ECONOMIST IMPACT

The Learning Ecosystems Framework

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Contents

Foreword

Decades of research and experience in the areas of child learning and development have taught us that progress comes from two key things: first, generating evidence to understand how children learn and the type of education they need to thrive together; and second, connecting experts and institutions so that this knowledge can be properly disseminated and applied in policy and practice.

Our work around the world has shown us that the expertise and resources needed to improve education outcomes are often spread across a variety of entities, including academia, schools, businesses, civil society and governments. And when it comes to supporting holistic learning—including foundational academic outcomes as well as more transversal skills such as self-efficacy, curiosity, creativity, adaptability and overall wellbeing—children may require exposure to a diverse and stimulating set of learning environments, at home, at school, and within the broader community.

These insights have given rise to the concept of a "learning ecosystem". Whereas traditional learning is often broadly perceived as that which takes place within school walls, a learning ecosystem is defined by its social fabric both inside and outside school. This encompasses the wide variety of formative influences on a child, from the home environment to interactions with community organisations, local businesses, charities and larger institutions. When these work together for students' benefit as part of a learning ecosystem, they are also more likely to personalise learning and cater to students' individual needs, preferences and talents, allowing them to discover new interests, professional pathways and real-world applications of what they learn at school. The building of resilient, adaptive and continuously evolving ecosystems can also increase resistance to shocks, such as "learning in lockdown" due to global pandemics, and other disruptions, providing much-needed continuity in students' education experiences.

Therefore, as part of our Strategy 2030, we commissioned Economist Impact to create a Learning Ecosystems Framework that is the first of its kind to develop an expanded understanding of the key components of learning ecosystems—the home, the school, and the community—and to assess how well-equipped these environments are to support and deliver holistic outcomes for children, based on current evidence and available comparative data. This allowed an analysis of learning ecosystems in different countries and the identification of examples of good practice and challenges around the world.

The report highlights that, while school teaching in many countries now focuses on holistic topics such as wellbeing and citizenship, there is still room for more collaboration between schools, universities, community organisations and parents in nearly all countries surveyed. This report also sets out some of the reasons why education provisions are not always connecting up in this way.

While this framework represents a great step forward in assessing how learning ecosystems are working in practice around the world, it is by no means the final word. Although much data is collected globally on academic performance metrics such as literacy and numeracy skills, there is a distinct lack of cross-national, comparable data on the wellbeing of young people and the skills they are being equipped with. To better understand how the school, home and community work together to improve outcomes and enable children to realise their full potential, we urgently need to fill these data gaps. This means that governments and global education policymakers need to support more and better data and the appropriate measurement tools to enable this, so countries can begin to understand how well their learning ecosystems are performing and how they can further evolve.

The Jacobs Foundation will continue to support this work as part of Strategy 2030 and remains committed to developing thriving learning ecosystems. While the work of understanding such ecosystems is by no means complete—in large part due to the lack of good, comprehensive data—this report charts a trajectory towards better learning ecosystems and indicates promising courses of action for global institutions, policymakers and schools.

At a basic level, schools need to forge closer bonds with parents and communities, implement family-friendly policies, and create an atmosphere of trust. Teachers need the time and resources to pay close attention to students and encourage the development of the whole person—and teachers themselves need to be supported in managing their own wellbeing. Government policymakers and administrators need to foster healthy, supportive relationships with schools. Financial barriers that prevent some families from accessing learning experiences outside school also need to be addressed. Finally, to provide more personalised learning pathways for young people, we need new channels for collaboration between schools, businesses, civil society and community organisations. If educators and policymakers can begin to meet these challenges, they will be equipping young people with the skills they need to thrive throughout their lives.

Jacobs Foundation

About the report

This report is based on the findings of the Learning Ecosystems Framework, developed by Economist Impact in 2022. The report and research are commissioned by Jacobs Foundation.

Our research and analysis proceed from the view that, globally, education systems require fundamental change, and that enabling diverse learning ecosystems could be the answer. No single tool exists for evaluating the enabling environment for a robust learning ecosystem. The Learning Ecosystems Framework aims to close this gap by evaluating the factors that enable successful learning ecosystems to develop and thrive. In developing the framework, Economist Impact reviewed over 70 sources of literature and conducted interviews with more than 20 academics and experts representing international organisations and education foundations. The purpose of the research and consultations was to understand the characteristics and enabling factors of effective learning ecosystems that can provide new opportunities for learning and help children achieve positive educational and wellbeing outcomes. The framework was applied to a diverse selection of 20 countries, informed by a survey conducted by Economist Impact of 2,000 teachers and young people (aged 18–20) across these countries, and supplemented by additional data and desk-based research.

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Executive summary

There is growing recognition that education systems require fundamental change. The rise of powerful global trends—economic, social, environmental and technological—has shifted both the skills and mindsets that young people need to remain adaptable and resilient in a rapidly changing world.[1] Traditional systems, which tend to be reliant on one-dimensional assessment mechanisms, such as standardised tests,[2] are creating passive learners who are taught "to the test", rather than catering to the broader wellbeing, development, and individual interests of young people.[3] While the covid-19 pandemic further illuminated the fragilities of traditional education systems,[4] a tremendous collective effort to facilitate learning in innovative ways as a result of the pandemic also generated a new enthusiasm to "reimagine education".[5]

One existing approach to revitalising education is the concept of learning ecosystems. This interdisciplinary model moves away from standardised, top-down systems and favours a more integrated and personalised approach that recognises a wider cast of educational providers. Schools, families, business leaders and industry, community organisations, afterschool and summer programmes, and cultural institutions all play a role. Expanding the vision of where, when and from whom children learn enables systems to better align learning outcomes with the needs of our societies[6] and to prepare young people to lead happy and productive lives.[7]

However, there is no single, commonly accepted definition of a learning ecosystem; nor is there alignment on the conditions needed to enable growth or the outcomes that a learning ecosystem should produce.[8] To help close these gaps, Economist Impact, commissioned by Jacobs Foundation, has developed the Learning Ecosystems Framework.

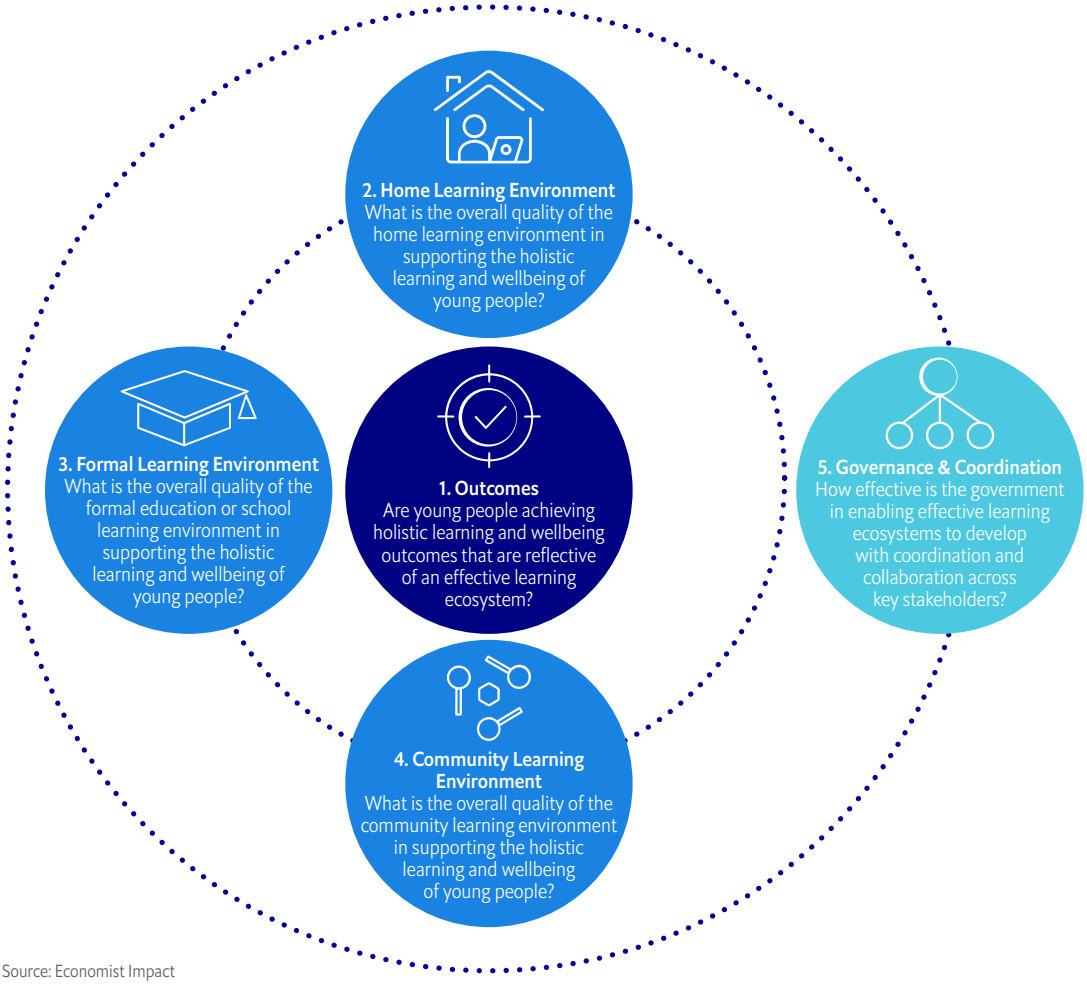
The Learning Ecosystems Framework defines a learning ecosystem as:

A diverse, collaborative and dynamic network of stakeholders that enables greater access to a range of learning opportunities and helps young people achieve positive learning and wellbeing outcomes.[9]

The framework consists of almost 200 indicators and sub-indicators aggregated into five key pillars and 22 sub-pillars. It assesses the key factors that enable the development of thriving learning ecosystems across different learning environments that work individually and as a connected network: the traditional and formal school environment, the home—a child's first school—and the wider community. The framework provides a tool for understanding the gaps and opportunities in developing local learning ecosystems to provide new learning opportunities for young people.

The framework has been applied to 20 selected countries, covering almost 50% of the world's children. This analysis has been informed by a survey conducted by Economist Impact of 2,000 teachers and young people (aged 18–20) across these countries, and supplemented by additional data and desk-based research. It seeks to understand the maturity of learning ecosystems within each country and to identify examples of good practice for others to learn from and replicate as local ecosystems continue to evolve.

Figure 1: The Learning Ecosystem Framework



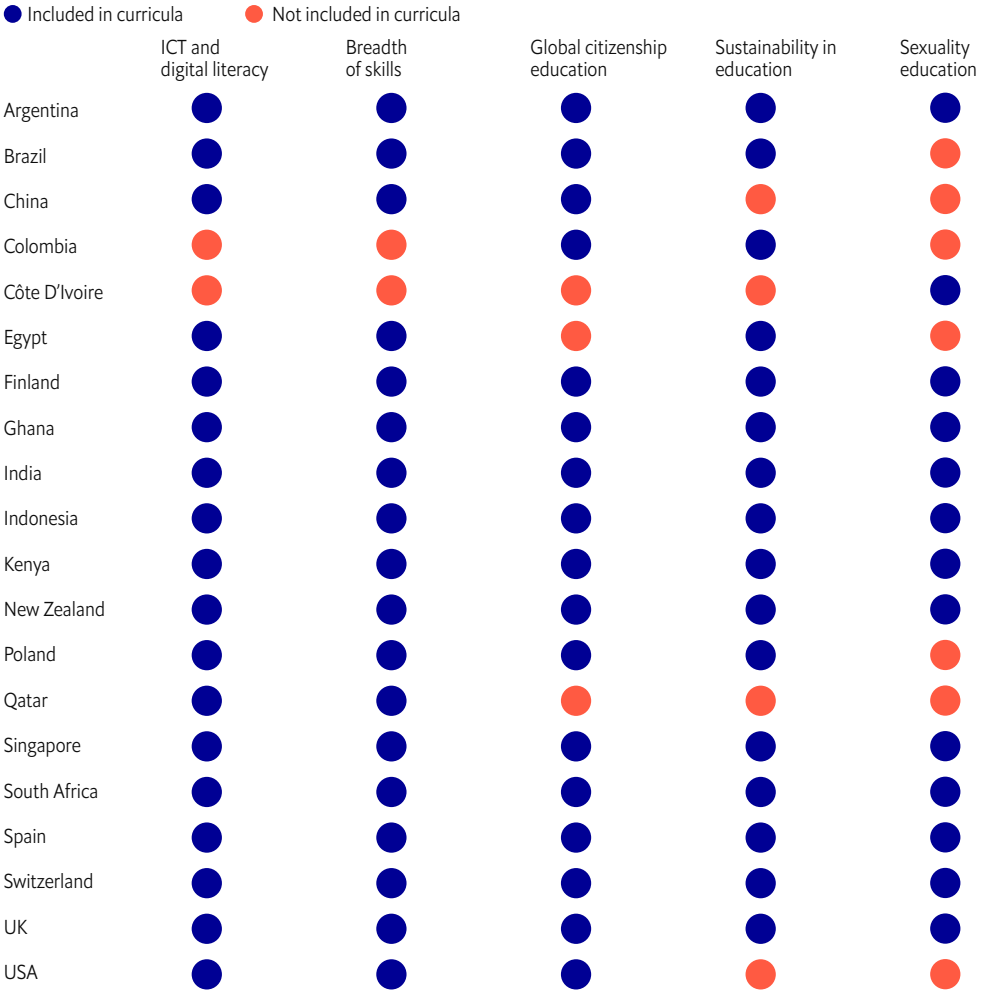
Source: Economist Impact

Key findings from the research and analysis are as follows:

Holistic action to support the learning and wellbeing of young people is lacking globally. Our research found that while pockets of good practice were observable across all the 20 countries studied, action to support young people across *all* of the key learning environments remains low. While countries are demonstrating a growing commitment to improving the school learning environment, performance is less consistent when it comes to supporting the education and wellbeing of young people in the home and community settings.

A large majority of countries studied have revised education policy and curricular frameworks to enhance learning delivered in schools. Across countries, education plans, policies and curricula reflect growing consideration for student wellbeing, moving beyond the traditional focus on academia to encompass a wider set of skills and competencies.

Figure 2: Coverage of national curricula



Note: Economist Impact reviewed the National Curricular Frameworks of each of the 20 countries in this study to assess the learning objectives and targeted skills in their national education systems.

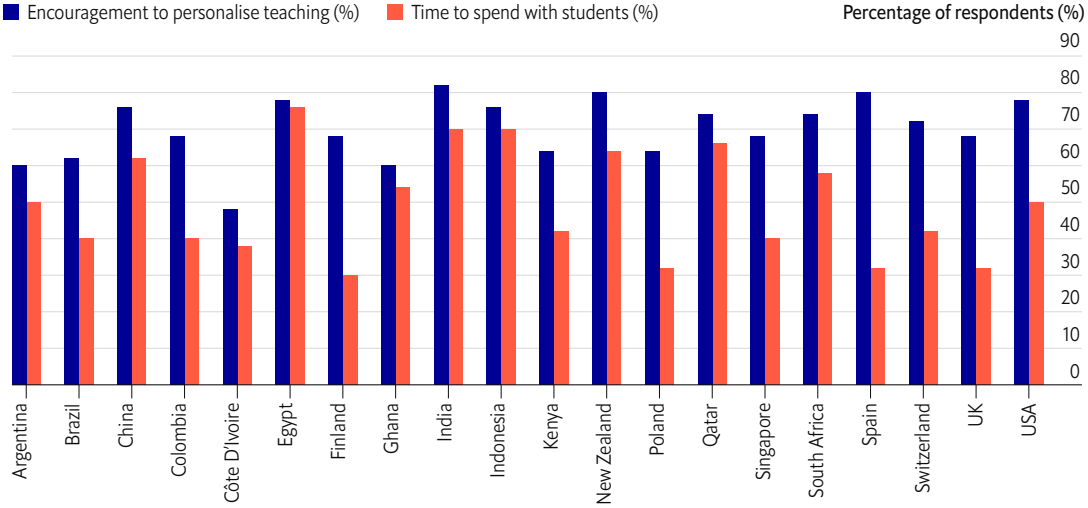
Source: Economist Impact research

More emphasis is needed on ensuring conditions that are conducive to the success of all stakeholders within the school environment. The survey of teachers conducted as part of this research found that they often face excessive workloads, which can impact their ability to perform to the expected standard. While 70% of teachers feel encouraged by their school to personalise instruction to the needs of individual students, only 50% report that they have adequate time to spend with each student.

Family financial insecurity can prevent access to educational resources, experiences and opportunities, with implications for learning. 33% of young people responding to our survey felt that their family's finances prevent them from accessing education resources, while 30% report interruption to their participation in school activities. Our research also finds evidence that a lack of access to such resources in the home is associated with poorer learning outcomes, such as lower levels of reading proficiency.

Access to safe and high-quality community spaces for young people is lacking. Only a third of young people surveyed said that they had easy access to pedestrian spaces, play facilities and green spaces in their communities while growing up. Countries are doing better at developing infrastructure that caters to the needs of the general population—approximately 60% of the adult population in these countries reported having access to open spaces—but a greater focus on children and adolescents is needed.

Figure 3: The role teachers are expected to play vs the time teachers have to play this role

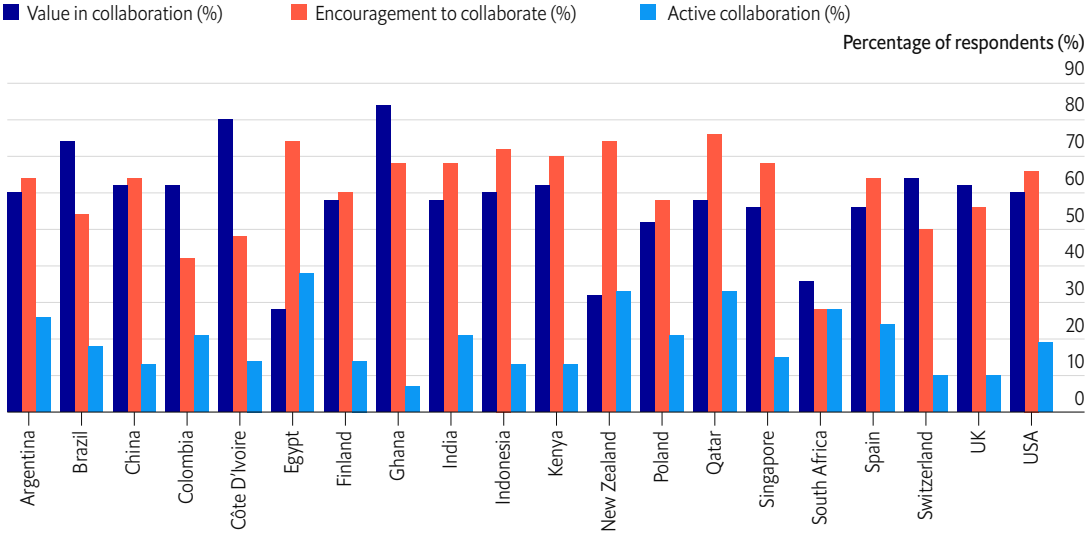


Note: The role teachers are expected to play is measured based on the percentage of teachers agreeing that they are encouraged to personalise teaching to the needs of each student. The time teachers have to play this role is measured based on the percentage of teachers agreeing to having time to spend with each student.
Source: Economist Impact survey of teachers

Four in five teachers believe collaboration with external partners is valuable, and over three in five agree that their school encourages them to pursue such relationships.

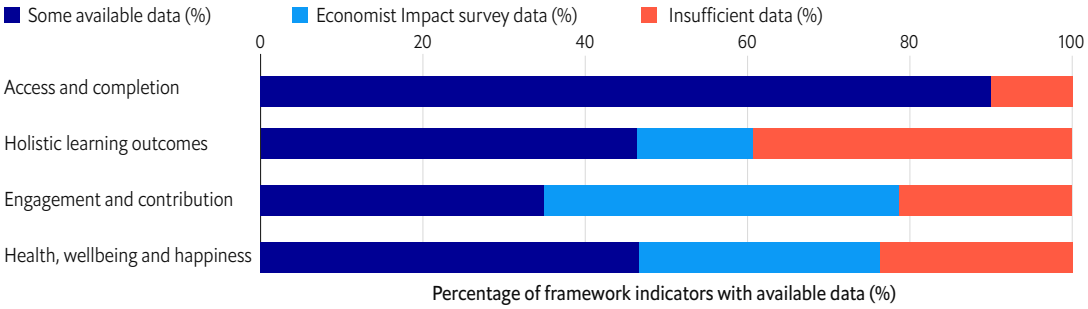
Education stakeholders see the value in greater collaboration between different learning environments to support young people, but levels of collaboration remain low. Four in five teachers believe that collaboration with external partners is valuable, and over three in five agree that their school encourages them to pursue such relationships. However, in practice, this collaboration is not happening to any great extent: less than 20% of teachers report that their school is actively engaging with external institutions and actors.

Figure 4: Comparing ambition to collaborate with collaboration in practice



Source: Economist Impact survey of teachers

Figure 5: Availability of comparable data on youth outcomes



Note: Youth outcomes included in the Learning Ecosystems Framework include: Access and completion (enrolment and completion; and equity in completion); Holistic learning outcomes (learning-adjusted years of school; cognitive skills; equity in cognitive skills; meta-cognitive skills; social and emotional skills; digital skills' and financial literacy); Engagement and contribution (sustainable development and lifestyles; civil/political engagement;, global citizenship; and youth transition to work); and, Health, wellbeing and happiness (physical health; children developmentally on track; child malnutrition; mental health; sexual health; safety and violence; and happiness, satisfaction and flourishing).

Source: Economist Impact research

A lack of data challenges the ability to evaluate systems and track progress. A more comprehensive approach is needed to identify the data we require and to develop strategies for its collation. Without this, we will continue to measure only what we can easily observe, perpetuating a system where educational success is measured one-dimensionally.

The remainder of this report explores the extent to which local learning ecosystems are evolving across countries. It highlights the policies, infrastructure, resources, and relationships within and across different learning environments that enable more holistic learning and wellbeing outcomes for young people, sharing best practices at the country level. It also identifies crucial gaps in the data and evidence that are needed to measure progress.

Introduction

Calls for reform

There is broad recognition that national education goals and policies should be revised in light of recent technological, environmental, political and social trends.[10] These forces have altered the skills young people need in order to be prepared for, and engaged in, solving the complex challenges facing future generations. This is reflected in the UN's Sustainable Development Goal (SDG) 4.7, which aims to ensure that all learners have the knowledge and skills to act as global citizens with fundamental values of human rights, gender equality, peace and non-violence, and cultural diversity.[11]

There is mounting evidence that a more holistic approach to learning and development is needed to improve the way education is conceptualised and delivered.[12] Development and learning should be understood as a process, continually unfolding across a diversity of settings, and not confined within school walls. These processes depend on a combination of relational, environmental and instructional factors that a child experiences across these settings.[13] Greater recognition of the link between educational success and the broader dimensions of a child's physical, social and emotional wellbeing is fundamental to designing more effective education systems.[14]

The world has seen tremendous gains in access to education globally, particularly since the mid-1900s.[15] This important expansion in access, however, has led to the proliferation of highly standardised learning systems.[16] In this context, standardisation can be viewed as a double-edged sword, helping establish key expectations and targets,[17] while simultaneously limiting the routes available to students and the aims of systems.[18] More traditional systems now need to evolve to address shifting societal needs and to refocus our efforts on achieving the outcomes that truly matter to young people.

With great disruption comes great opportunity

The covid-19 pandemic caused enormous interruptions to the delivery of education, impacting approximately 1.6 billion students globally.[19] Moreover, it illuminated the fragility of traditional education systems[20] and shattered any pretence that we could return to business as usual once schools reopened. Yet, a tremendous collective effort to facilitate learning in innovative ways both during and following the pandemic generated new enthusiasm to "reimagine education".[21]

The concept of a learning ecosystem is one such reimagining. This approach promotes greater consideration for the range of resources, relationships and activities across the various environments where learning unfolds, both within and beyond the classroom. Recognising the larger ecosystem that shapes young peoples' education experiences, emboldens education to become more personalised and dynamic. Schools, families, business leaders and industry, community organisations, afterschool and summer programmes, and cultural institutions all have a role to play. Greater collaboration

between stakeholder groups, from parents to policymakers, can generate new pathways for learning,[22] provide more opportunities to align priorities,[23] and give greater agency to students. As Tyler Samstag, director of Remake Learning, underscores, "by making learning everyone's concern, ecosystems spur our collective imagination about what learning could be".

"By making learning everyone's concern, ecosystems spur our collective imagination about what learning could be"

Tyler Samstag, director of Remake Learning

Exploring the framework

Defining a "learning ecosystem"

There is growing recognition that creating diverse learning ecosystems could be the answer to the challenges faced by traditional educational systems.[24] Yet, there is no single commonly accepted definition of a learning ecosystem, or of the outcomes it should produce—some existing definitions, such as that of WISE and the Qatar Foundation,[25] emphasise the role of a diverse set of stakeholders, while others like the Aspen Institute define a learning ecosystem by its intended outcomes.[26]

The Learning Ecosystems Framework seeks to reach a common understanding of what a learning ecosystem looks like and aims to deliver, acting as a tool for tracking countries' enabling environments and drawing on existing definitions. As such, the framework defines a learning ecosystem as: ***A diverse, collaborative and dynamic network of stakeholders that enables greater access to a range of learning opportunities and helps young people achieve positive learning and wellbeing outcomes.***

Holistic outcomes delivered by a connected network

Evidence indicates that when a core group of educational stakeholders abandon their individual agendas in favour of a collective approach, student outcomes can improve. Strive Together, a non-profit organisation in Cincinnati, US, brought together local stakeholders—including heads of private organisations, government officials and school district representatives—to tackle the crisis of student under-achievement. It defined a single set of goals across these stakeholders to enable a coordinated effort in delivering outcomes at every stage of a young person's life, and facilitated bi-weekly meetings across stakeholder groups to discuss progress and align efforts. In four years—and despite recessions and budget cuts—34 out of 53 of Strive Together's success indicators have shown positive trends.[27]

The Learning Ecosystems Framework consists of almost 200 indicators and sub-indicators aggregated into five key pillars (Figure 6) and 22 sub-pillars. It has been developed on the overarching principle that an effective learning ecosystem facilitates learning across multiple environments—the school, the home and the community—that shape a young person's development, values, perceptions and personality.

The framework examines the enabling factors and effectiveness of each learning environment across a range of dimensions to measure the extent to which young people are being equipped with the knowledge, skills, tools, resources and equal opportunities to reach their full development potential (see Pillars 2, 3 and 4 in Figure 6). These dimensions are examined across the school, the home and the community learning environments, and include:

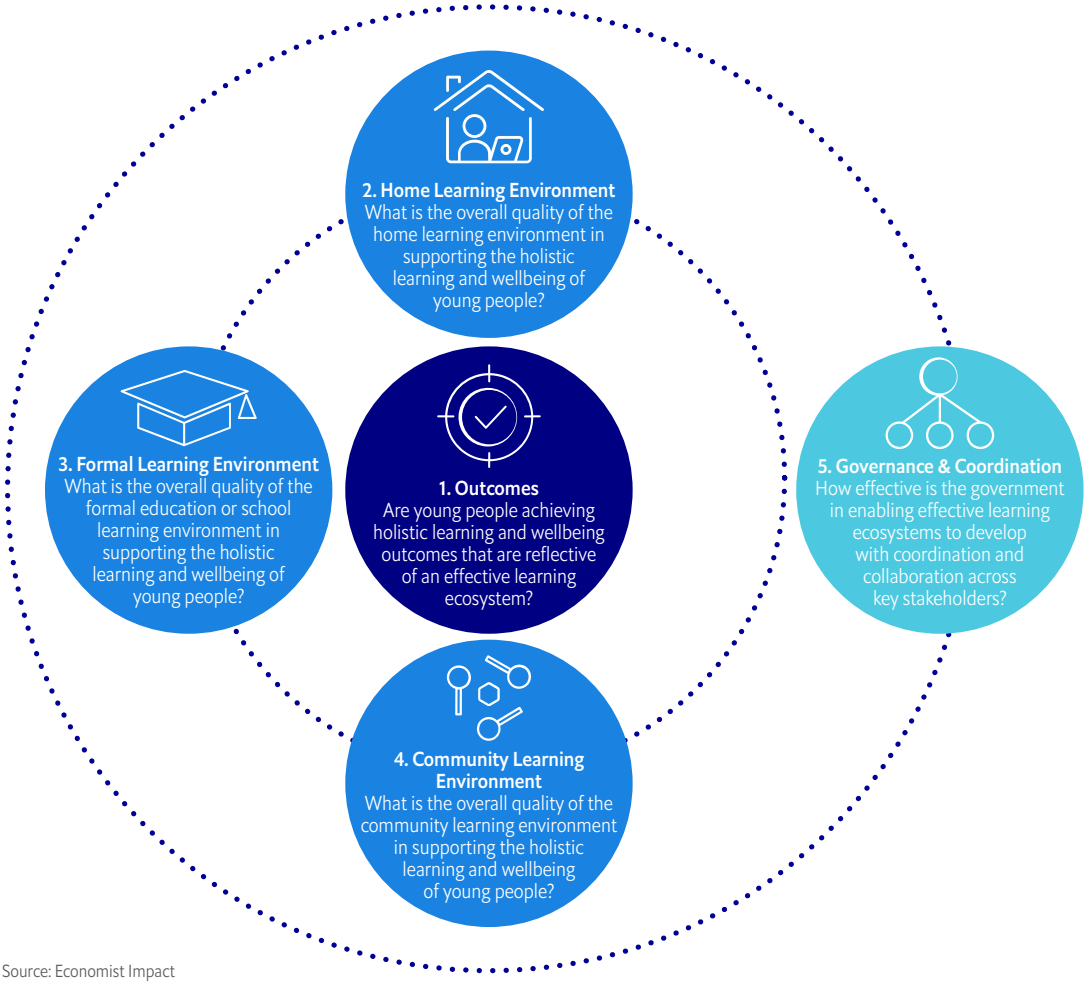
- **Public policy:** The existence of policies to support learning in each environment
- **Resources:** Access to financial and learning resources in each environment
- **Infrastructure:** The built environment that influences learning
- **Learning facilitator capacity:** The knowledge, skills and capacity of stakeholders facilitating learning within each environment
- **Relationships and activities:** The strength of relationships and engagement in activities within each environment

In addition to the effectiveness of each learning environment individually, the framework also assesses the level of collaboration between learning environments (see Pillar 5 in Figure 6). This collaboration is key to the transition away from siloed education systems to the creation of networks of opportunities for young people both within and beyond the walls of their schools.

Ultimately, an effective learning ecosystem should deliver holistic outcomes for young people and the societies they live in (see Pillar 1 in Figure 67). The Learning Ecosystems Framework defines a core set of outcomes which include:

- **Access and completion:** Measures of enrolment and completion of formal education
- **Holistic learning outcomes:** Evidence of cognitive, social and emotional development of young people
- **Engagement and contribution:** Measures of political, economic and social engagement by young people
- **Health, wellbeing, and happiness:** Measures of the overall happiness and life satisfaction of young people

Figure 6: The Learning Ecosystem Framework



Source: Economist Impact

Improving what is measured

The Learning Ecosystems Framework is designed to be aspirational. Cross-national, comparable data on child wellbeing is limited and the majority of existing data tends to focus on traditional cognitive and educational outcomes, such as literacy and maths.[28] Learning ecosystems push for a more holistic approach, aiming to measure the success of learning in terms of broader wellbeing and happiness, as well as contribution to society. Much of this data is not currently collected; however, instead of limiting the Learning Ecosystems Framework to available data, we have designed a framework that asks: how should the effectiveness of a learning ecosystem be measured, and what data should be collected and monitored to demonstrate progress? The findings from the research therefore point to the areas where more evidence is needed, and where efforts are being made to address these gaps.

Findings from the analysis

The remainder of this report discusses the key findings from our research in applying the Learning Ecosystems Framework to 20 selected countries.[29] This analysis has been informed by a survey conducted by Economist Impact of 2,000 teachers and young people (aged 18–20) across these countries, and supplemented by additional data and desk-based research. The discussion begins with the most traditional learning environment, the school, followed by the home and the community. After exploring the effectiveness of each learning environment individually, it assesses their integration in each country to deliver holistic learning and wellbeing outcomes for young people.

Our research reveals that while there are pockets of good practice observable across all the 20 countries, a holistic and coordinated approach to support the learning and wellbeing of young people is not yet in place. Across the globe, learning ecosystems are still evolving, with the need to focus on strengthening both the individual environments where young people engage in learning, as well as the networks between them.

Overall, country performance—the extent to which conditions known to support positive outcomes for young people exist—is strongest in the school learning environment, particularly in terms of supportive policy and curricular frameworks. However, performance across countries is much less consistent when it comes to the home and community learning environments. In particular, disparities persist with regard to the impact of family finances on learning and the availability of child-friendly infrastructure in the community. Additionally, across countries, there appears to be a lack of a collaborative approach between learning ecosystem stakeholders—schools, universities, community organisations, parents and others are acting in silos, and not yet coordinating efforts to support the learning and wellbeing of young people.

Formal learning environment: New schools of thought

Formal learning environments, including early childhood care settings and primary and secondary schools, are the core institutions charged with educating young people. They play—and will continue to play—a foundational role in shaping learning and development. Most young people spend about 10,000 hours in these settings by the age of 15,[30] so the influence they have on moulding future generations should not be understated. These institutions not only have important impacts on academic achievement, but also on a range of other outcomes, including self-esteem, mindset, habits and ambition, thereby influencing the success of young people in school and in their lives ahead.[31] The Learning Ecosystems Framework assesses the key features of these institutions and the actors within them to provide a strong environment for learning.

Figure 7: The Learning Ecosystems Framework: School learning environment pillar

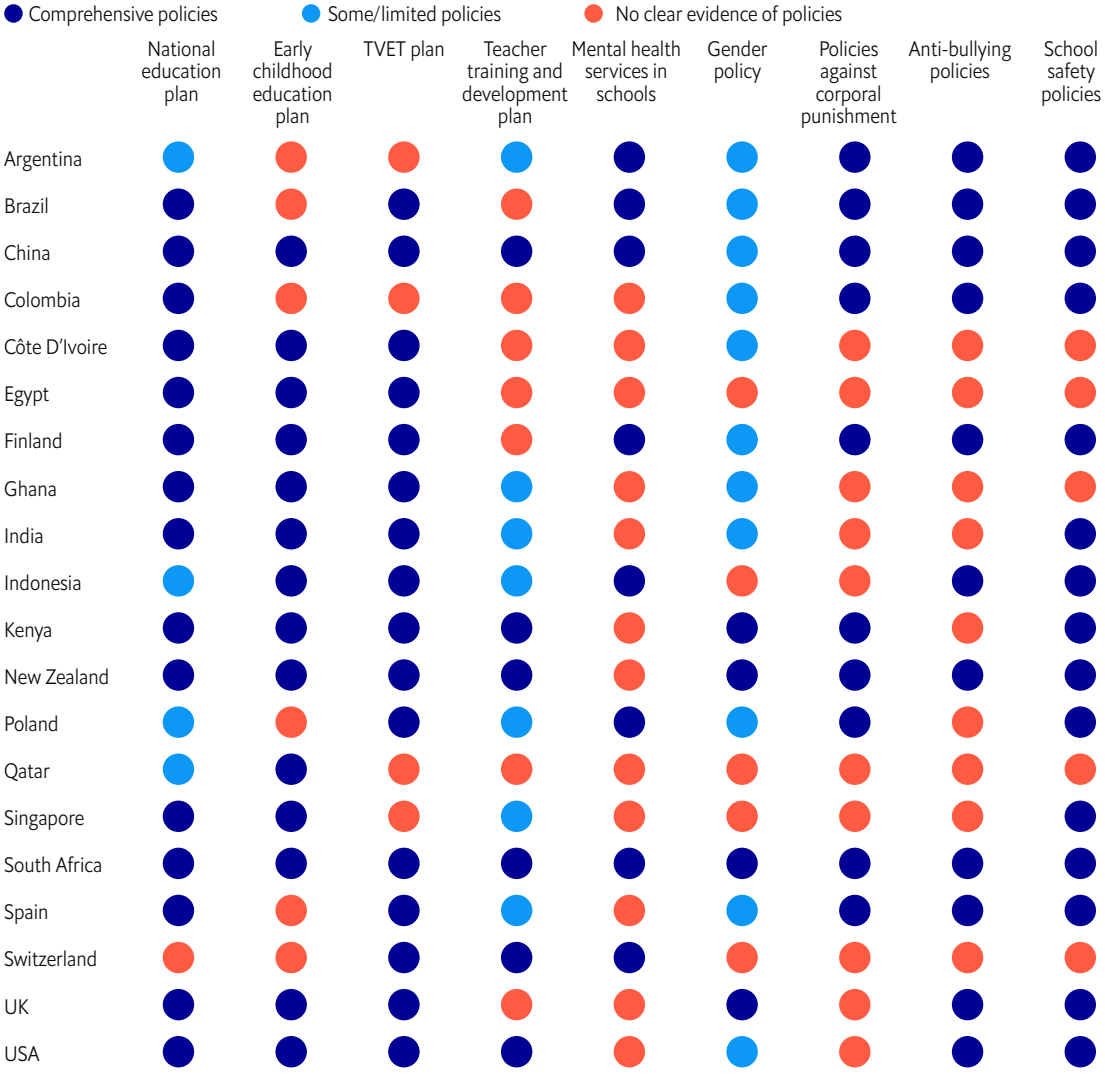
School learning environment				
Policy The comprehensiveness of national education plans and the existence of wider policies to support the health, wellbeing and safety of young people in schools (e.g., gender policies, and physical and mental health policies)	**Resources** Financial expenditure on schools, including provisions for supporting children and young people from disadvantaged backgrounds	**Infrastructure** Access to physical infrastructure and resources that create a stimulating environment for learning, including basic infrastructure (e.g., water, sanitation, electricity), digital infrastructure (e.g., internet access) and other learning resources (e.g., books, computers)	**Learning facilitators** The knowledge, skills and wellbeing of teachers to support young people in their development (e.g., level of teacher qualifications, compensation for teachers, job satisfaction and capacity to teach)	**Relationships and activities** The quality of relationships between young people and other stakeholders within the school learning environment (e.g., teachers, peers, school leadership) to create supportive and collaborative learning environment

Countries that perform well in this category (Finland, the US, China) have strong fundamentals in place, from pre-primary to secondary school. This includes the development of plans, policies and curricula to support the holistic development of young people and move beyond a traditional focus on academia towards a wider set of skills and competencies. Beyond what is taught in the classroom, however, more work is needed to achieve a positive school culture and to promote the types of interactions that play a role in fostering the social and emotional development of young people. One hurdle identified is the heavy workload of teachers, which limits the time they have to personalise instruction and nurture relationships with students.

Guided by SDG targets, a large majority of countries have taken steps to revise education policy and curricular frameworks. Our research found that most countries have undertaken recent planning exercises to improve the delivery of education, while also enacting a range of policies and curricular changes to promote the wellbeing and social and emotional development of young people (Figure 8). This includes policies ensuring that the health needs of students are met (Case study 1), addressing bullying in schools (Case study 4), and promoting greater engagement with families. South Africa, China and New Zealand, in particular, stand out in terms of the comprehensiveness of their policies in this regard.

While planning and policymaking does not necessarily translate into effective practice, action on these issues across countries indicates growing political will to focus more effectively on the holistic needs of young people in the school setting. This trend may be guided in part by efforts to meet relevant SDG targets, particularly SDG4, which includes specific goals regarding education policy and curricula.[32]

Figure 8: Policy environment in the school



Note: TVET = Technical and Vocational Education and Training
Note: Please refer to the appendix for more detail on our scoring methodology across countries against each indicator
Source: Economist Impact research

Case study 1. Menstrual products in schools

Missing school can be detrimental to academic performance and increase the risk of dropping out.[33] Yet, in 2018 UNESCO reported that more than 95 million secondary school age girls were out of school worldwide.[34] There are several reasons why girls miss school or leave formal education early, including poverty, child marriage and gender-based violence. In some cases, the primary factor is even more basic: the lack of access to hygiene or sanitation facilities in school.[35]

A 2014 study found that girls in Kenya lose, on average, four days of school each month due to menstruation.[36] Similarly, in the UK, Plan International showed that 64% of 14–21-year-old girls and women missed part, or a full day, of school each month.[37] Some countries are taking action to reduce gender disparities in education by providing menstrual products to those students who struggle to access them and who may otherwise miss school as a result:

- In New Zealand, the government's *Ikura | Manaakitia te whare tangata* initiative provides free tampons and sanitary pads to all state and state-aided schools and *kura*.[38,39] The programme is run on an opt-in basis and currently covers 94% of girls. Students are actively involved in the scheme's operation in setting preferences for accessing the products—for example, through dispensers in school bathrooms and the option to take them home.
- In Scotland, the Period Products (Free Provision) Act 2021[40] came into force on 15th August 2022. The act stipulates that education providers and councils are required to provide period products free of charge to those in need.[41]

Globally, national curricular frameworks (NCFs) include a broad range of skills and competencies, including ICT skills and education for sustainable development. Economist Impact reviewed the NCF of each of the 20 countries in this study to assess the learning objectives and targeted skills in their national education systems.[42] The results are encouraging. With the exception of Colombia and Côte D'Ivoire, digital skills are highlighted in the NCF of all other countries studied, while these same countries also cite soft skills such as creativity, collaboration and critical thinking. Furthermore, 85% of countries include global citizenship skills such as intercultural understanding (see Case study 2), while 80% include a focus on building knowledge of environmental and sustainability issues (see Case study 3). One notable area of weakness is the inclusion of sexuality education[43] within NCFs: at least 35% of countries have yet to set these standards, while some actively prevent or limit the provision of such instruction.

There is some evidence that the inclusion of such skills in NCFs is translating into practice. In our survey, 75% of teachers agree that their school prioritises the development of soft skills alongside cognitive skills, while 63% of students similarly report that their teachers emphasised the importance of such skills. While these numbers provide some indication that soft skills are being taught, tools for measuring the effectiveness of this learning are still nascent, as discussed later in this report.

Case study 2. Creating the next generation of global citizens

To develop global citizenship skills among young people, High Resolves, an Australian non-governmental organisation (NGO), has been partnering with teachers, schools and local organisations.[44] It offers novel learning experiences delivered in-person and through digital platforms, targeted at engaging young people in improving their communities. Through interactive workshops, students are encouraged to collaborate and problem-solve, developing a sense of identity, purpose and empathy. Some of the activities students engage in include: sharing reactions to words describing different groups of people to understand the impact of stereotyping; and identifying tangible ways to develop communities and bonding.[45] Since its launch in 2005, these programmes have engaged over six million young people across Australia, the US, Canada and other countries.[46]

Case study 3. Education for sustainable development

The Eco-Schools programme, which operates in 70 countries through the Foundation for Environmental Education,[47] provides schools with a framework to place young people at the centre of environmental learning. This includes appointing an eco-committee of students and adults; developing an environmental action plan; and putting in place processes to review environmental learning and to monitor and evaluate the impact of projects.[48] In South Africa, through the application of the Eco-Schools programme, more than 50% of the content in selected subjects is environmental in nature.[49] Over 10,000 schools across the country have participated in the programme since its inception in 2006, covering 400,000 learners and 16,000 teachers.[50]

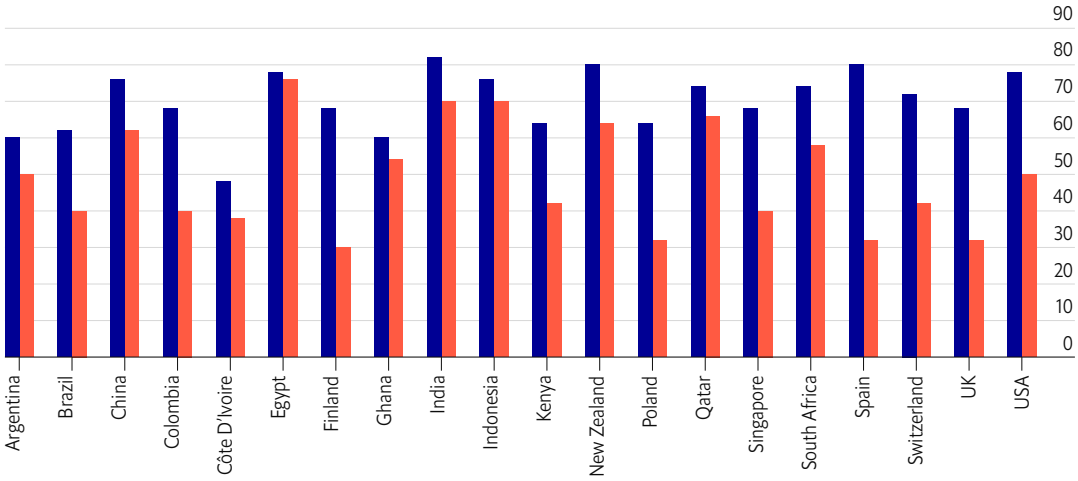
More emphasis is needed on developing a positive school climate to support the social and emotional development and academic success of young people. Our survey found that while 65% of young people agree that their teachers generally treated them with respect, only 50% felt that their teachers were interested in their wellbeing. Addressing this lack of perceived support is crucial since close and trusting teacher–student relationships can impact learning, behaviour and motivation.[51,52] In fact, research has shown that high-quality interpersonal relationships—between students, peers and teachers—is a key feature defining a positive school climate.[53]

Meanwhile, negative social experiences at school, including bullying or victimisation, can negatively impact academic performance, as well as long-term health outcomes.[54] Yet, only half of the countries assessed have a statutory requirement for schools to adopt anti-bullying policies (Case study 4). Even more striking, our survey revealed just half of young people agree that students in their school were supportive of each other, while two in five did not think that their school felt like a safe place.

Case study 4. Tackling bullying in schools

In Finland, schools are legally required to design and implement plans to safeguard students against any form of violence, bullying and harassment.[55] As an example of how this legal requirement translates into practice, the KiVa programme provides clear guidelines to prevent bullying and tackle incidents when they arise.[56] Implemented in 2009, the programme is currently in use in 90% of schools across Finland.[57] Research conducted in the first year post-implementation found that schools that had not adopted KiVa were up to twice as likely to report incidents of bullying.[58] The programme has since been adopted in New Zealand and various countries in Europe and South America.[59]

Figure 9: The role teachers are expected to play vs the time teachers have to play this role



Note: The role teachers are expected to play is measured based on the percentage of teachers agreeing that they are encouraged to personalise teaching to the needs of each student. The time teachers have to play this role is measured based on the percentage of teachers agreeing to having time to spend with each student.
Source: Economist Impact survey of teachers

One third of teachers are challenged by a heavy workload, according to our survey. While our research finds that 75% of teachers report being satisfied with their jobs overall, workload remains a key challenge. One third of teachers report that an unmanageable workload often makes them feel overwhelmed or burnt-out. This high volume of work can also impact teachers' effectiveness as key stakeholders within a learning ecosystem, limiting their ability to provide quality instruction or perform to expected standards—while 70% of teachers feel encouraged by their school to personalise instruction to the needs of individual students, only 50% have adequate time to spend with each student (see Figure 9).

Student motivation may also be impacted when teachers have less time for individualised instruction. In Egypt—the country where the largest share of teachers felt they had adequate one-on-one time with students—young people are among the most likely to report that they tried hard in school. Considering the factors driving student motivation is important as this can impact academic performance, particularly among students from disadvantaged backgrounds.[60]

Improving what we measure: Formal learning environment

While the resources and infrastructure within the school learning environment are relatively well-measured and documented, there are some notable data gaps. In particular, there is a general lack of data on how access to resources or infrastructure varies across different groups of learners–for example, students with disabilities or from other disadvantaged backgrounds. More standardised and regular data collection on teachers, including qualifications, salaries and satisfaction,[61] will also provide a clearer understanding of policies that could support teachers and therefore improve outcomes for young people.[62]

Home learning environment: There's no place like home

The home is a child's first school. The character and features of the home environment—including the quality and security of relationships and the availability of various resources—create the foundations of healthy development, learning, and ongoing levels of wellbeing and happiness.[63] The Learning Ecosystems Framework captures the key enablers of a supportive home environment that foster growth across physical, cognitive, social and emotional developmental pathways to set young people up for success within their academic and personal lives.

Figure 10: The Learning Ecosystems Framework: Home learning environment pillar

Home learning environment				
Policy The existence of policies that enable quality relationships between young people and their family members, and that support the health and wellbeing of young people (e.g., parental leave policies, child protection)	**Resources** The availability of financial resources in the home environment that enable young people to access learning tools and resources, and participate in learning activities	**Infrastructure** Access to physical infrastructure and resources that create a stimulating environment for learning, including basic infrastructure (e.g., water, sanitation, electricity), digital infrastructure (e.g., internet access) and other learning resources (e.g., books, study spaces)	**Learning facilitators** The knowledge, skills and wellbeing of parents and caregivers to support the learning and development of young people (e.g., literacy, ICT, skills, happiness and wellbeing)	**Relationships and activities** The quality of relationships at home, and joint activities between parents and caregivers and young people, that create a stable and nurturing environment for development

Different countries take different approaches to enabling supportive and stable relationships between young people and their families, such as offering parental leave or flexible working. While there is no one right approach, the current approaches are not delivering on expectations, and there is evidence that young people are lacking the care and support they need to thrive. Countries that perform well overall on this pillar, including Spain and Poland, score well in the infrastructure category, with high levels of access to basic infrastructure and key learning resources in the home environment (eg, digital devices and books). The pandemic served to emphasise the importance of such resources in the home setting, with lower-income populations among the most likely to be denied access.

Across countries, there is a lack of comprehensive approaches to creating safe and supportive environments for young people at home (see Figure 11). Countries take different policy approaches to creating safe and supportive environments for young people at home—for example, providing benefits to mitigate financial barriers to a child's upbringing or enacting family-friendly policies that enable parents and guardians to be more available and engaged caregivers. Research investigating the impact and length of paid leave entitlement suggests that more generous provision increases the quality of mother–child interactions[64] and improved toddler language outcomes,[65] respectively.

Of the 20 countries studied, however, few have enacted a comprehensive set of policies contributing to a safe and nurturing home environment. Less than half have made corporal punishment in the home setting unlawful, while just four (Finland, New Zealand, Spain and the UK) have legally enacted flexible working options beyond temporary measures introduced during the peak of the covid-19 pandemic. With regard to parental leave policies, China, Côte D'Ivoire, Ghana and Qatar all provide very limited paid leave for working mothers, with no leave or other forms of income protection for fathers, and the US is the only country without any national policy mandate to provide working mothers or fathers with paid leave.

Figure 11: Existence of family-friendly policies

Note: The comprehensiveness of parental leave policies is assessed according to: length of paid maternity leave for mothers of infants; availability of paid leave available for both parents; guaranteed job protection and income security for mothers throughout leave.

Source: Economist Impact research

Finland stands out for being ahead of the curve, providing both parents with an equal quota of 164 days of parental leave.[66]

Key data gaps limit insight into the quality of the home environment. Overall, we found a critical lack of comparable data to assess the quality of the home environment, particularly during early childhood, including access to learning resources, early childhood caregiver engagement and nurturing, and exposure to adverse childhood experiences.[67]

"Research shows that having a stable, loving relationship with at least one parent/guardian or caretaker is crucial for childrens' development and learning."

Christina Hinton, research affiliate with The Human Flourishing Program at Harvard University

Such data is important both for the development and evaluation of policies supporting families and caregivers.

One in three young people lacked family engagement in their educational progress. To help fill the data gaps identified above, our survey asked young people about their family relationships while growing up: 31% cite a lack of family interest or support in their educational progress, while a similar number report not having had a family member they could go to for advice or a meaningful conversation. Such evidence is discouraging as Christina Hinton, a research affiliate with The Human Flourishing Program at Harvard University, explains, "research shows that having a stable, loving relationship with at least one parent/guardian or caretaker is crucial for childrens' development and learning."

With growing recognition of the relationship between the quality of the home environment and outcomes for young people, several countries are designing programmes which serve a dual purpose in supporting child learning and encouraging greater bonding between parents or guardians and children (see Case study 5).

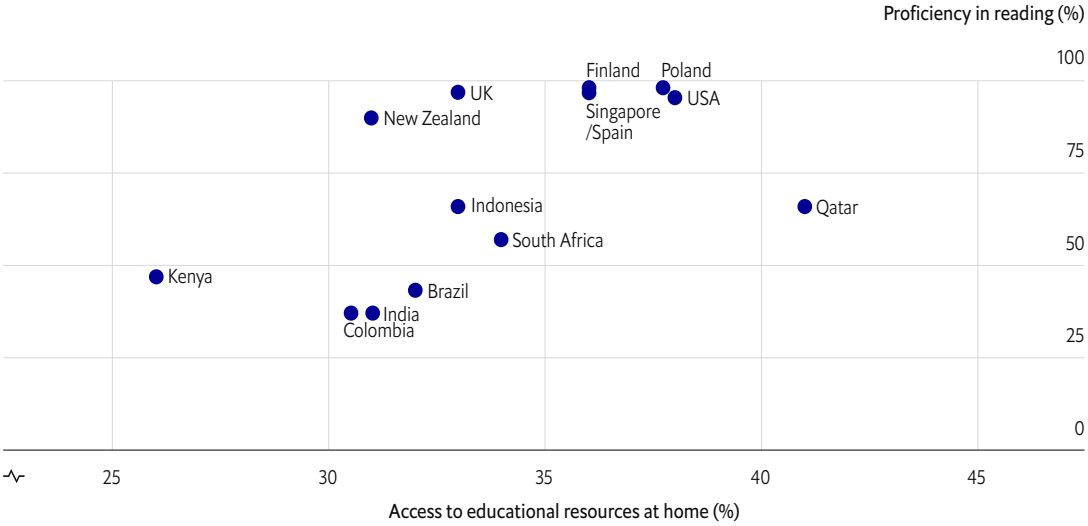
Case study 5. Supporting parents to support children

Research has shown positive effects of programmes aimed at developing the literacy of parents on their child's school performance, language and literacy development.[68,69,70]

In Switzerland the Swiss Institute for Children's and Youth Media (SIKJM) launched the Tell Me a Story – Family Literacy (Schenk mir eine Geschichte) project in 2006, designed to support parents from migrant backgrounds in dealing with multilingualism and cultural challenges, and integrating their native language in the upbringing of their children. Parents and children are invited to regular storytelling sessions moderated by language facilitators, who also counsel parents and provide them with information on resources such as adult language classes.[71] A 2015 study evaluating the project found that participation has positive effects on a child's language development.[72]

In another example, from New Zealand, schools and community-based education providers facilitate the Reading Together and Early Reading Together workshops for children and their parents.[73,74] These enable parents to effectively read and talk to their children and develop a strong literacy and language foundation.[75]

Figure 12: Comparing access to educational resources at home with reading proficiency across countries



Note: Access to educational resources in the home is measured based on the percentage of young people responding that they had access to education resources in this setting "to a large extent" or "to very large extent." Educational resources considered include: books to help with school work; a quiet or dedicated place to learn; access to a computer/digital device to use for school work or learning; and books on art, music, poetry, or classic literature.
Source: UNESCO (proficiency in reading); Economist Impact survey of young people (access to educational resources at home)

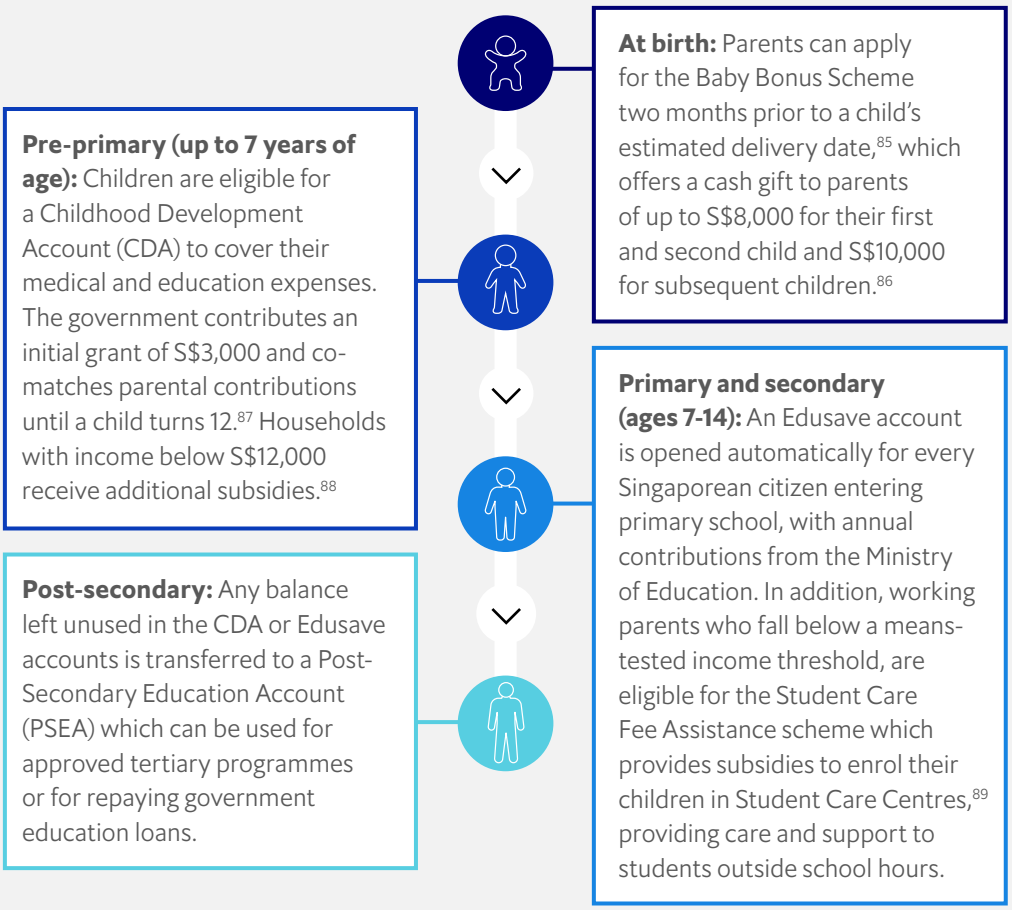
Financial insecurity is preventing access to learning resources, experiences, and opportunities for up to a third of young people. The bearing of a family's socioeconomic level and finances on a range of learning and wellbeing outcomes for children is well-documented.[76] Our survey adds to such evidence, finding that 33% of young people feel that their family's finances prevented them from accessing educational resources, and 30% report interruptions to their schooling as a result of financial limitations.[77]

Addressing this is particularly pertinent given the link between access to learning resources and learning outcomes—Kenya, for example, where one in four young people report not having had adequate access to educational resources at home, has one of the lowest levels of reading proficiency (Figure 12).[78] Some countries have already taken steps to address income disparities by implementing schemes that provide financial support to children throughout their academic journeys (Case study 6).

Disparities in access to digital resources in the home also persist globally. The percentage of households with a personal computer ranges from 93% in Switzerland to 9% in Kenya.[79] This "digital divide" has been identified as a major obstacle to ensuring equity and participation in a world which increasingly relies on technology to learn, work and connect.[80] The risks of digital exclusion are known to be particularly acute in developing countries[81] but a lack of connectivity also has the potential to widen pre-existing inequalities globally.[82] Researchers at Cambridge University highlighted, for example, how children from low-income families in the UK fell behind during the covid-19 lockdowns as they lacked the resources to participate in online learning.[83] Furthermore, a recent study by the Economist Intelligence Unit highlighted the economic costs of the digital divide by estimating the possible gains in children's learning outcomes from increasing levels of internet connectivity.[84]

Case study 6. Financial support at every stage of education in Singapore

As soon as a child is born in Singapore they become eligible for a range of schemes that provide long-term financial support for their education and other needs.



Across these schemes, the Singapore government effectively provides financial support for a young person's development from birth till the age of at least 31, when PSEA accounts are closed.[90]

Improving what we measure: Home learning environment

There is a general lack of cross-national, comparable data required to assess the quality of home and family life, particularly in the early years of childhood. While various national or international survey programmes[91] collect some related data, they are often limited in scope. Furthermore, the use of different metrics makes it difficult to track progress globally.

To address some of these challenges, UNICEF and other key child protection and health organisations came together to develop the INSPIRE Indicator Guidance and Results Framework.[92] This establishes a core set of indicators related to violence against children in different settings, including the home, and provides detailed guidance to improve data collection efforts. Similar efforts to develop consistent baseline and follow-up data for a broader set of metrics would allow progress on these dimensions to be measured and tracked.

Community learning environment: It takes a village

Outside of more traditional learning environments, various stakeholders that co-exist within the community are important for expanding the learning experiences of young people.[93] These stakeholders—including business leaders, religious leaders, neighbours and many others—can influence the development of young people and contribute to positive educational and wellbeing outcomes.[94] In addition to providing access to varied teaching agents, communities also offer wider informal learning opportunities, as well as infrastructure to participate in these activities.[95] The Learning Ecosystems Framework explores the availability and quality of these wider community stakeholders, activities and infrastructure in supporting community-led learning for young people.

Figure 13: The Learning Ecosystems Framework: Community learning environment pillar

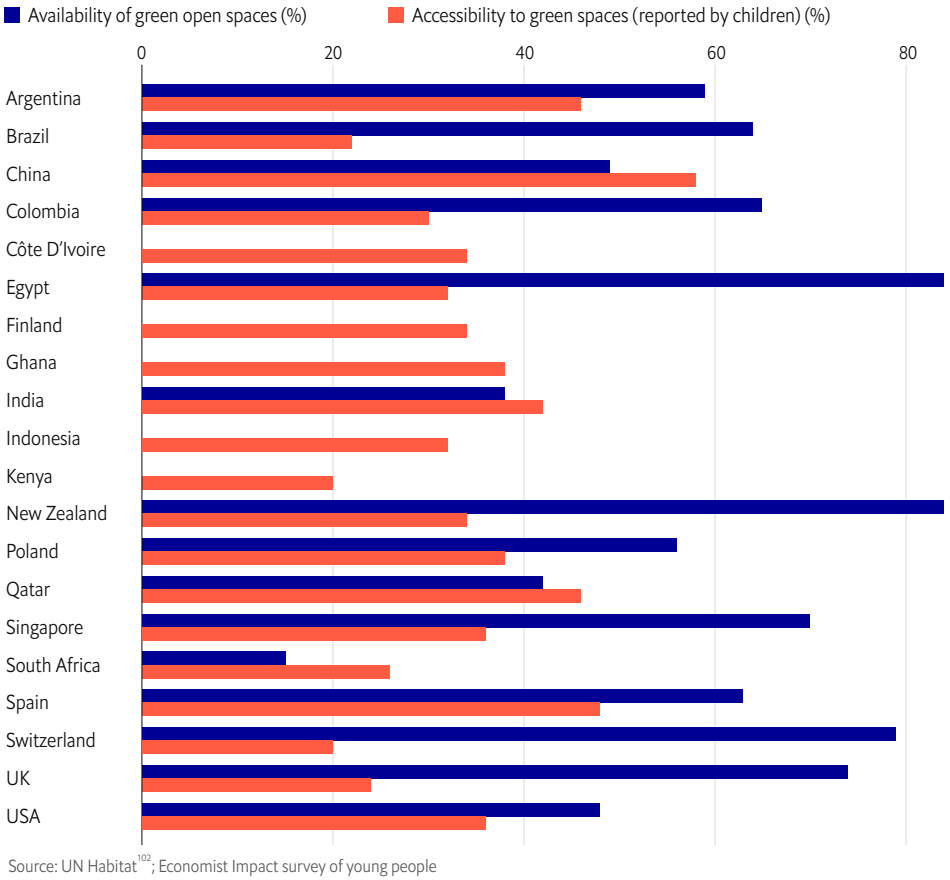
Community learning environment				
Policy The existence of policies that enhance the community environment for young people. This includes enabling access to non-academic activities (e.g., extracurricular activities and work-based learning), and the development of child-friendly cities	**Resources** Investment in community development to provide or enable learning opportunities for young people (e.g., arts and culture, community learning spaces, infrastructure)	**Infrastructure** Availability, accessibility and quality of community infrastructure that enhance the wellbeing of young people or provide access to community activities (e.g., transportation, green spaces, play spaces)	**Learning facilitators** Access for young people to community mentors outside of their homes and schools to support learning and development	**Relationships and activities** Availability of and participation in non-academic learning activities provided by the community (e.g., extracurricular activities, work-based learning, civic activities, cultural activities)

There is a fragmented approach to community development across the board in terms of access to opportunities, mentors and child-friendly infrastructure for young people. Singapore stands out among the countries assessed, particularly with regard to its policies on community-based learning. Many countries, however, do not have clear policies that encourage or enable community-led activities and participation, and young people note a lack of access to trusted community mentors. There is also evidence that infrastructure in communities is not currently catering to the needs of young people, although some countries, including Singapore, Poland and Indonesia, have invested in building more child-friendly urban environments.

Three in five young people surveyed did not have someone in their community who acted as a mentor or supported their learning during childhood. Every social interaction a child encounters in their early years has an impact on their psychological and physical development.[96,97] In some cases, community mentors can fill a gap where other relationships in a child's life and core network are lacking.[98] A review of community-based mentoring programmes reveals benefits ranging from improved attitudes towards school and increased rates of school attendance, to the promotion of positive relationships and improved health and safety outcomes.[99] Despite the positive influences of relationships in a community setting, our survey finds some gaps in access to such mentors—on average, only 42% of young people report having had someone in their community who could act as a mentor or support their learning.

Access to safe and high-quality community spaces for children varies across countries, and is lacking. Only a third of young people responding to our survey strongly agree that they had easy access to pedestrian spaces, play facilities and green spaces in their communities while growing up (see Figure 14). Meanwhile, similar data[100] from UN Habitat shows that open spaces are available to approximately 60% of the population across the same set of countries.[101]

Figure 14: Availability of community-level infrastructure compared with the accessibility for young people



Source: UN Habitat[102]; Economist Impact survey of young people

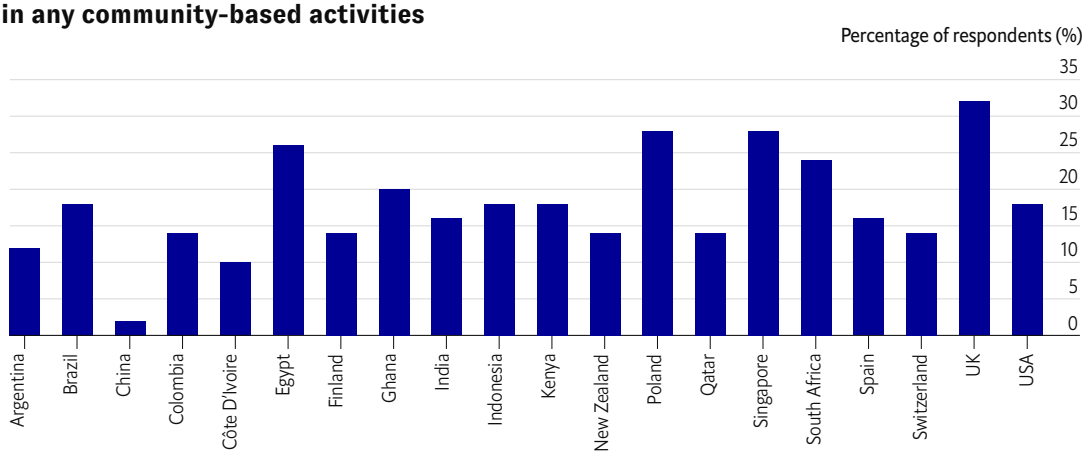
This suggests that countries are doing better at developing infrastructure that caters to the needs of the general population and a greater focus on children and adolescents is needed in the design and planning of spaces where young people interact and engage.

The way communities are built has important implications for learning and wellbeing, with the quality, safety and features of community facilities (eg, pedestrian paths, play facilities, green spaces) linked to positive physical, social and emotional outcomes in children,[103] as well as improved problem-solving, decision-making and creative thinking skills.[104] UNICEF's Child Friendly Cities Initiative recognises the need to keep children's best interests in mind when designing cities and communities.[105] More than half of the countries in this study have incorporated these design principles in city-planning, at least in their largest cities (see Case study 7). It is hoped that continued and effective implementation of these initiatives will enhance the quality of local communities for current and future children.

Case study 7. Building child-friendly cities

The Ministry of Women Empowerment and Child Protection in Indonesia has developed indicators covering children's needs in terms of the physical and social environment. These indicators are used to assess efforts to develop child-friendly cities nationally,[106] and are incorporated in the "Grand Design of Jakarta Towards a Child Friendly City 2018–2022" plan.[107]

Figure 15: Percentage of young people not participating in any community-based activities



Source: Economist Impact research

On average, one in five young people does not engage in any form of community-based or after-school activity. Our survey asked young people about their participation in informal activities outside of school hours while growing up, including extracurricular activities, summer learning programmes, work-based learning, environmental protection activities, community service activities and cultural activities. We found that 18% of young people did not participate in *any* such activities globally. These findings vary substantially across countries, from 32% in the UK to 2% in China (see Figure 15).

The overall findings are discouraging, as participation in extracurricular activities can have a range of benefits for young people, both in terms of developing soft skills and contributing to academic performance.[108,109] Therefore, understanding the factors enabling greater youth involvement in these activities is important. One aspect could involve introducing policies to encourage participation—although almost half of countries assessed do not currently have a policy on extracurricular learning or programmes supporting work-based learning opportunities.

Improving what we measure: Community learning environment

Data on both the availability and quality of resources, infrastructure and relationships in the community environment is lacking. With regard to availability, one telling data point is the level of public and private investment in developing infrastructure such as transport and community spaces, or in arts and culture. Comparable global data on levels of investment in these activities does not currently exist.

Measuring quality is even more challenging, but also equally important in capturing the impact of investment. Economist Impact has sought to fill this gap through the collection of survey data; however, a more consistent and replicable approach across countries would help to advance understanding of the challenges faced within this learning setting.

Governance and coordination: Towards a common goal

Learning ecosystems represent a move away from siloed systems of education towards collaborative networks of diverse stakeholders to create new and more personalised learning pathways.[112] This whole-systems approach allows both for learning goals to be more aligned with the needs of communities and societies at large, and for a greater number of stakeholders to contribute towards those goals. The Learning Ecosystems Framework seeks to capture not only the effectiveness of the key learning environments—homes, schools and communities—operating independently, but also the level of collaboration between these environments.

Figure 16: The Learning Ecosystems Framework: Governance and coordination pillar

Governance and coordination		
Governance effectiveness and responsiveness The quality and effectiveness of the government of the country to respond to appropriately distribute funding and respond to change and disruption	**Enabling environment** The extent to which a country has an overall environment that enables growth and stability across the different learning environments (e.g., equality in society, access to healthcare, environmental health, general attitudes of the population towards learning and education)	**Stakeholder engagement and collaboration** The level of coordination and collaboration between key learning ecosystem stakeholders to create new opportunities for learning for young people

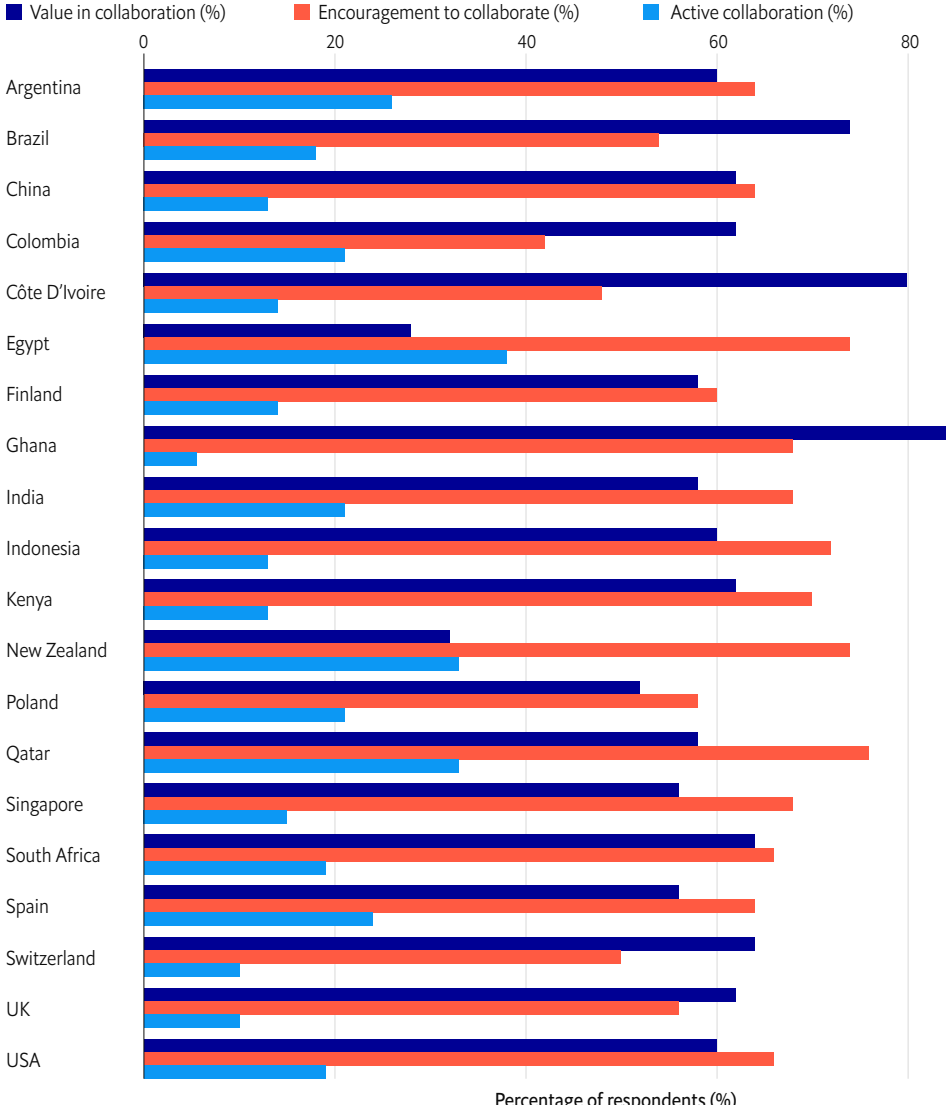
Our findings show that the value of collaboration is not in question: stakeholders understand the benefits of working together to support the education of young people. In practice, however, the rate of collaboration is low across countries. New Zealand is a leader in this domain, demonstrating a high level of stakeholder engagement between diverse learning settings. Overall, more research is needed to better understand the factors enabling collaboration, as well as the barriers.

"Initiatives involving community-led organisations, cultural institutions, or private-sector companies can broaden the horizon of students. They might discover new passions, picture themselves in different career options, and even develop more motivation in 'traditional' school classes."

Aurelio Amaral, head of the Learning Ecosystems track at WISE

Stakeholders in learning ecosystems see value in collaborating with external partners. Collaboration serves multiple purposes: to provide new learning opportunities; to measure and monitor outcomes; and to continually improve the delivery of education (see Case study 9). "Initiatives involving community-led organisations, cultural institutions, or private-sector companies can broaden the horizon of students," says Aurelio Amaral, head of the Learning Ecosystems track at WISE, "they might discover new passions, picture themselves in different career options, and even develop more motivation in 'traditional' school classes."

Figure 17: Comparing ambition to collaborate with collaboration in practice



Source: Economist Impact survey of teachers

In a well-developed learning ecosystem, various stakeholders play a role in engaging with others across the system. In the absence of data or measurement of the extent of such engagement, our survey asked teachers about their views on the value of collaboration and the extent to which their schools interact with others to support the education of young people. The results are compelling. Four in five teachers surveyed see value in collaborating with external partners (eg, community organisations, businesses, universities) to support students, while three in five agree that their schools actively encourage these activities (see Figure 17).

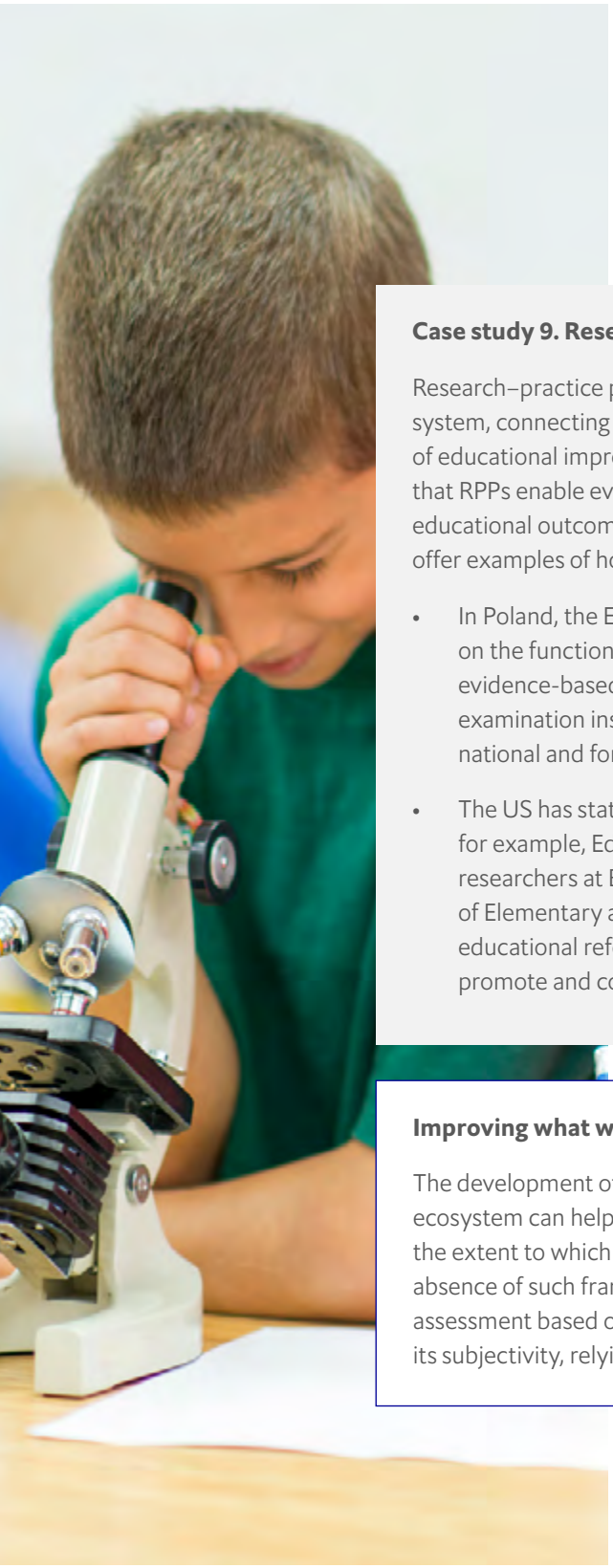
Despite the support for collaboration, there remains a large gap between ambition and practice. Fewer than one in five teachers responding to our survey reports that their school is actively engaging with external institutions and actors (see Figure 17). One key barrier, as reported by over 50% of teachers, is the time required to develop these relationships—this is no surprise, given the challenges posed by heavy workloads discussed above. Others perceive as additional barriers few opportunities or a lack of interest across the wider community (50% of respondents), low levels of funding or administrative support from schools (35%), and limited support or encouragement from policymakers (25%).

Only three in 20 countries are using new forms of credentialing or recognition, despite their potential for addressing barriers to collaboration. Alternative credentialing[110]—for example, digital badges, micro-credentials, or industry-recognised certifications—is gaining in popularity. These innovative systems are one way of allowing a more diverse set of informal learning experiences and skills to be formally recognised and, in some cases, to contribute towards a degree or scholarship eligibility.[111] Investment in alternative credentialing by policymakers and school administrators could also help generate more credibility, resourcing and support for teachers in pursuing the types of collaboration that provide learners with new opportunities. Greater formalisation of these arrangements would also give learners more flexibility to explore their interests, pursue alternative career pathways and engage with their community. However, our research found evidence of the development or use of such recognition in only three of the 20 countries studied (Indonesia, Poland and New Zealand) (see Case study 8).

Case study 8. Recognising learning outside of formal settings

Alternative systems of recognition allow students to be credited for a range of informal activities that contribute to their learning. Such systems are in use, or currently being developed, in a number of countries:

- In Indonesia, the Ministry of Education and Culture has established the Indonesian Student Micro Credential (KMMI) programme, offering over 350 optional short learning courses that provide a dynamic learning alternative for skills acquisition.[113,114] In addition, digital badges, known as Digital Guide or Pandu Digital, have been adopted to support and credit digital literacy development and community empowerment.[115]
- In Poland, the Educational Research Institute is working on the Badge+ system of digital badges and micro-credentials that can be used throughout an enrolled user's life to supplement their academic credentials. The project supports the idea of lifelong learning, and covers various co-curricular and extra-curricular recognitions. Currently in its pilot stage, as of July 2022 Badge+ is in the process of being fully rolled out.[116]



Case study 9. Research for education

Research–practice partnerships (RPPs) are an important function of the education system, connecting policy, research, practice and community work with the aim of educational improvement and equitable transformation.[117] There is evidence that RPPs enable evidence-based decision-making, leading to improved educational outcomes for young people.[118] A small set of currently active RPPs offer examples of how they can operate and the outcomes they can achieve:

- In Poland, the Educational Research Institute in Warsaw conducts research on the functioning and effectiveness of the education system in enabling evidence-based policymaking. It collaborates across schools, student examination institutions, teacher training institutions, NGOs, universities, national and foreign research centres and international organisations.[119]
- The US has state-level examples of effective and successful RPPs. In Massachusetts, for example, Educational Opportunity in Massachusetts is an RPP between researchers at Brown and Harvard Universities and the Massachusetts Department of Elementary and Secondary Education. It aims to examine the broad effects of educational reform, and the ways in which the public and higher-education systems promote and constrain opportunity for students from all backgrounds.[120]

Improving what we measure: Governance and coordination

The development of frameworks to measure collaboration across the learning ecosystem can help to signal more clearly the strength of these networks and the extent to which they are enabling holistic outcomes for young people. In the absence of such frameworks, the Learning Ecosystems Framework makes this assessment based on survey responses from teachers. However, one limitation is its subjectivity, relying as it does on the voice of a single group of stakeholders.

Outcomes: Measuring the impact

The Learning Ecosystems Framework identifies holistic outcomes for young people, including their educational attainment, the cognitive, social and emotional skills they have developed through their learning, and their overall happiness and satisfaction with their lives.[121,122] In addition to delivering outcomes for young people, an effective learning ecosystem should contribute to positive outcomes for societies at large—the Learning Ecosystems Framework measures this through indicators of the political, economic and social engagement of young people.

Figure 18: The Learning Ecosystems Framework: Outcomes pillar

Outcomes			
Access and completion Measures of enrolment and completion of formal education, including equity in enrolment and completion	**Holistic learning outcomes** Evidence of the holistic development of young people measured based on cognitive skills (e.g., literacy, maths) social and emotional skills (e.g. collaboration, empathy) and practical skills (e.g. digital, financial literacy)	**Engagement and contribution** Measures of engagement by young people economically (e.g., transition to work or higher education), politically (e.g. participation in elections) and environmentally (e.g., acting and encouraging action on sustainability)	**Health, wellbeing and happiness** Measures of the overall wellbeing young people based on physical health, mental health, sexual health and life satisfaction and happiness

Traditional education systems measure success according to how many young people complete formal education and their academic performance. Despite progress on these measures, gaps remain—particularly from an equity point of view in ensuring strong completion and performance across all young people, regardless of their gender, income or other backgrounds. Taking a more holistic view, there is a critical lack of data to measure broader outcomes related to the wellbeing of young people, the skills they are equipped with and how they are deploying these skills to contribute to society. Before we can even begin to identify opportunities and gaps in the outcomes delivered by learning ecosystems, we first need to fill these data gaps by developing approaches and frameworks for measurement.

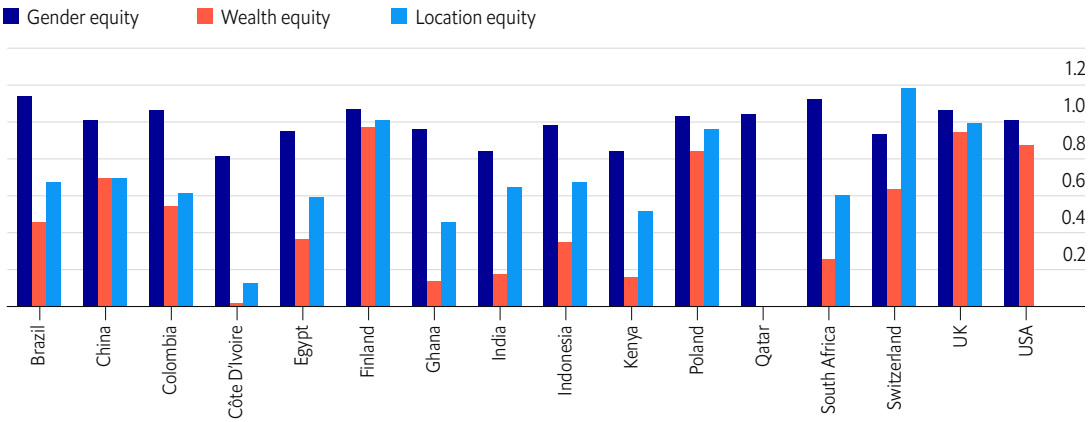
There has been progress in closing gaps in educational attainment at the global level, driven by targeted goals and ambitions. The UN's SDG for education calls for "inclusive and equitable quality education … for all" by 2030.[123] This ambition has accelerated the closing of gaps in educational attainment, particularly with regard to early years education which is cited in target 4.2 with a goal to achieve equal access to quality pre-primary education.[124] While there is still much progress to be made, at least half of the countries studied for this research achieve a pre-primary enrolment rate of above 90%—globally, pre-primary enrolment rates have almost doubled since 2000, from 33% to 61% in 2020 according to World Bank data.[125] Enrolment rates in tertiary education remain low at a global average of 40%, but there are similar signs of progress and growth.[126]

However, wealth disparities in educational attainment remain large both across and within countries. In increasing educational attainment, a key area of focus is ensuring equal access for all children to all levels of education.[127] Gender equity has received particular attention and the impact is evident—at the global level, average enrolment rates in secondary education are now equal for boys and girls.[128]

However, the same is not true for other vulnerable groups (see Figure 19). Comparisons of attainment for children from different economic backgrounds reveal large disparities in some countries: in Côte D'Ivoire, children within the highest wealth brackets are 96% more likely to complete upper-secondary school than children in the lowest wealth brackets. While not as stark as wealth-related disparities, some limited data also shows disparity in attainment between children in rural and urban areas.

Data for other vulnerable groups, such as children with disabilities, migrants and indigenous people, is not currently available. Tracking progress will be crucial to ensuring that national-level improvements in educational attainment address the needs of the most vulnerable members of society.

Figure 19: Equity in educational attainment
(completion of upper-secondary education; 1 = full equity between groups)



Note on scoring: 1 = full equity between groups; less than 1 = higher levels of attainment for males/ higher income brackets/ urban populations; greater than 1 = higher levels of attainment for females/ lower income brackets/ rural populations
Source: UNESCO; Economist Impact research
No data available for: Argentina, New Zealand, Singapore, Spain

There is a gap between educational quantity and quality, demonstrating that attainment alone is not enough. New outcome measures for education are beginning to emerge, combining measures of the quantity and quality of education—the World Bank, for example, has introduced the learning-adjusted years of schooling (LAYS) measure which adjusts average years spent in school by the learning gained during those years, as measured by performance in standardised tests.[129] Comparing LAYS with educational attainment highlights a gap. In South Africa, for example, an average child receives over ten years of schooling[130]—above the UN's goals for compulsory education—but this drops to fewer than six years when adjusted for learning.[131]

"It is problematic that existing indicators at large focus on the enabling environment and output level activities, which says very little about the child's learning and skills development."

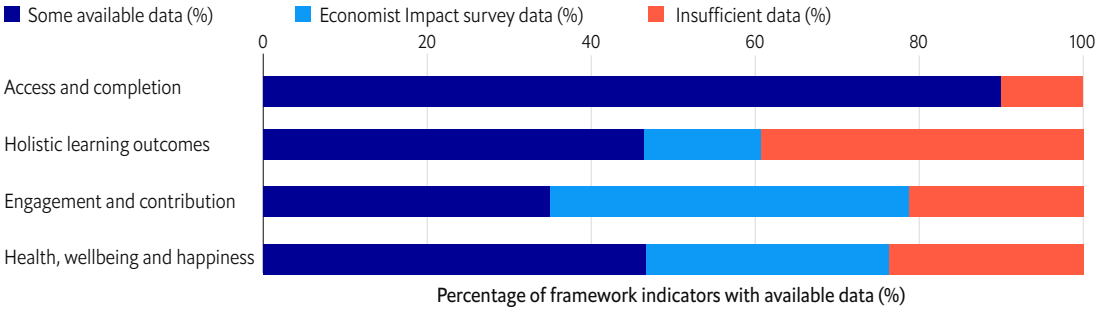
Louise Thivant-Johannsen, founder of the Child Friendly Governance Project and former global advisor for UNICEF's Child Friendly Cities Initiative

Measures of the quality of learning continue to focus on academic achievement. A growing body of research identifies a broader set of skills—beyond cognitive skills, reflected in academic performance—that are essential in order to thrive in the 21st century. These include: meta-cognitive skills (eg, critical thinking, creative thinking), social and emotional skills (eg, empathy, collaboration), and practical and physical skills (eg, digital skills).[132] However, to understand whether learning ecosystems are delivering these skills, we need to be able to measure them, and there is currently no consistently applied standardised framework for data collection (see Case study 10). As Louise Thivant-Johannsen, founder of the Child Friendly Governance Project and former global advisor for UNICEF's Child Friendly Cities Initiative, highlights, "it is problematic that existing indicators at large focus on the enabling environment and output level activities, which says very little about the child's learning and skills development."

A whole-systems approach to learning not only encourages more meaningful investigation of skill development, but also greater insight into how education systems are contributing to the overall wellbeing—including the mental and physical health, security, and happiness—of young people, and their engagement with and contribution to the communities where they live. While some data on this broader set of outcomes is available, mostly related to health and youth employment, few measures exist that explore the subjective experiences of wellbeing and life satisfaction of young people (Figure 20). To address such gaps, Harvard University's Human Flourishing Program is working to develop systematic approaches–including a tool aimed at adolescents–to measure levels of happiness, values and perceptions, and social relationships.[133]

While some measure of the political, civic and environmental engagement of young people is available, this is not consistently collected across countries and over time. Exploring some dimensions of youth engagement, our survey found that 40% of respondents actively engage in activities to make their communities a better place and 41% have taken steps to reduce their impact on the environment. Interestingly, we also noted an association between youth action on sustainability and youth civic engagement—Switzerland and Qatar, for example, report some of the highest levels of both. To explore these issues further, however, more sophisticated tools are needed to understand the drivers and motivators of engagement, across the home, school and community settings.

Figure 20: Availability of comparable data on youth outcomes



Note: Youth outcomes included in the Learning Ecosystems Framework include: Access and completion (enrolment and completion; and equity in completion); Holistic learning outcomes (learning-adjusted years of school; cognitive skills; equity in cognitive skills; meta-cognitive skills; social and emotional skills; digital skills' and financial literacy); Engagement and contribution (sustainable development and lifestyles; civil/political engagement;, global citizenship; and youth transition to work); and, Health, wellbeing and happiness (physical health; children developmentally on track; child malnutrition; mental health; sexual health; safety and violence; and happiness, satisfaction and flourishing).

Source: Economist Impact research

Case study 10. Can we measure intangible skills?

We can measure the things we can observe, or standardise, relatively easily. In education, standardised testing has long been used to measure performance and report on progress.[134] Measuring meta-cognitive skills (such as critical thinking and problem solving) and social-emotional skills (such as empathy and collaboration) is, however, far more challenging.[135] Beyond understanding the types of evidence needed to measure these skills, other factors such as cultural differences also come into play.[136]

At the country level, there is evidence of greater emphasis being placed on these skills in educational plans and curricula. In all of the countries assessed in this study, with the exception of Colombia and Côte D'Ivoire, national curricula or their equivalent make reference to a breadth of skills beyond traditionally measured cognitive skills. However, given the challenges in measuring these skills, this planning has not yet been translated into standardised assessment mechanisms to measure outcomes.

Some attempts are being made to overcome the challenges of measurement and to create outcomes-based approaches to measuring social and emotional skills development. For example, in 2018 the OECD developed an assessment of "global competence", included within the Program for International Student Assessment (PISA), to assess the capacity of students to operate in an increasingly global, multicultural environment.[137] It uses a survey-based approach to examine the skills, knowledge, attitudes and values of young people towards different cultures and perspectives, as well as actions promoting the collective wellbeing and sustainability of society.[138] The 2018 assessment covered 66 countries, but plans to expand geographic coverage or to repeat the assessment are unclear.

Improving what we measure: Outcomes

Significant data gaps in measuring holistic skills development and wellbeing outcomes for young people limit the ability to assess the impact of learning ecosystems. As countries begin to realise the importance of developing a broader set of skills in young people as crucial to their learning outcomes—reflected by the inclusion of these skills in national plans and educational curricula—there is simultaneously the pressing need to incorporate the measurement of these outcomes through the development and rollout of assessment mechanisms.

The involvement of young people in data collection is another key consideration in the discussion on improving what we measure. As Thivant-Johannsen explains, "By working with children, we will be better placed to improve education systems. If we are to generate meaningful evidence on how children themselves experience their learning ecosystems and develop life skills, it is crucial to involve them in the process of collecting and analysing data. Finland is a good example of how the government consulted with children to better understand and find solutions to the lowering PISA rankings."

"If we are to generate meaningful evidence on how children themselves experience their learning ecosystems and develop life skills, it is crucial to involve (children) in the process of collecting and analysing data"

Louise Thivant-Johannsen, founder of the Child Friendly Governance Project and former global advisor for UNICEF's Child Friendly Cities Initiative

Conclusion

There is growing recognition of the need for a more holistic, whole-systems approach to delivering education that will achieve better outcomes for young people and for the societies they live in. There is also evidence that these ambitions are increasingly reflected in the education plans and policies of many countries. There is, however, a gap between ambition and implementation.

Schools continue to be seen as the primary learning environment for young people, and are the most consistently developed in terms of their policies, plans, infrastructure and resources. There are signs of greater emphasis on the roles played by those at home and in the wider community; however, more progress is needed in addressing the needs of all young people within and across these learning environments, including access to resources, infrastructure and supportive relationships.

As homes, schools and communities continue to push the boundaries of how we deliver learning experiences to young people, we need to do the same in how we measure the outcomes. There is an urgent need for more innovative, comprehensive and robust approaches to collecting data on the skills new learning ecosystems are embedding in young people, and how these are translating into their overall happiness and wellbeing. Without this means of evaluation and formal recognition of achievement beyond academia, traditional learning systems will persist, possibly to the detriment of future generations.

This research points to a number of key priorities:

Creating a positive school climate characterised by supportive and trusting relationships between students, peers and teachers

Implementing family-friendly policies to allow parents and guardians to be more available and engaged caregivers for children and young people

Addressing financial barriers that prevent families from providing access for young people to learning resources and experiences—at home and in the school and local community

Incorporating child-friendly design principles into city planning to ensure that children's needs are reflected in local infrastructure

Building channels for collaboration across stakeholders to create new and more personalised learning pathways for young people, designed to achieve a common and aligned set of goals

Developing robust approaches to data collection to better understand how learning ecosystems are developing and translating into the overall happiness and wellbeing of young people

Appendix. Framework methodology

The Learning Ecosystems Framework has been developed by Economist Impact and commissioned by Jacobs Foundation. It provides a diagnostic tool for understanding the current strengths of local learning ecosystems across countries, and the areas for development to enable countries to carve out a pathway from traditional school-based education models towards the development of effective learning ecosystems that provide new opportunities for learning and help children achieve positive educational and wellbeing outcomes.

During the Learning Ecosystems Framework development process, Economist Impact reviewed over 70 sources of literature and conducted interviews with over 20 stakeholders representing international organisations and education foundations to understand what factors enable successful learning ecosystems at the national level. We found that no single tool exists for evaluating the enabling environment for a learning ecosystem. The Learning Ecosystems Framework aims to close this gap, with country-level research and analysis through data collection and surveys of 2,000 teachers and young people (aged 18–20).

The core objectives of the Learning Ecosystems Framework include:

- To engage stakeholders on the concept of "learning ecosystems"
- To provide a clear and compelling roadmap for change by creating a tool which evaluates and shares best practices at the country level
- To advocate for integrating a systems approach to education policy

This appendix contains the methodology for the framework, the findings of which have informed the discussion and analysis included in this report. The full data and scoring at the country level is available for download.

Framework development

The development of the Learning Ecosystems Framework has been informed by an in-depth literature review, and validated through multiple rounds of consultations with stakeholders who have provided guidance on the design of the overarching framework in addition to technical guidance on measurement approaches and data sources at the indicator and sub-indicator level.

The framework is organised across five pillars, as follows:

- 5 pillars (Youth outcomes; Home learning environment; Formal/school learning environment; Community learning environment; Governance and coordination)
    - 22 sub-pillars, distributed across each pillar
        - 95 indicators, distributed across each sub-pillar
            - 100+ sub-indicators, to score each indicator

In addition to these core pillars and indicators, the framework includes 18 background indicators in the dashboard tools. These indicators are not scored, but are used to provide more context to the framework and to help better understand the factors that may influence country-level scores.

The framework has been developed based on the overarching principle that an effective learning ecosystem for young people enables and facilitates holistic learning across multiple environments. It covers the traditional formal learning environment (eg, schools and other learning institutions), but also recognises the crucial role played by the home environment and the broader community environment in supporting a young person's learning. The framework measures the effectiveness of each of these learning environments, individually and collectively through the collaboration and coordination across each, in achieving holistic outcomes for young people.

Each pillar of the framework is aligned with a core question against which overall performance can be measured using the indicators and sub-indicators:

1. Youth outcomes: Are young people achieving holistic learning and wellbeing outcomes that are reflective of an effective learning ecosystem?

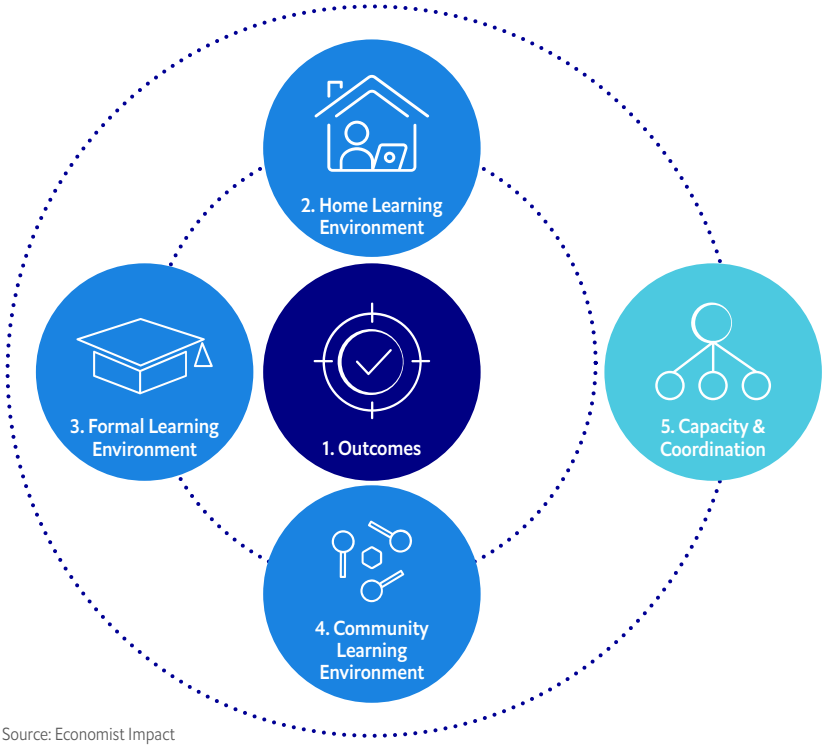
2. Home learning environment: What is the overall quality of the home learning environment in supporting the holistic learning and wellbeing of young people?

3. Formal learning environment: What is the overall quality of the formal education or school learning environment in supporting the holistic learning and wellbeing of young people?

4. Community learning environment: What is the overall quality of the community learning environment in supporting the holistic learning and wellbeing of young people?

5. Governance and coordination: How effective is the government in enabling effective learning ecosystems to develop with coordination and collaboration across key stakeholders?

Figure 21: The Learning Ecosystems Framework



Source: Economist Impact

The pillars of the framework are further subdivided into sub-pillars to assess different aspects of each.

Figure 22. Pillars and sub-pillars of the Learning Ecosystems Framework

Learning ecosystem scorecard

1. Outcomes	2. Home learning environment	3. Formal learning environment	4. Community learning environment	5. Capacity and coordination
1.1 Educational progression and attainment Starting and staying in school	**2/3/4.1 Policy** Policies/plans supportive to home/school/community learning			**5.1 Government effectiveness and responsiveness** Quality and effectiveness of the government
1.2 Holistic learning outcomes Developing a range of key skills needed to be successful and productive	**2/3/4.2 Resources** Resources for parents and guardians/schools/communities to help young people learn and be healthy			
1.3 Youth engagement and contribution Engagement and contribution to economic growth and productivity, and the wellbeing of society/the environment	**2/3/4.3 Infrastructure** Physical resources at home/in schools/in the community supportive to child well-being and learning			**5.2 Enabling environment** Environment in the country to enable the growth of and stability across the three key learning settings
	2/3/4.4 Learning facilitator capacity Knowledge, skills and capacity of parents and guardians/educators/individuals in the community to support young people to learn			
1.4 Health, wellbeing and happiness Being healthy, happy and safe	**2/3/4.5 Relationships and activities** Relationships and engagement in activities at home/at school/in the community which support learning outcomes and foster wellbeing			**5.3 Stakeholder engagement and collaboration** Level of coordination and collaboration between key learning ecosystem stakeholders

Economist Impact has identified specific indicators to enable the measurement of performance against each pillar and sub-pillar of the framework, including a range of qualitative and quantitative indicators. The framework, and the indicators included within it, is designed to be aspirational. By its very nature of being a newly emerging concept, data collection on "learning ecosystems" is limited and the majority of educational data tends to focus on traditional learning outcomes, such as education performance, economic success, and growth. Learning ecosystems move beyond this idea, and instead take a more holistic approach to measuring the success of learning in terms of youth happiness and wellbeing.

Much of this data is not currently available or collected today, but instead of limiting the Learning Ecosystems Framework to what is available, our approach asks the question: how should the effectiveness of a learning ecosystem be measured, and what data should be collected and monitored on a regular basis to demonstrate progress? The findings from the research and analysis, therefore, point to the areas in which more evidence needs to be generated, without which we would continue to operate in the dark about how well learning ecosystems are enabling children to thrive.

Country selection

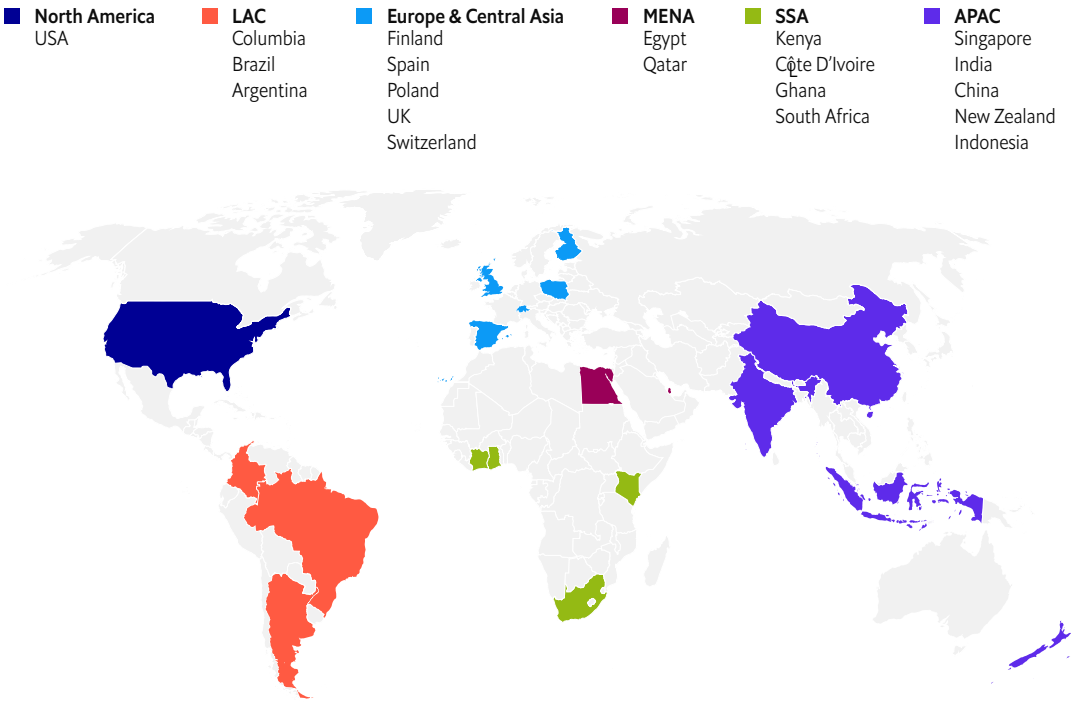
In this phase of research, the Learning Ecosystems Framework has been applied to 20 countries. Country selection has been informed by a range of criteria including expert recommendation of countries that offer a number of approaches to learning systems, data availability, and the overall proportion of the world's children covered by the selection. The selected countries cover almost 50% of the world's children and provide diverse geographical coverage.

Data sources

The Economist Impact research team collected data for each indicator of the Learning Ecosystems Framework in July–August 2022. Data was collected through a range of approaches:

- **Publicly available data:** The team relied on publicly available data from official and reliable sources for the latest available year. To the extent possible, we focus on data produced by large international organisations/institutions, such as UNESCO and the World Bank, as well as data collected via global surveys, such as Gallup's World Poll. This allows for consistency in the methodology for data collection across each country, and replicability to measure progress over time. For further detail on the specific sources consulted for each indicator, please refer to the following table.

Figure 23: Geographical coverage of the Learning Ecosystem Framework



Source: Economist Impact

- **Desk-based research:** The qualitative indicator scores are derived through desk-based research from publicly available information, collating information from a range of sources, primarily government policies and reviews. Qualitative indicators are converted into quantitative data and are presented on integer scales. For example, "Teacher training and development" is assessed on a scale of 0–2, where:
    - "2" implies that a country has requirements for in-service professional development for teachers at regular intervals;
    - "1" implies that a country has requirements for in-service professional development for teachers but the frequency is not clearly stated, and
    - "0" implies that a country has no requirements for in-service professional development for teachers.

Please refer to the table below for further detail on the measurement approach for each qualitative indicator.

In countries where the development and administration of education systems is delegated to the sub-national level, Economist Impact scored both the sub-national jurisdiction with the highest income per capita and the sub-national jurisdiction with the lowest income per capita (eg, in Switzerland the Cantons of Basel-Stadt and Uri were considered). Credit was only given to a country if both of the sub-national jurisdictions had the relevant standard in place. This approach is a proxy to start understanding and account for the variation in laws, policies, and initiatives across a country.

- **Surveys:** In addition to the collection of available data and information, Economist Impact fielded two bespoke surveys to help fill key data gaps. This is particularly relevant in the context of the aspirational nature of the framework and the need to explore novel and alternative sources of data beyond those which currently exist. The surveys were developed based on a literature review and expert insight. The design of the questionnaires drew from and built on existing tools, including: Harvard's Adolescent Flourishing Measure,[139] International Survey of Children's Well-Being,[140] OECD's Survey on Social and Emotional Skills,[141] The OECD Teaching and Learning International Survey,[142,143] and The U.S. Department of Education's ED School Climate Survey.[144] The surveys conducted for this study include:
    - **Young people survey:** A survey of 1,000 18–20-year-olds across the countries studied to obtain youth insights on the availability of resources and the quality of relationships that support young people in the home, school and community settings.
    - **Teacher survey:** A survey of 1,000 teachers in public and private school settings, to obtain insights on the resources available in the school setting to support the learning of young people, the motivation of learning facilitators within this setting, and the ease and encouragement of collaboration across learning settings. Teachers sampled include pre-primary teachers (covering children below the age of 4), primary school teachers (covering children aged of 4–11), and secondary school teachers (covering young people between the ages of 12 and 18). The sample size for this survey has been limited to teaching staff with direct classroom interaction with students, either in a generalist capacity or for specific subject areas. It excludes teachers of specialised or targeted education (eg, special education, English language learners, gifted and talented education students, and migrant education).

Data has been collected at the indicator level. For indicators where data is drawn from multiple data points or sub-indicators, the data has been aggregated to the indicator level using one of two approaches:

- For indicators where all sub-indicator data has been measured in the same units (eg, percentages across the same population cohort), a simple average across sub-indicators has been calculated to obtain indicator-level data.
- For indicators where the sub-indicator data is measured in different units, the sub-indicator has first been transformed into a score on a 0–10 scale, and then averaged across all. The transformation has been calculated using a min/max normalisation approach where the minimum and maximum raw data values across the 20 countries assessed are used to bookend the indicator scores. The sub-indicators for which a higher value indicates a more favourable outcome or learning environment for young people have been transformed on the basis of:

  Transformed data = [(x - Min(x)) / (Max(x) - Min(x))]*10

  where Min(x) and Max(x) are, respectively, the lowest and highest data values across the countries for any given indicator. This in effect means that the country with the highest raw data value will score 10, while the lowest will score 0 for quantitative indicators in the index.

There has been no aggregation of indicator scores to the sub-pillar or pillar levels. The reason for this is that the intention of the analysis is not to obtain a single index score for each country for comparison with other countries; instead, the intent is to highlight both the strengths and areas for development at the country level across the different indicators which make up the framework.

Scoring

While the transformed variables are not aggregated into a final composite index score, they have been scored individually on a red/amber/green scoring scheme to indicate areas of stronger performance, and areas for development to support the creation of effective learning ecosystems across all countries.

The appropriate approach to scoring indicators has been identified at the indicator level.

- For indicators that relate to standard competencies where the highest possible score is feasible and attainable (for example, enrolment and completion of formal education), higher standards have been applied. In these cases, the criteria for achieving a "green" score have been set according to either international standards (for example, where specific SDG goals exist) or the top scores achieved across the 20 countries assessed.
- For indicators that reflect newer competencies that have not traditionally been measured or monitored until recently, the scoring criteria have been defined according to the collected data for the 20 countries assessed. In these cases, scores are defined according to the deviation from the average across the group, as follows:
  - Green rating: Country score is more than half a standard deviation above the mean: Country data >= mean average (x) + 0.5* (standard deviation (x))
  - Amber rating: Country score is within half a standard deviation above or below the mean: Country data <= mean average (x) + 0.5* (standard deviation (x)) and Country data >= mean average (x) - 0.5* (standard deviation (x))
  - Red rating: Country score is more than half a standard deviation below the mean: Country data <= mean average (x) - 0.5* (standard deviation (x))

The following table provides a brief description of the indicators that constitute the framework, including the units of measurement and the primary data source for each. For further detail on each indicator, including the data and scoring at the country-level, please refer to the accompanying data workbook.

Indicator		Description	Units	Source
1	**Youth outcomes**			
1.1	**Access and completion**			
1.1.1	Enrolment and completion	Composite indicator	%	Multiple sources
a	Enrolment ratio (pre-primary)	Early childhood education enrolment ratio	%	UNESCO
b	Completion rate (secondary)	Upper secondary completion rate	%	UNESCO
c	Enrolment ratio (tertiary)	Enrolment ratio for tertiary education	%	UNESCO
1.1.2	Equity in completion	Composite indicator	Score (1=parity)	Multiple sources
a	Completion rate equity (gender)	Completion rate in upper secondary education, adjusted gender parity index	Score (1=gender parity)	UNESCO
b	Completion rate equity (wealth)	Completion rate in upper secondary education, adjusted wealth parity index	Score (1=wealth parity)	UNESCO
c	Completion rate equity (location)	Completion rate in upper secondary education, adjusted location parity index	Score (1=location parity)	UNESCO
d	Completion rate equity (disability)	Aspirational indicator - Completion rate in lower secondary education, adjusted disability parity index	Score (1=disability parity)	UNESCO
e	Completion rate equity (indigenous peoples)	Aspirational indicator - Completion rate for indigenous peoples	Score (1=parity)	No data currently available
f	Completion rate equity (conflict-affected communities)	Aspirational indicator - Completion rate for conflict-affected communities	Score (1=parity)	No data currently available
1.2	**Holistic learning outcomes**			
1.2.1	Learning-adjusted years of school	Learning-adjusted years of school	Years	World Bank
1.2.2	Cognitive skills	Composite indicator	%	Multiple sources
a	Proficiency in reading	Number of students at the end of primary education achieving at least minimum proficiency levels in reading	%	UNESCO
b	Proficiency in maths	Number of students at the end of primary education achieving at least minimum proficiency level in maths	%	UNESCO
c	Literacy rate	Youth literacy rate (15-24 year olds)	%	UNESCO
1.2.3	Equity in cognitive skills	Composite indicator	Score (1=gender parity)	Multiple sources
a	Proficiency in reading equity (gender)	Proportion of students at the end of primary achieving at least a minimum proficiency level in reading, adjusted gender parity index	Score (1=gender parity)	UNESCO

Indicator		Description	Units	Source
b	Proficiency in maths equity (gender)	Proportion of students at the end of primary achieving at least a minimum proficiency level in reading, adjusted gender parity index	Score (1=gender parity)	UNESCO
c	Literacy rate equity (gender)	Youth literacy rate (ages 15-24), adjusted gender parity index	Score (1=gender parity)	UNESCO
1.2.4	Meta-cognitive skills	Aspirational indicator	No data currently available	OECD Global Competence Assessment (2018)
1.2.5	Social and emotional skills	Aspirational indicator	No data currently available	No data currently available
1.2.6	Digital skills	Comfort with using digital tools (measured based on survey responses).	%	Economist Impact survey of young people
1.2.7	Youth financial literacy	Youth financial literacy, proxied by adult financial literacy (ages 15 and above).	%	Global Financial Literacy Survey
1.3	**Engagement and contribution**			
1.3.1	Sustainable development and lifestyles	Composite measure	%	Economist Impact survey of young people
a	Personal action on sustainability	Youth action to reduce their own impact on the environment (measured based on survey responses).	%	Economist Impact survey of young people
b	Encouraging collective action on sustainability	Youth action to encourage others to reduce their impact on the environment (measured based on survey responses).	%	Economist Impact survey of young people
1.3.2	Civic/ political engagement	Composite measure	%	Multiple sources
a	Political participation	Participation of youth (adults under 30 years) in national elections	%	Multiple sources
b	Active participation	Youth participation in causes that matter to them eg, through the donation of money, volunteering, advocacy, etc. (measured based on survey responses).	%	Economist Impact survey of young people
c	Civic participation	Youth action to have a positive impact on their local community (measured based on survey responses).	%	Economist Impact survey of young people
1.3.3	Global citizenship	Composite measure	%	Multiple sources
a	Intercultural competency	Percentage of people that trust people of another nationality "completely" or "somewhat"	%	World Values Survey
b	Perceptions towards peace and non-violence	Percentage of youth that think "violence against other people" can never be justified	%	World Values Survey
c	Perceptions towards gender equality	Percentage of youth that disagree or strongly disagree that "Men should have more right to a job than women"	%	World Values Survey
1.3.4	Youth transition to work	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	NEET rates	Proportion of youth (aged 15-24) not in education, employment or training (NEET)	%	World Bank
b	NEET rates equity (gender)	Ratio of female to male youth NEET rates	Score (1=gender parity)	World Bank

Indicator		Description	Units	Source
c	Relevant skills (employer perspective)	Employer views on the extent to which graduating students have the skills needed by businesses (measured based on survey responses)	Score 1-7 (7=best)	World Economic Forum
d	Relevant skills (youth perspective)	Youth perceptions on having the right skills relevant to get a job or to pursue higher education (measured based on survey responses).	%	Economist Impact survey of young people
e	Workforce contribution	Annual growth rate of output per worker (GDP constant 2017 international $ at PPP), adjusted for the ecological footprint per person (GHA)	%	ILO, Global Footprint Network
1.4	**Health, wellbeing and happiness**			
1.4.1	Physical health	Overall self-reported physical health of young people (measured based on survey responses).	Score 0-10 (10=best)	Economist Impact survey of young people
1.4.2	Developmentally on track	Proportion of children who are developmentally on track in health, learning and psychosocial wellbeing among children aged 24-59 months	%	UNESCO
1.4.3	Child malnutrition	Total prevalence of moderate and severe child malnutrition (based on stunting and overweight prevalence in children aged 0-59 months)	%	UNICEF
1.4.4	Mental health	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based on WHO data
a	Youth suicides	Crude suicide rates among adolescents aged 15-19 years	per 100,000 adolescents	WHO
b	Depression	Adolescent depression rate for moderate to major depression (Note: measurement approaches vary at the country level)	%	Economist Impact research
1.4.5	Sexual health	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	Adolescent birth rate	Adolescent birth rate, measured based on live births to adolescent women per 1,000 adolescent women (15-19 years)	per 1,000	WHO
b	HIV rates	Incidence rate of HIV amongst previously uninfected youth aged 15-24 years	per 1,000	WHO
c	Knowledge about HIV prevention	Population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS	%	WHO
d	Attitudes on intimate partner violence	Percentage of girls and boys (aged 15-19) who consider a husband to be justified in hitting or beating his wife	%	UNICEF
1.4.6	Safety and violence	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	Early marriage	Percentage of women who were first married by age 18 (amongst women aged 20-24 years)	%	World Bank
b	Transactional sex	Transactional sex, proxied by the number of detected child victims of trafficking for sexual exploitation for every 1,000,000 children	per 1,000,000	UNODC

Indicator		Description	Units	Source
1.4.7	Happiness, satisfaction and flourishing	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	Human flourishing	Aspirational indicator - Human Flourishing	No data currently available	Harvard Flourishing Project
b	Life satisfaction	Self-reported life satisfaction of young people, including quality of life, relationships, education, and community (measured based on survey responses).	Score 0-10 (10=best)	Economist Impact survey of young people
c	Happiness, satisfaction and flourishing	Self-reported happiness with life for young people (measured based on survey responses).	Score 0-10 (10=best)	Economist Impact survey of young people
d	Sense of purpose	Self-reported sense of purpose for young people (measured based on survey responses).	Score 0-10 (10=best)	Economist Impact survey of young people
e	Future prospects	Survey responses from 15-29 year olds on future prospects in five years	Score 0-10 (10=best)	Gallup World Poll
2	**Home learning environment**			
2.1	**Public policy**			
2.1.1	Adolescent health and wellbeing	National framework (or set of indicators) for measuring child well-being and regular data collection	Score 0-2 (2=best)	Economist Impact research
2.1.2	Family-friendly policies	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based on multiple sources
a	Parental leave policies	Composite score of the comprehensiveness of parental leave policies implemented	Score 0-4 (4=best)	World Policy Centre
b	Child and family protection benefits	Proportion of children/households receiving child or family cash benefits	%	ILO
c	Flexible working policy	Existence of a legal framework to guarantee that employees have the legal right to request for flexible working	Score 0-1 (1=best)	Economist Impact research
2.1.3	Child protection	Composite measure	Score 0-3 (3=best)	Multiple sources
a	Policies against corporal punishment	Prohibition of corporal punishment (the country's national laws must explicitly prohibit corporal punishment in the home)	Score 0-1 (1=best)	Global Partnership to End Violence Against Children
b	Minimum age for employment	Minimum age for admission to employment or work is not less than the age for completing compulsory schooling, and in any case not less than 15 years (developed) or 14 (undeveloped)	Score 0-1 (1=best)	Economist Impact research
c	Protecting children online	Existence of a legal framework requiring companies to seek parent approval using verifiable consent mechanisms in order to process data of children	Score 0-1 (1=best)	Economist Impact research
2.2	**Resources**			
2.2.1	Family income adequacy	Proportion of children living in extreme poverty, defined by the international poverty line of $1.90 PPP per day	%	World Bank

Indicator		Description	Units	Source
2.2.2	Family resources for education	Availability of financial resources within the family to allow children to access and stay in education (measured based on survey responses).	%	Economist Impact survey of young people
2.2.3	Social protection for children	Public social protection expenditure (excluding health) on children, as a percentage of a country's GDP	%	ILO
2.3	**Infrastructure**			
2.3.1	Basic home infrastructure	Composite measure	%	Multiple sources
a	Affordable housing	Satisfaction with the availability of good, affordable housing	%	Gallup World Poll
b	Water, sanitation and hygiene in homes	Proportion of households with access to basic drinking water services, sanitation services and hygiene facilities at home	%	Joint Monitoring Program
c	Electricity in homes	Weighted electrification rate across rural and urban households	%	World Bank
2.3.2	Stimulating home environment	Percentage of children aged 0-59 months who have learning materials at home (children's books and playthings)	%	UNICEF
2.3.3	Learning resources	Access to learning resources in the home environment (measured based on survey responses).	%	Economist Impact survey of young people
2.3.4	Digital resources	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	Internet at home	Score on the Inclusive Internet Index "usage domain" which measures the size of the connected population in terms of internet and mobile connectivity.	Score 0-100 (100=best)	Economist Impact Inclusive Internet Index
b	Access to personal computers at home	Proportion of households with a computer at home	%	ITU
c	Access to digital devices in the home	Access to digital devices in the home environment (measured based on survey responses).	%	Economist Impact survey of young people
2.4	**Learning facilitators**			
2.4.1	Caregiver wellbeing	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	Caregiver happiness and wellbeing	Proxy Indicator: Ranking of happiness based on a three-year-average from 2019 to 2021	Score 0-10 (10=best)	World Happiness Report
b	Prevalence of postpartum depression	Prevalence of postpartum depression for mothers up to one year postpartum	%	Hahn-Holbrook, J. et al. (2018), in Front Psychiatry
2.4.2	Caregiver knowledge base	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based on multiple sources
a	Caregiver literacy rates	Proportion of population aged 15 years and over that can read and write	%	UNESCO
b	Caregiver ICT skills	Proportion of people with "basic" information and communications technology (ICT) skills	%	ITU

Indicator		Description	Units	Source
c	Caregiver political participation/ engagement	Score on the EIU Democracy Index (Political Participation Domain)	Score 0-10 (Higher score indicates greater democracy)	Economist Intelligence Unit
2.4.3	Parent/caregiver support	Existence and perceived reach of home visiting and centre-based parenting support	Score 0-2 (2=best)	WHO/UNICEF
2.4.4	Parent/caregiver support network	Proportion of adults who have someone to count (relatives or friends)	%	Gallup World Poll
2.4.5	Health and safety	Composite measure	%	UNICEF, WHO, Economist Impact calculations
a	Birth registrations	Proportion of children under five whose birth has been registered with a civil authority	%	UNICEF
b	Basic immunisations	Average child immunisation rate for basic vaccinations amongst 1 year olds	%	WHO
2.5	**Relationships and activities**			
2.5.1	Home stability	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based on multiple sources
a	Family closeness	Closeness to, and support of, family members (measured based on survey responses).	%	Economist Impact survey of young people
b	Violent discipline	Proportion of children aged 1-14 years who have experienced any violent discipline	%	UNICEF
c	Adverse childhood experiences (ACEs)	Aspirational indicator - Children who have been exposed to 1 or more ACEs	No data available	National level surveys
2.5.2	Caregiver involvement	Composite measure	%	UNICEF, Economist Impact survey of young people
a	Early stimulation and responsive care	Children who have been engaged in activities to promote learning and school readiness (aged 36-59 months)	%	UNICEF
b	Caregiver involvement in learning	Caregiver involvement in supporting a child's learning in the home environment (measured based on survey responses).	%	Economist Impact survey of young people
2.5.3	Youth-parents decision-making	Co-decision-making related to education between parents/caregivers and young people in the home environment (measured based on survey responses).	%	Economist Impact survey of young people
3	**Formal learning environment**			
3.1	**Public policy**			
3.1.1	Free and compulsory education	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations
a	Free education	Number of years that free pre-primary, primary and secondary education guaranteed in legal framework	Years	Global Monitoring Report
b	Compulsory education	Number of years compulsory primary-secondary education guaranteed in legal frameworks	Years	Global Monitoring Report

Indicator		Description	Units	Source
3.1.2	National education plans and policies	Composite measure	Score 0-11 (11=best)	Economist Impact research
a	National plan for education	Existence, recentness and quality of the national education plan:	Score 0-6 (6=best)	Economist Impact research
b	National plan for early childhood education	Existence of a separate national plan on early childhood education (or included within a larger national plan on education)	Score 0-1 (1=best)	Economist Impact research
c	Technical and vocational training policy/plan	Existence of a technical and vocational education and training (TVET) policy or plan	Score 0-1 (1=best)	Economist Impact research
d	Teacher training and development	Legal/regulatory framework requirement for teachers to receive in-services training or undergo professional development at regular intervals	Score 0-2 (2=best)	Economist Impact research
e	Mandatory school councils	Requirement that schools develop mechanisms (e.g., school councils) to enable pupils to discuss matters relating to their school and education	Score 0-1 (1=best)	Economist Impact research
3.1.3	Health and safety policies	Composite measure	Score 0-7 (7=best)	Economist Impact research
a	Mental health services	Requirement for public schools in the country to offer mental health services or develop a plan to address the mental health needs of students	Score 0-1 (1=best)	Economist Impact research
b	Gender policy	Existence of a specific gender policy for education and schemes/ initiatives providing free menstrual products for girls in school	Score 0-2 (2=best)	Economist Impact research
c	School feeding policy	Governments that have adopted school feeding policies	Score 0-1 (1=best)	WFP, State of School Feeding Worldwide 2020 - Annex IV
d	Policies against corporal punishment in schools	Prohibition of corporal punishment (the country's national laws must explicitly prohibit corporal punishment in all school settings, including public, private, religious, and alternative school settings)	Score 0-1 (1=best)	Global Partnership to End Violence Against Children
e	School anti-bullying policy	Legal/regulatory requirement for schools/school districts to adopt anti-bullying policies	Score 0-1 (1=best)	Economist Impact research
f	School safety policies	Legal/ regulatory requirements for school safety plans relating to multiple hazards (e.g. weather, fire, violence, etc.)	Score 0-1 (1=best)	Economist Impact research
3.1.4	Curricular framework	Composite measure	Score 0-6 (6=best)	Economist Impact research
a	Review of curricular framework	Existence of a process for regular reviews of the national curriculum	Score 0-1 (1=best)	Economist Impact research
b	ICT integration & digital literacy	Inclusion of ICT and digital literacy in the national curriculum	Score 0-1 (1=best)	Economist Impact research
c	Breadth of skills	Incorporation and recognition of a breadth of skills in the national curriculum (e.g. soft skills, social and emotional skills, etc.)	Score 0-1 (1=best)	Economist Impact research
d	Global citizenship education	Inclusion of global citizenship education in the national curriculum	Score 0-1 (1=best)	Economist Impact research
e	Sustainability in education	Inclusion of sustainable development in the national curriculum	Score 0-1 (1=best)	Economist Impact research

Indicator		Description	Units	Source
f	Sexuality education	Inclusion of sexuality and HIV education in the national curriculum	Score 0-1 (1=best)	Economist Impact research
3.2	**Resources**			
3.2.1	Public expenditure on education	Government expenditure on education as a percentage of GDP	%	UNESCO
3.2.2	Funding mechanisms for disadvantaged populations	Existence of funding mechanisms to reallocate education resources to disadvantaged populations	Score 0-1 (1=best)	UNESCO
3.3	**Infrastructure**			
3.3.1	Basic infrastructure	Composite measure	%	Economist Impact calculations based on multiple sources
a	Water, sanitation and hygiene in schools	Average basic service levels of the following on school premises: water source; toilets or latrines; and hand washing facilities with water and soap	%	Joint Monitoring Program
b	Access to electricity in schools	Proportion of schools with access to electricity in primary, lower secondary and upper secondary schools	%	Joint Monitoring Program
3.3.2	Digital infrastructure	Composite measure	%	UNESCO, Economist Impact survey of teachers
a	Availability of computers for pedagogical purposes	Proportion of upper secondary schools with access to computers for pedagogical purposes	%	UNESCO
b	Internet access in schools	Proportion of secondary educational institutions with any type of Internet connection	%	UNESCO
c	EdTech products and services in schools	Access to EdTech services and tools (measured based on survey responses).	%	Economist Impact survey of teachers
3.3.3	Adequacy of teaching and learning materials	Adequacy of teaching materials in schools (measured based on survey responses).	%	Economist Impact survey of teachers
3.3.4	Disability-adapted infrastructure	Aspirational indicator - Schools with access to adapted infrastructure and materials for students with disabilities (measured based on survey responses)	%	Economist Impact survey of teachers
3.4	**Learning facilitators**			
3.4.1	Career/guidance counselling	Availability of career counselling in schools (measured based on survey responses).	%	Economist Impact survey of young people
3.4.2	Qualified teachers	Average percentage of teachers with minimum required qualifications across pre-primary, primary and secondary institutions	%	UNESCO
3.4.3	Educator compensation	Mean teacher salary relative to other professional services requiring a comparable level of qualification	Ratio	International Labour Organisation
3.4.4	Professional development	Teacher participation in professional development activities over the past 12 months (measured based on survey responses).	%	Economist Impact survey of teachers
3.4.5	Capacity of educators	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based survey results

Indicator		Description	Units	Source
a	Pupil-teacher ratio	Ratio of pupils to teachers	Ratio (lower value = good)	World Bank
b	Teacher capacity	Teachers feel that they have adequate time to spend with students and to plan lessons (measured based on survey responses)	%	Economist Impact survey of teachers
c	Teacher influence	Teachers feeling that they have: influence over what students learn; room to innovate; and autonomy (measured based on survey responses)	%	Economist Impact survey of teachers
d	Teacher satisfaction and wellbeing	Teachers feeling happy and fulfilled with their jobs and salary (measured based on survey responses).	%	Economist Impact survey of teachers
3.5	**Relationships and activities**			
3.5.1	School climate (educator experience)	Composite measure	%	Economist Impact survey of teachers
a	Support from school leadership	Teachers feeling that they are supported by school leadership (measured based on survey responses)	%	Economist Impact survey of teachers
b	Teaching culture/environment	School climate/environment that educators are satisfied with and motivated to teach in (measured based on survey responses)	%	Economist Impact survey of teachers
c	Supportive colleagues	Positive and supporting relationships among teaching colleagues in schools (measured based on survey responses)	%	Economist Impact survey of teachers
3.5.2	School climate (student experience)	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based survey data and other research
a	Violent incidents in school	Recording and publication of data on the number of violent incidents in schools, including (a) teacher-student (b) peer-peer	Score 0-1 (1=best)	Economist Impact research
b	Student-peer relationships	Proportion of youth aged 13-15 years who were bullied at least once in the past couple of months	%	UNICEF
c	Student-teacher relationships	Equal, fair and respectful treatment of students in schools by their teachers (measured based on survey responses)	%	Economist Impact survey of young people
d	Student-school relationships	Views that schools are a safe, inclusive, encouraging and empowering place for young people (measured based on survey responses)	%	Economist Impact survey of young people
3.5.3	School-offered activities	School-based opportunities available for students to get involved in eg, sports, clubs, events, etc. (measured based on survey responses)	%	Economist Impact survey of young people
3.5.4	School-youth engagement/ empowerment	School engagement with students through opportunities to voice opinions (measured based on survey responses)	%	Economist Impact survey of young people
4	**Community learning environment**			
4.1	**Public policy**			
4.1.1	Policy on extracurricular learning	Existence of policies on extracurricular learning and a dedicated agency to oversee associated activities	Score 0-2 (2=best)	Economist Impact research

Indicator		Description	Units	Source
4.1.2	Work-based learning programmes or policies	Existence of a nationwide government strategy/policy to encourage work-based learning programmes	Score 0-1 (1=best)	Economist Impact research
4.1.3	Child-friendly planning and design	Incorporation of child-friendly planning and design in the country's largest city	Score 0-1 (1=best)	Economist Impact research
4.2	**Resources**			
4.2.1	Investment in infrastructure	Gap in infrastructure investment in transportation (road, rail, airports) relative to the need for infrastructure investment	% gap (lower value = good)	Global Infrastructure Outlook
4.2.2	Investment in arts/culture	Per capita public spending on arts and culture based on public funding received by the national arts council or national endowment for the arts (Note: measurement approaches vary at the country level)	Per capita spending (US$)	Economist Impact research
4.2.3	Investment in community learning spaces	Per capita public spending on libraries based on public funding received by country's national library (Note: measurement approaches vary at the country level)	Per capita spending (US$)	Economist Impact research
4.3	**Infrastructure**			
4.3.1	Community accessibility	Composite measure	%	Multiple sources
a	Satisfaction with public transportation	Satisfaction with public transportation systems	%	Gallup World Poll
b	Walking/biking infrastructure	Availability of safe spaces in the local community eg, safe walking and biking paths (measured based on survey responses)	%	Economist Impact survey of young people
4.3.2	Play/leisure spaces	Availability of free and safe play spaces in local communities eg, playgrounds, public parks, other green spaces (measured based on survey responses)	%	Economist Impact survey of young people
4.3.3	Community learning facilities	Availability of learning spaces in the learning community eg. libraries, tutoring centres, studying spaces (measured based on survey responses)	%	Economist Impact survey of young people
4.3.4	Availability of culture	Availability of free cultural activities and events in local communities (measured based on survey responses)	%	Economist Impact survey of young people
4.3.5	Digital infrastructure	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based on ITU and other data
a	Initiatives for Wi-Fi availability	Public/private provision of Wi-Fi access in the largest city in the country and whether the Wi-Fi is free to connect to	Score 0-4 (4=best)	Inclusive Internet Index
b	Internet bandwidth	International bandwidth per internet user	bit/s	International Telecommunication Union (ITU)
4.4	**Learning facilitators**			
4.4.1	Access to community mentors	Access for young people to mentors in the local community eg. religious leaders, business owners, etc. (measured based on survey responses)	%	Economist Impact survey of young people

Indicator		Description	Units	Source
4.4.2	Access to community teaching agents	Access for young people to teaching agents in the local community eg. librarians, tutors, etc. (measured based on survey responses)	%	Economist Impact survey of young people
4.5	**Relationships and activities**			
4.5.1	Safety and quality	Composite indicator	Score 0-10 (10=best)	Economist Impact calculations based on multiple sources
a	Homicide rate	Intentional homicide victims per 100,000 people	per 100,000	UN Office on Drugs and Crime
b	Safety while walking	Women feeling safe walking alone at night in the city or area where they live	%	Gallup World Poll
c	Youth voice	Youth voice in the community through opportunities to contribute to decisions (measured based on survey responses)	%	Economist Impact survey of young people
4.5.2	After-school/extra-curricular programmes	Participation of young people in after school or extra-curricular activities (measured based on survey responses)	%	Economist Impact survey of young people
4.5.3	Summer learning	Participation of young people in learning activities during the summer months outside of school (measured based on survey responses)	%	Economist Impact survey of young people
4.5.4	Private sector learning opportunities	Participation of young people in private sector learning opportunities eg. internships, apprenticeships, job training etc. (measured based on survey responses)	%	Economist Impact survey of young people
4.5.5	Civic/community participation	Interaction of young people with community institutions (measured based on survey responses)	%	Economist Impact survey of young people
4.5.6	Cultural participation	Participation of young people in cultural activities (measured based on survey responses)	%	Economist Impact survey of young people
4.5.7	Engaging in play	Participation of young people in outdoor play (measured based on survey responses)	%	Economist Impact survey of young people
5	**Governance and coordination**			
5.1	**Government effectiveness and responsiveness**			
5.1.1	Government effectiveness	Score on the Government Effectiveness PIllar (The Worldwide Governance Indicators)	Score -2.5 – 2.5 (2.5=best)	World Bank
5.1.2	Government responsiveness to change	Perceptions on government responsiveness to change (eg, technological changes, societal and demographic trends, security and economic challenges)	Score 1-7 (7=best)	World Economic Forum
5.1.3	Effectiveness of budget allocation	Primary government expenditures as a proportion of original approved budget	%	World Bank
5.2	**Enabling environment**			
5.2.1	Income inequality	Proxied by the Gini coefficient, a measure of the distribution of income across a population	Score 0-100 (0=perfect equality)	World Bank
5.2.2	Equality in society	Based on the expert assessments and index by V-Dem - combines information on suffrage, the freedom and fairness of elections, freedoms of association and expression, individual and minority rights, equality before the law, and executive constraints	Score 0-1 (1=most democratic)	Egalitarian democracy index

Indicator		Description	Units	Source
5.2.3	Environmental health	UNICEF's Children's Climate Risk Index	Score	UNICEF
5.2.4	Healthcare	Composite indicator	Score 0-10 (10=best)	Multiple sources
a	Universal Health Coverage	Universal Health Coverage (UHC) service coverage index (access to quality essential health services, without having to suffer financial hardship to pay for health care)	Score 0-100 (100=best)	Global Burden of Disease Study
b	Mental health legislation	Existence of mental health legislation	Score 0-1 (1=best)	World Health Organisation
c	Access to healthcare	Satisfaction with the availability of quality healthcare	%	Gallup World Poll
5.2.5	Attitudes	Composite measure	%	Multiple sources
a	Children treated with dignity and respect	Perceptions that children are treated with dignity and respect	%	Gallup World Poll
b	Youth motivation to learn	Youth motivation to try hard at school and perform well (measured based on survey responses)	%	Economist Impact survey of young people
5.3	**Stakeholder engagement and collaboration**			
5.3.1	Facilitating agency	Existence of a department, facilitator, or various initiatives within or developed/ supported by the country's ministry/ department of education that helps facilitate and incentivise relationships between schools and other sectors	Score 0-1 (1=best)	Economist Impact research
5.3.2	Stakeholder engagement	Engagement of various stakeholders during the development of education policy and planning in the country (e.g. parents, youth, teachers)	Score 0-3 (3=best)	Economist Impact research
5.3.3	Research-practice partnerships	Government support to research-practice partnerships (or examples of active research-practice partnerships in the country)	Score 0-1 (1=best)	Economist Impact research
5.3.4	University–industry collaboration	Extent of collaboration between businesses and universities on research and development (R&D)	Score 0-7 (7=best)	World Economic Forum, Executive Opinion Survey
5.3.5	University-school collaboration	Existence of, and participation in, activities to collaborate between schools and higher education institutions (measured based on survey responses)	%	Economist Impact survey of young people and teachers
5.3.6	Private sector-school collaboration	Existence of, and participation in, activities to collaborate between schools and private sector organisations (measured based on survey responses)	%	Economist Impact survey of young people and teachers
5.3.7	School-community collaboration	Existence of, and participation in, activities to collaborate between schools and community organisations (measured based on survey responses)	%	Economist Impact survey of young people and teachers
5.3.8	School-parents collaboration	Requirements for schools/districts to establish mechanisms by which caregivers have the opportunity to voice opinions and engage with schools on their child's education	Score 0-1 (1=best)	Economist Impact research
5.3.9	Teacher-parents collaboration	Level of engagement between teachers and parents or caregivers of young people regarding young people's education (measured based on survey responses)	%	Economist Impact survey of teachers
5.3.10	Level of bureaucracy	Ease of collaborating with agents outside of the school to provide new and diverse learning opportunities for young people (measured based on survey responses)	%	Economist Impact survey of teachers

Indicator		Description	Units	Source
5.3.11	System of recognition	Development of alternative system of recognition (e.g., digital badges, micro credentialing, Epassports) for various learning activities to recognise achievements beyond the school (e.g., work-placements)	Score 0-1 (1=best)	Economist Impact research
B0	**Background indicators**			
B01	Nominal GDP	Measure of the total economic value of a country (2021 data)	US$ billions (at 2010 prices)	Economist Intelligence Unit
B02	Population	Total population of a country	Millions	Economist Intelligence Unit
B03	Adolescent population	Adolescent population (aged 10-19 years) in a country (2020 data)	Thousands	UNICEF
B04	Adolescent population (% of total)	Adolescent population aged 10-19 years expressed as a share of the total population of all ages (2020 data)	% (number of adolescents aged 10-19 years relative to the total population of all ages)	UNICEF
B05	Adolescent mortality rate	Probability of dying among adolescents aged 10–19 years (2020 data)	per 1,000	UNICEF
B06	Population living below the national poverty line	Proxied by: Proportion of population living below the international poverty line of $1.90 a day (at 2011 international prices)	%	World Bank
B07	Urban population	Percentage of population residing in urban areas (2020 data)	%	United Nations Department of Economic and Social Affairs
B08	Global Peace Index	Global Peace Index: Measures the relative position of nations' and regions' peacefulness.	Score 1-5 (Lower score = more peaceful country)	Institute for Economics and Peace
B09	Democracy Index	EIU Democracy Index: Provides a snapshot of the state of democracy worldwide in 165 independent states and two territories (2021)	Score 0-10 (higher score = greater democracy)	Economist Intelligence Unit
B10	Corruptions Perceptions Index	Corruption Perceptions Index: ranking of 180 countries and territories around the world by their perceived levels of public sector corruption	Score 0-100 (0 = highly corrupt)	Transparency International
B11	International commitment: protection from discrimination	Ratification of the Convention against Discrimination in Education	Score 0-1 (1 = yes)	UNESCO
B12	International commitment: TVET	Ratification of the Convention on Technical and Vocational Education	Score 0-1 (1 = yes)	UNESCO
B13	Constitutional Framework: right to education	Constitutional guarantee: right to education	Score 0-2 (0=No right to education, 1=Directive principle/aspirational right to education, 2=Justiciable right to education)	UNESCO
B14	Constitutional framework: protection from discrimination	Ratification or accension of the International Covenant on Civil and Political Rights	Score 0-1 (1 = yes)	UNTC
B15	Cultural and communication	High-context vs low-context cultures	High or Low	Multiple sources
B16	Average age of teachers	Average age of teachers	Age	OECD
B17	Average family size	Average household size	People per household	Population Reference Bureau; other country-specific sources
B18	Attitudes toward diverse learning settings	Aspirational indicator - Attitudes towards the diversity and effectiveness of different learning settings including: within the school; within the home; and beyond the school/home	No data available	No data available

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1 The term "young people" is used throughout research and report to mean children and adolescents between the ages of 2 and 18 years old.

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