the test when offered small symbolic rewards than students who simply received an A-F grade (Jalava, Joensen & Pellas, 2015).

Non-Monetary rewards are not a sure-fire recipe for student success, but they can, from time to time, help students make the effort to do well.

Other researchers offered primary school children "points" for reading books over the summer break that they could spend on board games or sports equipment. The researchers made sure that the books were well-matched with the children's interests. The experiment showed that the incentives helped children read more books. But, only the most motivated students improved their reading scores (Guryan, Kim & Park, 2016). In conclusion, rewards are not a sure-fire recipe for student success, but they can, from time to time, help students make the effort to do well. It is important to note that we have not reviewed financial rewards here, as they sometimes boost student success, and sometimes do not. For a detailed review of how to use incentives to improve student outcomes, we suggest an excellent paper by Gneezy, Meier, & Rey-Biel.¹⁰⁸

¹⁰⁸ Gneezy, U., Meier, S., & Rey-Biel, P. (2011). When and Why Incentives (Don't) Work to Modify Behavior. *Journal of Economic Perspectives*, 25(4), 191-210.

Box 13.5. Key Takeaways

Use the WOOP exercise to help students think through all other steps required to reach their goal. Once the goal and barriers are identified, make a clear plan for how exactly the student will overcome it.



Where possible, encourage students to reflect on and offer advice to others, for example on study tips, good places to study, how to focus.

Problem-Solving Skills

Luís is working on a homework assignment for tomorrow about the mass extinction of the dinosaurs. He read about the topic in his biology book, and then he decided to re-read the chapter first. He thinks to himself, “What other books should I look at?” “Do I need to ask the teacher for help?” and “Am I on track to finish my essay tomorrow?” These **thoughts are metacognitive**. Luís is learning to **monitor** what he needs to do to complete the task, to **plan** his learning, and to **evaluate** what he learned in the process.

Helping students to improve their ability to reflect on progress and do so at the right time and in the right context, it is one of a teacher’s most important tasks.

Metacognitive thinking is a skill that can be taught. In fact, it is one of a teacher’s most important tasks– to help students improve their ability to reflect on progress and do so at the right time and in the right context. One of the most successful strategies is **the modeling of metacognitive questioning**. The teacher or parent uses **self-reflective questions that show the child what strategies to use and in what sequence**.

Imagine that Luís asks his mother to read his essay about mass extinction. He knows that his introduction lacks a clear summary. Instead of picking up a pen and writing some sentences for him, his mother asks, “How could this introduction be improved? How could you fix it? What other sources could you look at?” By doing so, his mother is modelling the questions Luís will ultimately learn to ask himself. There are many teaching models for metacognitive strategies.¹⁰⁹ In this chapter, we review a few techniques teachers can use in their classes.

Figure 13.2. Questions and Activities to Encourage Metacognitive Strategies

01	Activating relevance “How is what you are going to learn in class today relevant?” “Why are we learning this?” “How is this going to help you get better at...?”
02	Activating prior knowledge “What do you already know about this topic?” “Can you summarize in 1 sentence...?”
03	Explicit strategy instruction Think-aloud while showing students how you would solve a problem, for example, by drawing the calculations on the whiteboard while saying the steps out loud.
04	Break down the task Do not give too much information all at once. Break down the task into small steps, provide structure.
05	Group reflection In small groups, encourage students to practice and verbally contribute ideas.
06	Independent practice After modelling the exercise and working through it with the whole group, give students time to work independently.
07	Self-reflection after completing the task “What did I find difficult about it?” “What did I not know?” “What will I need to know next time?”

Parents play an important role in modeling these metacognitive thinking strategies.

In the next section, we discuss the topic of parent-child communication, and how parents can stimulate more in-depth conversations about learning.

Key takeaways

- ➡ Use reflective questions before, during, and after the learning activity to encourage metacognitive strategies development.
- ➡ Encourage discussion, making sure that the task is challenging enough for group work. Collaboration is a great way to stimulate problem-solving skills.
- ➡ Use open-ended inquiry-based questions, such as “Are electric cars a solution to the issue of CO2 emissions from fossil fuels?”

We have to equip today's youth to identify fake news and misinformation by developing critical thinking.

It is timely and imperative to teach young people to assess the credibility and accuracy of information to make informed judgments and decisions.

Critical Thinking

The abundance of “alternative facts” is by no means a new problem. We have to equip today's youth to identify fake news and misinformation better given ubiquitous internet access. Dubious claims and heated debates should be countered with critical thinking.

What is the information source? On what data are the conclusions based? How reliable is the underlying data? We believe that it is timely and imperative to teach young people to assess the credibility and accuracy of information to make informed judgments and decisions. In Uganda, researchers gave teachers a lesson plan for 10-12-year-olds about how to assess the credibility of health claims (Nsangi *et al.*, 2017). Some of the basic principles they taught included (Nsangi *et al.*, 2017):

- Just because a treatment is popular or old does not mean it is beneficial or safe.
- New, brand-name, or more expensive treatments may not be better than older ones.
- Treatments usually cause harm and benefits.
- Beware of conflicts of interest — they can create misleading claims about treatments.
- Personal experiences, expert opinions, and anecdotes aren't a reliable way to assess the effects of most treatments.

Over 10,000 children at 120 schools took part in the RCT. At the end of the trial, students in both groups were tested to see how accurately they could assess health claims. More than twice as many children in the intervention schools (where they received the lesson plans) achieved a passing grade on the test compared with those in the control group. The potential social impact of this type of intervention is clear: **inaccurate beliefs developed during childhood might be difficult change later, when children become adults.**

Critical thinking requires analyzing, hypothesizing, and reasoning. Building a school and home environment in which children are encouraged to **talk** and **dialogue** may ultimately help **critical thinking skills** (Murphy *et al.*, 2014).

Box 13.7. Key Takeaways



Help children pick up on dubious or misleading claims by teaching critical thinking skills: “What is the basis of the conclusion?” “Who made the claims?” and “What do they have to gain from it?”



Teach critical thinking skills through **inferential questions**. These questions require hypothesizing and reasoning: “Why would the character in the book, Sophie, feel sad?”

Nurturing 21st-Century Skills in the Context of School and Home

Teachers and parents play an important role in nurturing an environment in which children and adolescents flourish. The previous section introduced exercises that can directly teach character skills, and this section adds insights into **how to create a positive learning environment**.

Autonomy, competence and social relations are the three key pillars to build an environment in which individuals feel stimulated to seek new experiences, grow, and feel happy.

According to one of the most prominent theories of human motivation, **there are three fundamental things we all need in our lives to flourish**. We need to feel some control over our choices and life: **the need for autonomy**. Second, we need to feel we can learn new skills and get good at them: **the need for competence**. Finally, we need to feel connected to others around us: **the need for social relationships**. Together, **these three pillars of human motivation create an environment in which individuals feel stimulated to seek new experiences, grow, and feel happy** (Deci & Ryan, 2008).

In this chapter, we introduce ideas to help stimulate and fulfill these three basic psychological needs. The principles apply to people of all ages – from pre-school to retirement. As most interventions focus on primary-, secondary- and university students only, we highlight the broader takeaways for adults at the end of each section.

Autonomy

What Type of Language Builds Autonomy?

“You must study, right now!” or “Don’t disappoint me, make sure you do well on your exam” are examples of controlling parent communication. The parent (or teacher) demands that the child to follow their rules. By doing so, they are unwittingly taking away an essential element of motivation: the feeling of autonomy (Deci & Ryan, 2000). Controlling language creates excessive pressure, which can result in the child wanting to avoid homework or rushing to get it done. It is important to give children some level of control over when, how, and where to do their homework.

It is important to give children some level of control over when, how, and where to do their homework.

Parents can help children develop autonomous motivation to learn by changing how they talk about homework. Here, we introduce some of the techniques that researchers developed to help parents build positive communication patterns (Froiland, 2011; Moè, Katz & Alesi, 2018):

Technique	Do	Don't
Listening Listen attentively to what the child is saying, without interrupting.	Put away the newspaper or turn off the TV and devote full attention to the conversation.	Interrupt the child halfway, asking things like “OK, what grade did you get?”
Respond to a good grade. Children should learn that the greatest rewards for learning are intrinsic: seeing how interesting it is to learn things.	“Wow, that’s great! I noticed how much effort you put into studying. I’m interested to hear what you’ve learned!”	“Well done! If you continue doing well on your exams, we will buy a videogame at the end of the month.”
Respond to a bad grade. Build resilience by telling the child that they will improve if they continue to practice and focus learning rather than punishment or rewards.	“Better next time. What topics were difficult? If you continue to practice, you will do better next time!”	“I am really disappointed. I won’t allow you to go to your friend’s party this weekend. Do your homework instead.”

Technique	Do	Don't
Autonomy language. Focus on eliciting curiosity, allowing the child autonomy over when, where, and how to complete the task.	“you can,” “you might,” “if you choose.” “I can see you’re struggling to focus. But writing this summary will help you to develop your writing skills. What else will you learn from this chapter?”	“you must/should,” “you have to,” “you’d better.” “You can’t watch your favorite TV show at 8 pm if you don’t get your homework done.”

These examples focus on parent-child communication, but the principles apply to teacher communication too (Reeve, 2006). Researchers tested if students learn better when the task is introduced with autonomy-supportive language (“you can,” “if you choose”) or controlling language (“you must,” “you have to”) (Vansteenkiste *et al.*, 2004). Students in the autonomy-supportive group learned the material more thoroughly and scored better on the test. It is important to **always** use autonomy-supportive language. **The key to success is consistency.** If one day the child is punished for forgetting to do their homework, and the next day they are told “don’t worry, do better next time,” the benefits will be limited. As a parent or teacher, ensure you build in time for practice and reflection. Now we have shown that language and tone are important, we will move to a practical exercise for teachers.

Providing a Choice When Possible

Another practical way to boost autonomous motivation is almost too obvious to mention: allow students to choose what and how they study, within limits. A study in the US explored whether giving students a choice over their homework assignment could boost grades. The researchers randomly divided students into two groups: some were told simply to complete a specific assignment, and some could choose between two assignments. The students who were given a choice over which assignment to complete felt more competent, motivated, and enjoyed working on the assignment more, and scored better on their test than students without choice (Pattal, Cooper & Wynn, 2010).

Another practical way to boost autonomous motivation is to allow students to choose what and how they study, within limits.

Competence

Providing Critical Feedback: How to Ensure It Helps Students Learn

What happens when we have to provide critical feedback to students? How can we provide effective feedback without undermining their self-esteem and motivation? How can teachers provide feedback that builds trust and the perception of fairness?

We know that some well-intentioned strategies to boost students’ self-esteem may backfire. For example, overpraising the work of minority students can strengthen the perception of stereotypes (of race, gender, ethnicity, etc.) rather than refute them (Lawrence, Croker & Blanton, 2011). In these situations, students sense that they are receiving overly positive feedback, and may attribute the praise to low expectations. Of course, simple praise also does not convey important information to students about how they could continuously improve their work. The question thus becomes: how can critical feedback best be provided? This question was the focus of three RCTs conducted in the US with 7th to 10th-grade students (ages 12 – 16) (Yeager *et al.*, 2014). Students first received feedback on an essay from their teacher, either a “**wise feed-**

back” note or a control note. As with all other studies in this chapter, the notes were randomly attached to the essays. See the notes below.

Wise feedback note	“I’m giving you these comments because I have very high expectations, and I know that you can reach them.”
Control note	“I’m giving you these comments so that you’ll have feedback on your paper.”

Communicating high expectations in conjunction with critical feedback worked particularly well for students from a stereotyped minority background.

Then, one week later, the researchers measured if students had revised their essays and how well they scored on the final version. It turned out that communicating high expectations in conjunction with critical feedback worked particularly well for students from a stereotyped minority background. For African American students, the wise feedback note (1) increased the probability that students revised their essays (2) handed in a good final product. Minority students may lack trust in institutions, and thus benefit from this zero-cost nudge.

Social Relationships

Do you remember a time when your mother, uncle, or sports coach asked you how your exams went? Or asked you what you learned in class that day? Some of us are **lucky enough** to have a **strong social network of people who care about us and are ready to help us out when we need it**. But **how can we help build these connections and interactions for those who lack it?**

Reminders for Positive Interaction

Research on children and adolescents normally focuses on **parent engagement** as a **critical factor** for **school success**. Children might grow up with family members who are disinterested in their education, actively discourage them from studying, or parents who are simply not around much. And we know, that even parents who care might struggle to find time to check in with their children about learning. The time parents spend with their children - reading books, talking about school, exploring new topics - is predictive of better outcomes (Kalil, 2015).

The time parents spend with their children is predictive of better outcomes.

US parents of pre-school children received up to three text messages per week, for eight months, each with an age-appropriate developmental tip for interaction with their child (York, Loeb & Doss, 2019). Here is an example for one-week worth of texts (Doss *et al.*, 2019):

FACT: Beginning word sounds are often made up of multiple letters like “th” or “st”. Learning these sounds is a key to reading.

TIP: As your child gets dressed ask: what sound does SHOE start with? What letters are in ‘shh’? (s and h) What else starts with ‘shh’? Shirt!

GROWTH: Keep practicing word sounds! Now ask: what sound does breakfast start with? (Brrr) What foods start with brrr? (Bread, brownie)

This program fits squarely within the core tenets of behavioral science. First, rather than requiring parents to attend consultation sessions or read lots of materials (often the case), parents simply receive short and frequent reminders. These **timely and personalized** prompts can **help develop positive habits**. The researchers found that parents who received the texts spent more time interacting with their children than those who did not get the prompts. Children whose parents texted scored significantly better on an early literacy test. Importantly, especially children who scored poorly at the start of the program benefited from the prompts. The researchers are now testing variations on the program. For example, they are exploring the optimal number of texts per week (1, 3, 5?) and content. A large-scale replication is also launching in England.¹¹⁰

Many types of low-cost parent engagement interventions have been tested. We encourage you to look at the study by Berlinski and colleagues to learn about an experiment that helped improve student attendance and grades in Chile (Berlinski *et al.*, 2016). Cunha and colleagues did a similar intervention in Brazil (Cunha *et al.*, 2017), and Mayer and colleagues learned about an intervention that helped low-income parents in the US spend more time reading with their child (Mayer *et al.*, 2015).

Encourage Positive Connections

People who can count on positive and supportive interactions with family members, close friends, and broader social networks are healthier, happier, and do better in school.

People who can count on positive and supportive interactions with family members, close friends, and broader social networks are healthier, happier, and do better in school (Feeney & Collins, 2015). But **how can we encourage such positive interactions to take place more frequently and consistently?** This was the starting point for our intervention, called “Study Supporter.” In collaboration with Todd Rogers from Harvard University, we tested a low-cost intervention that involved **sending SMS text messages to people with close relationships to the student about the student’s learning**. We worked with over 2,600 students across two randomized controlled trials, of which the majority (70%) were 16-19-year-olds.

The basic premise of this intervention is that instead of introducing new buddies or mentors, students’ existing relationships could be enlisted to provide support. Students were invited to nominate a person to whom they feel close. Their study supporter (for example, a parent, older sibling, relative, or friend) received messages throughout the year, prompting them to initiate regular conversations with the student about their studies.

We wrote these short messages in collaboration with teachers using the school curriculum, encouraging the study supporter to:

- ➔ **Ask about a learning topic:** “*student name* is learning about creative writing in English class. She wrote a story about a short film. Ask her how she came up with different ideas on how the film ends.”
- ➔ **Encourage positive study habits:** “It’s summer break next week. With just two weeks to go before the exams, encourage *student name* to go to the revision sessions and practice past exams!”
- ➔ **Encourage reflection & confidence:** “*student name* is due back at college next week. Please speak with him/her about what/she he has already learned in math class. Ask him to name one thing he is proud of achieving.”¹¹¹

¹¹⁰ <https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/tipsbytext/>

¹¹¹ Find more example text messages online (from p. 4) at https://www.bi.team/wp-content/uploads/2018/02/Appendix_Retention-and-Success-text-messages.pdf.

The experiment involved some study supporters who received the text messages for a whole year and some did not receive any. The first experiment involved over 1600 students in England. The text messages resulted in a **three-percentage point** increase in attendance rates and a **six-percentage point** increase in exam scores for students whose study supporters texted them, compared to those who did not receive texts. We tested it again the following year and found that the program had improved exam scores but not school attendance (Hume *et al.*, 2018). A third and final field experiment was implemented in 2018-19, across 31 colleges and 3779 students. By the time of editing this chapter for publication in English, the results from the independently evaluated scale-up have been published. Unfortunately, the weekly texts did not result in significant improvements in attendance, nor pass rates (Scandone *et al.*, 2020). The texts were written at the start of the academic year, and due to the size of the trial, were automated. The success of these texts may lie in how specific they are – do they match well what topics students are learning about in class? We believe that the **key to success** is making the **SMS** messages **specific, actionable, positive, and timely**. Practical tips on how to craft these messages can be found in the Behavioural Insights Team’s practitioner report, on p. 23-24.¹¹²

Box 13.8. Key Tips to Design Supportive Communication

- ➔ Describe class material (both what was taught last week and upcoming topics) in a non-technical manner;
- ➔ Reference a question prompt or interesting fact to stimulate genuine curiosity in the study supporter;
- ➔ Use a positive tone, supporting positive study-related behaviors;
- ➔ Help navigate the education system (e.g., what to do when it is time to choose courses, or how to prepare for an exam);

If you are interested in trying this intervention in your school, college or university and want our support, please do not hesitate to contact us. (bibigroot@cloo.pt).



¹¹² Hume, S., O'Reilly, F., Groot, B., Selley, E., Barnes, J., Soon, Z., Chande, R., Sanders, M., (2018). Retention and Success in Maths and English: A Practitioner Guide to Applying Behavioural Insights. Informe de Investigación, Behavioural Insights Team. <https://www.bi.team/publications/retention-and-success-in-maths-and-english-a-practitioner-guide-to-applying-behavioural-insights/>

Box 13.9. Key Takeaways to Nurture Autonomy, Competence, and Social Relationships at School and Home**Autonomy**

- ➔ An autonomy-supportive learning environment helps boost student motivation. Focus on the **intrinsic value** (curiosity, gaining skills, positive effect on the community) of the learning task rather than potential **extrinsic goals** (fame, money, social image).
- ➔ Use words like “you can” or “if you want to” and avoid “you must” or “you have to” wherever possible.

Competence

- ➔ Both parents and teachers boost student motivation by **focusing on the effort** the student has made and the improvements he/she has made, rather than focusing on the outcome (grade) only.
- ➔ Supplement critical feedback with **personalized notes** conveying your **high expectations and belief in the students’ ability**, especially if they have little trust in the educational system or feel stereotyped as a member of a minority group.
- ➔ If the child has made a mistake, **be careful not to withdraw your support for him/her immediately**. By doing so, you would be making clear that the child is only deserving of love if they perform well, which can lead to perfectionism or avoidance behavior.

Social Relationships:

- ➔ **Activate and leverage students’ broader social connections by reaching out to family and friends.** Not by requiring them to read lots of text or join intensive program, but by timely, personalized, and actionable prompts.
- ➔ Students who cannot readily think of anyone who might be a buddy or study supporter **can explore the potential of buddying-up with classmates.**

If you would like to learn more about self-determination theory applied in the school setting, we recommend chapter 14 from the book: *Self-Determination Theory: Basic Psychological Needs in Motivation, Development, and Wellness*, by Ryan & Deci, 2017.

All the principles we introduce in this chapter apply to adults too.

Boosting Transversal Skills Outside Formal Education

All the principles we introduce in this chapter apply to adults too. To flourish, consider reskilling, or being resilient in the face of setbacks, adults need to have autonomy, feel competent, and maintain social relationships. As part of the Behavioural Insights Team’s Research Centre for Adult Skills & Knowledge, I worked with adults who had not set foot in a classroom for decades. They were worried that they might not fit in, or that they would not succeed at learning basic skills. Adults taking courses sometimes do not have people in their lives with whom they can share their learning journey. Researchers found that especially women who are returning to learning may experience a lack of encouragement from their partners or families (McGivney, 2004).

An in-depth review of nudges applied to adult learning is beyond the scope of this chapter.¹¹³ We already introduced **effective exercises** to improve **goal-setting, persistence, and problem-solving**. We will now provide **a few examples of how they have been applied to adults outside the formal education settings**.

¹¹³ We encourage you to look at a literature review on this theme: Melrose, K. (2014) Annex A: Encouraging Participation and Persistence in Adult Literacy and Numeracy. The Behavioural Insights Team. London: Department for Education.

Box 13.4. Ideas presentadas en este capítulo

Persistence	<i>Commitment devices</i>	Adults taking math & English courses were assigned an “accountability buddy.” They received a financial incentive (up to £5 per class) only if both attended class at least 60% of the time. Attendance improved by 73% for adults who had buddies in comparison to those who did not (Hume <i>et al.</i> , 2018).
Persistence	<i>Allowing choice</i>	Courses provide choices to up-skill and allow adults to choose when, where, and how to make progress in the training programs.
Persistence	<i>Discovering relevance</i>	Soldiers with low math and English skills completed a short online exercise which encouraged them to reflect on the personal and social relevance of learning new skills. Soldiers who completed the intervention earned better final grades (by 5%) than soldiers who completed a control exercise (Hume <i>et al.</i> , 2018b), although the sample was too small to make conclusions with confidence.
Self-control	<i>Goal-setting exercises</i>	Mental Contrasting and Implementation Intentions (MCII), the goal-setting exercise we introduced earlier, has helped job seekers find employment sooner (Behavioural Insights Network Netherlands, 2017). Below we discuss the results in more detail.
Metacognitive skills	<i>Growth mindset</i>	Teaching adults that everyone can learn, and that effort is a marker of progress has proven effective at smoking cessation (Sridharan <i>et al.</i> , 2019). Mindset theory is universal and can be applied to other domains where adults lack persistence and self-control.
Social skills	<i>Involving social networks</i>	Adult learners received weekly text messages for a whole year encouraging them to build a network at the adult learning college. They also received reminders to plan ahead and maintain a growth mindset. Example: “Hi (name), At the college, you’re among friends. Support each other through your studies.” Researchers found a 22% increase in attendance and a 16% increase in the pass rate of learners who received the texts (in comparison to those who received no texts) (Chande <i>et al.</i> , 2017).

Beyond this short overview, we will dive deeper into an area where nudges have been tried and tested: helping adults overcome unemployment.

Applying BI insights to a Specific 21st-Century Challenge: Unemployment

José, a steel factory worker, finds himself out of a job when the factory closes its doors. He barely finished high school twenty years ago and never thought about reskilling. He thinks learning just does not come naturally to him. How could we encourage him to seek training opportunities and make a successful transition? In the 21st century, constantly learning, upskilling, and retraining have become essential skills. **How can we help those with low confidence and disadvantaged backgrounds prepare for the changing work world?** Employees from the Dutch Unemployment Agency (UWV) explored the barriers experienced by job seekers who had been unemployed for at least a year. They found that many had experienced a sense of despondency. As we saw in this chapter, time and time again, low motivation may be overcome with simple but powerful **nudges**.

Goal-setting exercises, which we introduced at the start of this chapter, have helped adults to find a job faster. Both in the United Kingdom¹¹⁴ and the Netherlands, job seekers were encouraged to draw up a personal plan and set concrete goals to over-

In the 21st century, constantly learning, upskilling, and retraining have become essential skills.

¹¹⁴ <https://www.bi.team/blogs/new-bit-trial-results-helping-people-back-into-work/>.

come barriers (Behavioural Insights Network Netherlands, 2017). In the Netherlands, the 5,000 jobseekers who wrote a personal plan (example: “I will apply to three vacancies in the retail sector per week, every Tuesday morning”) spent more time looking for jobs, and were invited 10% more often to interviews in the three months after writing the plan.

Beyond goal-setting exercises for job seekers, behavioral insight principles¹¹⁵ can be applied to the whole job-seeking experience. Here we focus more on the process and offer suggestions for public administrators:

- ➔ **Reduce paperwork as much as possible** in favor of face-to-face time between the job seeker and the unemployment agency worker. Research shows that reducing hassle, especially at sign-up, can significantly improve results (Briscese y Tan, 2018).
- ➔ **Use autonomy-supportive and forward-looking language.** Rather than creating rules (“You have to apply to one vacancy per week”), you could ask job seekers to set goals and deadlines for the coming week(s). At the start of this chapter, we explore the principle of autonomy-supportive communication is explored in more detail.
- ➔ **Use reciprocity and personalization.** Job seekers received SMS messages about an upcoming job fair. Some received factual texts. Others received texts which addressed them by their name (personalization) or included the name of the job advisor who was helping them find a job (reciprocity). A nudge-text read: “Hi Elspeth, eight new Picker Packer jobs are now available at Pro FS. Come to Bedford Job Centre on Monday 10 June between 10 am and 4 pm and ask for Sarah to find out more. I’ve booked you a place. Good luck, Michael.”¹¹⁶ This text message increased attendance at the job fair from 10.5% to 26.8%.

Conclusions

We started this chapter with one question: in a world full of distractions and temptations, how can we encourage people to take full advantage of educational opportunities?

We introduced several low-cost and light-touch ways to build the skills that today’s youth will need for the world of tomorrow. This report shows how behavioral science can be applied to building 21st-century skills. The insights we present point to the importance of designing policies that take principles of human motivation into account: autonomy, competence, and social relationships. We showed that **students’ home and school environment could nurture the development of skills and knowledge.** Sometimes even a weekly text message is enough to produce a real change. Finally, we hope you are convinced that the **small adjustments** we introduced can **complement more**

Designing policies that take principles of human motivation into account - autonomy, competence, and social relationships – is key.

¹¹⁵ For a framework of behavioral insights, see: Hallsworth, M., Halpern, D., Algate, F., Gallagher, R., Nguyen, S., Ruda, S., ... & Reinhard, J. (2014). *EAST Four Simple Ways to Apply Behavioural Insights*. The Behavioural Insights Team Publications, Cabinet Office.

¹¹⁶ Ibid., p. 10.

All the exercises we introduced have been rigorously tested in RCTs, with promising results.

radical and intensive programs to build skills such as collaborative problem-solving, resilience, self-control, and critical thinking.

All the exercises we introduced have been rigorously tested in RCTs, with promising results. This is, of course, not to say that all exercises will work seamlessly in every context. **Teachers and parents need to test, learn, and adapt the approaches, taking the elements that seem to work well and learning from the experience. Researchers, on the other hand, should continue to challenge themselves to test ideas in the field, particularly in developing economies.**

With the world changing ever so rapidly, the time is right for policy-makers and educators to adopt new tools and approaches that will help present and future generations grow, adapt, and prosper.

References

- Ames, C. & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of educational psychology*, 80(3), 260 - 267. <https://doi.org/10.1037/0022-0663.80.3.260>
- Ariely, D. & Wertenbroch, K. (2002). Procrastination, Deadlines, and Performance: Self-Control by Precommitment. *Psychological science*, 13(3), 219-224. <https://doi.org/10.1111/1467-9280.00441>
- Behavioural Insights Network Netherlands (2017). *A wealth of behavioural insights*. Retrieved from <https://www.government.nl/documents/reports/2018/04/01/a-wealth-of-behavioural-insights-2017-edition>
- Berlinski, S., Busso, M., Dinkelman, T., & Martínez, C. (2016). *Reducing parent-school information gaps and improving education outcomes: Evidence from high frequency text messaging in Chile*. Unpublished manuscript, Inter-American Development Bank.
- Blakemore, S. J. & Robbins, T. W. (2012). Decision-making in the adolescent brain. *Nature neuroscience*, 15(9), 1184. <https://doi.org/10.1038/nn.3177>
- Briscese, G., & Tan, C. (2018). *Applying Behavioural Insights to Labour Markets*. The Behavioural Insights Team.
- Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2013). Mind-Sets Matter: A Meta-Analytic Review of Implicit Theories and Self-Regulation. *Psychological bulletin*, 139(3), 655. <https://doi.org/10.1037/a0029531>
- Claro, S., Paunesku, D. & Dweck, C. S. (2016). Growth Mindset Tempers the Effects of Poverty on Academic Achievement. *Proceedings of the National Academy of Sciences*, 113(31), 8664-8668. <https://doi.org/10.1073/pnas.1608207113>
- Cunha, N., Lichand, G., Madeira, R., & Bettinger, E. (2017). *What is it about communicating with parents?* Unpublished manuscript.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House Digital, Inc.
- Doss, C., Fahle, E. M., Loeb, S., & York, B. N. (2019). More Than Just a Nudge Supporting Kindergarten Parents with Differentiated and Personalized Text Messages. *Journal of Human Resources*, 54(3), p. 47.
- Eskreis-Winkler, L., Milkman, K. L., Gromet, D. M., & Duckworth, A. L. (2019). A Large-Scale Field Experiment Shows Giving Advice Improves Academic Outcomes for the Advisor. *Proceedings of the National Academy of Sciences*, 201908779.
- Feeney, B. C., & Collins, N. L. (2015). A New Look at Social Support: A Theoretical Perspective on Thriving Through Relationships. *Personality and Social Psychology Review*, 19(2), 113-147.

Foliano, F., Rolfe, H., Buzzeo, J., Runge, J. & Wilkinson, D. (2019). *Changing Mindsets. Evaluation Report*. Education Endowment Foundation.

García, E. (2014). *The Need to Address Noncognitive Skills in the Education Policy Agenda* (Briefing Paper No. 386). Washington, DC: Economic Policy Institute.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *Am.Psychol.* 54, 493–503. <https://doi.org/10.1037/0003-066X.54.7.493>

Guryan, J., Kim, J. S., & Park, K. H. (2016). Motivation and Incentives in Education: Evidence from a Summer Reading Experiment. *Economics of Education Review*, 55, 1-20. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0272775716304101>

Hulleman, C. S., & Harackiewicz, J. M. (2009). Promoting Interest and Performance in High School Science Classes. *Science*, 326(5958), 1410-1412. Retrieved from <https://science.sciencemag.org/content/326/5958/1410>

Hume, S., O'Reilly, F., Groot, B., Selley, E., Barnes, J., Soon, Z., Chande, R., & Sanders, M. (2018). *Retention and Success in Further Education*. Research Report, The Behavioural Insights Team.

Hume, S., O'Reilly, F., Groot, B., Selley, E., Barnes, J., Soon, Z., Chande, R., Sanders, M., (2018). *Retention and Success in Maths and English: A Practitioner Guide to Applying Behavioural Insights*. Research Report, The Behavioural Insights Team. <https://www.bi.team/publications>

Jalava, N., Joensen, J. S., & Pellas, E. (2015). Grades and Rank: Impacts of Non-Financial Incentives on Test Performance. *Journal of Economic Behavior & Organization*, 115, 161-196. <https://doi.org/10.1016/j.jebo.2014.12.004>

Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.

Lawrence, J. S., Crocker, J. & Blanton, H. (2011). Stigmatized and Dominant Cultural Groups Differentially Interpret Positive Feedback. *Journal of Cross-Cultural Psychology*, 42(1), 165-169. <https://doi.org/10.1177/0022022110383569>

Mayer, S. E., Kalil, A., Oreopoulos, P. & Gallegos, S. (2015). Using Behavioral Insights to Increase Parental Engagement: The Parents and Children Together (PACT) Intervention. *National Bureau of Economic Research*. Retrieved from <https://www.nber.org/papers/w21602>

McGivney, V. (2004). Understanding Persistence in Adult Learning. *Open Learning: The Journal of Open, Distance and e-Learning*, 19(1), 33-46. <https://doi.org/10.1080/0268051042000177836>

Nsangi, A., Semakula, D., Oxman, A. D., Austvoll-Dahlgren, A., Oxman, M., Rosenbaum, S., ... & Chalmers, I. (2017). Effects of the Informed Health Choices primary school intervention on the ability of children in Uganda to assess the reliability of claims about treatment effects: a cluster-randomised controlled trial. *The Lancet*, 390(10092), 374-388. <https://doi.org/10.1186/s13063-019-3960-9>

Scandone, B., Wishart, R., Griggs, J. et al., (2020). Texting Students and Study Supporters (Project SUCCESS). Evaluation report. Retrieved from [https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/Texting_Students_and_Study_Supporters_report_\(final\).pdf](https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Reports/Texting_Students_and_Study_Supporters_report_(final).pdf).

Schunk, D. H. (2008). Metacognition, Self-Regulation, and Self-Regulated Learning: Research Recommendations. *Educational psychology review*, 20(4), 463-467. Retrieved from https://libres.uncg.edu/ir/uncg/f/D_Schunk_Metacognition_2008.pdf

Sridharan, V., Shoda, Y., Heffner, J., & Bricker, J. (2019). A Pilot Randomized Controlled Trial of a Web-Based Growth Mindset Intervention to Enhance the Effectiveness of a Smartphone App for Smoking Cessation. *JMIR mHealth and uHealth*, 7(7), e14602. [doi:10.2196/14602](https://doi.org/10.2196/14602)

Thomas, K. J., Moreira de Cunha, J., Americo de Souza, D., & Santo, J. (2019). Fairness, Trust, and School Climate as Foundational to Growth Mindset: A Study Among Brazilian Children and Adolescents. *Educational Psychology*, 39(4), 510-529. <https://doi.org/10.1080/01443410.2018.1549726>

Yeager, D. S., Walton, G. M., Brady, S. T., Akcinar, E. N., Paunesku, D., Keane, L., ... & Gomez, E. M. (2016). Teaching a Lay Theory Before College Narrows Achievement Gaps at Scale. *Proceedings of the National Academy of Sciences*, 113(24), E3341-E3348. <https://doi.org/10.1073/pnas.1524360113>

York, B. N., Loeb, S., & Doss, C. (2019). One Step at a Time the Effects of an Early Literacy Text-Messaging Program for Parents of Pre-schoolers. *Journal of Human Resources*, 54(3), 537-566. Retrieved from <http://jhr.uwpress.org/content/54/3/537.abstract>



CHAPTER 14

A New Generation of Policies and Partnerships

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21st-Century Skills: Weapons of Mass Creation

When, many decades ago, writers such as Arthur C. Clark and directors such as Stanley Kubrick and Steven Spielberg portrayed a robotic future dominated by artificial intelligence, 20th-century citizens wondered how accurate their predictions would be and whether these things would come true. After all, weren't these works fiction?

Today, as 21st-century citizens, we witness, somewhat astonished, scenes such as a robot performing a microsurgery with millimetric precision, self-driving cars, and space tourism becoming a reality. We also see how climate change wreaks havoc on the environment, leading to significant demographic and social changes. **The pace set by technological change makes our lives look like a movie we are watching in fast forward with everything moving incredibly fast.**

In this report, we have hit the pause button to become privileged spectators to reality. **Spectators with perspective, however, since being able to act in a complex world requires understanding it first.** Education and training must become an integral part of the response to the new needs of this global, *hyper-technified*, and interconnected society.

**A new world
requires new ways
to learn that focus
on developing skills
that will help us
face life, enjoy it,
and improve the
societies we live in.**

Lifelong Learning

One is never too young to make a difference or too old to stop learning. A new world requires a new education focused on developing skills that will help us face life, enjoy it, and improve the societies in which we live. These skills will be learned and developed throughout our existence. That is why **we should not only center our efforts on childhood and youth.** While it is true that childhood and adolescence are key moments to intervene since the brain is more malleable, intervention is needed at all stages. There is growing evidence regarding skill development during adulthood. Since we can expect to live longer, **we cannot afford, individually or collectively, to stop learning and developing new skills,** even if it is only to interact more and better with others and to take advantage of the environment, our interests, or our hobbies. **If we fail, we will be displaced, becoming essentially deactivated for most of our adult life.**

The Importance of Partnerships

It is important to highlight the transcendence of public-private shared responsibility in a context in which people will have to reinvent themselves throughout their lives and, consequently, continue investing in constant learning. In the past, there was an education cycle throughout childhood and adolescence/youth, a working cycle, and a retirement cycle. In a context in which people will live longer, automation will quickly change the nature of work and create jobs that don't yet exist. This is already changing our interactions with services and our daily activities. People will have to learn how to learn throughout their lives.

It is important to highlight the transcendence of public-private shared responsibility in a context in which people will have to continue investing in constant training.



For our part, we have tried to understand how to prepare ourselves better, what skills can help us, and how we can develop them. We also want to understand when to do it, what is being done from the education and training systems, and what can be done in the public policy field private sector and other relevant stakeholder collaboration.

But time is of the essence. To turn challenges into opportunities, we must educate a critical mass of individuals willing to support change. For people to become the extraordinary individuals that the future demands— weapons of mass creation at the service of a better society – we need to educate our minds through the development of transversal skills.

Strategies and Programs to Develop 21st-Century Skills

Throughout this publication, we have explored existing programs that could help address the challenges of the new world order and prepare the region to develop its full potential. In some cases, this can be achieved with limited human and financial resources. Small solutions can solve big problems. Now, the design of these programs is a key ingredient in their recipe for success. What are the most important factors to consider when designing a program to develop 21st-century skills? We offer some clues below:

Principles to Design Citizenship Programs for Development

- 1 Central:** they must be the foundation of the learning system (including education and training systems).
- 2 Holistic:** with a vision to develop lifelong skills and to keep developing and updating skills not only as workers but also as citizens with values.
- 3 Integral:** values and civic behaviors must be reinforced in different contexts (school, community, workplace) and through different actors (students, teachers, and families).
- 4 Empowering:** they must empower teachers and students since both parties are active in creating, and developing skills to cultivate knowledge and consume information.
- 5 Respectful:** They must take place in a respectful environment where teachers, students, instructors, and apprentices establish relationships based on mutual care that promote commitment and closeness to the learning space.
- 6 Safe:** it is key to foster safe and structured environments that promote and reinforce positive behaviors in the learning environment.
- 7 Transforming:** They not only change the lives of the children and youth involved. They have the potential to change teachers, schools, families, communities, etc. That is why from the beginning, all perspectives must be included.



Principles to Design Digital Skills Programs for Development

- 1 From school:** Computational thinking teaches students to think in a way that is different from and complementary to traditional knowledge. That is why it must be instilled at school.
- 2 Training teachers:** The success of these programs depends mostly on teachers' ability to guide, stimulate, and teach their learners effectively. That is why their design must include training and continuous learning programs for teachers on the development and pedagogical uses of ICT.
- 3 Practical:** Combining knowledge acquisition with practical activities in which learners can effectively apply what they have learned (games, prototype creation, etc.) and continue learning, producing, and creating knowledge. This will stimulate the interest of the youngest students in these types of disciplines.
- 4 Partnerships:** For these programs to be truly linked to occupations and tasks in the labor market, it is necessary to establish solid partnerships among businesses, governments, and civil society. This will allow the development and implementation of projects that contribute to the wellbeing of all parties, improving job opportunities for youth (and not so young people) to access and progress in the labor market lifelong.
- 5 Involving businesses:** In a region in which almost half of companies report having vacancies that they cannot fill due to a lack of qualified personnel (CEPAL, 2017), human capital is one of the main obstacles to growth. Active and continuous participation from businesses is key to ensure that digital skills development programs can achieve one of their final objectives— the insertion and progress of individuals in the job market. The role of businesses is central to this process: from identifying priority skills and advising on content design and ways of teaching to offering internships in real work environments, and including mentorships, talks, and support throughout the entire learning process.
- 6 Gender focus:** The absence of female role models and stereotypes is hindering women's participation in the technology industry: Latin America and the Caribbean employs only three women out of every ten employees in this sector. This is an unacceptable problem that must be corrected through specific projects targeted at improving the employability of women in the knowledge sector.



Principles to Design Music Programs for Development

- 1 Group work:** While individual learning programs have traditionally been considered a way to improve self-discipline, transformations are much more profound when group-based music programs are considered. Playing helps a group develop listening and communication abilities, inhibitory control and self-regulation, teamwork, and respect.
- 2 Autonomy:** Programs must give individuals the freedom to pursue their objectives, choose based on their preferences and tastes, supported by an instructor but not entirely directed by them. This will encourage self-direction and self-expression while strengthening planning activities and executive function.

- 3 Innovative:** As we have seen, classical music instruction programs are effective in developing several socioemotional skills, yet they still face challenges such as high desertion rates and the economic burden associated with the free distribution and maintenance of instruments. In this sense, new technologies can help reach more students, learning what they like and how they like it, increasing their reach, and reducing costs.
- 4 Adapted to each population:** Program design should take into consideration the importance of students' sociodemographic conditions to ensure that they achieve their full potential. Analyzing socioeconomic levels, community environments, motivation, and expectations, etc. allows us to anticipate risks and prevent failure.
- 5 Measurable and trackable:** To date, evidence on the effects of these programs is scarce. We must continue generating evidence through reliable and rigorous evaluations, following up over longer periods, and systematizing indicators to improve and enhance the design of interventions.



Principles to Design Sports Programs for Development

- 1 Data:** Massive, reliable, and data collected over time can help us explore the potential of sports for development further.
- 2 Purposeful and well-planned activities:** Programs must be structured with clear objectives regarding the skills, values, or aspects they seek to develop, as well as the specific activities to achieve them, and the monitoring needed for their use and application.
- 3 Interactive and proactive:** They must foster individual engagement and involvement in the choice and design of activities so participants can take ownership and develop them with clear objectives and follow-up.
- 4 Context:** Keeping in mind the context, the environment, and the specific needs of people and the communities in which the program takes place, and people coexist.
- 5 Well-trained and reliable instructors:** Instructors are critical since they are role models and transmit positive behavior.
- 6 Sports that do not foster competition,** with few rules and not placing too much importance on winning.
- 7 Sustained over time.** Otherwise, there is a risk that effects will fade out over time.
- 8 Lower barriers for participation and avoid excluding behaviors.** They must be low-cost and easily accessible, leaving no room for any negative sociocultural norms (violent and/or sexist attitudes) and promoting positive norms.
- 9 They must adopt an integral and transversal approach.** They must highlight the importance of activities in other areas of life, address the community's concerns, and generate complementarity with other community institutions.
- 10 Pilots and evaluations.** Projects must start small, with goals and results that are clear and measurable. These can be expanded once it is certain that they do not lead to a negative impact.



Principles to Develop Entrepreneurship Programs for Development

- 1 Active state participation:** The role of the government is critical to promote programs to develop entrepreneurial skills, to equip people with the skills and, especially, with an entrepreneurial mindset and culture that allow them to navigate 21st-century challenges.
- 2 Transversal to academic training:** They must start at an early age, with cross-curriculum programs for entrepreneurial skills development in primary and secondary school, as well as in higher education.
- 3 Practical:** Program content must include practical modules that develop non-cognitive skills associated with an entrepreneurial mindset.
- 4 Student-led:** They must involve student-driven initiatives through “learn-by-doing” activities that lead to tangible results so that they can develop skills such as trust, empathy, and curiosity.
- 5 Entrepreneurial ecosystem:** It is essential to develop these programs in a strong entrepreneurial environment, promoted by governments, based on five different areas: talent, capital, connectivity, entrepreneurial, culture, and legislation.
- 6 Quick updating mechanisms:** Change is the only constant in this new century. That is why these programs must include updating mechanisms and keep up with the fast pace of changing trends and needs.



Principles to design programs to develop transversal skills through behavioral changes

- 1 The principles of human motivation:** autonomy, competence, and social relations, must be part of the design of public policy.
- 2 Value of learning:** Allowing people to make sense of what they have learned and its usefulness in their lives. Learners must be encouraged to share the usefulness of what they are learning.
- 3 Growth mindset:** Students must learn that struggling and failing are a necessary part of learning, and that effort leads to success if combined with the right mindset.
- 4 Equity and trust:** Students must be able to trust their schools. They must see and feel that their efforts will lead to positive results. Schools that prioritize and cultivate these values will be able to develop their student’s growth mindset better.
- 5 Dialogue:** Fostering an environment for discussion to promote a critical spirit and reflexive learning.
- 6 Promoting autonomy:** It is crucial to use language that supports autonomy and offer options whenever possible.
- 7 Wise feedback:** To correct students without undermining their self-esteem and motivation, teachers must trust the student as they make corrections.

“Awareness of our problems does not necessarily mean that they will be solved. It may just mean that we are able to perfectly anticipate where we will fail.”

“The logic is that when you provide schools or any social service to people, they have no choice. They have to take what you give them, because they don’t have the money to pay for schools themselves. That’s why you provide them schools in the first place.”

Esther Duflo



