



Global Report on Early Childhood Care and Education

The right to a strong foundation



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SHORT SUMMARY

Building a strong foundation through early childhood care and education

Inclusive and quality early childhood care and education (ECCE) are vital for promoting school readiness, foundational learning, and lifelong well-being. Yet almost 60% of children in low-income countries do not have access to early care and learning opportunities. To meet national targets of providing at least one year of organized learning before primary school, low-income and lower-middle-income countries must fill an annual financial gap of USD 21 billion and recruit at least six million more educators before 2030.

The first global report, jointly published by UNESCO and UNICEF, offers insights into global and regional ECCE trends. The report, which is a key response to the commitments outlined in the Tashkent Declaration, synthesizes scientific evidence on ECCE's importance, and exposes persistence gaps in policy and investment. It illustrates how countries have responded to providing equitable and quality ECCE opportunities.

The report invites all stakeholders, from governments and policy-makers, to educators, parents and organizations, to ensure that the commitments made in the Tashkent Declaration are fully realized by building a strong foundation for every child.

The annual financial gap to achieve national targets for one year of pre-primary education is

USD 21 billion



"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"



for every child

Global Report on Early Childhood Care and Education

The right to a strong foundation

Foreword

There is solid scientific evidence that access and exposure to quality learning opportunities early in life support the development of foundational skills needed not only for school readiness and success in primary school but also for flourishing throughout life.

Early childhood care and education (ECCE) is the most transformative investment a country can make to give all children a fair start in life and combat inequalities early on.

Yet, more than 300 million children are at risk of not achieving minimum proficiency levels in reading by the end of primary school in the next decade, highlighting the urgency for a renewed focus and comprehensive response on early childhood care and education.

This first global report on early childhood care and education underscores the persistent challenges in achieving Sustainable Development Goal 4.2 and highlights the required commitments and pathways, as outlined in the Tashkent Declaration adopted at the 2022 World Conference on ECCE. It emphasizes that transforming education must start with the youngest children to ensure that they are endowed with their full right to early care and learning opportunities for lifelong growth and success.

Despite rising global awareness and commitments, progress towards universal quality early childhood care and education by 2030 remains timid. Significant gaps still need bridging -- especially in access, quality, and equity in early childhood care and education.

We need to do more, better and sooner to address the dual crises of equity and relevance from the earliest stages of education. Learning begins within the family, the primary circle of a child's life, and continues in pre-primary education, where early interactions and experiences lay the groundwork for foundational learning. To reverse current trends, we need further evidence, reliable and systematic data collection for policy-informed action and robust implementation, which are key enablers of holistic early childhood development.

Collaboration is crucial. That is why UNESCO and UNICEF are not undertaking this journey alone. For this first edition, we have received valuable contributions from the World Bank, the World Health Organization, the Global Partnership for Education, the Organisation for Economic Co-operation and Development, the International Labour Organization, and other partners, along with insightful case studies from many countries. The momentum must be maintained, and we are looking forward to having like-minded agencies join us for the second edition of this report due in 2026.

Let us forge ahead together to ensure that every child receives the quality care and education they deserve from their earliest years. Together, we can build an inclusive, equitable, and resilient education systems that meet today's challenges and anticipates tomorrow's needs.



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Abbreviations

AfECN	Africa Early Childhood Network
ANECD	Arab Network for Early Childhood Development
ARNEC	Asia-Pacific Regional Network for Early Childhood
CAD	Canadian dollar
CRC	Committee on the Rights of the Child
CRS	Creditor Reporting System
CSO	Civil society organization
DAC	OECD Development Assistance Committee
DHS	Demographic and Health Care Surveys
ECCE	Early childhood care and education
ECD	Early childhood development
ECDAN	Early Childhood Development Action Network
ECDI	Early Childhood Development Index
ECDI2030	Early Childhood Development Index 2030
ECE	Early childhood education
ECW	Education Cannot Wait
EEF	Equitable Education Fund
EFA	Education for All
ELCC	Early learning and child care
ELP	Early Learning Partnership
ESD	Education for Sustainable Development
EOF	Education Outcomes Fund
EU	European Union
FCDO	Foreign, Commonwealth & Development Office of the United Kingdom
FLC	Foundational Learning Compact
GCED	Global Citizenship Education
GDP	Gross domestic product
GFF	Global Financing Facility
GISP	Global Initiative to Support Parents
GPE	Global Partnership for Education
GPI	Gender Parity Index
GPS	Global Partnership Strategy for Early Childhood (2021–2030)
GSED	Global Scales for Early Development
HBPPE	Heavy financial burdens from paying for pre-primary education
IDA	International Development Association (World Bank)
IFFEd	International Finance Facility for Education

ILO	International Labour Organization
INEE	Inter-agency Network for Education in Emergencies
ISCED	International Standard Classification of Education
ISSA	International Step-by-Step Association
LEAPS	Youth Leaders for Early Childhood Assuring Children are Prepared for School
MDBs	Multilateral development banks
MGIEP	UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development
MICS	Multiple Indicator Cluster Surveys
NGO	Non-governmental organization
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OHRC	Ontario Human Rights Commission
PIRLS	Progress in International Reading Literacy Study
PTR	Pupil-teacher ratio
PTTR	Pupil-trained teacher ratio
SBCC	Social Behaviour Change Communications
SDG	Sustainable Development Goal
SEL	Social-emotional learning
SES	Socio-economic status
SLEIC	Sierra Leone Education Innovation Challenge
UIS	UNESCO Institute of Statistics
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UN-IGME	United Nations Inter-agency Group for Child Mortality Estimation
USD	United States dollar
USAID	United States Agency for International Development
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization

Executive summary

The world is not on track to achieve Sustainable Development Goal (SDG) 4 and ensure inclusive and quality education and lifelong learning opportunities for all.

Education, starting with early childhood education, is facing twin crises of equity and relevance. In response, the UN Secretary-General called for education to be transformed to meet twenty-first century needs and convened the Transforming Education Summit to mobilize leadership and political commitment to accelerate progress on SDG 4.

Supporting readiness for foundational learning must be an essential part of the response to the learning crisis.

The COVID-19 pandemic aggravated the global learning crisis: an estimated 37% of the world's children (more than 300 million) will not reach minimum proficiency levels in reading by 2030.

Access to quality early learning and care is a key way to help children develop the skills needed for foundational learning

and to ensure that all girls and boys have access to quality early childhood development, care and pre-primary education by 2030 (SDG 4.2) so that they are ready for primary education. But real progress on supporting equitable access to quality early childhood care and education (ECCE) remains elusive. Commitments have not translated into action and at the current rate of progress, achieving SDG Target 4.2 by 2030 is off track.

Transforming education must begin with ECCE.

However, ECCE policies and services are overly fragmented and data are lacking. The ECCE sector is grossly underfunded and greater investments are needed. Current levels of accessibility to learning opportunities in ECCE do not meet the demand for services. Non-state actors have become key players in most ECCE systems, driving a rapid increase in early childhood services, but testing governance and regulatory frameworks and potentially exacerbating inequalities.

Extending the right to education to include the right to early childhood care and education could accelerate progress on SDG Target 4.2.

Evidence shows that adopting legal provisions for free or compulsory pre-primary education has positive effects on children's early development, however, there is not yet an international legal framework that explicitly guarantees children's right to early childhood care and education. Extending the right to education to include the right to ECCE could be an important policy lever to accelerate progress SDG Target 4.2.

This report is in response to a commitment in the Tashkent Declaration and Commitments to Action for Transforming Early Childhood Care and Education.

Looking through the lens of the child at the core and adopting a whole-of-child developmental approach, the report explores how children learn and develop and how the key actors in children's early environments – parents, families, educators and the community at large – can be leveraged through public policies and programmes to improve children's learning and wellbeing. The report advocates for and gives evidence of the importance of ECCE to address the twin crisis of equity and relevance and support foundational learning.

How are children doing?

Inequalities start early, particularly affecting development outcomes for the most disadvantaged children.

In countries with data, 30% of children are not developmentally on track. Children growing up in the poorest households and in rural areas are further behind. Only 55% of children aged 36 to 59 months growing up in the poorest households are developmentally on track, compared to 78% of children in the richest households.

The home and family environment play a critical role in early stimulation for learning.

In countries with data, more than 7 out of 10 children living in the richest households receive early stimulation and responsive care compared to less than half of children living in the poorest households. On average in countries with data, about 25% of children are left without adequate supervision and 77% of young children experience violent discipline at home. Among countries with data, only 4% of the poorest children live in households with children's books and only 46% of them have playthings at home.

Child care environments can promote early learning opportunities for social equity.

Child care and pre-primary education programmes are in high demand, but few countries make services universally available and/or free to access, disproportionately impacting disadvantaged families, especially in low- and lower-middle-income countries. Children who attend early childhood education programmes are more likely to be on track for development. However, the enrolment rate for one year of organized learning before the start of primary school fell to 72% in 2022 from 75% in 2020.

Neighbourhoods and communities affect the quality of early learning experiences.

Better water, sanitation and hygiene services are needed in many places. Increasing and uncontrolled urbanization raises concerns for children's well-being and health. Lack of green spaces and social isolation deprive young children of crucial sensory experiences and opportunities for exploration, which impacts physical and cognitive development. Community engagement programmes can open access to learning opportunities for children and help sensitize parents to the benefits of ECCE.

Societies and cultures exert powerful influences on children's learning and development.

Children's development is influenced by the broader social, cultural and political environments, and the impact of macro-level factors at the microsystem level is often neglected. Structural macrosystem factors, such as discriminatory practices, can be addressed through national policies and laws. Lack of access to quality ECCE settings can amplify the effects of poverty-related macrosystem factors, for example, when parents cannot afford private pre-primary education and public provision is not available.

How do children develop and learn?

Early language experience is fundamental for literacy development and caregivers play an important role in children's language development.

Caregivers facilitate language learning through social interactions and conversational turn-taking. The basics of learning to read occur within the nurturing context provided by caregivers, who also enrich children's language environment with complex vocabulary, grammar and the social-cultural nuances of the language.

Early literacy activities promote school readiness and higher reading achievement.

A new analysis revealed that children who engaged more frequently in early literacy activities at home tended to be equipped with better literacy skills, were better prepared for primary school, and more likely to show higher reading achievement at age 10. Another new analysis showed that participation in organized learning one year before the official age of entry to primary school positively affected reading achievement in Grade 2 or 3.

The early years are important for building foundational numeracy skills and caregivers can influence children's attitudes to maths learning.

Maths learning arises from complex interactions between emerging cognitive skills and the social-cultural context. Caregivers and educators can help build positive attitudes and improve children's learning by creating a supportive environment that encourages numeracy activities and diminishes anxiety around maths.

Self-regulation and executive functions are critical for learning and caregivers are instrumental in scaffolding development of self-regulation.

Executive functions are interdependent with reading and maths learning, and children with stronger executive functions show faster growth in literacy and numeracy over time. Executive functions influence the rate of academic learning, and academic instruction can have a positive influence on the development of executive functions. Thus, supporting the development of executive functions in early childhood could help prepare at-risk children for learning in school.

Developing strong self-regulation and executive function skills is an important aspect of social-emotional learning.

Social-emotional skills are just as foundational to learning as cognitive skills, and these skills can be taught, especially through play-based learning. However, new research shows that teachers need additional training for supporting children's development of social-emotional skills.

Children with disabilities must also have access to early learning opportunities.

Among children aged 0 to 4 years, 4% of them have difficulties in one or more functional domains and children with disabilities are 25% less likely to attend early childhood education. A holistic and multisectoral approach to learning for children with disabilities is crucial, including parental support and support for transitions from home to an ECCE setting and then to formal school. Globally, 25% of countries legitimize provisions for educating children with disabilities in separate settings, and genuine systems change is required to make inclusion a reality around the world.

The COVID-19 pandemic had a negative effect on children's school readiness, which was more profound for children from less advantaged backgrounds.

Moreover, the stressors of the pandemic significantly affected maternal mental health, influencing the development of young children. COVID-19 increased the use of digital technologies, but its effect on early learning and well-being remains to be fully established.

A multidisciplinary and science-based understanding of learning can inform the design of more effective early childhood education curricula and pedagogy.

Importantly, leveraging a scientific understanding of how children learn and develop can improve the formulation of policies for more effective parenting support programmes and teacher training approaches.

How can we improve the ECCE ecosystem?

Measuring quality in ECCE is hampered by the lack of standardized and contextualized data for the youngest children.

Many countries lack robust and evidence-based quality standards, especially for home-based child care and pre-schools serving children aged 0 to 3. Data are needed for better understanding the diversity of care workers and ECCE settings, their needs and challenges, the types of formal, non-formal and informal care arrangements, the costs to households, and the training and qualifications of educators and child care workers. Different standards of quality will be needed for different types of programmes and different age groups.

The lack of pedagogical training impacts the quality of pre-primary education.

The global average of pre-primary teachers who have received the minimum required pedagogical training is 85%, but just 57% in low-income countries. For the last decade, the proportion of trained teachers has been steadily decreasing by 0.4 percentage points annually.

Teacher qualifications impact learning quality.

The global pupil-trained teacher ratio in pre-primary education is 17:1, reaching 54:1 in sub-Saharan Africa and 60:1 in low-income countries. Globally, the pupil-trained teacher ratio has decreased by 1.5 percentage points annually between 2010–2012 to 2022, indicating that over time, teachers are teaching smaller groups of children, except in low-income countries where the ratio increased by 0.8 percentage points.

At least 6 million more teachers need to be recruited to reach universal enrolment for one year of pre-primary education by 2030.

A new simulation exercise showed that to reach a pupil-teacher ratio (PTR) of 20:1 globally before 2030, at least 6.2 million additional teachers are needed. This figure would amount to 7.4 million teachers if the PTR benchmark was set to 15:1, and 11.1 million teachers based on a 10:1 PTR benchmark. Sub-Saharan Africa needs at least 2 million more teachers to reach a PTR of 20:1. New teaching positions are needed more than replacements due to attrition, especially in Central Asia, Northern Africa and Western Asia, Southern Asia and sub-Saharan Africa.

Parenting programmes offer solutions for improving the quality of children's early learning experiences.

Parenting interventions are designed to help caregivers improve their child-rearing skills and have shown positive effects on children's cognitive and social-emotional development. Caregivers' mental health is linked to children's social-emotional development and educational outcomes, and should parenting intervention programmes also include a caregiver mental health component.

Family-friendly policies promote early learning opportunities through improved parental engagement and well-being.

Family-friendly policies support parents and caregivers to care for their young children while maintaining their livelihoods. Core family-friendly policies include paid parental leave, breastfeeding support, access to quality affordable childcare and child benefits. All but one out of 185 countries have adopted statutory provisions for maternity leave, but only 115 offered paternity leave. Of these, 123 countries offered fully paid maternity leave, and only 102 countries offered paid paternity leave.

Social protection and housing policies can address multiple levels of disadvantage for vulnerable children.

Alongside parental leave policies, child cash grants (including conditional benefits) and family tax credits can significantly reduce poverty and inequality, improve parenting practices, promote child care and pre-school access and improve family home learning environments. Policies that provide supportive and stable housing for families can also significantly improve children's early learning and well-being and promote employment gains for parents. These policies may include housing vouchers, rapid rehousing and permanent supportive housing.

How is ECCE financed?

A wealth of calls to action have challenged the world to increase investment in ECCE, but with limited results.

Since 2015, researchers, foundations and international agencies have called on governments to allocate at least either 1% of GDP or 10% of national education budgets to pre-primary education. The Tashkent Declaration in 2022 is the first international call adopted by Member States recommending that governments work towards allocating at least 10% of education expenditures to pre-primary education, and to prioritize and reorient public expenditures for ECCE to focus on the poorest and most disadvantaged.

Domestic spending on pre-primary education is unequal and below the international benchmark.

Reliable and systematic data for a clear understanding of government and household spending on ECCE are lacking, but it is clear that governments are not meeting the benchmarks. Of 98 countries with data, the global median spending on pre-primary education (for children aged from 3 years until the start of primary education) is just 0.4% of GDP. About one-quarter of all countries worldwide (representing 53.3% of 94 countries with data) need to increase financing of pre-primary education to meet the target of 10% of education budgets. In general, between 2010–2012 and 2019–2021, the share of GDP allocated to pre-primary education has increased by 28% globally, indicating that countries are increasingly prioritizing financing for this subsector.

Development aid needs to address the large financing gap in pre-primary education.

Development aid for one year of pre-primary education has increased, reaching a peak of USD 282 million in 2022. This marks a 40% rise from the 2021 allocation of USD 201 million and reflects an average annual growth rate of 8% since 2010. Despite this growth, pre-primary education still represents a small portion of overall education aid, accounting for only 1.7% of total direct aid to education in 2022. Sub-Saharan Africa, the largest recipient region with the greatest need, receives fragmented and unevenly distributed aid across countries.

The financing gap for one year of pre-primary education is much more serious than in other levels of education.

A costing exercise revealed that achieving the national targets for one year of pre-primary education in 79 low-income and lower-middle-income countries will cost a cumulative USD 354 billion between 2023 and 2030, or USD 44 billion per year on average. The annual average financing gap between 2023 and 2030 is estimated at USD 21 billion or 47% of the total cost of achieving national targets for one year of pre-primary education. This is over twice as large as the overall annual education financing gap between 2023 and 2030 across pre-primary, primary and secondary levels, which is estimated to be USD 97 billion or 21% of the total cost. Sub-Saharan African countries represent half of the low- and lower-middle-income countries (41 out of 79) but account for the largest share of the financing gap: USD 11 billion per year on average.

Some countries have been exploring alternative financing sources and mechanisms.

Alternative sources of financing and non-traditional financing mechanisms are being explored, engaging non-state actors through mechanisms such as outcomes funds, impact bonds, lotteries, payroll or excise taxes and lending from financial institutions. It is important, however, that innovative financing is accountable and not used to substitute for traditional public investment.

Recommendations for ensuring children's right to a strong foundation

1. Promote ECCE to prepare young children

for school readiness and foundational learning.

Millions of young children, especially in low- and middle-income countries, are not prepared for starting school and the acquisition of foundational skills. If unaddressed, this will further aggravate the global learning crisis. Countries must develop early learning opportunities that include a strong focus on foundational skills such as emerging literacy, numeracy and social-emotional skills to support better educational outcomes later.

2. Prioritize the most vulnerable children.

When vulnerable children are excluded from quality early care and education services, the impact is long lasting for their learning and in life, as well as broader economic and social development. Therefore, access to ECCE of good quality needs to be extended to all, including the most vulnerable children: those living in poverty, those in low-income countries, those with physical or learning disabilities, and those who face disadvantage due to conflict, displacement, migration, historical inequity or other reasons.



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- 3. Support parents and caregivers for promoting positive home environments.** Parents and caregivers are children's first teachers, and the importance of their involvement in children's early learning and development cannot be overstated. Parents need support to successfully fulfil this role. Governments must take a whole-of-society approach and include parental support and other social services and family friendly policies to improve children's early learning experiences.
- 4. Value the teaching profession and invest in teacher quality.** At least 6 million more teachers are needed by 2030, and these teachers need pedagogical training to foster quality early learning environments. Governments must invest more in recruiting and training teachers to have the skillsets for creating safe, healthy and stimulating environments to instil foundational skills in children from the earliest ages.
- 5. Invest in data, especially for children younger than 3.** The international community support the collection and use of new data to monitor the development of the ECCE sector, and for this, a better understanding of the ECCE ecosystem is needed. Tackling this challenge will require a coordinated effort among ECCE experts, the international community, funders and donors.
- 6. Harness research and scientific knowledge to improve ECCE policy and practice.** Governments must adopt a multidisciplinary and scientific understanding of learning and development to improve the relevance and quality of early childhood education curricula and pedagogy. A stronger focus on children's development and early learning processes could support efforts in defining standards and measures of quality for the ECCE sector, and, in turn, the shaping of more effective policies.
- 7. Increase and diversify investments to address the financing gap in pre-primary education.** Governments are called on to allocate at least 10% of national education budgets to pre-primary education. All scenarios to further increase public expenditure dedicated to ECCE must be explored, while prioritizing support for children of the most vulnerable and disadvantaged groups of the population. The financing gap in low-income and middle-income countries needs immediate attention from the international community.
- 8. Improve the coordination of international efforts and partnerships.** International cooperation and solidarity will be key to transforming ECCE, but global efforts are currently fragmented. The international community must establish a global initiative or alliance to better work together for children from (before) birth to 8 years of age. The Global Partnership Strategy (GPS) for Early Childhood could be leveraged for more impact.
- 9. Expand the right to education to include early childhood.** A new, legally binding international framework establishing the right to ECCE is needed to articulate states' obligations pertaining to the legal right to ECCE, promoting greater state accountability and monitoring and ensuring minimum resource allocation for ECCE. Establishing a legal right to ECCE could also ensure that ECCE services and programmes are of good quality by establishing minimum quality standards for ECCE infrastructure and personnel.



CHAPTER 1

Introduction

Highlights

01

The world is not on track to meet SDG Target 4.2: by 2030, to ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

Many global initiatives prioritize ECCE and many declarations have noted its critical importance. But too little action has been taken to increase investment, access, quality or equity of services. Challenges have been encountered in meeting SDG Target 4.2.

- ▶ Current levels of accessibility to learning opportunities in ECCE do not meet the demand for services.
- ▶ Non-state actors are increasing in importance, testing governance and regulatory frameworks.
- ▶ ECCE policies and services are overly fragmented.
- ▶ Investments in ECCE are insufficient to unleash its full potential.

02

ECCE must be transformed to respond to the global learning crisis.

- ▶ An estimated 37% of the world's children (more than 300 million children) will not reach minimum proficiency levels in reading by 2030, a learning crisis exacerbated by COVID-19 school closures.
- ▶ ECCE is a key way to help children develop the skills needed for foundational learning.

03

ECCE must be transformed to address the twin crises of equity and relevance.

- ▶ Rising global inequalities are excluding children from education, especially ECCE.
- ▶ Education, including ECCE, must respond to twenty-first century needs, not least by promoting sustainable development and human rights.

04

A legal right to ECCE should be established and upheld.

- ▶ Adopting legal provisions for free or compulsory pre-primary education has positive effects on children's early development, but no international legal framework explicitly guarantees children's right to ECCE.
- ▶ Extending the right to education to include the right to ECCE could be an important policy lever to accelerate progress on all targets under SDG Target 4.2.

In 2015, the world committed itself to an ambitious target: to ensure that all girls and boys have access to quality early childhood development, care and pre-primary education by 2030 so that they are ready for primary education, as laid out in SDG Target 4.2, which was further established and unpacked under the Education 2030: Incheon Declaration and Framework for Action for the Implementation of SDG 4 (henceforth, the Education 2030 Agenda) (UNESCO, 2016). More and more, countries have come to recognize the critical importance of that firm foundation in preparing young children ready to meet their full potential and participate in the creation of an equitable, just and flourishing society. But in spite of this shared recognition, real

progress on supporting equitable access to quality Early Childhood Care and Education (ECCE) remains elusive.

There are cracks in the foundation of the future we are preparing for our young children, and unless we re-commit to repairing and strengthening these foundations, we risk seeing their prospects collapse.

The below introductory section takes stock of the lessons learned since the first World Conference on Early Childhood Care and Education in 2010, sheds light on the contemporary rationale for increased attention to ECCE and reminds the international community that any calls to transform education must also include transforming ECCE.



From Moscow to Tashkent...

What did we learn?

Twelve years after the first world conference dedicated to ECCE was held in Moscow in 2010, the second World Conference on Early Childhood Care and Education took place in November 2022 in Tashkent, Uzbekistan. The purpose of the conference was to discuss progress achieved towards SDG 4.2 and to reaffirm the right of every young child to access quality ECCE.

The latest available data at the time of the second world conference revealed that the gross enrolment ratio for pre-primary education for children from 3 years of age until the start of primary school generally increased, rising from 46% in 2010 to 61% in 2020. However, the global rate of participation in organized learning programmes one year before official primary school entry had stagnated at 75%, with a small rise from 69% in 2010 to 75% in 2015 – the year when the Education 2030 Agenda was adopted with no further change since then (UNESCO, 2022a). The data showed that children living in low-income countries and in sub-Saharan Africa, Northern Africa and Western Asia were the groups with the highest rates of exclusion from early childhood education opportunities. At the current rate of progress, achieving the SDG 4.2 target by 2030 is off track.

A recent analysis estimates that to meet national benchmarks for SDG 4 before 2030, 6 million more children would need to be enrolled in early childhood education today. Put another way, 1.4 million children would need to be enrolled every year until 2030 (UNESCO, 2023c). In fact, even as early as 2000, the Education for All (EFA) Goal 1 to expand ECCE, especially for the most vulnerable children, was at risk of not being achieved by 2015 (UNESCO, 2000).

Challenges in meeting SDG Target 4.2

In preparation for the second world conference in 2022, UNESCO undertook a retrospective analysis to understand progress made since the first world conference that took place in 2010. The analysis revealed a lack of progress over the past decade as well as several challenges that continue to persist to this day (UNESCO, 2022a).

The first challenge is that current levels of accessibility to learning opportunities in ECCE do not meet the demand for services. The demand for access is more pronounced in developing countries because of a rapid population growth rate and a lack of subsequent increase in investment and infrastructure.

This is further compounded by an increasing shortage of ECCE educators, affecting both developing and developed countries alike, which is impacting the ability of systems to deliver quality services to all.

A second challenge is the importance of non-state actors as key players in most ECCE systems, which is driving a rapid increase in services, but is testing governance and regulatory frameworks in all countries. The increasing lack of public provision, combined with insufficient monitoring and regulation of the sector, may contribute to rising inequalities. In the face of inadequate public provision, non-state actors provide a growing proportion of places, which in some contexts results in many poor and vulnerable groups of the population being unable to afford early childhood services. Furthermore, the weak regulatory frameworks that establish quality assurance mechanisms, such as requirements for qualified ECCE educators, age-appropriate pedagogies and appropriate infrastructure, contribute to increased disparities.

A third challenge is the fragmentation of ECCE policies and services, which fails to employ a whole-of-government approach. This leads to ineffective multisectoral coordination, inadequately addressing the holistic needs of families and young children in many countries. Ineffective governance is exacerbated by a lack of proper data and information for evidence-based policy setting, monitoring and tracking progress.

The fourth challenge is that, although ECCE is recognized as a key enabler to boost economic growth, promote social equity and inclusion and support sustainability of development, investments in ECCE are insufficient to unleash its full potential. The sector is chronically underfunded. Even though domestic funding for ECCE has increased since the early 2000s, it remains particularly low in low-income countries, often representing less than 1% of education expenditure allocated to pre-primary education. This lack of funding hampers countries' efforts to achieve the SDG Target 4.2, affecting the expansion and diversification of ECCE programmes, the improvement of curriculum quality and relevance, and the availability of qualified ECCE practitioners and educators.

Global initiatives prioritize ECCE

The retrospective also highlighted some encouraging developments and illustrated how countries and constituencies across diverse regions and country income levels have been increasing their focus on ECCE. A significant development is the greater priority given to ECCE in global and regional agendas since the adoption of the United Nations (UN) 2030 Agenda for Sustainable Development in 2015. A meaningful increase in attention to ECCE began in earnest after 2015. For example, in 2018, the G20 established the Initiative for Early Childhood Development to recognize the significance of the early years of development for individual and societal development. This resonates with the powerful message that 'learning begins at birth' issued in 1990 in the World Declaration on Education for All (EFA): Framework for Action to Meet Basic Learning Needs, adopted at the World Conference on Education for All in Jomtien, Thailand.



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This emphasis continued to extend across continents, demonstrating its universal relevance. The African Union’s Continental Education Strategy for Africa 2016–2025 affirmed the importance of pre-primary education as the pillar on which future learning and training are grounded. The recently adopted Dar es Salaam Declaration (2023) reaffirmed the importance of early childhood education and called for increasing accessibility and affordability in the region. Various declarations in the Asia and Pacific region, such as the Putrajaya Declaration (2016), the Pasifika Call to Action on Early Childhood Development (2017), the Kathmandu Statement of Action (2018) and the Ha Noi Call to Action (2019), reinforced the significance of early learning and development. The Latin America and Caribbean region affirmed the Buenos Aires Declaration I (2017) and II (2022), which established regional commitments to achieving SDG 4 targets and guaranteeing the right to education, beginning from early childhood.

In Europe, the European Commission adopted the Council Recommendation on High-Quality Early Childhood Education and Care Systems in 2019, which also includes the European Union Quality Framework for Early Childhood Education and Care. In 2021, a European Council Recommendation

established the European Child Guarantee aimed at preventing social exclusion by guaranteeing children in need access to a set of key services, thereby also combating child poverty and fostering equal opportunities. In 2022, the Council Recommendation on the Revision of the Barcelona Targets on Early Childhood Education and Care was adopted to further increase participation and enhance the social and cognitive development of children, in particular those in vulnerable situations or from disadvantaged backgrounds, with specific targets for the participation of children below 3 years of age and from 3 years of age to the start of primary school.

Many other global initiatives have been established with a focus on young children and education, as **Table 1** illustrates. These range from financing mechanisms and charities to capacity-building programmes, support groups, networks and advocacy organizations. The initiatives are further detailed in **Appendix 1**.

But neither these global initiatives promoting international cooperation, nor the multiple declarations in global and regional agendas proclaiming the critical role of ECCE, have translated into significant improvements in investment, access, quality or equity of services for ECCE.

Table 1
Global initiatives with a focus on young children or education

Foundational Learning Compact	Early Learning Partnership
Global Partnership for Education	Education Cannot Wait
Education Outcomes Fund	International Finance Facility for Education
Global Partnership Strategy for Early Childhood	Early Childhood Development Action Network
NurtureFirst	Theirworld
Invest in Child care	Global Financing Facility
Moving Minds Alliance	Global Partnership to End Violence Against Children
Scaling Up Nutrition	Power of Nutrition
School Meals Coalition (World Food Programme)	Global Compact on Refugees
Inter-agency Network for Education in Emergencies	Global Parenting Initiative
Global Initiative to Support Parents	Global Coalition for Foundational Learning
The Early Childhood Workforce Initiative	

At the conclusion of the second world conference on ECCE, UNESCO Member States and members of the international community, including UN agencies, non-governmental organizations (NGOs), donors, civil society organizations (CSOs) and other ECCE stakeholders adopted the Tashkent Declaration and Commitments to Action for Transforming Early Childhood Care and Education (UNESCO, 2022d). **Box 1** illustrates the four guiding principles endorsed in the Tashkent Declaration that frame the articulation of strategies for transforming ECCE.

The Tashkent Declaration emphasized the slow progress, relative neglect and lack of investments towards meeting SDG Target 4.2, and deplored the failure of Member States and the international

community to deliver on some of the very same commitments originally endorsed by Member States in the Moscow Framework for Action and Cooperation adopted at the first world conference in 2010 (UNESCO, 2010). Despite the 12 years separating them, the Moscow and Tashkent declarations converge with the similar core messages about the critical importance of ECCE.

As this report will show, access to quality ECCE is key to supporting children’s foundational learning, which is critical for children’s long-term educational, social and economic outcomes. However, children’s levels of foundational learning are poor, disproportionately affecting vulnerable children and further increasing inequalities.

Box 1

Tashkent Declaration and Commitments to Action for Transforming Early Childhood Care and Education (2022)

The Tashkent Declaration and Commitments to Action for Transforming Early Childhood Care and Education (2022) are framed within overarching guiding principles around four pillars. Specific strategies are further articulated within each of the four principles:

1. Equitable and inclusive quality ECCE services for all

- i. Improve the relevance and quality of ECCE curricula and pedagogy.
- ii. Ensure equitable and inclusive quality ECCE services for all children, prioritizing the most vulnerable.
- iii. Protect and guarantee the right to ECCE in and after emergencies and protracted crises.
- iv. Ensure all children receive nurturing care (health, nutrition, safety and security, early stimulation and responsive caregiving).
- v. Establish relevant ECCE monitoring and evaluation systems.
- vi. Introduce and strengthen early childhood interventions that recognize the challenges and needs of all children and enable them to thrive and fulfil their potential.
- vii. Improve the transitions within ECCE and into primary education.
- viii. Strengthen education for peace and sustainable development from early childhood.

2. ECCE personnel

- i. Strengthen the education and training systems of ECCE personnel.
- ii. Enhance the attractiveness of the ECCE profession and provide opportunities for career advancement.
- iii. Regulate ECCE personnel in the non-state sector.
- iv. Enhance support to parents, families and other caregivers.

3. Innovation for advancing transformation

- i. Harness scientific evidence for innovating and transforming ECCE policies and practices.
- ii. Make access to digital technology equitable, inclusive, non-intrusive, secure and ethical, and ensure the protection of children’s rights in the digital environment.
- iii. Diversify ECCE learning spaces, practices and provision.

4. Policy, governance and financing

- i. Ensure a whole-of-government, multi-sectoral and integrated approach to ECCE policy development, provision and coordination.
- ii. Protect and mobilize financial resources for ECCE.
- iii. Improve data, monitoring and evaluation of ECCE policies, practices and programmes.
- iv. Enhance policy and legal frameworks to ensure that the right to education includes ECCE.

Source: UNESCO (2022d).



Transforming ECCE... to respond to the global learning crisis

The World Bank estimates that due to the COVID-19 pandemic, the share of 10-year-old children who cannot read and understand a simple text increased from 57% to 70% in low- and middle-income countries between 2019 and 2022 (World Bank, UNESCO, UNICEF, FCDO, USAID and Bill & Melinda Gates Foundation, 2022).

Although this estimate is subject to further scrutiny based on recent data, the projection sent an alarm bell to the international community about the growing 'learning crisis'. The learning crisis is so severe that it is estimated that 37% of the world's children (more than 300 million children) will not reach minimum proficiency levels in reading by 2030 (UNESCO-UIS, 2022).

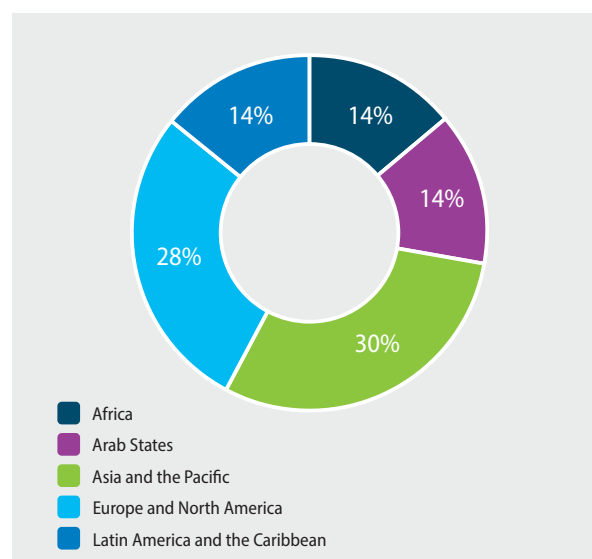


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The global learning crisis existed before the COVID-19 pandemic but was made more severe because of school closures. This dire situation was one of the reasons that led the Secretary-General of the United Nations to convene the Transforming Education Summit in September 2022 to mobilize leadership and political commitment to accelerate progress on SDG 4 (United Nations Transforming Education Summit, 2022).

Leading up to the Summit, 163 countries convened cross-sector consultations and committed to take action to transform their education systems and to increase financing of education to achieve this transformation. As of September 2023, 143 countries had submitted their national statements of commitment. Of these, 57 countries mentioned a specific commitment to ECCE, indicating national priorities for improving early learning. **Figure 1** shows the regional distribution.

Figure 1
Regional distribution of countries announcing a commitment to ECCE at the Transforming Education Summit, NY, September 2022



Data Source: UNESCO (2024a). Available at <https://www.unesco.org/sdg4education2030/en/knowledge-hub/dashboard> (Accessed 6 March 2024).

At the conclusion of the Summit, Member States and the international community issued six Calls to Action, one of which prioritized foundational learning as a key element to transform education, as described in **Box 2**. In this Call to Action, foundational learning refers to basic literacy, numeracy and transferable skills such as social-emotional skills.

To implement the Call to Action on foundational learning, the Foreign, Commonwealth and Development Office of the United Kingdom (FCDO), UNESCO, the United Nations Children's Fund (UNICEF), the United States Agency for International Development (USAID), the World Bank and the Bill & Melinda Gates Foundation convened the Coalition for Foundational Learning (UNESCO, n.d.).

The Coalition's main objective is, by 2030, to reduce by 50% the global share of 10-year-old children unable to read and understand a simple text. Through its three pillars, the coalition supports advocacy and communications and works to create an enabling environment for policy change and resource mobilization for foundational learning.

The Coalition for Foundational Learning does not directly address early learning. However, as this report will show, unless countries prioritize and increase investments in early childhood, millions of young children will not be prepared for primary education and foundational learning, meaning that reducing learning poverty at age 10 by half will not be an attainable goal.

Box 2

The global challenge of addressing the learning crisis

Foundational learning is a key element to transform education. Member States and partners issued a Call to Action to respond to the learning crisis and improve the quality of learning for all.

1. Low learning levels – the barrier children face.

- The pre-COVID learning crisis has been made even more severe by the pandemic. Currently it is estimated that, globally, six out of every ten children suffer from learning poverty: they are unable to read and understand a simple text by the age of ten.

2. Foundational learning – why it is important?

- The share of children unable to read with comprehension at age ten is a signal of the overall quality of education in a country. Foundational learning provides the building blocks for all other learning, knowledge, and higher order skills that children and youth need to attain through education.
- Foundational learning is critical to enable all children to reach their full potential and participate in society.
- Ensuring foundational learning for all contributes to productive citizenship, sustainable development, inclusive growth, gender equality, national cohesion, peace and prosperity, and bolsters progress on all other SDGs.

3. Transforming education through foundational learning – a commitment to action.

- We commit to taking urgent and decisive action, where learning levels are low, to ensure all children, including the most marginalized, realize their full potential.
- We commit to reducing the global share of children unable to read and understand a simple text by age ten, by half, by 2030. This commitment requires achieving national SDG 4 targets in each country.
- To ensure recovery and accelerate learning, we will work immediately to enrol all children and keep them in school, particularly marginalized girls; increase access to remedial and catch-up learning and teach children at their current learning levels; support teachers, giving them the tools that they need; and support the health, nutrition and psycho-social well-being of every teacher and child.
- We will work together to close the education resource gap, and enable the investments, leveraging technologies and other reforms, needed to effectively advance foundational learning.

Source: United Nations International Children's Emergency Fund.

Available at: <https://www.unicef.org/learning-crisis/commitment-action-foundational-learning#commitment>



Transforming ECCE... to address the twin crises of equity and relevance

The global learning crisis, spotlighted by the fact that many children cannot read and understand a simple text by age 10, is not the only crisis facing education. Even before the Transforming Education Summit, the UN Secretary-General issued his report, 'Our Common Agenda', setting out his vision for the future of global cooperation (United Nations, 2021).

He called for renewed global solidarity to address the growing threats to people, society and planet and set out an agenda of action designed to accelerate the implementation of all the SDGs. After the Transforming Education Summit, the Secretary-General issued another policy brief arguing that 'Although education has a crucial role to play in achieving the Sustainable Development Goals, confronting broader societal challenges and preparing society for uncertain futures, contemporary education systems are no longer fit for purpose, severely underfunded and beset by twin crises of equity and relevance' (United Nations, 2023, p. 6).

The persistent exclusion of children from education due to various factors and backgrounds, including displacement from armed conflicts, climate change emergencies and global economic downturns, is a crisis of equity and access. Inequalities are rising due to social and economic exclusion and the increasing cost of living, putting more families into poverty and making them unable to afford to send their children to school. Inflation, combined with persistent hardship faced by an increasing number of vulnerable populations, is expected to remain high relative to pre-pandemic levels, potentially worsening child poverty and damaging children's well-being. High energy prices and climate change are impacting food supplies, putting more children and families at risk of hunger and food insecurity (UNICEF, 2023b). Governments are facing the need to cut or freeze public sector bills, leading to cuts in education spending that hinder teacher recruitment and limit school construction, negatively impacting the effort to reach universal enrolment in primary and secondary education, especially in low- and middle-income countries. High-income countries are struggling to deliver on their official development

assistance to low- and middle-income countries, and their spending on education has remained static since 2018, even as the need for it has significantly increased (United Nations, 2023).

The crisis of relevance calls into question the ability of education systems to respond to the learning needs of the 21st century and the rapidly changing world. Many education systems remain focused on preparing children and young people for their adult life, rather than supporting them and learners of all ages to acquire the capacities to learn throughout their lives. They still follow an industrial model of education in their assessment of the purpose of education, whereby mass education was seen as a way to fuel industries with skilled labour, rather than educating the whole person for lifelong growth (Fesmire, 2019). The rise of automation, artificial intelligence and the gig economy are calling into question the skill sets that are needed, not only to survive, but also to succeed in an unstable and transient job market. While advanced digital technologies with generative artificial intelligence capabilities have the potential to reduce educational inequalities by opening up access to educational resources, they also risk widening inequalities by commercializing education and leaving behind countries that still struggle with internet connectivity. The global climate crisis, environmental degradation, increasing societal polarization, rising intolerance and the weakening of democracy will also have an impact on education, and children and women are particularly vulnerable to the effects of these crises (UNICEF, 2023g). To overcome these crises, the Secretary-General emphasized the need for education to promote sustainable development, climate justice, social cohesion and the values of human diversity and human rights (United Nations, 2023).

Responding to the twin crises of equity and relevance in education should start with ECCE, where the potential for growth mindsets, innovation and problem-solving can be stimulated and, as this report will show, foundational values for tolerance, diversity and respect for the environment can be set.



Transforming ECCE... through the right to education

At its core, humanity's responsibility to guaranteeing children's right to education should be underpinned by the agreed understanding that 'learning begins at birth'. But so far, no international legal framework explicitly guarantees children's right to ECCE.

In 1948, the Universal Declaration of Human Rights proclaimed that childhood is a period that is 'entitled to special protection and assistance' (article 25.2) because young children are particularly vulnerable, with limited means of communication, self-direction and freedom of choice, and entirely dependent on the care of their families or guardians. Although this is the first international legal framework to establish that 'everyone has the right to education' (article 26.1), it contains no explicit mention of the right to ECCE or to pre-primary education.

The Convention on the Rights of the Child (1989) is the most prominent source of rights for early childhood. These include the right to protection (article 3), the right to survival (article 6), the right to freedom of expression (article 13), the right to health (article 24), the right to a standard of living adequate for the child's development (article 27), the right to education (articles 28 and 29), the right to culture (article 30), the right to rest, leisure and play (article 31), the right to non-discrimination (article 2) and the overarching principles that the child's views should be respected (article 12) and that children's best interests shall be a primary consideration (articles 3, 9, 18, 20 and 21). Furthermore, the Convention on the Rights of the Child legally obligates states to 'ensure the fulfilment of the rights of the child by offering appropriate assistance to parents and legal guardians in child-rearing and child development' (article 18.2).

In 2006, the Committee on the Rights of the Child¹ (CRC Committee) recognized that 'early childhood is a critical period for realizing children's rights' and 'interprets the right to education during early childhood as beginning at birth and closely linked to young children's right to maximum development' (General Comment No. 7). While Comment No. 7 reaffirms that young children are rights holders, these comments are not legally binding.²

The commitment to one year of free and compulsory quality pre-primary education was first announced in 2015 with the adoption of the Education 2030 Agenda (UNESCO, 2016). Compliance with this commitment requires updating existing international normative instruments governing education in order to ensure an explicit guarantee on ECCE rights. SDG Indicator 4.2.5 monitors the number of years of (a) free and (b) compulsory pre-primary education guaranteed in legal frameworks.

A recent analysis illustrates how implementing the right to pre-primary education can support significant improvements in young children's learning opportunities (UNESCO, 2021). The analysis, based on a review of the legal frameworks of 183 countries with available data, found that only 63 countries (representing 34% of the countries in the analysis) have established at least one year of free pre-primary education in national legal frameworks.

¹ The Committee on the Rights of the Child (CRC Committee) is the body of 18 independent experts that monitors implementation of the Convention on the Rights of the Child by its States Parties, as well as implementation of the Optional Protocols to the Convention. <https://www.ohchr.org/en/treaty-bodies/crc>.

² For a comprehensive review of the scope of coverage and challenges associated with applying the right to ECCE mentioned in international treaties and conventions, see Bianchi et al. (2022).

Even fewer countries have made pre-primary education compulsory. Of 184 countries with available data, only 51 countries (representing 28% of the countries in the analysis) have adopted at least one year of pre-primary education as compulsory. The majority of these countries are located in Europe and Northern America and Latin America and the Caribbean and are mostly upper-middle-income and high-income countries. Globally, out of 194 countries worldwide, only 46 countries have adopted at least one year of both free and compulsory pre-primary education. The analysis revealed that average school enrolment rates in countries that adopted legal provisions for free or compulsory pre-primary education were double those of countries without legal provisions.

Recent empirical analyses can furthermore attest that adopting legal provisions for free or compulsory pre-primary education has positive effects on children's early development. For example, 83% of children aged between 36 and 59 months living in countries that have adopted free pre-primary education are developmentally on track for literacy, numeracy, social-emotional,

and health milestones compared to 66.6% of children in countries without this legal provision. Likewise, 83.8% of children aged between 36 and 59 months living in countries that have adopted compulsory pre-primary education are developmentally on track for the same milestones, compared to 68.1% of children in countries without this legal provision. These findings illustrate how extending the right to education to include the right to ECCE could be an important policy lever to accelerate progress on all targets under SDG Target 4.2 (UNESCO, 2021).



Out of 194 countries worldwide, only 46 countries have adopted at least one year of both free and compulsory pre-primary education.





The purpose of this report...

is that all children have a right to a strong foundation

The above retrospective and review of the political context around the need for transforming education worldwide indicates that, while progress is being made for young children, much remains to be done to ensure their lifelong education, economic and social well-being.

For this reason, Member States and the international community adopting the Tashkent Declaration tasked UNESCO to ‘Engage with the International Labour Organization (ILO), the Organisation for Economic Co-operation and Development (OECD), the United Nations Children’s Fund (UNICEF), the World Bank and other organizations in preparing a joint, biennial review to report on progress made on SDG Target 4.2, complementing the Global Education Monitoring Report and other ECCE-related indicators.’ (UNESCO, 2022d, p. 6). This report, the first in the biennial series, responds to this commitment.

As the inaugural report in this biennial series, this report will present current understanding and assessments on how children are doing, how children learn and develop, and what early learning environments should look like. By doing so, it will build a better understanding of how the key actors in children’s early environments – parents, families, educators and the community at large – can be leveraged through public policies and programmes to improve children’s learning and learning outcomes.

At its core, education is about learning. Because the education community has traditionally focused on learning access and outcomes in the formal education

system, this excludes the significant early learning that takes place before the start of school education and in less formal learning settings. More than ever, the concept of ‘learning’ is being expanded to include learning opportunities in early childhood, whether in the home or in ECCE settings.

It is important to look beyond traditional indicators of inputs, outputs and outcomes by exploring in more detail the processes of learning and development. A better understanding of these processes could contribute to a more nuanced measure of education quality. The scientific evidence has established that access and exposure to quality learning opportunities early in life supports the stimulation and development of foundational skills needed for school readiness and success in primary school. Knowledge about learning and development and an understanding of how children interact with the main actors in their environments – what we will refer to as the early learning ecosystem – can support the design of evidence-based policies, services and programmes for improving children’s foundational learning and school readiness (Darling-Hammond et al., 2020). This report therefore also responds to the Call to Action to address the learning crisis issued at the Transforming Education Summit in 2022.



The scientific evidence has established that access and exposure to quality learning opportunities early in life supports the stimulation and development of foundational skills needed for school readiness and success in primary school.

Our recognition of the importance of the early years to educational, social and economic outcomes is not new. But gaps still remain in our understanding of the period from 0 to 3 years of age, particularly for children who are vulnerable, marginalized, disadvantaged or living in low- and middle-income countries (Black et al., 2017). The period between 0 and 3 has been acknowledged as a critical period in human development since the Moscow Framework in 2010, but it continues to be neglected by the international community, despite overwhelming evidence that investing in the early years can support countries to improve the crisis in foundational learning. While much progress has been made around supporting investments in children's health and nutrition, less attention has been paid to children's early learning environments, in particular for children younger than 3 (Black et al., 2017).

As mandated in the Tashkent Declaration, this report complements global reports by sharing new and emerging findings, while also integrating these new developments into the global landscape of progress towards achieving SDG Target 4.2. We also build on and align with previous work, including the preminent Lancet Series that reported on the latest scientific advances in early childhood development (The Lancet, 2017), as well as the Nurturing Care Framework (WHO, UNICEF and World Bank Group, 2018) that made a strong case for the importance of nurturing care for child development outcomes. The Nurturing Care Framework explored policies and services for promoting child development outcomes through five interrelated components: good health of children and caregivers, adequate nutrition, responsive caregiving, safety and security, and opportunities for early learning. Healthy development is the foundation of the framework, through which the other components can be realized to promote healthy growth and development for young children. Lastly, the Global Education Monitoring Report is produced annually to monitor international progress on all SDG 4 targets and remains the main reference source for the latest data and analysis about global education monitoring.

The narrative of this report is structured around the following questions that aim to shed light on the current state of child development, the mechanisms of early learning, the quality of ECCE and the financing of ECCE:

1

How are children doing? This question explores the current developmental status of children, employing a holistic, developmental and child-centred approach, while examining the key actors and settings in children's early environments – the family, home, school, community and the broader social, cultural and economic contexts.

2

How do children develop and learn? This question investigates the scientific underpinnings of how children develop the capacities for early literacy, numeracy and social-emotional skills, highlighting the role of caregivers and the teaching workforce. Understanding these processes is crucial for designing effective parenting interventions, as well as age-appropriate curricula and pedagogies that can bridge the gap between ECCE settings and the foundational skills that children need to succeed in school.

3

How can we improve quality and inclusion in the ECCE ecosystem? This section examines the challenges in defining and monitoring quality in ECCE and describes the interlinkage of educator and teacher supply with quality. It further explores ways in which governments and societies can contribute to improving quality through social policies targeting parents and households, in particular for disadvantaged groups.

4

How is ECCE financed? This section explores the latest data and trends to understand the state of ECCE financing and how governments can expand ECCE services and programmes through innovative financing mechanisms to reach the most marginalized.

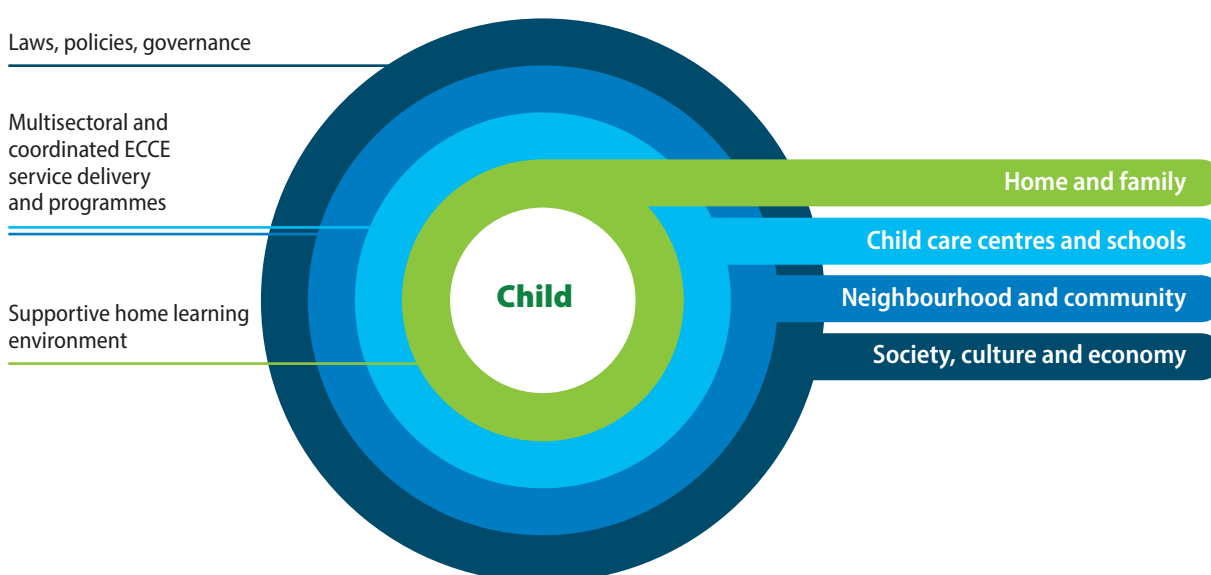
The organizing framework we use to address these questions is based on a simplified version of Bronfenbrenner’s bioecological model (Bronfenbrenner & Evans, 2000), illustrated in **Figure 2** and further explained in the **Appendix 2**. Our ECCE ecosystem considers the enabling factors that can promote children’s learning and well-being within a developmental and lifecourse approach. We explore the state of global child development by beginning with children’s immediate family and home environments because these are children’s first learning experiences and exert the most important and direct influence. Governments can create enabling environments for promoting early learning opportunities, particularly for children in vulnerable or disadvantaged contexts, such as parenting support programmes coupled with policies that allow working parents to stay home with their newborn infants for a period of time.

Governments can also create enabling environments through children’s experiences in child care centres and pre-schools, which fall within the wider neighbourhood and community, and exert the next levels of direct influence on children’s learning and development. Early

learning opportunities can be promoted through policies enabling access to subsidized child care, age-appropriate curricula and pedagogies, financial support for informal child care arrangements, as well as screening programmes for identifying and providing interventions for children at risk of learning difficulties or developmental delays. These policy measures can be provided via child care centres, pre-schools, health care or community centres through coordinated, multisectoral and integrated ECCE programmes and service delivery.

At the broader societal level, children and adults experience macrosystem factors through national laws, policies and governance mechanisms which influence children’s learning opportunities and may have the strongest and lasting impacts (Osher et al., 2020). For example, whether children have access to quality ECCE may depend on whether there is national legislation for free or compulsory ECCE, whether there is sufficient infrastructure to expand access to all children, whether there are standards to regulate the training and qualifications of ECCE personnel, or whether there is sufficient financing for the sector to allow for adequate public provision.

Figure 2
Enabling environments in the ECCE policy ecosystem



Source: Based on Bronfenbrenner and Evans (2000).

We conclude our main report with recommendations for governments and the international community, calling on the world – yet again – to act to improve ECCE in ways that will support foundational learning, improve school readiness, lay the groundwork for lifelong learning and ensure the growth of future generations committed to the values and promise embodied in the SDGs.

Finally, in the Appendices to this report, we present two thematic analyses of significant global events with implications for young children and their developmental outcomes. The first is the COVID-19 pandemic, which was experienced by young children worldwide. In **Appendix 4**, we review some of the research that has looked at the impact of the pandemic on children's learning and development. Second is the effect of digital technology on early learning and development. As evidenced by school closures during the pandemic, technology was the policy response to keeping children learning. But the question remains whether the use of technology for teaching and learning is effective, and we examine this question in **Appendix 5**.

We also introduce two emerging themes with implications for ECCE that will require attention for the transformation of education towards equity, inclusion and quality of learning experiences. First,

in **Appendix 6**, we present emerging evidence exploring ways to foster the capacities crucial for environmental sustainability and global citizenship, considered as key components of the broader SDG agenda, as well as in response to the UN Secretary-General's call to transform education for the promotion of sustainable development, climate justice, social cohesion and the values of human diversity and human rights (United Nations, 2023).

Second, a growing understanding is developing of the negative effects of early childhood adversity on learning and development, which will require the attention of governments and educators. Some are especially vulnerable, such as children who are refugees, migrants, living in poverty or disadvantage, or, with particular relevance to the current context, displaced by or living in armed conflict or other emergency contexts, including climate emergencies. We therefore examine, in **Appendix 7**, the interplay between early childhood adversity and resilience, to point to ways in which vulnerable children can be supported to help overcome initial disadvantage.

By the end of this report, we hope to have made a strong case about children's right to learn, beginning with a strong foundation.



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CHAPTER 2

How are children doing? Trends in early childhood learning and care

Highlights

01

Children are significantly affected by their immediate environments, and disadvantage in these environments can hold back development.

Global inequalities affect development outcomes for the most disadvantaged children.

- ▶ In countries with data, 30% of children are not developmentally on track.
- ▶ Only 55% of children aged 36 to 59 months growing up in the poorest households are developmentally on track, compared to 78% of children in the richest households.

02

The home and family environment play a critical role in early learning, but children in the poorest households have fewer opportunities to learn.

- ▶ Among countries with data, children living in the richest households (71%) are much more likely to receive early stimulation and responsive care than children in the poorest households (43%).
- ▶ In countries with data, only 4% of the poorest children live in households with children's books and only 46% of them have playthings at home.

03

Child care centres and pre-school environments can promote early learning opportunities for social equity.

- ▶ Participation in ECCE programmes improves children's outcomes, but few countries make child care and pre-primary education universally available and/or free to access.
- ▶ Children who attend early childcare education programmes are more likely to be on track for development; however, the enrolment rate for one year of organized learning before the start of primary school fell to 72% in 2022 from 75% in 2020.
- ▶ In low-income countries, only 5% of children under 3 and 17% of children aged 3 to the start of primary school participate in early childhood education programmes.

04

Neighbourhoods and communities affect the quality of early learning experiences.

- ▶ Inadequate WASH services, pollution and social isolation caused by urbanization all negatively affect children's development.
- ▶ Community-based learning opportunities can provide learning spaces for young children.

05

Societies and cultures exert powerful influences on young children's learning and development.

- ▶ Children may experience macrosystem factors through national policies and laws, cultural practices and opportunity structures.
- ▶ Lack of access to quality ECCE settings can amplify the effects of macrosystem factors.

A range of terms is used by various organizations to refer to ECCE, which is structured differently across and often within countries. These differences are further described in **Appendix 3**. ECCE services can start at or even before birth and continue until a child enters and begins primary school, generally covering the period from 0 to age 8. ECCE can take place in homes, through formal or informal care settings, such as arrangements

with extended family or neighbours, or within community-based programmes. In this chapter, we investigate the current state of early childhood development worldwide, delving into how children grow and thrive within the primary environments that significantly affect their early years: the home and family, child care centres and pre-schools, neighbourhoods and communities, and the broader society.

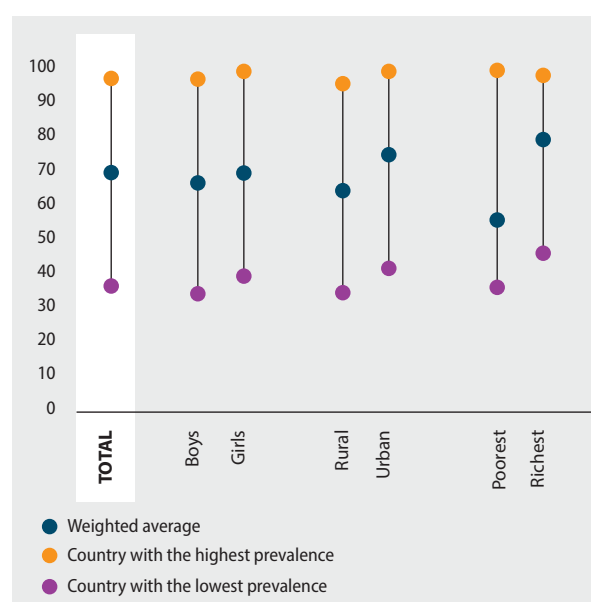
Inequalities start early and persist throughout life

SDG Target 4.2 monitors early childhood care, development and learning. Indicator SDG 4.2.1 refers to the proportion of children between the ages of 24 and 59 months who are developmentally on track as measured by the Early Childhood Development Index 2030 (ECDI2030), covering health (self-care, gross motor skills, fine motor skills), learning (expressive language, numeracy, literacy, pre-writing, executive functioning) and psychosocial well-being (emotional skills, social skills, externalizing and internalizing behaviours) (UNICEF, 2023b).³

The ECDI2030 is a caregiver-reported measure that is completed by mothers or primary caregivers consisting of 20 questions about the way their children behave in certain everyday situations and the knowledge they have acquired (Cappa et al., 2021).

Based on the latest available data, 70% of children in countries with data are reported to be developmentally on track (**Figure 3**). Strikingly, children growing up in the poorest households are falling behind their peers: 78% of children in the richest households are developmentally on track, whereas only 55% of children growing up in the poorest households are on track. These children, already at risk of missing out on learning opportunities, are starting from further behind their more socioeconomically advantaged peers. Children's

Figure 3
Percentage of children aged 36 to 59 months who are developmentally on track



Note. The total is a weighted average based on 85 countries, corresponding to 33% of the global population of children aged 36 to 59 months. Certain countries do not have data available by sex, wealth or residence; in these cases, calculations are based on a smaller number of countries, so the disaggregated data may not match the total average.

Source: UNICEF global databases, 2023, based on Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS) 2010–2022.

development is also affected by where they live, with more children on track who are growing up in urban areas (74%), as compared to those living in rural areas (64%).

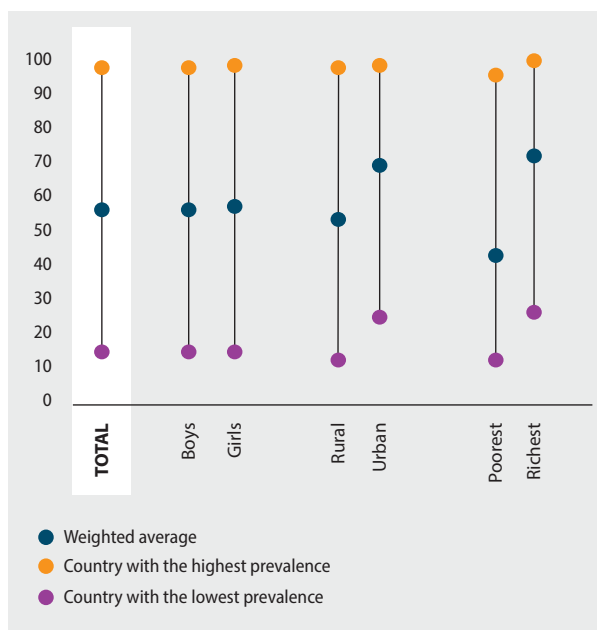
³ Since its launch in 2020, several countries have collected data using the Early Childhood Development Index 2030 (ECDI2030) and data availability is expected to continue to increase significantly in the coming years. In the meantime, the available data largely reflect a proxy indicator for SDG Indicator 4.2.1 on the proportion of children aged 36 to 59 months who are developmentally on track in three out of four development domains (literacy-numeracy, physical, social-emotional and learning), as measured by the original Early Childhood Development Index (ECDI).

Children’s physical health remains a big challenge in some parts of the world. In sub-Saharan Africa, for example, about 27 neonates for every 1,000 live births do not survive (compared to the world average of 17), 49 per 1,000 children die during their infancy (compared to the world average of 11) and 71 per 1,000 children do not make it to their fifth birthday (compared to the world average of 37), as estimated in 2022 (United Nations Inter-agency Group for Child Mortality Estimation, 2024). Among the children who survive, 148 million children worldwide are

moderately or severely stunted (too short for age) and 45 million are moderately or severely wasted (too thin for height) due to the effects of malnutrition (UNICEF, WHO and World Bank, 2023). Most children suffering from malnutrition are living in low- and middle-income countries, with severe consequences for their developmental outcomes (The Lancet, 2017). Meanwhile, overweight is becoming a serious concern: 37 million children worldwide are considered moderately or severely overweight (UNICEF, WHO and World Bank, 2023).

The home and family environment are critical for early learning

Figure 4
Percentage of children aged 24 to 59 months who were engaged in four or more activities for early stimulation and responsive care by any adult household member in the last three days



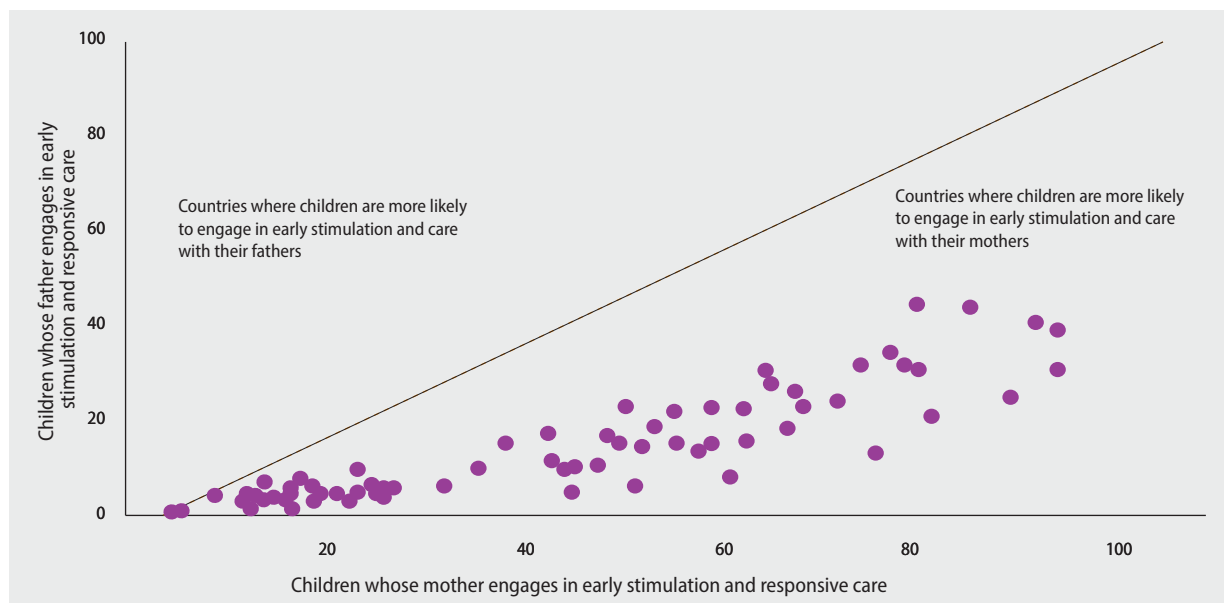
Note: The total is a weighted average based on 99 countries, corresponding to 36% of the global population of children aged 24 to 59 months. Certain countries do not have data available by sex, wealth or residence; in these cases, calculations are based on a smaller number of countries, so the disaggregated data may not match the total average.

Source: UNICEF global databases, 2023, based on MICS and DHS 2005–2022.

Many factors that contribute to children’s learning opportunities in the home and family environment can be supported through policy and programmatic interventions. In this section, we explore a few of these enabling factors: access to early stimulation and care, availability of books and playthings at home and parental supervision.

The thematic indicator 4.2.3 is intended to measure the percentage of children under 5 years of age experiencing positive and stimulating home learning environments. In the 99 countries with data (representing 36% of the global population of children), only a little over half (56%) of children aged 24 to 59 months are provided with early stimulation and responsive care, defined as engagement in four or more activities with any adult household member in the last three days (e.g. reading books or looking at picture books with the child; telling stories; singing songs to or with the child; taking the child outside the home; playing with the child; naming, counting or drawing things for or with the child) (Figure 4). Children living in the richest households (71%) are much more likely to receive early stimulation than children in the poorest households (43%). In most countries with available data, children who live in urban areas (69%) are more likely to receive early stimulation than children living in rural areas (53%). There are no sex differences. On average, children are three times more likely to engage in early stimulation and care with their mothers than with their fathers, and this pattern holds true across countries with available data (Figure 5).

Figure 5
Percentage of children aged 24 to 59 months who were engaged in four or more activities for early stimulation and responsive care by mothers and fathers in the last three days

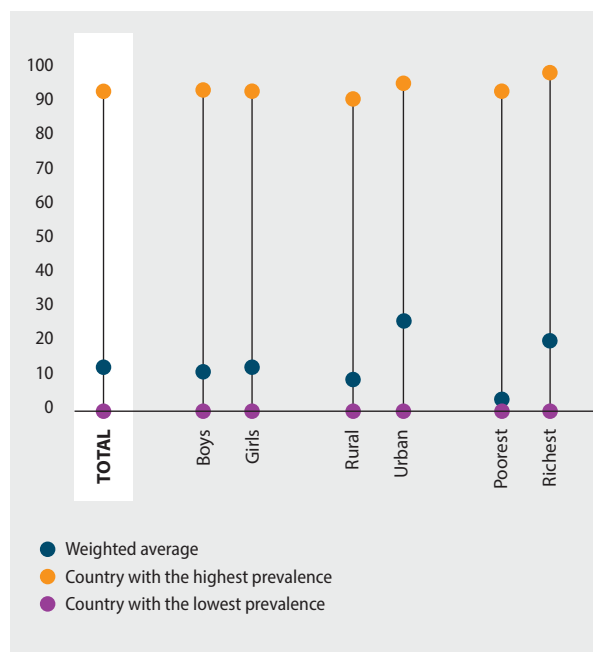


Note: Each dot represents a country.
 Source: UNICEF global databases, 2023, based on MICS and DHS 2005–2022.

On average in countries with data, only one in ten children under age 5 are living in households with three or more children’s books, with a remarkable difference between children living in the richest (21%) and poorest (4%) households, as well as between children living in urban (26%) and rural (10%) areas (Figure 6). A large variation is also observed across countries. For example, in Ukraine, 91% of children have books at home, while in Burundi, only 0.1% of children have books at home. In nine of the countries with available data (Burundi, Central African Republic, Chad, the Democratic Republic of the Congo, Guinea, Guinea-Bissau, Mali, Senegal and Togo), less than 1% of children have books at home.

Additionally, slightly more than half of children under age 5 in countries with data have two or more types of playthings at home (Figure 7). Again, children living in the richest households (63%) and in urban areas (61%) are more likely to have playthings at home than children living in the poorest households (46%) and in rural areas (53%). Children’s access to playthings is also unequal. In some countries, like Chile and El Salvador, over nine in ten children have playthings; in others, like Lebanon and Morocco, fewer than two in ten children have playthings.

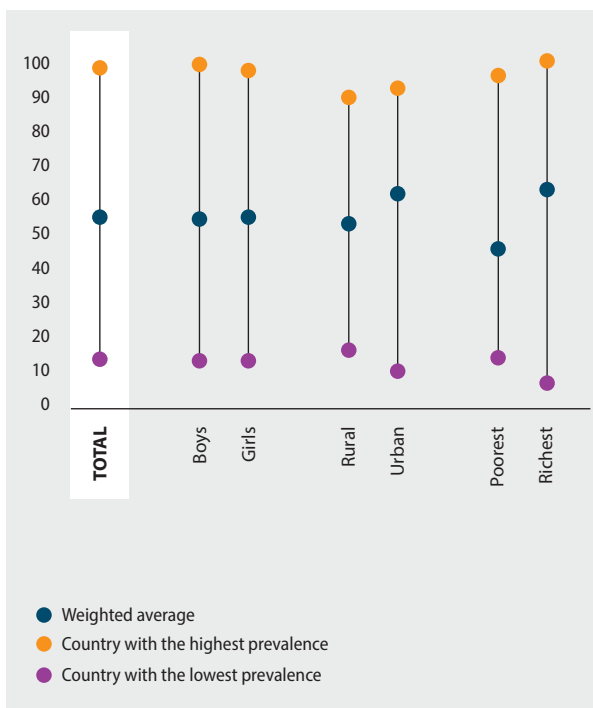
Figure 6
Percentage of children under age 5 living in households with three or more children’s books



Note: The total is a weighted average based on 97 countries, corresponding to 36% of the global population of children under age 5. Certain countries do not have data available by sex, wealth or residence; in these cases, calculations are based on a smaller number of countries, so the disaggregated data may not match the total average.

Source: UNICEF global databases, 2023, based on MICS and DHS 2005–2022.

Figure 7
Percentage of children under age 5 who have two or more types of playthings at home



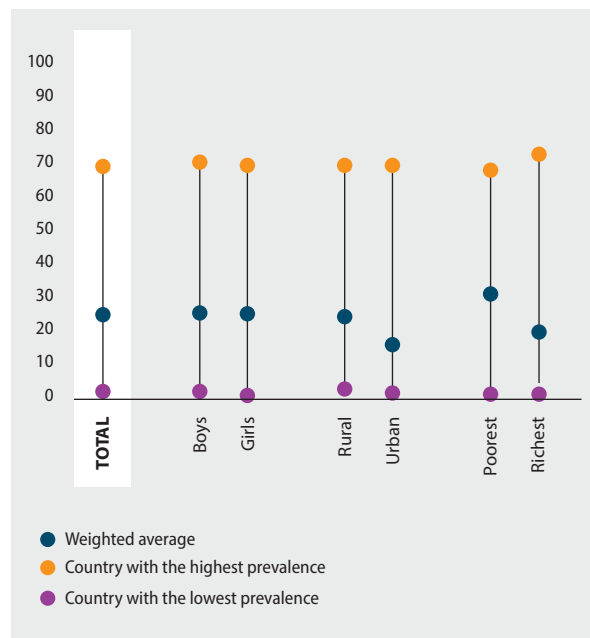
Note: The total is a weighted average based on 97 countries, corresponding to 36% of the global population of children under age 5. Certain countries do not have data available by sex, wealth or residence; in these cases, calculations are based on a smaller number of countries, so the disaggregated data may not match the total average.

Source: UNICEF global databases, 2023, based on MICS and DHS 2005–2022.

In most countries with available data, girls are just as likely to have playthings as boys. There are, however, a few exceptions. For example, in Turks and Caicos Islands and Uruguay, boys are more likely than girls to live in households with at least two types of toys.

Many children continue to live in environments that undermine their developmental potential. About 25% of children in countries with data are left without adequate supervision, defined as the percentage of children under age 5 left alone or under the supervision of another child younger than 10 years old for more than one hour at least once during the past week (Figure 8). Children living in the richest households (19%) and in urban areas (16%) are less likely to be left without adequate supervision than children in the poorest households (31%) and in rural areas (24%). There is no difference between boys

Figure 8
Percentage of children under age 5 left alone or under the supervision of another child younger than 10 years of age for more than one hour at least once during the past week



Note: The total is a weighted average based on 97 countries, corresponding to 37% of the global population of children under age 5. Certain countries do not have data available by sex, wealth or residence; in these cases, calculations are based on a smaller number of countries, so the disaggregated data may not match the total average.

Source: UNICEF global databases, 2023, based on MICS and DHS 2005–2022.

and girls. Also concerning is the fact that about 77% of young children in countries with data experience violent discipline at home, defined as the percentage of children aged 1 to 4 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month. In all countries with data, at least one in three children are subjected to violent disciplinary methods.

As this brief overview shows, some children do not get a fair start to life. While education is seen as a social equalizer, without government support, vulnerable children will continue to have poor outcomes because of disadvantaged early environments. As this report will show, early disadvantage can be mitigated by providing access to early learning opportunities through well-financed ECCE policies and programmes.

Child care environments can promote early learning opportunities

Next in the ECCE ecosystem, child care centres and pre-schools are enabling environments in which governments can enact policy levers to promote early learning opportunities. These settings, and the professionals within them, can provide children with the quality early learning experiences to develop the foundational skills needed to succeed in formal education.

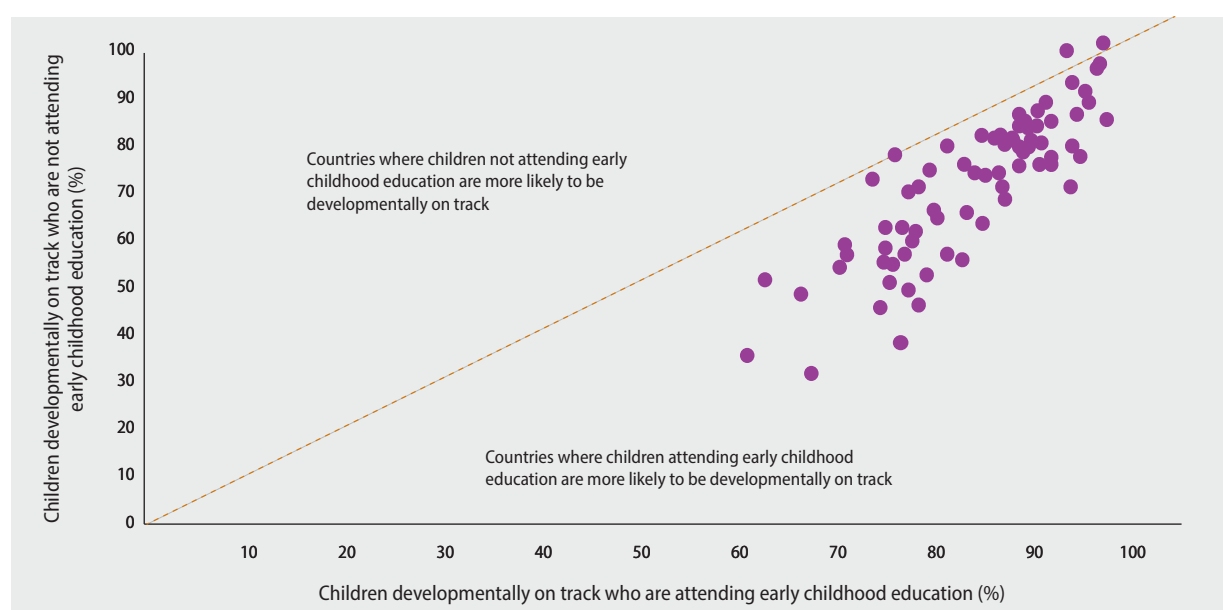
Research generally shows that organized child care programmes have a large positive impact on children's learning and development (Leroy et al. 2012). The impact is less certain for children under 3 years of age, due to factors such as availability of spaces, the quality of the child care, children's starting age, duration, family background and the specific child competency concerned (Melhuish et al., 2015; Berger, Panico and Solaz, 2021). In general, participation in pre-primary education facilitates transitions to primary education, improves child outcomes during subsequent schooling and builds skills that support lifelong learning (Black et al., 2016). Importantly, new evidence shows that providing quality pre-primary education is cost-effective and scalable (Akyaempong et al., 2023).

Access to quality services is especially important for children from vulnerable or disadvantaged households and communities. This is because vulnerable

or disadvantaged children stand to gain the most from early learning opportunities, enabling them to build the foundational skills for school readiness and improve their prospects for later educational and economic outcomes, thereby enhancing social equity. Organized child care services can also promote children's healthy development, since they can serve as referral points for health and other social services, as well as provide opportunities to integrate resources and support for caregivers related to early childhood development (WHO and UNICEF, 2023).

A more recent empirical analysis highlights the benefit of early childhood education programmes on children's developmental outcomes. **Figure 9** shows the association between attendance in early childhood education programmes and development outcomes measured by the ECDI for children aged from 36 to 59 months.

Figure 9
Relationship between child development outcomes and attendance in early childhood education programmes



Note: Each dot represents a country.

Source: UNICEF global databases, 2023, based on MICS and DHS 2010–2022.

The analysis shows that children who attend early childhood education programmes are more likely to be on track for development, further demonstrating the benefits of investing in early learning programmes.

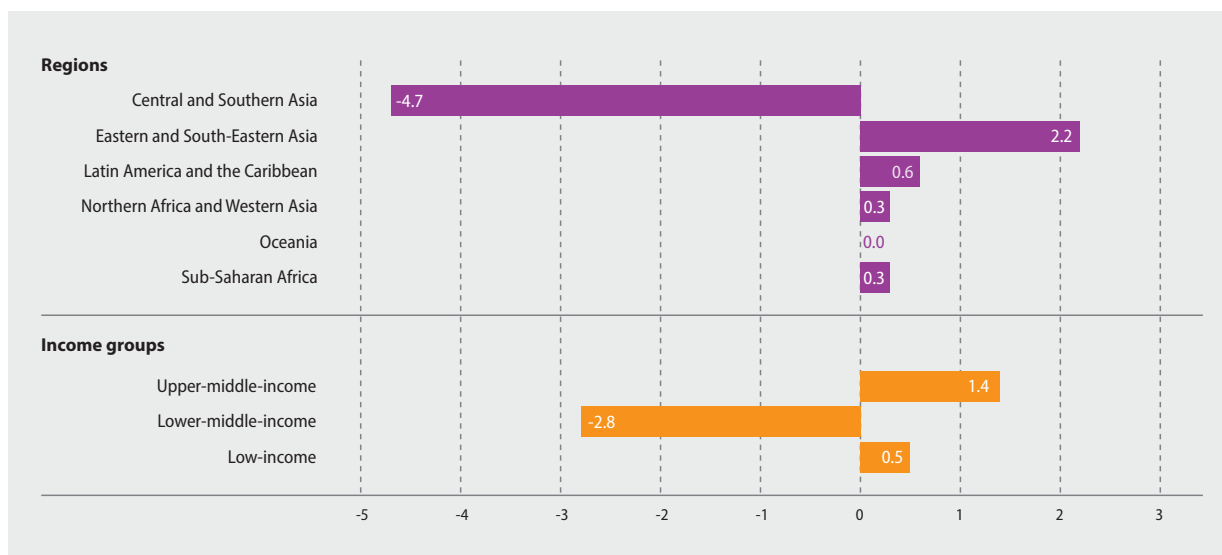
Thematic indicator 4.2.4 measures participation in early childhood education programmes, which monitors children aged from 0 to the start of primary school. Most regions show increased enrolments from 2010–2012 to 2019, but the more drastic change is in Central and Southern Asia, where enrolments fell 4.7 percentage points between 2019 and 2022 (Figure 10). Lower-middle-income countries also struggled, with a drop of 2.8 percentage points in enrolments between 2019 and 2022.

Based on the adjusted Gender Parity Index, there are no gender differences in participation in early childhood education programmes between boys and girls (Figure 11).⁴

Early childhood education programmes can be separated into early childhood educational development programmes (targeting children from 0 to less than 3 years of age) and pre-primary education programmes (targeting children from 3 years of age to the start of primary school).

The situation is worrisome for children under 3. First, because fewer countries monitor ECCE indicators for very young children, there are large data gaps, leaving an incomplete picture of children’s early learning opportunities and making meaningful comparisons difficult. Figure 12 shows the net enrolment rates in early childhood educational development programmes for both boys and girls in 2022. Again, regional and income disparities are evident. Only 5% of children in low-income countries were able to benefit from these early learning opportunities, and an enrolment rate of just 4% is reported in Northern Africa and Western Asia. Given the lack of data for this age group of children, it is difficult to determine whether the low rates are due to lack of access or parents’ decisions to keep such young children at home.

Figure 10
Regional growth rate (%) of net enrolment in early childhood education from 2010/2012 to 2022

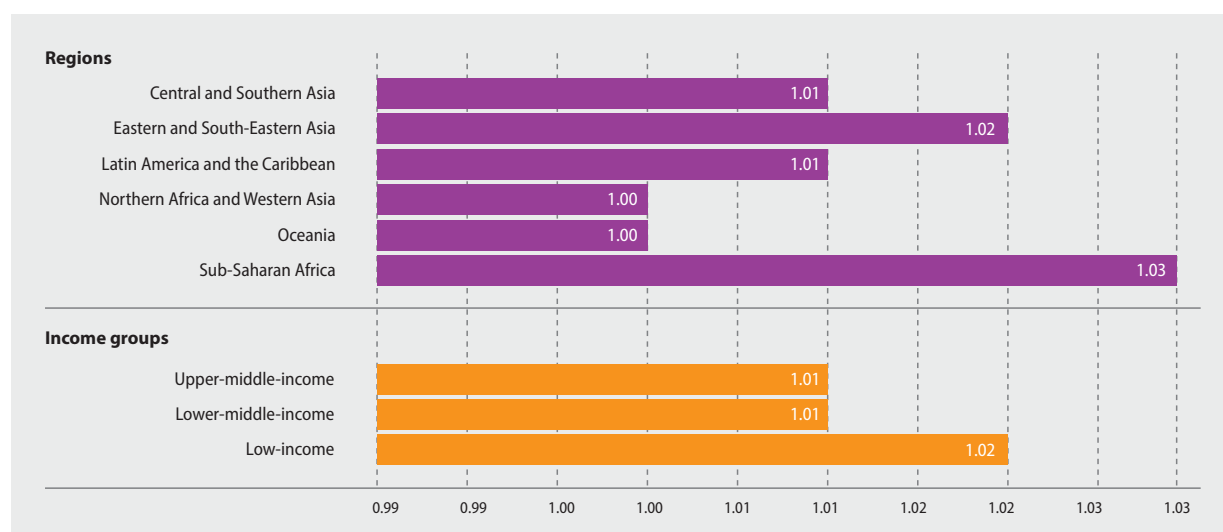


Note: It is not possible to report a global average due to poor coverage. The first data point for Eastern and South-Eastern Asia, Northern Africa and Western Asia, and Oceania is from 2012. The first data point for Latin America and the Caribbean and sub-Saharan Africa is from 2010. The second data point for all regions is from 2022, except for Eastern and South-Eastern Asia where the data point is from 2019. The first data point for upper-middle-income countries is 2012. The first data point for low-income countries is 2010 and the second data point is 2021.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at <http://sdg4-data.uis.unesco.org/>

⁴ The Gender Parity Index (GPI) is the ratio of female to male values of a given indicator. A GPI between 0.97 and 1.03 indicates parity between the genders. A GPI below 0.97 indicates a disparity in favour of males. A GPI above 1.03 indicates a disparity in favour of females.

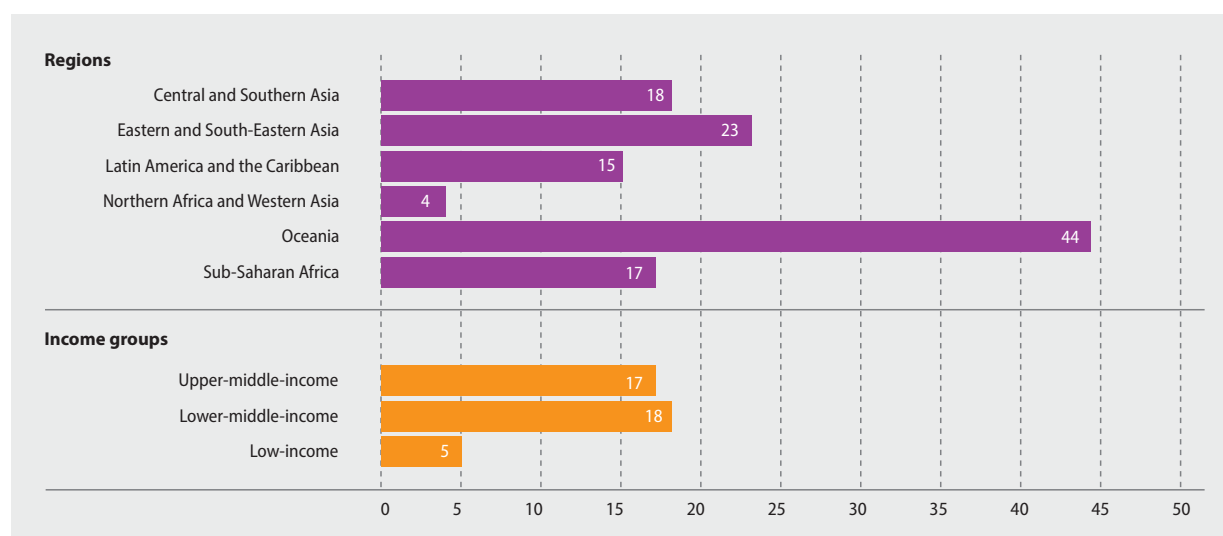
Figure 11
Net enrolment rate in early childhood education, adjusted Gender Parity Index (2022)



Note: It is not possible to report a global average due to poor coverage. Data for Eastern and South-Eastern Asia are from 2019. Data for low-income countries are from 2021.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at <http://sdg4-data.uis.unesco.org/>

Figure 12
Net enrolment rates (%) in early childhood educational development programmes (2022)



Note: It is not possible to report a global average due to poor coverage. Data for Central and Southern Asia are from 2019. Data for Eastern and South-Eastern Asia are from 2019. Data for low-income countries are from 2014.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at <http://sdg4-data.uis.unesco.org/>

“ **SDG 4.2.2, measuring children’s participation rate in organized learning one year before the official age of entry into primary school, shows that the net enrolment rate fell to 72% in 2022. This is a decrease of 3% from 2020.**

Pre-primary education programmes target children from 3 years of age to the start of primary school. As of 2022, the global net enrolment rate for children participating in pre-primary education programmes was 50% (Figure 13). The ratio varies with country income levels, ranging from 74% in high-income countries to 17% in low-income countries. In sub-Saharan Africa, only 19% of children over 3 were able to participate in pre-primary education, in comparison to 76% of children living in Europe and Northern America. These findings once again demonstrate large regional and wealth inequalities in learning opportunities, illustrating how vulnerable children are the most disadvantaged.

SDG Indicator 4.2.2 measures children’s participation rate in organized learning one year before the official age of entry into primary school. The latest data available are from 2022. Figure 14 shows that the adjusted net enrolment rate for both boys and girls one year before the official age of entry into primary school is 72%.⁵ This is a decrease of 3% from previous reporting, which was based on data from 2020 (UNESCO, 2022a).

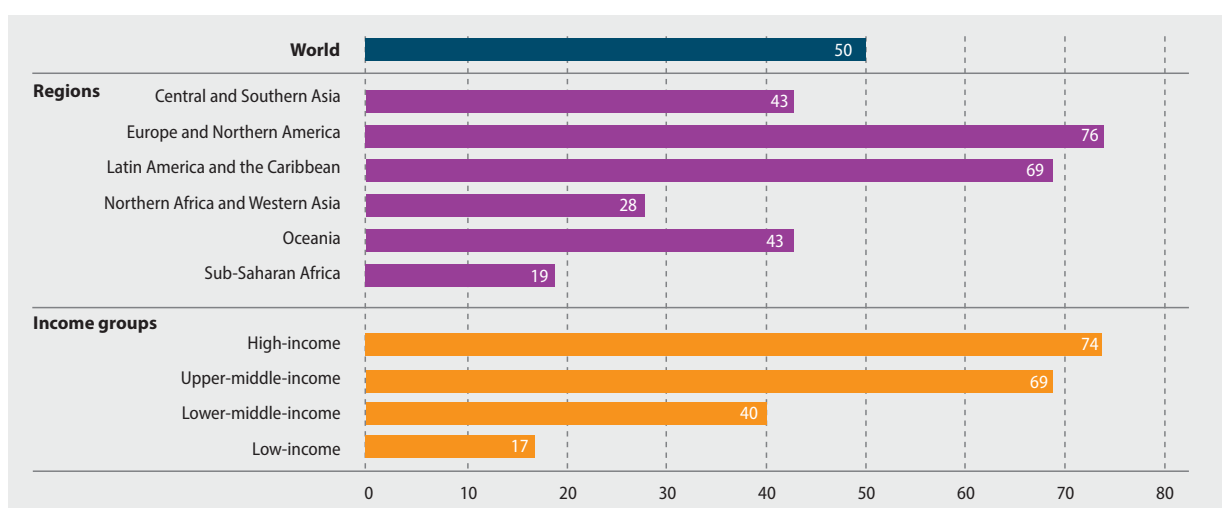
The usual trends persist: variations are evident based on region and wealth. Less than half (47%) of children in sub-Saharan Africa and Northern Africa and Western

Asia (46%) participate in any form of organized learning the year before beginning primary school, meaning that less than half of the children enter primary school without any minimum preparation. In comparison, 90% of children in Latin America and the Caribbean and 91% of children in Europe and Northern America have accessed these early learning opportunities.

Likewise, children in low-income countries (43%) are less likely to participate in organized learning compared to children in high-income countries (89%). Together, these findings suggest that vulnerable children, those living in low-income countries or less developed regions of the world, lack access to early learning opportunities and may need support to develop appropriate cognitive and social-emotional skills for successful learning before primary school entry.

The decrease in global net enrolment in one year of organized learning before the start of primary school is an unexpected finding, since the figure had been steadily increasing since 2013 and had stabilized at 75% at the last reporting period in 2020. The new data from 2022 show a change in this trend. Globally, net enrolment increased 0.3 percentage points between 2010 and 2022 (Figure 15).

Figure 13
Net enrolment rate (%) in pre-primary education (2022)

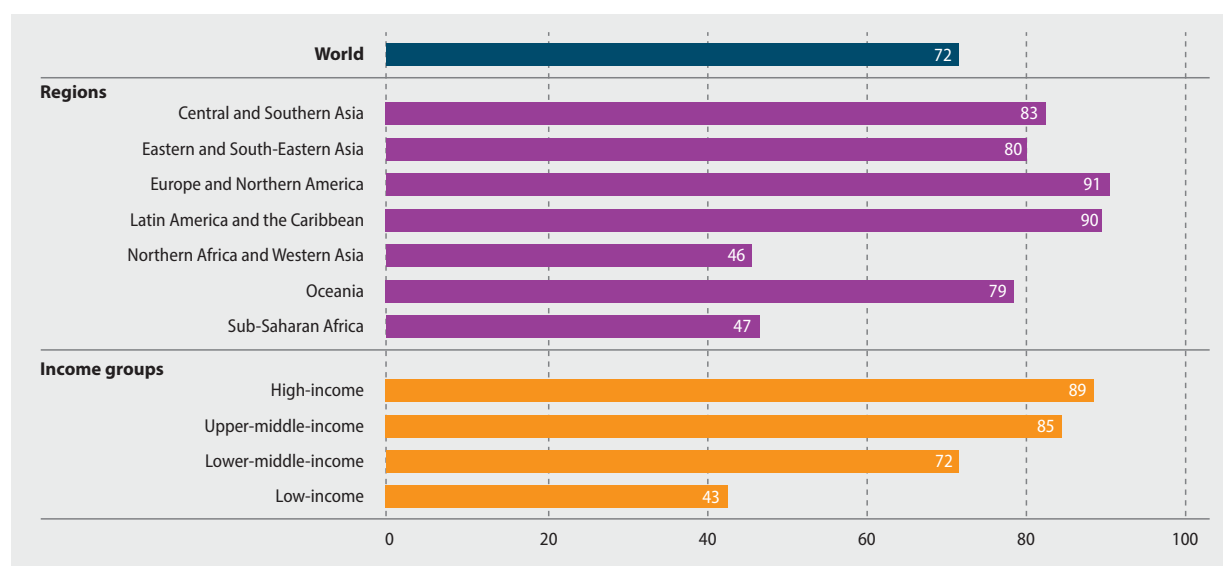


Note: Global rate is estimated using both submitted and imputed data.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at <http://sdg4-data.uis.unesco.org/>

⁵ The adjusted net enrolment ratio is the enrolment of the official age group for a given level (or period) of education either at that level or the levels above, expressed as a percentage of the population in that age group. It captures ECCE-age children who have progressed to primary education and who are not counted in the traditional net enrolment rate.

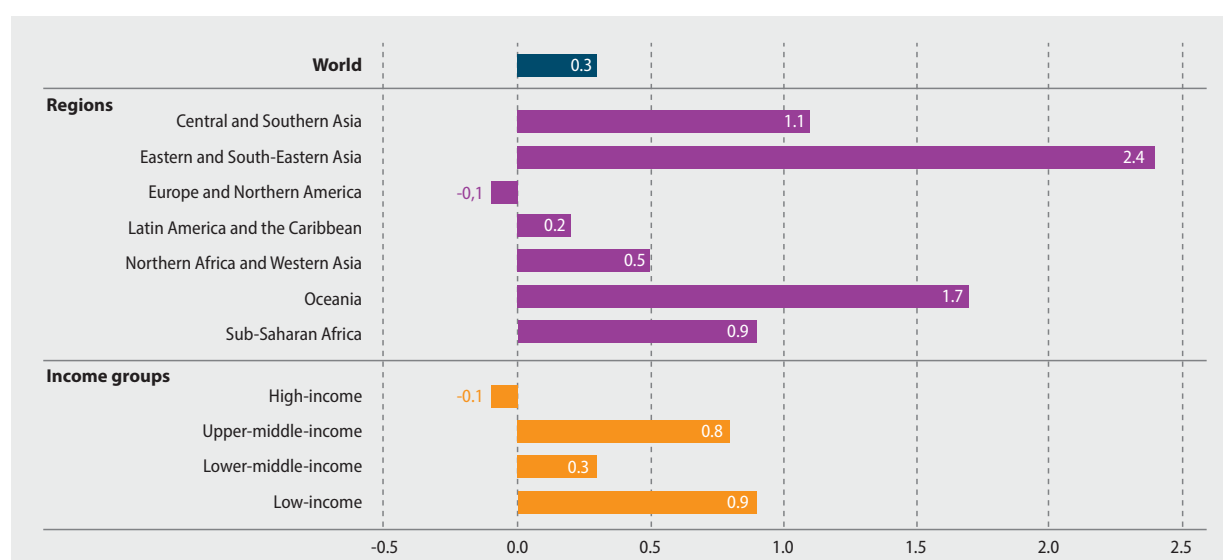
Figure 14

Adjusted net enrolment rate (%) one year before the official primary entry age (2022)

Note: The world average is estimated using both submitted and imputed data. Data for Eastern and South-Eastern Asia are from 2013 and for sub-Saharan Africa, data are from 2021. Data for upper-middle-income countries are from 2020 and from 2021 for low-income countries.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at <http://sdg4-data.uis.unesco.org/>

Figure 15

Annual growth rate (%) of adjusted net enrolment one year before the official primary entry age from 2010 to 2022

Note: The world average is estimated using both submitted and imputed data. The first data point for Central and Southern Asia is from 2013. The second data point for Eastern and South-Eastern Asia is from 2013, for sub-Saharan Africa it is from 2021, and for upper-middle-income countries it is from 2020.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at <http://sdg4-data.uis.unesco.org/>



Children who attend early childhood education programmes are more likely to be on track for development

The largest increase is observed in Eastern and South-Eastern Asia, where enrolment grew 2.4 percentage points. Upper-middle-income and low-income countries saw increases of 0.8 and 0.9 percentage points, respectively. However, net enrolments in Europe and Northern America and in high-income countries decreased by 0.1% since 2010.

This slow progress, along with the further challenges created by the COVID-19 pandemic, has put the world off track to achieving global SDG 4 targets by 2030. These targets are, regrettably, no longer attainable by the original deadline. To address this setback, a national benchmarking process was established in 2021 for countries to establish targets on selected SDG 4 indicators that are more realistic, if still ambitious (UNESCO-UIS, 2022). About 90% of countries established such benchmarks, or national targets, to be achieved by 2025 and 2030 for seven SDG 4 benchmarking indicators. Participation rate in one year of organized learning before entry to primary school is one of these seven indicators. Under the established national benchmarks, countries are expected to increase the participation rate in one year of organized learning prior to primary school entry from 71% in 2020 to 85% by 2030, instead of aiming for a 100% universal rate.

That parents have high demand for child care services and pre-primary education programmes is often reflected in the over-enrolment in primary school of children below the primary school entry age (Crouch et al., 2019). However, few countries support that demand by making child care and pre-primary education universally available and/or free to access.



This slow progress, along with the further challenges created by the COVID-19 pandemic, has put the world off track to achieving global SDG 4 targets by 2030.

Despite the clear benefits of investing in ECCE, the World Bank estimated using simulation models that about 72% of all children below the age of 3 with working mothers, representing about 150 million children worldwide based on 2018 population figures, needed child care but did not have access to it. For working mothers with children aged 3 to the start of primary school, 52% of children needed child care or pre-school but did not have access to it, representing about 198 million children worldwide based on 2018 population figures. This disproportionately impacts families in low- and lower-middle-income countries, where nearly eight out of ten children need child care but do not have access (Devercelli and Beaton-Day, 2020).

According to the ILO, few countries have a statutory child care service system for children aged 0 and the start of primary education. (International Labour Organization, 2022).⁶ A statutory child care service system refers to publicly organized child care services where the government provides nationwide regulation and funding. If the service is available at the subnational level and overseen by the central government, the country is considered to have a national child care service system. Out of 178 countries responding to a survey, 105 countries have a statutory provision for pre-primary education services for children between 3 years of age and the start of primary education, while only 57 countries have a statutory provision for early childhood educational development programmes for children aged from 0 to less than 3 years. Of the countries with statutory child care service systems, pre-primary education services are universal and free in 63 (out of 105) countries, while early childhood educational development services for children younger than 3 are universal and free for 21 (out of 57) countries.

Of the countries surveyed, parents are entitled to use publicly organized child care services right after the birth of their child in only 32 countries. Moreover, an entitlement to full-time services, that is, 40 hours per week, is only available in 33 countries for children over 3 years of age and 30 countries for children younger than 3 years. Unsurprisingly, countries that have these statutory provisions are mostly high-income countries (Figure 16). Parents who live in a country without a statutory provision for child care as a universal right,

⁶ Data reported by the International Labor Organization is based on findings from a legal survey of 185 countries.

or in which the provision does not align with their needs in terms of age of the child or hours per week, are less likely to enrol their child(ren). Thus, even where strong policies are present, access to child care services often has low coverage or long waiting lists (Devercelli and Beaton-Day, 2020; Sanfelice, 2018; Cattan et al., 2016).

Providing ECCE of good quality is significantly endangered by the fact that there is a massive labour shortage in the ECCE sector. Using a caregiver-to-child ratio of 1:5 for children below 3 years of age and 1:15 for children aged 3 to primary school entry, the World Bank estimated that there is a current global

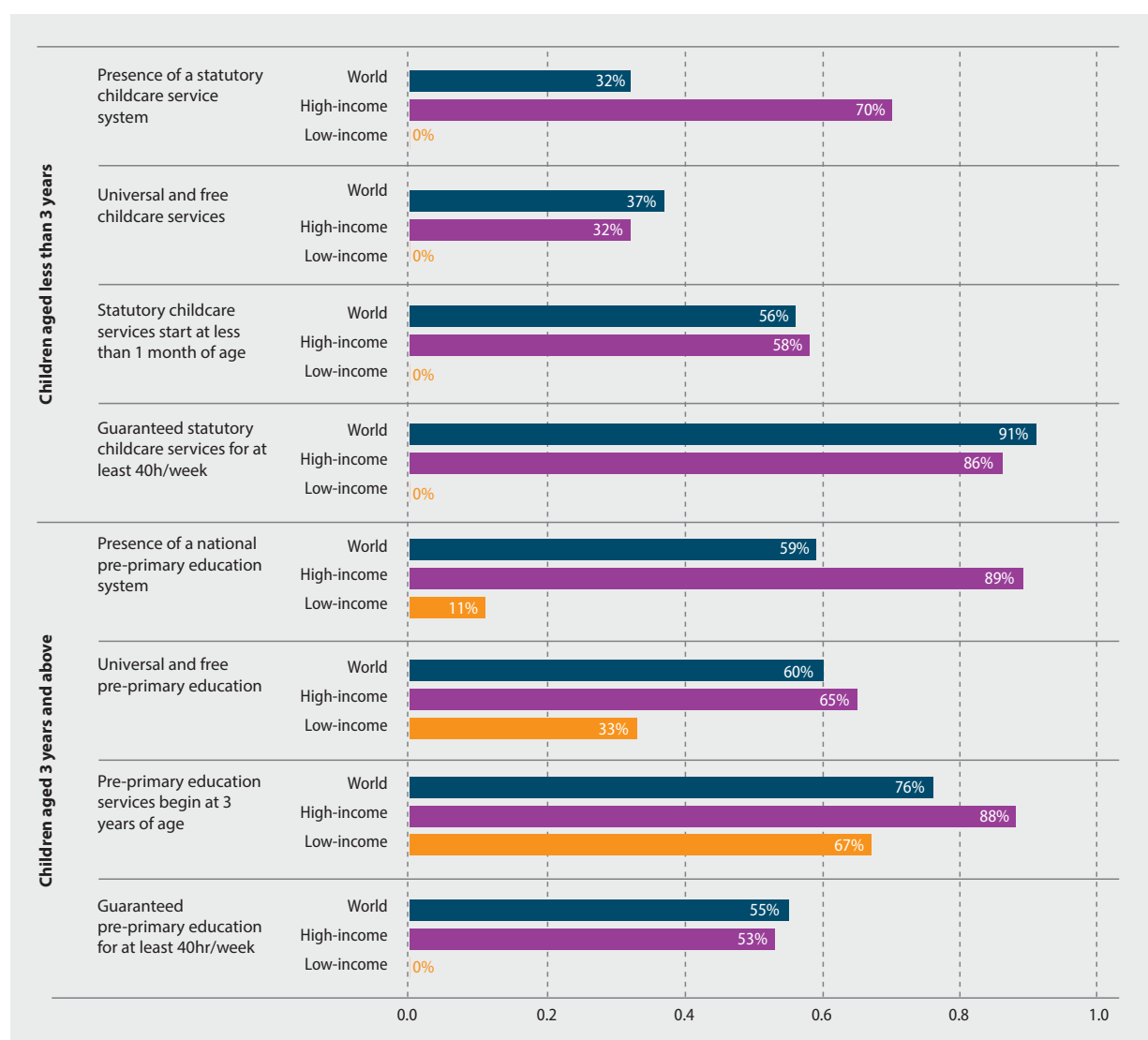
need for 43 million more child care workers (Devercelli and Beaton-Day, 2020).

Expanding the child care workforce could thus create 43 million more jobs globally, including new small business opportunities for setting up centre- or home-based services to meet community needs.

Access to child care and pre-primary education services also promotes parents' participation in the labour force, particularly for women (Devercelli and Beaton-Day, 2020). For example, there is a strong and positive correlation between the employment-to-population

Figure 16

Proportion of countries (%) that have a statutory child care service system (2022)



Data Source: International Labour Organization, 2023, Global Care Policy Portal. Available at: <https://www.ilo.org/globalcare/?language=en#home>

ratio of women with young children and the number of children enrolled in child care programmes for children aged between 0 and 3 years (International Labour Organization, 2022). Investments in ECCE services could increase women's employment rate from a global average of 46.2% in 2019 to 56.5% by 2035 and reduce the global gender gap in monthly earnings from 20.1% in 2019 to 8.0% in 2035 (International

Labour Organization, 2023). Furthermore, provision of child care and pre-primary education services has been found to improve quality employment and business productivity because it reduces turnover and absenteeism, increases retention and enhances job satisfaction. Together, these changes increase government tax revenues and boost social security (International Labour Organization, 2022).

Neighbourhoods and communities affect early learning experiences

In our ECCE policy ecosystem framework, after the home environment and child care and pre-school services, neighbourhoods and communities exert the next levels of influence on children's learning and development.

New research exploring the impact of the local environment on children's developmental outcomes calls for government attention. Evidence shows that when the quality of the local environment is poor – whether unsafe, unsupportive or polluted – children's early learning and well-being are affected.

In some parts of the world, many communities still lack access to safe drinking water, sanitation and basic hygiene services (WASH). As of 2022, over 2.2 billion people (about 25%) globally remain without safe drinking water. Among them, 703 million are still in need of basic drinking water services, of whom half live in sub-Saharan Africa and about 20% live in Central and Southern Asia. In addition, 3.5 billion people worldwide (40%) still lack safely managed sanitation, while 2 billion people lack basic hygiene services. Poor drinking water, sanitation and hygiene services may cause diarrheal diseases which can lead to severe consequences for children's developmental outcomes, and can even cause death. Every day, over 1,000 children die before reaching their fifth birthday because of unsafe water. Despite recent progress, a drastic acceleration in current rates of progress is needed to achieve universal coverage of safely managed water, safely managed sanitation and basic hygiene services (UNICEF, 2023d).

Geography also affects access to and quality of learning opportunities. More and more people are moving to

cities looking for better economic opportunities, and it is estimated that 60% of the world's population will live in urban areas by 2030 (United Nations, 2018). To explore the impact of urban environments on early development during children's first 2,000 days, one study synthesized findings from 235 articles across 41 countries. The authors found that key areas of concern for children's growth and development include air pollution, lack of green spaces and social isolation in urban settings. One of the most investigated concerns was air pollution. Exposure to pollutants like particulate matter and toxins emitted from vehicles and industry can lead to respiratory problems such as asthma and have long-term consequences on neurological development. Lack of access to parks, gardens and natural surroundings can deprive young children of crucial sensory experiences and opportunities for exploration, which impacts physical and cognitive development. The research also showed that families living in urban areas may face social isolation and have limited community support, which often leaves parents and caregivers feeling disconnected and overwhelmed, lacking vital support networks. The authors also noted a lack of research in the global South, a lack of longitudinal studies, and a lack of research exploring the impact of urban settings on children's mental health and well-being (McIntyre et al., 2023).

The impact that neighbourhoods and communities have on children's early development inspires many ECCE intervention programmes as well as advocacy and awareness-raising initiatives to be implemented at community level. Leveraging community resources is crucial for successful and sustainable implementation, scale-ups and cost reductions in programmes (Richter et al., 2017; Akyeampong et al., 2023).

There are two meta-narratives around community engagement (Brunton et al., 2017). One takes a utilitarian perspective, whereby community engagement is thought to help the intervention or programme become more acceptable and appropriate to the community and therefore result in improved service use and outcomes. The World Health Organization and UNICEF (2023) put a spotlight on the integration of ECCE programmes, especially those for children aged from 0 to 3, into existing health and social services where communities play a crucial role in service delivery and quality assurance. Building an ECCE programme on the basis of an existing community service can be cost-effective and more acceptable for community members.

The other meta-narrative looks at community engagement through a social justice perspective, which aims at the empowerment and development of the community itself. Evidence shows that community norms, particularly in health care and integrated health



Neighbourhoods and communities hold much potential that remains to be discovered in terms of providing learning spaces for children.

care, can act as a barrier to the uptake of key health services for mothers and infants in the perinatal period (Richardson, Olsson and Richardson, in preparation). ECCE awareness-raising initiatives that aim to empower the community to take action are thus crucial to the uptake of interventions as well as the sustainability of their impact. **Box 3** demonstrates how a social justice lens and community action can improve the learning and development outcomes of disadvantaged and vulnerable children living in rural China.

Box 3

One Village One Preschool (China)

In 2015, it was estimated that about 50 million children in China between the ages of 0 and 6 lived in rural areas. Many of these are 'left-behind' children, whose parents have moved to larger cities due to the lack of economic opportunities in rural villages. The absence of their parents and unavailability of public ECCE services makes children living in these underdeveloped rural areas vulnerable to psychological and behavioural problems. For example, data from 2009 suggested that the cognitive development of children aged between 3 and 6 living in poverty-stricken rural areas was less than 60% of that of children of the same age living in urban areas, while their level of language development was about 40% of that of children living in urban areas. According to 2017 national census data, although there are 590,000 rural villages in China, pre-schools are available in only 190,000 villages. The lack of ECCE services at village level deprived left-behind children, disadvantaged children and children with limited family financial capability of early learning opportunities foundational for school readiness.

In response to this challenge, the China Development Research Foundation established the One Village One Pre-school pilot project in cooperation with local governments where neither public nor private services could be easily available in most villages. Existing buildings such as empty schools and community buildings were renovated. Graduates of early childhood education programmes from local junior colleges and vocational schools were recruited as pre-school teachers, which increased stability in the teaching workforce. The China Development Research Foundation was responsible for fundraising, paying pre-school operating expenses and supporting communities to develop local curricula based on the Ministry of Education's guidelines for children aged 3 to 6 years. Local governments were responsible for hiring teachers, investing funds to renovate and adapt empty buildings to meet pre-school requirements, teacher training and other professional development activities.

The programme was designed using multi-generational poverty alleviation strategies to target vulnerable and disadvantaged groups of children, and enrolment was free of charge for most families. In 2018, in the original 13 pilot counties, the programme reached 40.4% of left-behind children not accompanied by their parents, 20.5% of children from targeted poverty alleviation families and 9.1% of children from single-parent families.

Since the programme began in 2010, it has been implemented in 33 counties in 13 provinces, benefiting more than 300,000 children, with gross enrolment rates in pre-primary education reaching over 95% in some areas. More importantly, gaps in cognitive, language and social-emotional development between rural and urban children have narrowed between 11% and 24%. The One Village One Preschool project has been scaled up to more rural areas and has been successfully translated into policies in several provinces. The current focus is to explore models for improving the quality of these pre-schools.

Source: China Development Research Foundation, 2024, One Village One Preschool. Available at: <https://cdrf-en.cdrf.org.cn/scyey/index.htm>

Neighbourhoods and communities hold much potential that remains to be discovered in terms of providing learning spaces for children. For example, many intervention programmes take place in playgrounds, museums and libraries. These community-based learning opportunities are shown to be effective when both materials and guidance on how to use the materials are available (Richardson, Olsson and Richardson, in preparation). However, a gap remains in our understanding about how to make these

services more family-friendly. For example, play corners or playboxes could be used by health care workers to model responsive caregiving behaviours, while at the same time providing care for caregivers. Finally, it is well established that children need to spend more time outdoors and in nature to cultivate their awareness and responsibility for the environment; we explore how children develop the capacities for sustainable development in **Appendix 6**.

Societies and cultures influence children's learning and development

Children's development is influenced by the broader social, cultural and political environment in which they grow up, but research often neglects the impact of macro-level factors at the microsystem level. Macrosystem and microsystem contexts are interlinked and exert powerful effects on children's learning and development.

Macrosystem factors can be experienced through national policies and laws, cultural rituals and routinized practices, as well as opportunity structures. Children may experience these directly in schools, neighbourhoods and the wider community through attitudes and behaviours, as well as indirectly through discriminatory practices and exposure to contexts where opportunities for learning are limited or absent. Structural macrosystem factors can institutionalize discriminatory practices, for example, policies that exclude certain groups of children from access to educational opportunities. Lack of access to quality ECCE settings can amplify the effects of poverty-related macrosystem factors, for example, when parents cannot afford private pre-primary education and public provision is not available (Osher et al., 2020).

A recent study from the United States explored the effects of racism on children's development. Although the research explored the effects of racism as it applies to the context of the United States, the findings have significance for understanding how exclusionary practices may affect children's developmental outcomes in other contexts. Three forms of discrimination emerged from the review of the research: (1) institutional or structural discrimination (systemic inequities embedded within interconnected social, political and economic systems that have deep historical roots, such as for example discriminatory policies around immigration, housing, education, labour market or health care); (2) cultural discrimination (ideologies grounded in the supremacy of a majority group that is deeply embedded in the language,



santypam/Shutterstock.com*

symbols, media and taken-for-granted assumptions of the larger society, for example, inequities in pre-school or health care access for minority ethnic groups); and (3) interpersonal discrimination (individual experiences in the context of everyday social interactions in the form of implicit biases or microaggressions, such as experiences of unfair treatment at school, harassments, insults or mistreatment). The authors concluded that exposure to discrimination early in life constitutes adverse early childhood experiences that undermine healthy development (Shonkoff et al., 2021). In **Appendix 7**, we briefly explore what the evidence shows about ways in which adverse childhood experiences affect learning and development and the kinds of public policies that can be enacted to promote resilience in children.

Our understanding of how cultural and political contexts influence development is limited by the fact that most developmental science research has been carried out with the participation of children growing up in high-income countries, mostly in Europe and Northern America (Nielsen et al., 2017). For example, parenting beliefs and styles vary across cultures,

and there are qualitative differences in how families engage in learning-related activities based on social position and cultural values. In the United States, for instance, children from higher-income backgrounds tend to have more opportunities to hear school-aligned maths language at home (Hanner et al., 2019), thereby enhancing school readiness skills. More research is needed globally to understand culturally specific behaviours and values that support early learning in diverse families (Cuartas et al., 2023; Eason et al., 2022).



Exposure to adverse experiences in early childhood undermines healthy development and learning outcomes, affecting vulnerable and disadvantaged children the most.

Conclusion

The environments that children first encounter have an enormous influence on how and whether they develop and succeed. At present, children who face disadvantage in these environments are also starting from a disadvantage as they begin their learning journeys. Increasing the support they receive, in the home and in child care settings, in communities and in society as a whole, can bolster their development, improve their school readiness, and help to put them (and the world) back on track to meet the ambitions of the 2030 Agenda.

These early environments are where children begin to learn the foundational skills on which their later learning will depend. In the following chapter, we discuss the ways in which a holistic, multidisciplinary understanding of early learning and development can help to build those foundational skills and thereby improve school readiness.



CHAPTER 3

How do children develop and learn? Promoting ECCE for improving school readiness and foundational learning

Highlights

01

A multidisciplinary and science-based understanding of learning and development can help improve the relevance and quality of ECCE curricula and pedagogy.

Early language experience is fundamental for literacy development.

- ▶ Caregivers play an important role in their children's language and literacy development, facilitating learning through social interactions, conversational turn-taking, and enriching children's language environment with complex vocabulary, grammar and the social-cultural nuances of the language.

02

The early years are important for building foundational numeracy skills.

- ▶ Caregivers and educators play a key role in developing positive attitudes to maths learning by creating a supportive environment that encourages numeracy activities and diminishes anxiety around maths.

03

Early learning activities at home and in child care settings enhance learning of foundational skills.

- ▶ Children with opportunities to engage in early literacy activities tend to be better prepared for primary school and are more likely to have higher reading achievement at age 10.
- ▶ Participating in organized learning one year before the official age of entry to primary school positively affects reading achievement in Grade 2 or 3.

04

Children with disabilities must also have access to early learning opportunities.

- ▶ Among children aged 0 to 4 years, an estimated 4% have difficulties in one or more functional domains.
- ▶ Children with disabilities are 25% less likely to attend early childhood education.

05

Self-regulation and executive functions are critical for learning.

- ▶ Reading and maths learning are complex processes that build on many interrelated cognitive and social-emotional skills.
- ▶ Executive functions are interdependent with reading and maths learning, and children with stronger executive functions show faster growth in literacy and numeracy over time.
- ▶ Social and emotional skills are just as foundational to learning as cognitive skills and can be developed in early childhood through play-based learning.
- ▶ Supporting executive functions development in early childhood can help prepare at-risk children for learning in school.

One of the guiding principles and strategies adopted in the Tashkent Declaration for the urgent transformation of ECCE is the importance of improving the relevance and quality of ECCE curricula and pedagogy:

Improve the relevance and quality of ECCE curricula and pedagogy: Given the importance of ECCE in laying the foundations for flourishing lives and societies, ECCE curricula and pedagogy should build on local knowledge to develop child-centred, play-based, fully inclusive, and environmentally and gender-responsive learning approaches that affirm multilingual education and the promotion of mother tongue language of instruction. Curricula and pedagogy should be informed by the latest developments in science and culture on how children develop and learn (UNESCO, 2022d, p. 2).

An understanding of how children learn, develop and interact with the different actors in their environments can be leveraged to inform the design of more relevant and effective age-appropriate and child-centred curricula and pedagogies. Having a scientific foundation is also important because, as new research emerges, our understanding of human learning expands, thus enabling more effective educational policies and practices to be shaped (Darling-Hammond et al., 2020).

Most recently, neuroscientific evidence is being used to make a strong case for investing in ECCE (Center on the Developing Child at Harvard University, 2016). This evidence clearly shows how developing brain architecture is strongly influenced by early experiences, thus making the early years of life a period of both great opportunity and great vulnerability for human development.

But neuroscientific evidence on its own cannot be easily translated into educational policies and practices. The consolidation of all scientific evidence from the diverse disciplines that study learning, which include education, linguistics, developmental psychology, cognitive science, behavioural science, biology, sociology and anthropology, as well as the neurosciences, is important to understanding the processes of human learning (Lim, 2016).

In this chapter, we use a scientific lens to explore ways to support children's early learning and well-being. We begin by presenting new research exploring children's early learning environments and later academic achievement. Secondly, we discuss the acquisition of foundational skills including language, literacy and numeracy skills, and the ways in which positive early learning environments can nurture these skills. Following this, we highlight the critical processes of self-regulation and executive functions, which form the basis of all learning.

Understanding how children learn and develop can inform the design of more effective strategies

The scientific evidence drawn from research makes a strong case for the importance of providing children with quality learning opportunities for fostering development of early literacy, numeracy and social-emotional skills that are foundational for school readiness.

Caregivers and educators are pivotal in shaping children's emerging literacy and maths skills, as well as the attitudes, values and beliefs that are critical for school achievement.

Understanding how early literacy, numeracy and social-emotional skills develop and how to foster

these skills through a supportive ECCE ecosystem has important implications for improving policies and practices in curriculum and pedagogy. For example, efforts to improve curricula can leverage what the science says about how children develop language and numerical cognition and how to better target the specific sub-skills important for advancing

to more complex mathematics and reading skills. This understanding can inform the design of more effective age-appropriate pedagogies, with potentially significant effects for improving the learning of vulnerable children or those at risk of developmental delays. Importantly, leveraging a scientific understanding of how children learn and develop can improve the formulation of policies and programmes for more effective pedagogical approaches. **Box 4** below illustrates how Ghana implemented a child-

centred and play-based curriculum in early childhood education based on the science of early learning showing the benefit of play-based approaches. The new play-based approach showed positive effects on children's literacy, numeracy and social-emotional skills development. Another evidence-backed feature of the intervention is the teacher training model, which uses continuous assessment of children's developmental milestones to support the early identification of at-risk learners.

Early language experience is fundamental for literacy development

Early language experience is fundamental to young children's speech acquisition and later literacy learning. Importantly, infants can learn the patterns of multiple languages simultaneously, and children exposed to two languages acquire both languages at roughly the same rate as children exposed to only one language (Byers-Heinlein and Fennel, 2014).

The rate of individual children's language development is highly variable, but some milestones exist that can help caregivers and educational professionals identify children at risk for language learning difficulties (Visser-Bochane et al., 2020).

Caregivers play an important role in their children's language development, facilitating learning through dynamic social interactions. Research has found that infants and toddlers learn language better from back-and-forth social interactions (Rowe et al., 2023). This engagement is enhanced by child-directed speech, whereby caregivers speak slowly and exaggeratedly to their children, which helps children learn the patterns

of their language (Feldman, 2019; Polka and Ruan, 2021), attracting babies' attention to the subject matter, and thereby aiding word-meaning associations (Rowe and Weisleder, 2020). Differences in the quantity and quality of caregivers' talk with their children is associated with children's language learning (Rowe and Weisleder, 2020). For example, young children whose parents and teachers use a larger proportion of complex sentences also tend to use a larger proportion of complex sentences (Rowe et al., 2023) and children with strong early language skills in infancy tend to also have relatively strong language and literacy skills at age 5 (Vehkavuori et al., 2021).

Differences in linguistic environments between families with different socio-economic backgrounds have been described using the word 'gap', which implies that direct linguistic input from caregivers is reduced in families living in poverty. But importantly, the extent to which parents talk to their children varies both within and across cultures (Cristia, 2023; Mendive et al., 2020; Rowe and Weisleder, 2020; Sperry, Sperry and Miller, 2018).



Caregivers and educators are pivotal in shaping children's emerging literacy and maths skills, as well as the attitudes, values and beliefs that are critical for school achievement.

Box 4**How play-based curricula and pedagogies can enhance the learning of foundational skills (Ghana)**

Ghana has implemented two years of free, compulsory kindergarten for 4- and 5-year-olds in public schools across the country since 2008. Despite impressive gains in access to pre-primary education, equal gains have not yet been achieved in quality. Critically, almost 80% of children in Ghana still do not acquire basic literacy and numeracy skills by the end of primary school (UNESCO, 2022c).

To address these challenges in foundational learning, in 2019 Ghana introduced a new standards-based kindergarten curriculum that spelled out play-based and child-centred pedagogy. The previous curriculum had not explicitly highlighted play-based pedagogy and was delivered in a more traditional teacher-centred and rote-based approach. The National Council for Curriculum and Assessment, an agency under the Ministry of Education, was tasked with developing the new curriculum, supported by a team of local and international practitioners and experts.

Under the new curriculum, a play-based and child-centred approach to learning is promoted. The curriculum includes four main learning areas: Literacy, Numeracy, Creative Arts and Our World/Our People. The curriculum places significant emphasis on the development of literacy skills and includes more learning indicators on this skill than on the other three areas of learning. The curriculum includes daily plans for teachers that suggest ways to organize a class for different types of learning – whole group, small group, indoor play activities or outdoor play activities. This allows for active learning that is child-centred while also promoting the development of social-emotional skills through activities that engage children to work with others, learn to take turns in games or negotiate roles in play. Teachers are also provided with examples for how to set up learning and activity centres around the classroom (e.g. shopping centre, construction centre, book centre, etc.) that encourage imaginative and pretend play. These centres allow children to choose activities of interest in which they can engage with their peers or play as an individual.

While this detailed play-based kindergarten curriculum is now in place in Ghana, the vast majority of teachers still lack training in this play-based pedagogy, and therefore have not yet been able either to transform their classrooms into play-based learning environments or to transition to positive behaviour management approaches. To address the skills shortage, the Ministry of Education partnered with Sabre Education to implement and assess a teacher training intervention on the new play-based curriculum and pedagogy.

The training model was implemented across three terms of one academic year. The training workshops delivered to teachers move beyond theory to exposing teachers to what play-based learning feels like: they experience play-based activities themselves. This deepens teachers' understanding and interest in enacting play-based learning in their own classrooms. The training also highlights for teachers the impact of a positive learning environment on child development and the negative effects of corporal punishment (which traditionally has included the use of the cane). Teachers are provided with specific examples of positive behaviour management techniques and are given opportunities to role-play them with their fellow teachers in the training workshops. The training also supports teachers to make low-cost or no-cost Teaching & Learning Materials (TLMs) out of local items for their classrooms.

Importantly, teachers are also trained in how to assess each child's developmental progress across five foundational skill areas: Oral Language (e.g. the child can express his/her feelings and ideas), Early Reading (e.g. the child listens to stories and is able to respond to basic questions such as Where? When? and Who?), Writing (e.g. the child is beginning to write letters of the alphabet such as their own name without copying), Numeracy (e.g. the child can classify objects and count the number in each category) and Psychosocial Skills (e.g. the child works and plays well with others in a group and mostly follows rules of the games). Each child's development is assessed throughout the year by the teacher on a continuum from "Developing" to "Achieved" to "Mastered", replacing an end of year exam for kindergarten children.

The Sabre teacher training model was implemented across all public kindergarten schools in six districts in Ghana's Eastern Region. A recent independent evaluation of the teachers who were trained to implement the play-based curriculum shows impressive results:

- 75% of learners in intervention schools achieved target numeracy and literacy skills compared to 27% (numeracy) and 41% (literacy) in non-intervention schools
- 71% of learners in intervention schools had developed their psychosocial skills appropriately compared to 50% in non-intervention schools
- 71% of teachers in intervention schools performed considerably better than 39% of teachers in non-intervention schools in seven core areas (planning, teaching methodology, learner engagement and attitude, assessing learning and attainment, classroom/behaviour management, learning environment and teacher attitude).

The Ministry of Education now aims to scale this evidenced-based approach and play-based training model to all 48,000 public school kindergarten teachers nationwide, across all 261 districts, starting in 2024–2025. To make this ambition a reality, Sabre Education is partnering with Right To Play and Innovations for Poverty Action in providing technical assistance to the government. This scale plan is expected to transform learning outcomes for 1.2 million kindergarten children across the country, supporting Ghana to accelerate achievement of SDG Target 4.2.

Source: Sabre Education. <https://sabre.education/>

For example, parents in a farming community in Mexico infrequently spoke directly to their infants, yet the children did not show delays in learning language according to milestones developed based on children in higher-income countries (Casillas et al., 2019). For this reason, experts have argued that the scope of language assessments should be broadened to include language skills that are valued in different cultures (Harkness and Super, 2020).

The quantity of words spoken to a child is just one limited indicator of early language exposure that does not capture the full complexity of a child's environment. It is important to note that assessing the quality of linguistic input involves value judgements and research in this area has historically compared the linguistic environments of marginalized families to those of families from higher socio-economic backgrounds (Figueroa, 2023). Most research on language acquisition has been done in relatively wealthy, educated English-speaking populations and normalizes these cultural practices as standard (Blasi et al., 2022; Nielsen et al., 2017).

One study found that adults with higher education and family income use more conversational turns, and this turn-taking was associated with higher language skills in their children, even when controlling for socio-economic status (Romeo et al., 2018). Another study found that parents from middle to high socio-economic backgrounds talked to their children less when they were more likely to experience financial scarcity (Ellwood-Lowe et al., 2022). This finding suggests that systemic poverty may influence caregivers' capacity to engage in early learning activities with their children, but more research is needed to understand the causal impact. For example, an intervention study in Mexico found that a parent support training group had a larger impact on children's language development when it was combined with a cash transfer programme for families living in poverty than either programme did in isolation (Fernald et al., 2017). Such research suggests that the quality of parents' conversations with their children (a microsystem factor) may mediate the relationship between socio-economic inequality (a macrosystem level factor) and children's language development (Borairi et al., 2021). Hence, family-friendly policies aiming to address socio-economic inequalities can also have indirect effects on children's language learning opportunities. Family-friendly policies and programmes

can support children's language development and enhance parent-child interactions by targeting parental mental health and well-being, as illustrated in **Box 5**.

While children, remarkably, learn language without explicit instruction, they cannot learn to read through exposure alone. **Reading is a complex process that builds on many interrelated cognitive and social-emotional skills.** Children need to learn the visual symbols (graphemes) for representing the sounds (phonemes) of their spoken language (Castles et al., 2018). Phonemic awareness, the ability to identify and manipulate the individual sounds in words, is an important precursor for reading (Ball and Blachman, 1991). Children can then use this foundational knowledge to phonologically decode, or sound out, printed words for themselves (Share, 1995). Children's letter knowledge, phonemic awareness and phonological decoding skills are all related and build on each other (Hulme, Bowyer-Crane, Carroll, Duff and Snowling, 2012). Reading fluency increases as children read more and learn to rapidly and automatically recognize more and more words so that they can access their meaning without decoding the sounds to which the letters refer (Nation and Castles, 2017).

Children who can read fluently have better reading comprehension as they can use their cognitive resources to think about the meaning of words rather than the sounds of the letters. Children with larger vocabularies can read and comprehend more complex texts (Deans for Impact, 2019), and this is an important aspect of language comprehension. Reading comprehension also builds on children's background knowledge of the meaning and structure of words, as well as their general cognitive abilities, such as memory (Perfetti and Stafura, 2014). As children become expert readers, they shift from learning to read to reading to learn, and fluent reading is essential for being able to learn from a variety of texts over the lifespan (Castles et al., 2018).

The basics of learning to read occur within the nurturing context provided by caregivers, who also enrich children's language environment with complex vocabulary, grammar and the social-cultural nuances of the language. Caregivers play a pivotal role in learning to read by exposing children to various texts and varieties of books that are relevant to children's

individual interests (Dickinson and Tabors, 2002; Stanovich and West, 1989). The rich linguistic landscape prepared by caregivers not only aids in the acquisition of reading skills but also cultivates deeper comprehension through a dynamic interplay of social-emotional and cognitive components involved in skilled reading, such as motivation, beliefs and attitudes about reading. Indeed, several studies have reported significant positive effects on children's achievement in literacy (and numeracy) at primary school when they participate in home activities that provide clear learning opportunities, such as reading books, going to the library, playing with numbers, painting and drawing, singing songs, reciting poems or nursery rhymes and learning letters and numbers (Cuartas et al., 2023; LeFevre et al., 2009; Melhuish et al., 2008).

It is important to note that most existing research on literacy development has focused on children learning to read English, and there is still poor understanding of early language and literacy acquisition globally (Bonte et al., 2022). Another important global challenge is that over half of the children around the world learn to read in a language that is not their first language at home, particularly in low- and middle-income countries (McBride et al., 2021), where for historical, cultural and geographical reasons the language of instruction in schools may not be that of conversations at home. Therefore, many children lack experience with the sounds of the languages in which they learn to read (Abadzi, 2016), and it has been well established that children who learn to read in their mother tongue tend to be more successful at applying their skills to learn to read in additional languages (Wawire and Kim, 2018). Therefore, providing minority-language children with access to organized early learning programmes where they can be exposed to the sounds and symbols of the language of instruction can support development of the foundational skills necessary for school readiness.

Early home literacy experiences promote school readiness

As the previous sections have shown, learning begins at home as children start interacting with the people and the environment that surrounds them from birth. To further explore the association of early learning environments with children's foundational learning of literacy skills, UNESCO conducted an empirical analysis using two sets of data.

Box 5 Promoting positive parent-child relationships for literacy skills development (Australia)

Providing children with rich early learning experiences at home can be crucial to the development of their foundational skills, and caregivers' interactions with their children are an imperative here. While parent-child relationships and parenting behaviour can encourage children and provide them with informal learning opportunities, parent stress levels and strained relationships may limit such interactions, and, instead, inhibit opportunities for skill development.

Terrett, White and Spreckley (2012) evaluated the impact of the Parent-Child Mother Goose Program on children's receptive and expressive language skills and on parenting stress levels among 30 children and 29 parents in Melbourne, Australia. The Parent-Child Mother Goose Program is an early intervention programme designed to impact outcomes in terms of children's language skills and social behaviours, by strengthening the parent-child relationship and promoting positive language-based interactions. The 15-week, government-funded programme targeted parents with pre-school-aged children, providing them with centre-based sessions including various activities such as singing, teaching parents how to read to their children, and storytelling. Throughout the sessions, facilitators modelled positive parenting behaviours and led activities aimed at stimulating verbal and physical parent-child interaction, including bouncing their child on their knees and holding their child. Programme impact was measured through the children's auditory comprehension and expressive communication, and parenting stress was measured through parents' perceptions of child demandingness, parents' perceived level of confidence and their perception of their child as a source of positive reinforcement and enjoyment.

Results of the evaluation showed positive relations between the programme and improved child literacy skills, especially expressive communication. Moreover, the results showed a reduction in parenting stress, through a decrease in the parent's perception of their child's demandingness. The opposite relationship was found for a comparison group that did not attend the programme, in which parents perceived child demandingness as increasing.

This study adds to the evidence for the effectiveness of the programme, and suggests the programme works in an Australian context in addition to the Canadian context for which it was originally created and in which it proved effective (Scharfe, 2011). The success of the Parent-Child Mother Goose Program also adds to mounting evidence of the impact that parenting interventions can have on promoting healthy parent-child relationships and, in turn, supporting children's early skills development.

Sources: Scharfe (2011); Terrett, White and Spreckley (2012).

First, the well-established link between children’s home literacy experiences and reading achievement was explored on a global scale using data from the Progress in International Reading Literacy Study (PIRLS) 2021 (Mullis et al., 2023), an internationally comparable assessment of reading achievement at Grade 4, when children are aged 10 on average. This analysis focuses on 54 educational systems that administered a home questionnaire to collect information about students’ home contexts, which included questions related to early home learning environments prior to entering primary school. Two separate home environment scales were constructed from items asking parents whether they enjoyed reading and how often they engaged in early learning activities with their children during the early childhood years. A scale of parents’ evaluation of their child’s ability to do six literacy tasks (recognize most letters of the alphabet; read some words; read sentences; read a story; write letters of the alphabet; and write words other than his/her name) was used as an intermediate outcome capturing their assessment of their child’s school readiness at primary school entry. Reading achievement as assessed by PIRLS at Grade 4 was used as the main outcome measure. A scale for household socio-economic status (SES) was constructed measuring parental education, occupation and the number of books in the home.

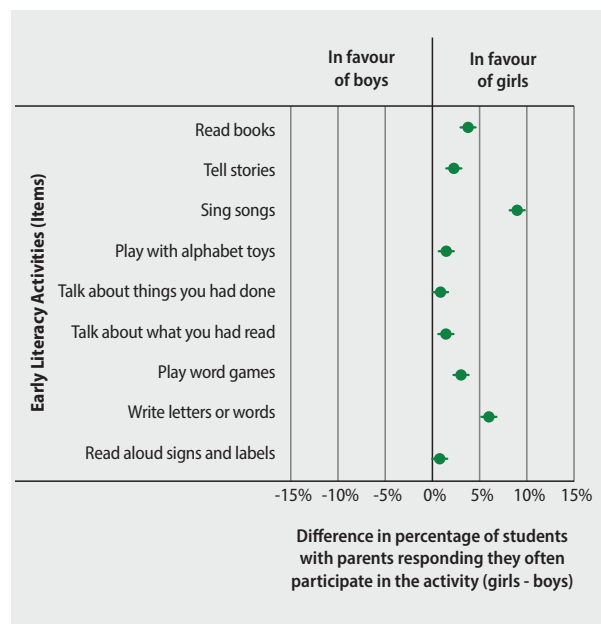
Gender differences in home learning environments were examined by comparing separately for girls and boys the percentages of parents who responded that they often engaged their child in specific learning activities. Results showed that parents reported engaging girls slightly more than boys in literacy activities, and similar patterns were found across all 54 educational systems (Figure 17). This finding coincides with the female advantage observed in children’s reading performance at Grade 4 based on PIRLS 2021 data (Mullis et al., 2023).

Children from lower SES households have fewer early learning opportunities. Results show that parents from lower SES households report engaging their child much less in early learning activities and have much less enjoyment of reading themselves (Figure 18). Consistent patterns are found when examining differences at the item level and for individual education systems.

Finally, the association was examined between early home learning environments and children’s literacy

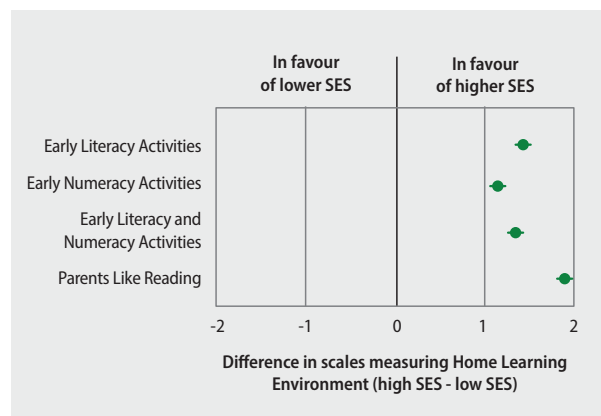
readiness at the beginning of primary school, as well as longer-term reading achievement at Grade 4. **Results indicate that children who were engaged more frequently in early literacy activities at home tend to be equipped with better literacy skills, and so are better prepared for primary school. They are also more likely to show higher reading achievement at Grade 4.**

Figure 17
Gender differences in early home literacy activities



Source: UNESCO and International Association for the Evaluation of Educational Achievement (2023).

Figure 18
Socio-economic differences in early home learning environments

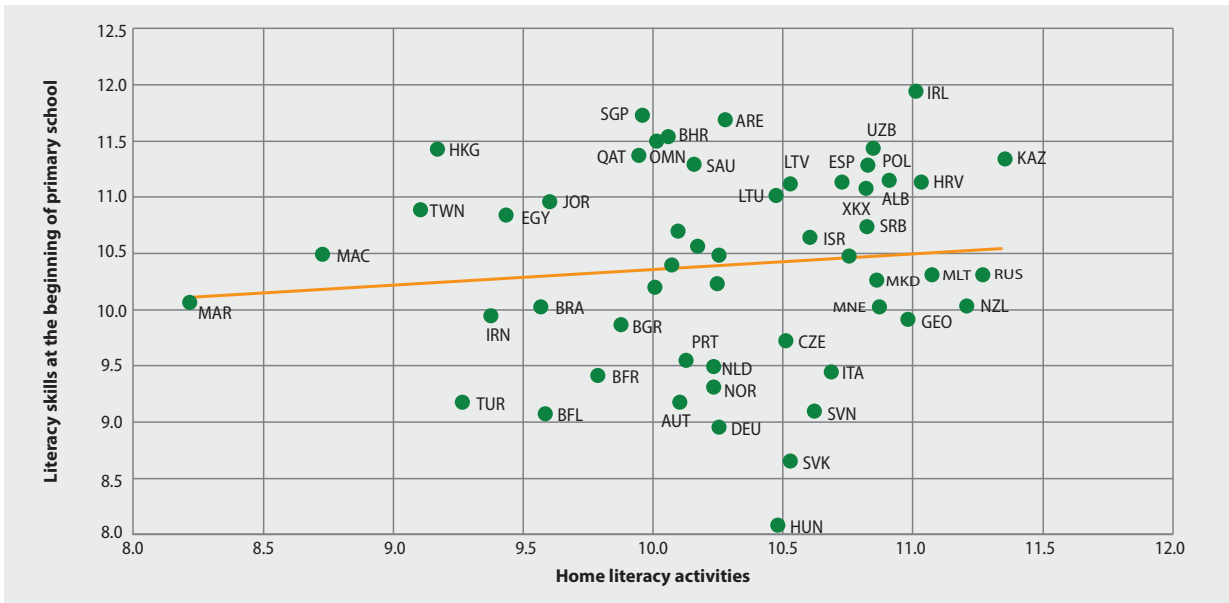


Note: Scales have an international average of 10 and standard deviation of 2.
Source: UNESCO and International Association for the Evaluation of Educational Achievement (2023).

It is important to note that early home literacy activities were measured by a retrospective parental report completed when children were in Grade 4 and that the relationship reported is correlational and should not be interpreted as causal. **Figure 19** and **Figure 20** present country average data and show the same trend.

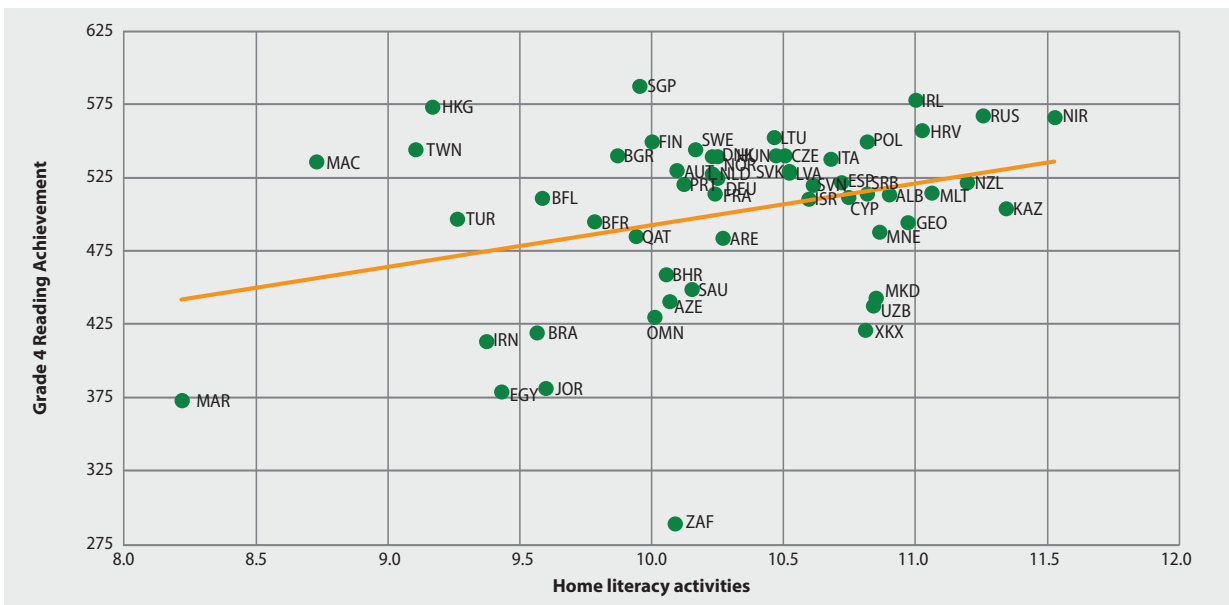
Taken together, the three analyses illustrate that boys, and especially those living in less advantaged households, may be less well prepared in terms of literacy skills needed for primary school, and may be at risk of less optimal reading outcomes in primary school.

Figure 19
Relationship between early home literacy environment and school readiness



Source: UNESCO and International Association for the Evaluation of Educational Achievement (2023).

Figure 20
Relationship between early home literacy environment and reading proficiency at Grade 4



Source: UNESCO and International Association for the Evaluation of Educational Achievement (2023).

Participating in one year of pre-primary education can help address the learning crisis

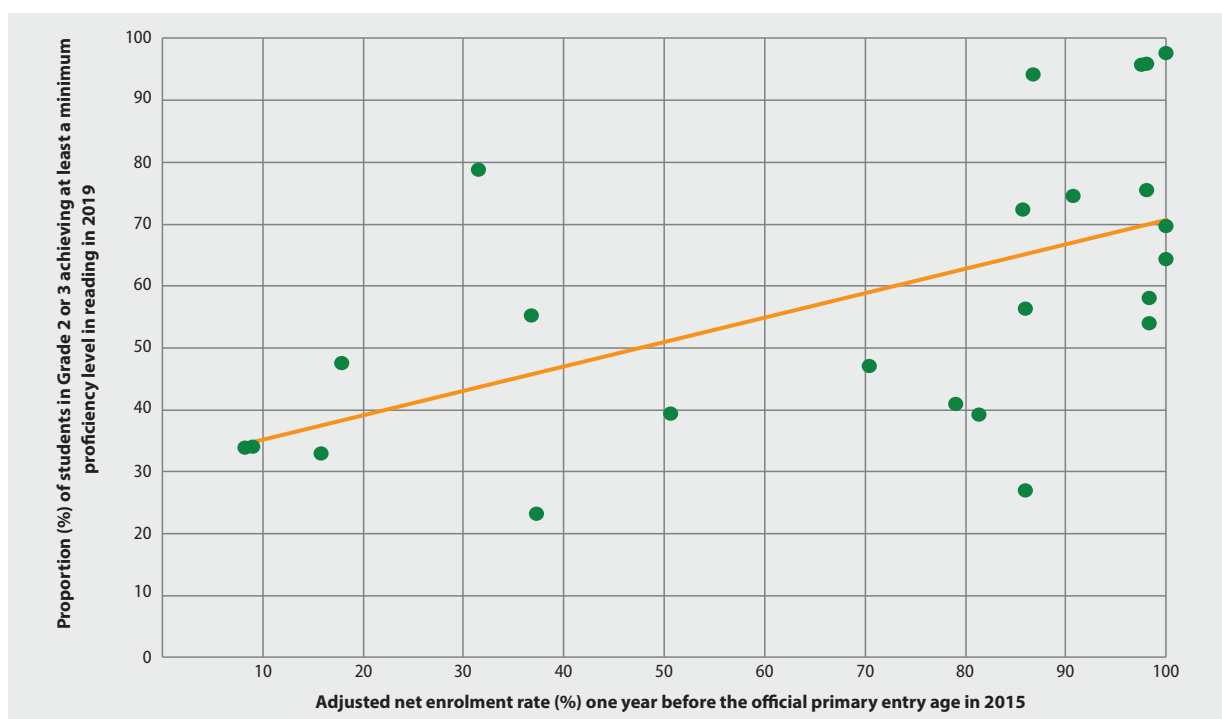
SDG Indicator 4.1.1a measures the proportion of children in Grades 2 or 3 achieving at least the minimum proficiency level in reading and mathematics, while SDG Indicator 4.2.2 measures children’s participation rate in organized learning one year before the official age of entry into primary school. To explore whether participation in pre-primary education would have an effect on children’s learning in primary school, UNESCO conducted a correlation analysis between SDG Indicator 4.2.2 and SDG Indicator 4.1.1a.

Using data from 2015 for SDG Indicator 4.2.2 and from 2019 for SDG Indicator 4.1.1a, we can examine whether participating in organized learning one year before the official age of entry to primary school has an effect on reading achievement in Grade 2 or 3, when children are about 4 years older. Our preliminary analysis shows a moderate positive correlation, indicating that children in countries with lower participation in organized learning one year before official primary school entry age are less likely to achieve the minimum proficiency level in reading (Figure 21).

Children in countries with lower participation in organized learning one year before official primary school entry age are less likely to achieve the minimum proficiency level in reading.

The above analyses empirically demonstrate the important association between access to early learning opportunities, whether at home or in an ECCE setting, and performance in primary school. The analyses also show that early learning opportunities help foster children’s readiness for school – an important factor for the successful transition to primary school.

Figure 21
Correlation between net enrolment in pre-primary and reading proficiency in Grade 2 or 3



Note: Pearson $r=0.57$. Data for SDG Indicator 4.1.1a are from 2015. Data for SDG Indicator 4.2.2 are from 2019.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release September 2023. Available at: <http://sdg4-data.uis.unesco.org/>

Early experiences with numerical concepts are critical for learning maths

Maths learning builds on emerging cognitive and language skills

The early years are important for setting children up with strong foundational skills and positive attitudes for learning maths (Merkley and Ansari, 2018; Purpura et al., 2013). Children who have low numeracy skills at the age of 5 are less likely to do well at maths in high school (Duncan et al., 2007) and to attend post-secondary school (Davis-Kean et al., 2022).

Research in mathematical cognition has shown that the development of maths achievement arises from complex interactions between emerging cognitive skills and early learning experiences (Gilmore, 2023). Babies are born with some intuitive mathematical abilities and their early experiences support the beginnings of mathematical ideas, such as understanding of quantity and shape (Bonte et al., 2022). Mathematics learning is hierarchical and builds on prior knowledge, including basic numerical processes, such as comparing quantities and numbers, ordering numbers and pattern recognition (Gilmore, 2023). Specifically, the ability to compare quantities is a foundational skill important for learning and is associated with mathematics achievement even in adults (Gilmore, 2023).

Although humans have an innate approximate representation of numerical magnitude (Ansari, 2008), children do still need to learn our culturally invented number symbols to succeed in mathematics (Sarnecka, 2021), just as they must learn the symbols that represent sounds to become literate. Knowledge of number symbols is a key competency in the early years that predicts later maths achievement (Merkley and Ansari, 2016; Purpura et al., 2013). By about 2 to 3 years of age, children gradually learn how to represent the exact cardinal values of numbers, and learning how to use counting to represent quantity is key to acquiring the symbolic number system (Geary et al., 2018; Sarnecka, 2021). This learning is supported by early experiences such as counting objects around the home, playing board games that involve counting and seeing multiple representations of numbers (Deans for Impact, 2019). Children in high-income countries tend to reach this milestone between 2 and 4 years old, and children

from lower socio-economic backgrounds in those same countries tend to reach it significantly later, at the age of 4 or older, suggesting that children do not have equal learning opportunities in the early years (Sarnecka, 2021).



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Maths learning in the early years is related to other general cognitive skills, including executive functions, language and spatial thinking (De Smedt, 2022; LeFevre et al., 2010). Intervention studies that target spatial training and instruction have shown improvements on both spatial and mathematics outcomes (Gilligan-Lee et al., 2022). Children's general vocabulary skills are related to their maths abilities (LeFevre et al., 2010), and 3- to 5-year-olds' knowledge of maths-specific vocabulary, including quantitative (e.g. more) and spatial (e.g. far) language, is even more strongly related to their early numeracy skills (Purpura and Reid, 2016).

Children use increasingly sophisticated mathematics strategies as they get older, but their use of

strategies is variable and overlapping (Siegler and Braithwaite, 2017). For example, younger children often use counting-based strategies, such as counting on their fingers. Children's mathematics skills become faster and more accurate as they discover more effective strategies and as they become more fluent at retrieving maths facts from long-term memory (Deans for Impact, 2019). Being able to fluently retrieve maths facts frees up working memory and other cognitive capacity for engaging in higher-level problem solving in maths (Vanderheyden and Peltier, 2023), and this has important implications for designing appropriate pedagogies and classroom strategies for supporting numeracy learning in young children.

Caregivers influence children's attitudes to maths learning

Most research on how children learn maths has been focused on cognitive development, but there is increasing evidence supporting the importance of emotions and the social-cultural context for maths learning (Immordino-Yang et al., 2019). Caregivers' interactions with their children can bridge everyday experiences with mathematical concepts, making maths learning more relatable and meaningful.

Evidence shows that engaging with children around their mathematical thinking is an important aspect of effective maths instruction and requires social relationships (Carpenter et al., 2017). For example, parents' reported frequency of activities such as measuring ingredients, reading counting books and playing board games is related to their children's maths skills (LeFevre et al., 2014). Thus, caregivers' involvement is indispensable, as they are often the first to interact with children in relation to numbers and mathematical concepts, nurturing both interest and understanding from an early age. It should be noted that results of studies investigating relationships between the home learning environment and maths skills globally are inconsistent, likely due to cross-cultural differences in education systems and parental values (Blevins-Knabe et al., 2000; Hornburg et al., 2021; Leyva et al., 2017). For example, one study with Mexican families found that home numeracy activities were significantly related to children's maths skills in families from higher socio-economic backgrounds,

but not in families from relatively lower socio-economic backgrounds (Susperreguy et al., 2021), indicating that while home numeracy activities support later learning, it is also influenced by other factors that need to be considered, such as family wealth.

A more inclusive approach to maths education requires embracing mathematical pluralism and recognizing the contextual and cultural aspects of mathematics (Gutiérrez, 2017; Schoenfeld, 2016), and many have advocated for culturally relevant pedagogy that takes into account students' prior experiences at home (Bonte et al., 2022). Moreover, the way students feel about maths is related to their maths performance. For example, evidence shows that parents' and teachers' attitudes towards maths can influence children's mathematics achievement (Beilock and Maloney, 2015). Research has shown that children tend to do worse at maths when parents who help them with their maths homework are not confident in their own maths abilities or feel anxious about maths (Beilock and Maloney, 2015). Caregivers and teachers can influence these attitudes positively by creating a supportive environment that encourages curiosity and diminishes anxiety around maths. Importantly, current research is showing that there are strong relationships between early achievement and maths anxiety, such that children with stronger foundational skills tend to be less likely to feel negatively towards maths (Song et al., 2021).

Self-regulation and executive functions are critical for learning

One critical skill that children develop in the early years is learning to regulate their emotions and behaviours to help them achieve their learning goals (Posner et al., 2013). This is known as self-regulation and is recognized as fundamental to an individual's functioning, with progress in its development during early childhood predicting later life successes (Montroy et al., 2016).

A qualitative shift in self-regulation is thought to take place in early childhood when children typically progress from reactive or coregulated behaviour to more autonomous cognitive-behavioural forms of self-regulation (e.g. Diamond, 2002; Kopp, 1982). Children first appear able to employ autonomous forms of self-regulation (such as avoiding distractions) between 2 and 3 years of age (Stern et al., 2018), with a rapid exponential growth of self-regulation strategies emerging during pre-school (Montroy et al., 2016). It should be noted that development of self-regulation is a complex process and not yet fully understood (McClelland et al., 2015).

Caregivers are instrumental in mediating and scaffolding children's development of self-regulation (Brophy-Herb et al., 2012; Immordino-Yang et al., 2019; Julian et al., 2019). In the very early years, parental responsiveness is important for promoting infant self-regulation in terms of self-soothing and sleep. As children develop, parental involvement, positive and proactive parenting and low negativity are important for supporting young children's self-regulation and forming positive child-caregiver relationships (Dosman and Andrews, 2012; Morawska et al., 2019). For example, research shows that pre-school-aged children experiencing harsh parenting have decreased levels of self-regulation in primary school (Altenburger, 2022).

Educators have access to a diverse range of possible approaches to developing self-regulation in the early years (Montoya et al., 2023; Pyle et al., 2022) and there is evidence that self-regulation abilities are malleable. Two promising approaches are teaching-based. Studies of pre-schoolers in the United States show increases in self-regulation after active play (Becker et al., 2014) and structured play (Barnett et al., 2008). A recent study in Germany showed improvements in the self-

regulation of 6- to 7-year-olds after they received a specially designed teaching unit (five hours over five weeks) using an illustrated storybook with goals set by the teachers and by the students themselves.

Self-regulation and executive functions are related, and self-regulation skills emerge from executive functions (Barkley, 2001; Diamond, 2013). Executive functions are cognitive skills that refer broadly to the processes needed to regulate attention, emotions and behaviour, and their development is influenced by cultural and contextual factors (Obradović and Willoughby, 2019; Raver and Blair, 2020). Note that the terms executive functions and self-regulation have different meanings across different fields and are often used interchangeably, which can lead to confusion (Nigg, 2017). Executive functions grow most rapidly in early childhood but continue to develop into early adulthood (Zelazo et al., 2016) and are associated with academic achievement across the lifespan (e.g. Cragg and Gilmore, 2014; Peng and Kievit, 2020). There is some evidence that executive functions develop with practice and gains in executive functions have been observed after activities such as sports and arts (Diamond and Ling, 2019; Takacs and Kassai, 2019).

Executive functions are interdependent with literacy and numeracy, and children with stronger executive functions in early childhood show faster growth in literacy and numeracy over time (e.g. Cragg and Gilmore, 2014; Peng and Kievit, 2020). Development is bidirectional: while executive functions influence the rate of academic learning, academic instruction has a positive influence on the development of executive functions. Research in low- and middle-income countries and with children from low socio-economic backgrounds suggests that executive function skills may serve as a protective factor, as children who start school with higher executive functions tend to have higher academic performance (e.g. Obradović et al., 2019). Furthermore, the largest benefits from executive function interventions have typically been seen in children from lower socio-economic backgrounds who may have experienced adversity and where development of executive functions has been impaired by environmental stressors (e.g. Diamond and Ling, 2019).

Supporting the development of executive functions in early childhood, therefore, could help prepare at-risk children for learning in school. How executive functions are affected by adverse childhood experiences is covered in more detail in **Appendix 7**.⁷

Developing strong self-regulation and executive function skills is an important aspect of social-emotional learning (SEL). SEL refers to learning skills, such as managing emotions and developing positive relationships, that are related to motivation and academic achievement (Immordino-Yang et al., 2019). SEL is a broad term that encompasses a variety of concepts, and one review identified over 100 different frameworks for categorizing social-emotional skills (Berg et al., 2017). Creating environments where children feel safe and supported and have a sense of belonging is essential for children's social-emotional development (Gotlieb et al., 2022). Importantly, SEL skills can be taught, which is why there has been a growing emphasis on SEL in schools. In early childhood, much of this SEL happens through play, as children learn how to engage with other people, take turns and play cooperatively (Golinkoff and Hirsh-Pasek, 2009). **Box 6** illustrates how a play-based learning approach can support the development of children's emerging cognitive and social-emotional skills needed for school readiness (Zosh et al., 2022).

While the terminology used varies, there is scientific consensus that social and emotional skills are just as foundational to learning as are cognitive skills (Steponavičius et al., 2023), and social-emotional skills are seen as precursors for setting strong foundations for learning literacy and numeracy, as well as building children's confidence in their own learning abilities. Self-regulation, executive functions and social-emotional skills are among the most foundational skills that a child can develop, in a world where focus, persistence and self-discipline may provide the critical building blocks for long-term success, both in education and in society as a whole.

Recognizing the importance of play, the 78th session of the United Nations General Assembly adopted an official resolution to establish an International Day of Play to be celebrated annually on 11 June. Beyond the benefits of play for children's learning and well-being, play is acknowledged as a vital component of human development, contributing to holistic growth for individuals and serving as a universal language that transcends age, culture and social barriers.

Executive functions are interdependent with literacy and numeracy development.



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⁷ For a more comprehensive review of literacy and numeracy development in the early years, see Merkle (forthcoming) and for development of self-regulation and social-emotional skills, see Howard-Jones (forthcoming).



Social and emotional skills are just as foundational to learning as are cognitive skills and are precursors for emerging literacy and numeracy skills.

Box 6

Learning through play for improving child development outcomes

Quality ECCE means children should have responsive and supportive relationships with the adults around them, as well as a learning environment where they can play and explore.

The evidence keeps mounting that play is the best way for children to learn. An evidence-based review commissioned by The LEGO Foundation identified more than 300 studies from around the world supporting a link between learning through play and the development of cognitive, social, emotional, physical and creative skills (Zosh et al., 2022). Five key characteristics of effective learning through play were identified:

- **Joyful** – creating space for exploration, surprise and discovery
- **Meaningful** – basing activities in familiar situations that children care about
- **Actively engaging** – involving ‘minds-on’ thinking
- **Iterative** – allowing children to try things out, take them apart and try again
- **Social** – involving interaction with others.

When play includes these characteristics, deep and long-lasting learning can result (Zosh et al., 2017). A game of peek-a-boo can support toddlers’ social and emergent language skills development while strengthening the bonds and positive relationship with a caregiver. In pretend play, children imagine themselves in different roles, establish rules and follow them, learning how to be social and strengthening executive functions. By engaging playfully with the world, a child gains skills and knowledge they can apply in real life and lay a foundation for learning, while also having fun (UNICEF, 2018). Joyful engagement helps a child build their own intrinsic motivation, which is a powerful engine for learning.

Evidence shows that playful learning has a positive impact on child development outcomes. For example, a study in Bangladesh showed that children participating in a play-based intervention outperformed a control group of children on measures of communication, gross motor, fine motor, problem solving and personal-social skills, making them more prepared for formal schooling. The play-based intervention supported disadvantaged children in catching up to their more advanced peers, showing potential to narrow the learning gap for vulnerable children (BRAC, 2021b).

Learning through play is not a one-size-fits-all solution, and it is important that curricula and pedagogy build on local knowledge and engage with parents and caregivers. This is because the definition of ‘learning through play’ varies across cultural and social contexts both in terms of how often it is experienced and how closely it is linked with learning (Zosh et al., 2017). Playful learning can and should be adapted to the diverse needs of children in their context, developing child-centred, inclusive approaches that use the latest insights from science and culture. In some communities, for example, play directed by adults has more positive outcomes than child-directed play (RTI and NYU-TIES, 2022).

For example, the new curriculum in Uganda for children aged 3 to 5 uses a play-based and child-friendly pedagogy that reflects the insights of the community. It includes local songs, rhymes and stories and focuses on both language learning and gender equality by eliminating the use of harmful gender stereotypes. It holds the promise of positively affecting gender relations and norms in very early childhood as they are just being formed. The Let’s Play and Have Fun Play Curriculum is the result of a collaborative curriculum development effort between BRAC Institute for Educational Development, BRAC International, BRAC Uganda and Uganda’s National Curriculum Development Centre (BRAC, 2021a).

As examples prove time and time again, contextualized learning through play is a powerful, yet often neglected, approach to cultivating development, skills and thriving in children.

Source: The LEGO Foundation. <https://learningthroughplay.com/about-us/the-lego-foundation>.

Early learning opportunities must reach children with disabilities

According to the Convention on the Rights of Persons with Disabilities (CRPD), persons with disabilities are defined as those who have long-term physical, mental, intellectual or sensory impairments, which in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others (United Nations, 2006).

Based on data from over 100 countries, it is estimated that around 240 million children (aged 0 to 17) in the world today have some form of disability: one in every ten children worldwide. Among children aged 0 to 4 years, it is estimated that 4% of children have a disability (UNICEF, 2021). Available data suggests that children with disabilities are compromised in achieving their full potential in many areas (UNICEF, 2021):

- ▶ 34% are more likely to be stunted
- ▶ 25% are more likely to be wasted
- ▶ 25% are less likely to receive early stimulation and responsive care
- ▶ 25% are less likely to attend early childhood education
- ▶ 16% are less likely to read or be read to at home
- ▶ 42% are less likely to have foundational reading and numeracy skills
- ▶ 32% are more likely to experience severe corporal punishment at home
- ▶ 41% are more likely to feel discriminated against
- ▶ 51% are more likely to feel unhappy
- ▶ 20% are less likely to have expectations of a better life

Box 7

The evolving right to education: The right to learn to read (Canada)

In 2012, the Supreme Court of Canada released a unanimous decision recognizing that learning to read is not a privilege, but a basic and essential human right. The Supreme Court found that a student with dyslexia from British Columbia had a right to receive the intensive supports and interventions he needed to learn to read. The school board's failure to provide special education programmes and intensive intervention denied the student an equal opportunity to learn, resulting in discrimination under the British Columbia Human Rights Code.

In 2019, the Ontario Human Rights Commission (OHRC) announced a public inquiry into human rights issues that affect students with reading disabilities in Ontario's public education system. The Right to Read Inquiry, which focused on early reading skills, found that Ontario's public education system was failing students with reading disabilities (such as dyslexia) and many others, by not using evidence-based approaches to teach them to read.

The Right to Read Inquiry consulted with scientists and experts and heard from thousands of students, parents, organizations, educators and other professionals. The Commission's decision stemmed from the vast body of scientific research in the Science of Reading, which refers to the scientific evidence from many fields including education, special education, developmental psychology, educational psychology, cognitive science and more. The Science of Reading studies how reading skills develop and how to ensure the highest degree of success in teaching all children to read. The body of knowledge includes results from thousands of peer reviewed studies and meta-analyses that use rigorous scientific methods. The Inquiry, the first of its kind in Canada, combined the OHRC's expertise in human rights and systemic discrimination with the expertise of scholars in reading development, reading disabilities, dyslexia, interventions

to improve reading and the extensive body of research science. Although dyslexia is assumed to be neurobiological in origin, there is evidence that with evidence-based reading instruction, early identification and early evidence-based reading intervention, at-risk students will not develop a 'disability'. The Inquiry found that foundational literacy skills had not been effectively targeted in Ontario's education system, having been largely overlooked in favour of reading strategies based on educational sociocultural ideologies and lacking scientific backing. Teacher education programmes were found to prepare teachers to deliver a curriculum that is inconsistent with a science-based core curriculum. Teachers learned very little about how skilled reading develops and how to teach word reading using proven approaches in their pre-service and in-service education and professional development. The Inquiry also found that Ontario did not have universal, systematic, evidence-based early screening to identify at-risk students who may need additional instruction and immediate interventions. The approach in use was inconsistent, ad hoc and relied mostly on non-evidence-based reading assessments. This led to many at-risk students not being identified and not receiving intervention early enough or even at all.

The Right to Read Inquiry report highlights how learning to read is not a privilege but a basic and essential human right. The report includes 157 recommendations to the Ontario Ministry of Education, school boards and faculties of education on how to address systemic issues that affect the right to learn to read. The report provides recommendations on curriculum and instruction, early screening, reading interventions, accommodations, professional assessments and systemic issues.

Source: Based on Ontario Human Rights Commission (2022).

Psychosocial difficulties affect the largest share of children with disabilities, including difficulties in relation to controlling behaviour, learning and communicating (UNICEF, 2021). As many children with disabilities are kept isolated away from other children, they miss out on opportunities to build social-emotional skills and to learn to cope with emotions and maintain positive relationships.

Early years education using child-centred approaches is therefore vital for children with a developmental disability or disorder. For example, children who are deaf or hard-of-hearing need early exposure to a natural sign language in interactions with native signers in order to acquire the building blocks of language and to prevent language deprivation, which has a negative knock-on effect on literacy development (Lillo-Martin and Henner, 2021). Similarly, children with developmental language disorders or at risk of language delay need exposure to a rich language environment in order to develop literacy skills.

There is now consensus among scientists and professionals that, because every child learns differently through a complex combination of internal factors and the political, social and cultural context, every learner should be entitled to receive a personalized learning experience as a human right (Duraiappah et al., 2022). This is especially relevant to children with developmental delays, learning differences or other educational needs. **Box 7** illustrates how Canada expanded the right to education to cover the 'right to learn to read' for children with learning disabilities.

A holistic and multisectoral approach to learning for children with disabilities is crucial. Such an approach should include support from rehabilitation or health care professionals, accessibility measures and assistive devices, parental support and support for transitions from home to an ECCE setting and then to formal school (Lynch and Soni, 2020).

Out of 211 countries, 68% have a definition of inclusive education, yet only 57% of those definitions cover multiple marginalized groups. Globally, 25% of countries legitimize provisions for educating children with disabilities in separate settings (UNESCO, 2020a). The definition of inclusion also evolves as our understanding and diagnostic instruments of children with disabilities improve.

Actions for genuine systems change are required to make inclusion a reality. The Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994) called for a shift in educational paradigms towards a more equitable and accommodating approach that celebrates differences. It recognizes that embracing diversity in all its forms is a fundamental strength rather than a barrier. Moving from policy to practice requires, among other things, that evidence is used to identify contextual barriers to the participation and progress of learners, that teachers are supported in promoting inclusion and equity in learning settings, that curriculum, pedagogies and assessment procedures are designed with all learners in mind, and that communities are involved in the development and implementation of policies and programmes (UNESCO, 2020b).

Conclusion

Foundational skills, including executive functions, self-regulation, social and emotional skills, literacy and numeracy, are key to later academic success. The development of these skills must begin in the early years, and pedagogies that support them need to be adopted across ECCE systems, especially in light of the damage done to school readiness and child development by the COVID-19 pandemic (see **Appendix 4**). All children, including children

with disabilities, should have the right to access ECCE that takes a holistic, child-centred approach.

We have shown that participating in ECCE positively affects the development of foundational skills needed for school readiness. In the next section, we discuss ways to improve the ECCE ecosystem, so that children have the best chance to receive the benefits that quality ECCE opportunities can provide.



CHAPTER 04

How can we improve the ECCE ecosystem? Solutions and policy levers for addressing ECCE quality and foundational learning

Highlights

01

The lack of pedagogical training impacts the quality of pre-primary education.

- ▶ The global average of pre-primary teachers who have received the minimum required pedagogical training is 85%, but just 57% in low-income countries.

02

At least 6 million more teachers and educators need to be recruited to reach universal enrolment for one year of pre-primary education by 2030.

- ▶ The global pupil-trained teacher ratio in pre-primary education is 17:1, reaching 54:1 in sub-Saharan Africa and 60:1 in low-income countries.
- ▶ Globally, the pupil-trained teacher ratio has decreased by 1.5 percentage points annually between 2010–2012 to 2022, indicating that over time, teachers are teaching smaller groups of children.
- ▶ New teaching positions are needed more than replacements due to attrition, especially in Central Asia, Northern Africa and Western Asia, Southern Asia and sub-Saharan Africa.

03

Parental support programmes and family-friendly policies can promote early learning opportunities.

- ▶ Parenting intervention programmes that help caregivers improve their child-rearing skills show positive effects on children's cognitive and social-emotional development.
- ▶ All but one out of 185 countries surveyed have adopted statutory provisions for maternity leave, but only 115 offered paternity leave. Of these, 123 countries offered fully paid maternity leave, and only 102 countries offered paid paternity leave.

04

Social protection and housing policies can address multiple levels of disadvantage for vulnerable children.

- ▶ Child cash grants improve parenting practices and home learning environments, in low-, middle- and high-income settings.
- ▶ Policies providing supportive and stable housing for families can improve children's early learning and well-being and promote employment gains for parents.

05

Measuring quality in ECCE is hampered by lack of standardized and contextualized data for the youngest children.

- ▶ Data are needed for better understanding the diversity of care workers and ECCE settings, the types of formal and informal care arrangements, the costs to households, and the training and qualifications of educators and child care workers, especially for children aged 0 to 3.
- ▶ Different standards of quality are needed for different types of programmes and different age groups.

In this chapter, we explore the complex problem of improving the quality of the early learning environments available to children, with a focus on the professionals who care for them and the governments and societies that support them. First, we emphasize the critical role of caregivers, such as educators and parents, by exploring the issues around ensuring a quality pre-primary workforce and an adequate supply of

educators for ECCE settings. Having laid out some of the problems, we propose some solutions. We explore the ways in which parenting programmes, family-friendly policies and other social policies in general can promote early learning opportunities for all children. We further examine some difficulties in defining and monitoring quality.

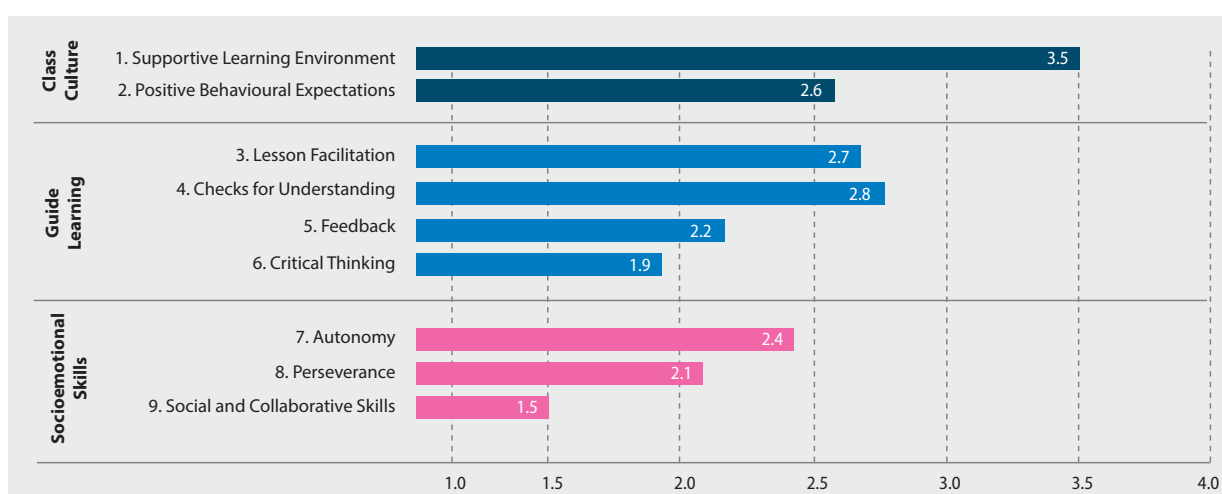
Teacher-child interactions are important enablers of quality ECCE

To explore the effects of process quality on children’s cognitive and social-emotional development, the World Bank designed the Teach ECE instrument, a classroom observation tool to support low- and middle-income countries to improve the quality of early childhood education provision for children from 3 to 6 years of age (World Bank, forthcoming).

The measure of process quality included a component on Quality of Teaching Practices organized into three primary areas, Classroom Culture, Guided Learning and Socioemotional Skills, each with subcomponents. Classroom Culture subdomains measure the extent to which the teacher creates a supportive learning

environment and sets positive behavioural expectations. Guided Learning subdomains measure the degree to which the teacher facilitates learning through promoting comprehension by explicitly stating what children will do and the objective of the activity, providing clear explanations of concepts and connecting what is being learned to other learning activities or to children’s experiences. Socioemotional Skills subdomains measure the extent to which the teacher encourages children’s development of social-emotional skills through instilling autonomy, promoting perseverance and fostering social and collaborative skills. Data are available from 4,110 early childhood education teachers from 4 countries across 3 world regions (Figure 22).

Figure 22
Global scores of process quality as assessed by Teach ECE



Note: Teachers’ behaviours are captured in a series of two 15-minute classroom observations and scores are translated into a 5-point scale. Data are from Central and Southern Asia (n=2,944), Eastern and South-Eastern Asia (n=302) and sub-Saharan Africa (n=864). Regions are disaggregated by World Bank categories. Scores are averaged across all countries.

Source: World Bank, forthcoming. Reprinted with permission of the World Bank.

The scores indicate that on average, teachers tend to score higher on measures related to fostering a positive classroom culture, followed by those focused on guiding students' learning, and then by practices that support the development of young children's social-emotional skills. At the subdomain level, teachers score best on measures associated with creating a supportive learning environment and checks for understanding.

Their weakest scores, however, can be seen on measures related to supporting social-emotional skills in the classroom.

For participating countries, the results of the Teach ECE observations could be used to support improvements in the design of policies and programmes for teacher professional development based on the needs of their education systems.

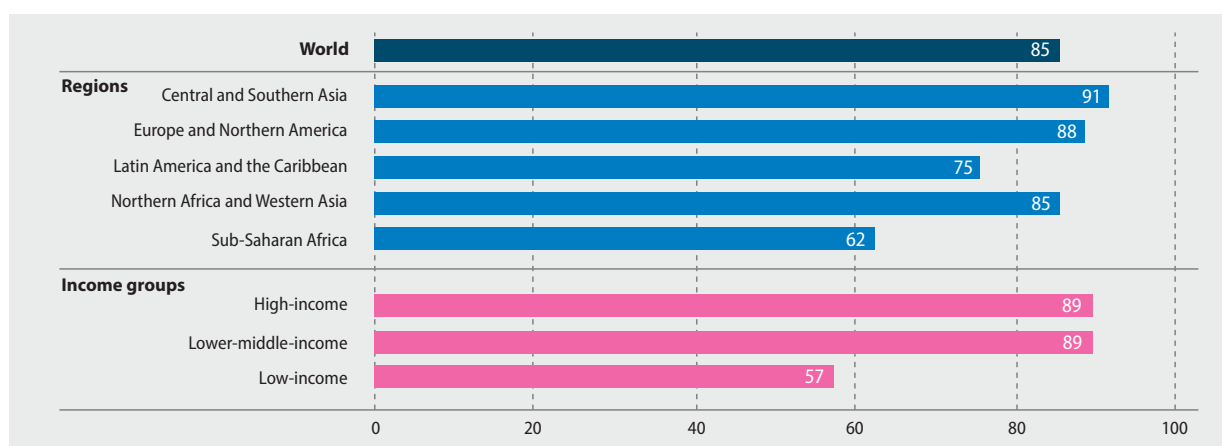
The lack of pedagogical training impacts quality of pre-primary education

The structural quality of ECCE is easier to measure, but the data show that here, too, more needs to be done. Many countries are still struggling to implement quality teacher education programmes, meaning that many teachers may be hired to teach without having appropriate knowledge of and practical training for implementing relevant and age-appropriate pedagogies during children's earliest formative years.

SDG Indicator 4.c.1 monitors the proportion of teachers who have received at least the minimum organized teacher training pre-service or in-service required for teaching at the relevant level according to national policies or laws. This includes both pedagogical

and professional training. Teachers in pre-primary education need the requisite training to teach children from 3 years of age until the official age of entry to primary school. **The global average of pre-primary teachers who have received the minimum required pedagogical training stands at 85%.** However, regional and income group disparities exist (Figure 23). Central and Southern Asia (91%), Europe and Northern America (88%) and Northern Africa and Western Asia (85%) stand at or above the global average, while Latin America and the Caribbean (75%) and sub-Saharan Africa (62%) are below the global average. **Only 57% of teachers in low-income countries are trained to teach at pre-primary level.**

Figure 23
Proportion of pre-primary teachers with the minimum required pedagogical training (2022)

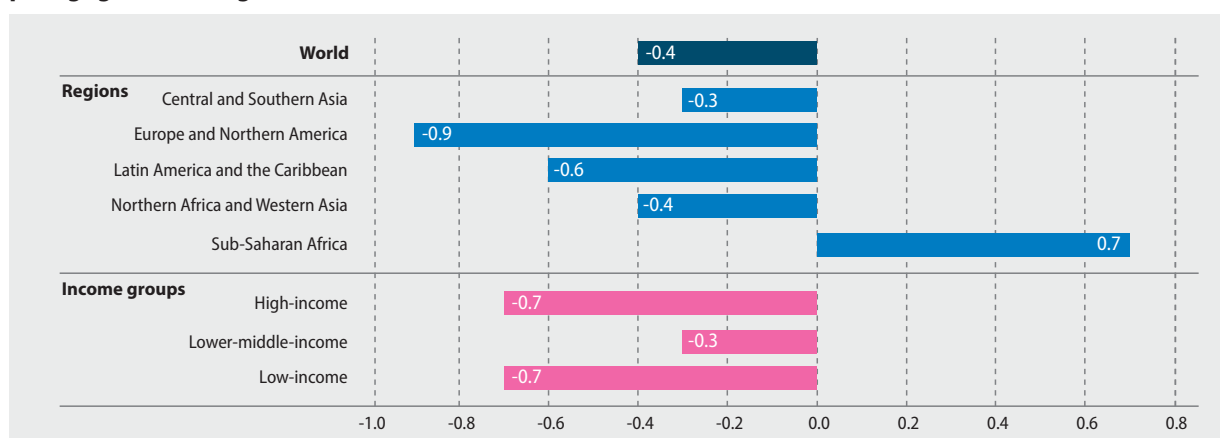


Note: The world average is estimated using both submitted and imputed data. Data for Europe and Northern America are from 2020. Data for sub-Saharan Africa are from 2021. Data for low-income countries are from 2020.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at: <http://sdg4-data.uis.unesco.org/>

Figure 24

Annual growth rate (%) in the proportion of pre-primary teachers with the minimum required pedagogical training between 2010–2012 and 2022



Note: The world average is estimated using both submitted and imputed data. The first data point for the global average, Central and Southern Asia, and lower-middle-income countries is from 2019. The second data point for Europe and Northern America and low-income countries is from 2020, and the second data point for sub-Saharan Africa is from 2021.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at: <http://sdg4-data.uis.unesco.org/>.

A stunning global decline can be seen in the proportion of pedagogically trained teachers over time: the number has been steadily decreasing over the last 10 to 12 years at a rate of 0.4 percentage points each year (Figure 24). Even high-income countries have not been spared, experiencing an annual decrease of 0.7 percentage points, on par with low-income countries. It is interesting to note that sub-Saharan Africa is the only region that has seen an increase over the past decade, of about 0.7 percentage points. This likely reflects the fact that the region started further behind, as well as the dedicated attention from the international community towards increasing the numbers of qualified teachers in the region.

When there is no access to or lack of quality ECCE services, some families may choose to hire informal workers to care for their young children at home. But without government regulations, it is difficult to get a clear picture of the quality of the workforce. More data are needed to better understand such arrangements. Furthermore, as Box 8 demonstrates, extending the right to education to include ECCE may also impact the working conditions of marginalized women.

Box 8

Informal workers: Who is taking care of our children?

Due to lack of access to quality child care and pre-schools, some families may decide to hire informal workers to take care of their young children at home. Although disaggregation by sector is not available, the ILO estimates that there are about 70.1 million domestic workers around the world, accounting for 18% of the global care workforce (ILO, 2018). With variations across countries, a considerable portion of domestic workers have relatively low education credentials. Many domestic workers whose jobs involve caring for young children may not have received any relevant training. To support domestic workers and the families they care for, the ILO released a training manual that explains the physical, cognitive and emotional development of children (ILO, 2018).

Worldwide, the domestic workforce is largely female; over 70% of workers in the sector are women. The workforce also includes many migrant workers, some of whom are the children of migrants. Many domestic workers are driven by poverty to join the workforce, which makes it harder for them to stand up to mistreatment. They face some of the poorest working conditions in any sector and are particularly vulnerable to exploitation. Due to the complexity of labour, care and migration policies, domestic workers' rights are not well protected. They experience high instability, often being asked to work for long hours with low pay and exposed to violence and abuse. Laws and policy improvement, unionization and social security provision can help improve the working conditions of domestic workers (ILO, 2018).

As many families may rely on the informal economy for child care support, governments must ensure that all social protection, employment, parenting support and other ECCE policies and programmes, including standards and regulations for qualifications and training, are expanded to also cover informal care workers (WIEGO, UNICEF and ILO, 2021).

Sources: International Labour Organization (2018); WIEGO, UNICEF and the International Labour Organization (2021).

Teacher shortages impact learning quality: At least 6 million more teachers and educators need to be recruited by 2030

This section explores potential ways to tackle some of the core issues that lower the quality of ECCE. It examines the extent of the teacher shortage in pre-primary education and the numbers of new teachers that need to be recruited to meet SDG Target 4.2 commitments.

Pupil-teacher ratios are an indicator of the structural quality of the early learning environment: for very young children, a smaller class size enables greater individualized attention, increased engagement for each child and enhanced student-teacher interaction. However, small class sizes by themselves are not sufficient to ensure quality education; teachers must also possess the requisite pedagogical training.

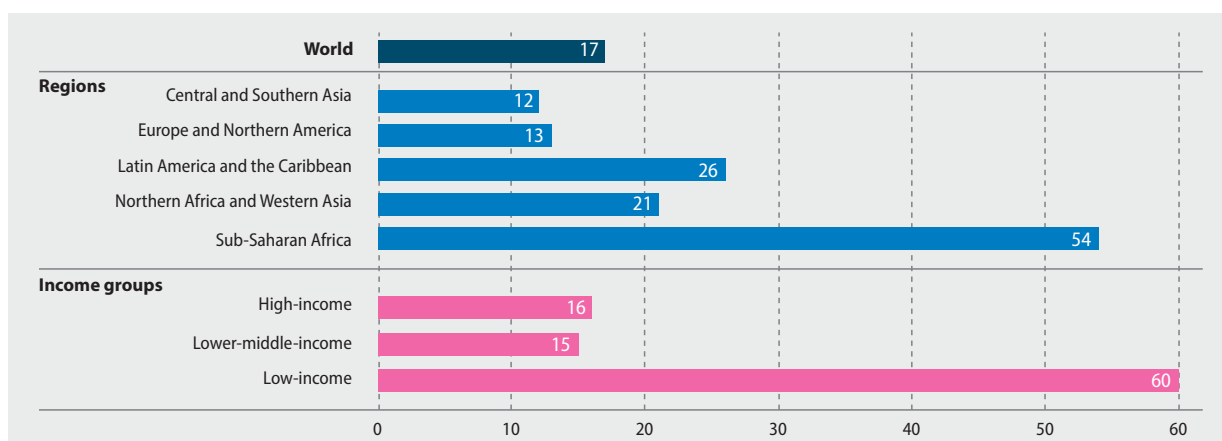
SDG Indicator 4.c.2 measures the pupil-trained teacher ratio (PTTR) by education level. **The global PTTR in pre-primary education is 17:1**; that is, there is 1 teacher for every 17 children above the age of 3 attending pre-primary school. The PTTR reaches 54:1 in sub-Saharan Africa and 60:1 in low-income countries (Figure 25).

Globally, the PTTR has decreased by 1.5 percentage points annually between 2010-2012 to 2022, indicating that over time, teachers are

teaching smaller groups of children, except in low-income countries where the ratio increased 0.8 percentage points. In some places, ratios have dropped even further: a large decrease of 4.4 percentage points was seen in lower-middle-income countries and an even larger decrease of 5.2 percentage points in Central and Southern Asia, although it should be noted that in both of these cases, the first data point is from 2019 (Figure 26).

Countries have committed to SDG Indicator 4.2.2, which calls for each child to receive at least one year of organized learning before the start of primary school. As the demand for ECCE services rises, the global number of teachers needed to implement SDG Indicator 4.2.2 needs to be considered. To estimate the demand for pre-primary teachers needed for one year of organized learning before 2030, UNESCO conducted a simulation exercise based on three different scenarios. In the most feasible scenario (Scenario 1), a PTR of 20:1 is used. This is based on a meta-analysis from the United States of evaluations of all early childhood education programmes in the country published from 1960 to 2007.

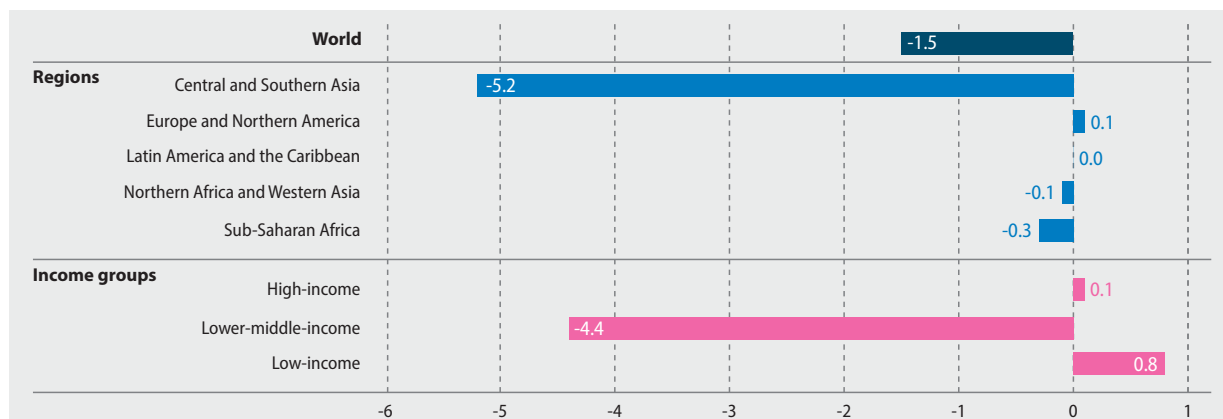
Figure 25
Pupil-trained teacher ratio in pre-primary education (2022)



Note: The world average is estimated using both submitted and imputed data. Data for Europe and Northern America are from 2020. Data for sub-Saharan Africa are from 2021. Data for low-income countries are from 2020.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at: <http://sdg4-data.uis.unesco.org/>.

Figure 26

Annual growth rate (%) in pupil-trained teacher ratio in pre-primary education between 2010–2012 and 2022

Note: The world average is estimated using both submitted and imputed data. The first data point for the global average, Central and Southern Asia and lower-middle-income countries is from 2019. The second data point for Europe and Northern America and low-income countries is from 2020, and the second data point for Sub-Saharan Africa is from 2021.

Data Source: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release March 2024. Available at: <http://sdg4-data.uis.unesco.org/>.

The findings highlighted that beyond a certain threshold, an increase in PTR has minimal impact on children's outcomes (Bowne et al., 2017). A larger PTR, however, could potentially benefit 5- and 6-year-olds transitioning to primary school, especially in light of the fact that primary schools typically have larger class sizes (OECD, 2023). Scenario 2 uses a PTR of 15:1, which aligns closely with previous simulation exercises conducted by the ILO (2018) and the World Bank (Devercelli and Beaton-Day, 2020). In this scenario, countries with PTRs higher than the global weighted average would aim to catch up and attain the global average PTR, which stands at 15:1. The most ambitious scenario (Scenario 3) proposes an optimal PTR of 10:1. A smaller class size enables greater individualized attention, increased engagement for each child and enhanced student-teacher interaction, provided that teachers possess the requisite qualifications. Notably, a PTR of 10:1 aligns with the national standards of certain high-income countries such as Denmark and the United Kingdom (Devercelli and Beaton-Day, 2020; Wallet, 2006). Although some countries boast PTRs below 5:1 (e.g. Iceland, Ireland, New Zealand; OECD, 2023), PTRs as low as this are not considered, since these class sizes place significant demands on teacher qualifications: teachers need

the skills to adapt curricula and pedagogical approaches to suit smaller classes (Blatchford and Russell, 2020).

The results from two approaches are presented. The first is based on the number of teachers needed to reach all children, that is, 100% enrolment in organized learning one year before entry to primary school by 2030. The second approach estimates the number of teachers needed to reach countries' established national benchmarks for achieving SDG Indicator 4.2.2.

Estimates considered a blend of factors, including growth and declines in birth rates, expanded access to pre-primary education, and teacher retirement and attrition, which will necessitate an increase in the teacher workforce to meet demand. Since official data are aggregated for all of pre-primary education (i.e. all children from 3 years of age to the official starting age for primary school), the number of teachers currently available to teach in the final year of pre-primary before children enter primary school needed to be estimated. Based on current population data, approximately 6.9 million teachers are currently needed in the workforce today, if all children participate in one year of organized learning before entry to primary school.⁸

8 The UNESCO Institute of Statistics (UIS) does not provide data either on enrolment or the number of teachers needed for the one year before primary education, so these have been estimated using other available data. The UIS SDG 4 Indicator Dashboard provides data for the out-of-school rate for children one year younger than the official primary school entry age. UN population data are used to estimate the number of children in the age of one year before entry to primary school. The enrolment ratio is based on the number of children in the age of one year before entry to primary school divided by the inverse of the out-of-school rate for children one year younger than the official primary school entry age. Teacher data is available for 187 countries. Out-of-school rate is available for 184 countries.



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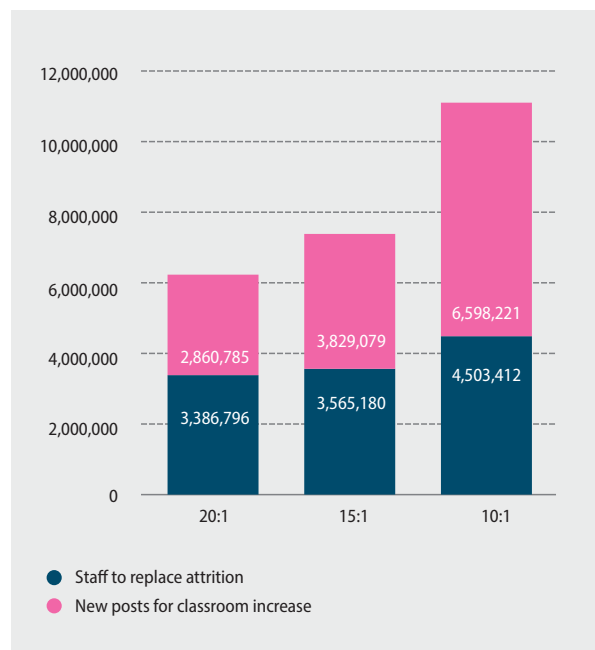
By 2030, it is expected that 129.5 million children would need to be enrolled in organized learning one year before primary school entry to achieve the target of 100% enrolment. Projections for 2030 reveal a global need of at least 6.2 million teachers in a scenario aiming for a PTR of 20:1. For a PTR of 15:1, 7.4 million teachers would be needed, and 11.1 million teachers would be needed to meet a PTR of 10:1 (Table 2). Unsurprisingly, the most pressing demand for teachers emerges in sub-Saharan Africa, with a minimum requirement of 2 million teachers for a PTR of 20:1, constituting about 32.5% of the global need. Following closely is South-Eastern Asia, which would need 1.5 million teachers, representing 23.4% of the global need.

Teacher replacement due to attrition and retirements is a challenge common to primary and secondary education, as well as pre-primary education. **However, in pre-primary, when lower PTRs are posited, the demand for new teaching positions surpasses the need for replacements.** Figure 27 illustrates the number of teachers needed to achieve 100% enrolment in one year of organized learning before entry to primary school by 2030.

The figure shows the composition based on the number of teacher attritions and the number of new posts to be created to reach 100% enrolment. In Scenarios 1 and 2, the proportions of replacements and new teaching positions are more evenly distributed, nearly at a 50:50 ratio. By contrast, in Scenario 3, approximately 60% of the positions required are new teaching posts, emphasizing the substantial demand for new teachers in this scenario.

The regional outcomes unveil a consistent trend across regions: new teaching positions are needed more than replacements due to attrition, especially in Central Asia, Northern Africa and Western Asia, Southern Asia and sub-Saharan Africa. However, Eastern Asia deviates from the trend: most new teachers there are required specifically to replace departing teachers. This peculiarity is attributed to a decline in population growth in the region (Table 3).

Figure 27
Numbers of teachers needed due to attrition and the creation of new teaching posts to reach 100% enrolment in organized learning one year before entry to primary school by 2030



Note: Teacher attrition rates are obtained from the SDG 4 Indicator Dashboard for the pre-primary level. When these data are unavailable, attrition rates from the primary level are used. If these data are not available, the attrition rate is set at 5% level.

Data Sources: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release September 2023. Available at: <http://sdg4-data.uis.unesco.org/>; UN DESA, UN Data. Available at: <https://data.un.org>

Table 2

Numbers (and % of global share) of teachers needed to reach 100% enrolment in organized learning one year before entry to primary school by 2030

Region	Scenario 1 (PTR 20:1)	Scenario 2 (PTR 15:1)	Scenario 3 (PTR 10:1)
Central Asia	77,437 (1.2%)	80,195 (1.1%)	96,381 (0.9%)
Eastern Asia	370,474 (5.9%)	392,392 (5.3%)	926,012 (8.3%)
Europe and Northern America	399,717 (6.4%)	426,861 (5.8%)	727,657 (6.6%)
Latin America and the Caribbean	332,454 (5.3%)	448,014 (6.1%)	825,224 (7.4%)
Northern Africa and Western Asia	501,118 (8.0%)	644,394 (8.7%)	1,024,986 (9.2%)
Oceania	30,838 (0.5%)	39,647 (0.5%)	63,076 (0.6%)
South-Eastern Asia	1,464,675 (23.4%)	1,521,616 (20.6%)	1,703,850 (15.3%)
Southern Asia	1,043,477 (16.7%)	1,108,851 (15.0%)	1,564,650 (14.1%)
Sub-Saharan Africa	2,027,392 (32.5%)	2,732,289 (37.0%)	4,169,796 (37.6%)
GLOBAL	6,247,581	7,394,259	11,101,633

Data Sources: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release September 2023. Available at: <http://sdg4-data.uis.unesco.org/>; UN DESA, UN Data. Available at: <https://data.un.org>

Table 3

Numbers of teachers needed due to attrition and the creation of new teaching posts to reach 100% enrolment in organized learning one year before entry to primary school by 2030, by region

Region	Scenario 1 (PTR 20:1)		Scenario 2 (PTR 15:1)		Scenario 3 (PTR 10:1)	
	Staff to replace attrition	New posts for increased enrolment	Staff to replace attrition	New posts for increased enrolment	Staff to replace attrition	New posts for increased enrolment
Central Asia	25,458	51,979	25,740	54,455	26,865	69,516
Eastern Asia	362,058	8,415	365,574	26,818	858,601	67,411
Europe and Northern America	343,006	56,711	351,757	75,103	437,877	289,780
Latin America and the Caribbean	269,973	62,481	315,638	132,376	386,532	438,692
Northern Africa and Western Asia	195,624	305,494	211,583	432,811	253,922	771,064
Oceania	16,981	13,857	18,337	21,310	21,561	41,516
South-Eastern Asia	1,276,418	188,257	1,285,322	236,294	1,320,782	383,068
Southern Asia	394,993	648,484	401,403	707,448	443,700	1,120,950
Sub-Saharan Africa	502,284	1,525,108	589,826	2,142,463	753,573	3,416,224
GRAND TOTAL	3,386,796	2,860,785	3,565,180	3,829,079	4,503,412	6,598,221

Data Sources: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release September 2023. Available at: <http://sdg4-data.uis.unesco.org/>; UN DESA, UN Data. Available at: <https://data.un.org>

Table 4**Number of countries expected to fill the teacher gap needed for 100% enrolment in one year of organized learning before primary school by 2030**

Region	Total number of countries	Scenario 1 (20:1)	Scenario 2 (15:1)	Scenario 3 (10:1)
Central Asia	4	1	1	0
Eastern Asia	6	4	4	2
Europe and Northern America	43	8	8	7
Latin America and the Caribbean	38	9	6	5
Northern Africa and Western Asia	21	4	3	0
Oceania	15	1	1	1
South-Eastern Asia	10	2	1	1
Southern Asia	5	2	2	2
Sub-Saharan Africa	43	8	7	3
GRAND TOTAL	185	39	33	21

Data Sources: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release September 2023. Available at: <http://sdg4-data.uis.unesco.org/>; UN DESA, UN Data. Available at: <https://data.un.org>



Few countries are on track to have the number of teachers they need to achieve SDG Indicator 4.2.2.

At the moment, few countries are on track to have the number of teachers they need to achieve SDG Indicator 4.2.2. To determine whether countries will meet the number of teachers required in each scenario, the historical growth rate of teacher numbers from 2012 to 2022 was analysed, as well as the growth rate needed to meet the teacher demand, including the need to replace teachers leaving the system. Where the historical growth rate exceeds the growth needed to reach 100% enrolment by 2030, it can be assumed that the country will achieve the target. Based on the historical annual growth rate, it is anticipated that 39 countries will fulfil the required number of teachers for a PTR of 20:1, 33 countries will reach the required number of teachers for a PTR of 15:1 and only 21 countries will reach the required number of teachers for a PTR of 10:1. Based on

current trends, even countries in Europe and Northern America will struggle to fill the teacher gap (Table 4). Countries in Central Asia are the most likely to fill the regional teacher gap with PTRs of 20:1 and 15:1.

In the second approach, the global number of teachers needed is estimated using countries' national benchmarks. Over two-thirds of countries have established national benchmarks for children's enrolment in one year of organized learning before entry to primary school by 2030 (UNESCO-UIS, 2022). It is estimated that in countries that established benchmarks, approximately 7 million children in the age group of one year before the official age of entry to primary school will remain excluded from formal education by the year 2030. By considering national benchmarks and the expected participation rate, an alternative projection of teacher demand can be provided to meet the needs of those children that will be in school (Table 5).

Using national benchmarks projects a need for approximately 5.7 million teachers in Scenario 1 using a PTR of 20:1. This number is approximately 460,000 less than that estimated for 100% enrolment for the age

Table 5

Numbers (and % of global share) of teachers needed to reach national benchmarks for organized learning one year before entry to primary school by 2030

Region	Share of countries with benchmarks	Scenario 1 (20:1)		Scenario 2 (15:1)		Scenario 3 (10:1)	
		Number (%) of teachers needed	Difference from 100% enrolment	Number (%) of teachers needed	Difference from 100% enrolment	Number (%) of teachers needed	Difference from 100% enrolment
Central Asia	60%	74,624 (1.3%)	-2,813	77,225 (1.1%)	-2,970	93,100 (0.9%)	-3,282
Eastern Asia	86%	362,905 (6.3%)	-7,569	384,453 (5.6%)	-7,939	914,895 (8.9%)	-11,117
Europe and Northern America	77%	368,842 (6.4%)	-30,875	395,969 (5.8%)	-30,892	686,715 (6.7%)	-40,942
Latin America and the Caribbean	70%	321,957 (5.6%)	-10,497	435,350 (6.4%)	-12,664	807,118 (7.8%)	-18,107
Northern Africa and Western Asia	71%	346,283 (6.0%)	-145,657	465,555 (6.8%)	-166,834	759,736 (7.4%)	-246,732
Oceania	67%	27,463 (0.5%)	-12,553	35,381 (0.5%)	-16,270	56,974 (0.6%)	-24,620
South-Eastern Asia	73%	1,460,604 (25.2%)	-4,071	1,516,455 (22.2%)	-5,162	1,696,248 (16.5%)	-7,601
Southern Asia	56%	1,023,281 (17.7%)	-20,196	1,087,466 (15.9%)	-21,386	1,532,764 (14.9%)	-31,886
Sub-Saharan Africa	61%	1,801,459 (31.1%)	-225,932	2,438,607 (35.7%)	-293,682	3,738,313 (36.3%)	-431,483
GRAND TOTAL	69%	5,787,418	-460,163	6,836,462	-557,797	10,285,862	-815,771

Data Sources: UNESCO Institute of Statistics, SDG 4 Indicator Dashboard, data release September 2023. Available at: <http://sdg4-data.uis.unesco.org/>; UN DESA, UN Data. Available at: <https://data.un.org>

group. In Scenario 2 using a PTR of 15:1, the reduction is around 558,000 teachers, and for Scenario 3 with a PTR of 10:1, the projection calls for 816,000 fewer teachers. Regionally, sub-Saharan Africa accounts for approximately half of the overall difference between countries' national benchmarks and 100% enrolment across the three scenarios.

The call to transform education cannot be actualized without ensuring an adequate supply of qualified teachers. For this reason, the UN Secretary-General convened a High-Level Panel on the Teaching Profession in 2023 to address this global challenge. The Panel addressed the challenges facing the teaching profession, including the four challenges highlighted by the Transforming Education

Summit: teacher shortages, the lack of professional development for teachers, the low status and working conditions of teachers, and the lack of capacity to develop teacher leadership, autonomy and innovation. The panel released a report with 59 recommendations for international action around 6 core imperatives that it considered relevant to the future of the teaching profession: humanity; dignity; equity, diversity and inclusion; quality; innovation and leadership; and sustainability (International Labour Organization, 2024). However, it will be important to broaden these recommendations to also include protections, financing and opportunities for training and qualifications for child care workers and other practitioners who work with children before the start of formal primary education.

Parenting support and family-friendly policies contribute to quality early learning

Engaging in early learning activities at home is especially important if children do not have access to high-quality early childhood education programmes (Rao et al., 2014). Unfortunately, in many low- and lower-middle-income countries, many caregivers have low levels of literacy and numeracy because of their own lack of access to education opportunities (Modisaotsile, 2012). Caregivers from lower socio-economic backgrounds are often unaware of the importance of learning activities in promoting child development in the early years (McCoy et al., 2022).

Although parents say they want to support their children's early learning, they often lack the knowledge and resources for activities that can promote early literacy or mathematics skills (Draper et al., 2023).

Parenting intervention programmes can improve the quality of children's early learning experiences

To improve the quality of the home environment for optimal early childhood development, a variety of parenting intervention programmes have been designed to help caregivers improve their child-rearing skills (Jeong et al., 2021; Aboud and Yousafzai, 2015; Baker-Henningham and Lopez Boo, 2010; Rao et al., 2014; Britto et al., 2015; Britto et al., 2017). Many of these programmes have been shown to yield positive effects on children's cognitive and social-emotional development (Jeong et al., 2021). Parent-directed early childhood stimulation programmes are also backed by good evidence for their cost-effectiveness (Akyeampong et al., 2023).

In the case of families with higher needs, evidence shows that parenting programmes can reduce substance abuse, family separation and behavioural problems (Brook et al., 2015; Green et al., 2017; Kutash et al., 2013; Letarte, Normandeau and Allard, 2010; McCall et al., 2023; Norman and Enebrink, 2023; To et al., 2018; Wu et al., 2021), which negatively affect parenting and levels of nurturing care in the home learning environment.

In a review of the literature, Richardson et al. (forthcoming) report that evidence on effective parenting practices was most often found for interventions and programmes that targeted specific groups of parents, such as migrant parents in Hong Kong Special Administrative Region of China, internal migrant mothers with 'left-behind' children in China, families with incarcerated parents in Sweden and families living in disadvantaged areas in Ireland and the United Kingdom. The modalities of delivery also varied widely, from digital parenting support interventions in the United States, playgroups and group-based parent interventions in Canada, community-based parenting programmes in Ireland, and sports education programmes mainly applied in the United Kingdom and the United States. Other effective parenting programmes included substance abuse interventions, parental financial literacy training with free summer child care, and parental behavioural management classes, all in the United States (Richardson et al., forthcoming).

An important element of parenting support is support for caregivers' mental health, which is key to achieving optimal child development. Supporting good mental health can improve the physical and psychological well-being of caregivers, enabling them to create a nurturing and caring environment for their children at home. Evidence shows that maternal mental health is linked to children's social and emotional development, and in turn children's educational outcomes (Richardson et al., forthcoming).

Currently, there is minimal support available for caregiver mental health, particularly in resource-constrained low- and middle-income countries. However, interest in strengthening services to fill in this critical gap is growing. UNICEF has developed the Caring for the Caregiver package, designed to help parents and caregivers cope with daily stressors and connect them with the support and services they need to be able to address the needs of their young children (UNICEF, 2019a).

Examples of interventions that support caregiver mental health include Serbia's national Playful Parenting

Programme, implemented by the government (UNICEF, 2023d), which aims to enhance existing health, education and social welfare services to support nurturing, gender-responsive, inclusive and playful parent-child interactions. The programme aims to reach all parents with coaching and messaging on responsive play and communication with young children, as well as providing more intensive targeted support through early childhood intervention for families with children with developmental delays and disabilities. The programme also includes support for caregiver mental health through the implementation of the UNICEF Caring for the Caregiver package.

In Cambodia, the government launched and initiated implementation of UNICEF's Nurturing Care Parenting Package to enhance the capacity of parents and caregivers to adopt key parenting behaviours and contribute to improved cognitive, physical, social-emotional and language development for children aged 0 to 6 years. It has a strong gender influence in shaping the role, responsibilities and behaviour of caretakers, both men and women, parents and grandparents, in understanding and responding to the varied and numerous aspects of child growth (UNICEF, 2019a).

Effective family-friendly policies can promote early learning opportunities

Family-friendly policies are defined as those policies that support parents and caregivers to provide care for their young children while enabling parents to maintain their livelihoods. These can include paid parental leave, access to affordable child care and early education, breastfeeding support and child benefits (UNICEF, 2019b). Globally, all but one country out of 185 countries surveyed by the ILO have adopted statutory provisions for maternity leave. Of these, 120 countries offered a maternity leave of at least 14 weeks, and 123 countries offered fully paid maternity leave. Although fathers' roles in their children's development is increasingly recognized, only 115 countries surveyed offered paternity leave and paid paternity leave was available in 102 countries. Duration of paternity leave entitlements varies widely, with a global average of 3.3 days (International Labour Organization, 2022). During infancy, paid parental leave policies are shown to link to improved maternal mental health for up to three years (Barrington et al., 2022).

In a review of the literature, Richardson et al. (2020) summarized the findings from 35 peer reviewed studies on the effects of parental leave and child care policies and their potential to support children's learning. Mixed evidence was found of the effects of parental leave policies on children's educational outcomes, and a number of factors were found to interplay with the duration of leave made available to parents. In particular, educational outcomes were mediated by household income, home care and child care choices and parental levels of education. Although all the studies were from high-income settings, the authors concluded that leave policies that are adequate in terms of time and income replacement were more likely to support optimal child development and thus educational outcomes.

In addition to parental leave policies, other entitlements that support parents include breastfeeding breaks at work and longer-term parental leaves that kick in after the expiration of maternity or paternity leaves. In Rwanda, for example, the government established market-based Early Childhood Development Centres to help improve the economic well-being of families with children. The centres provide safe and stimulating environments for children, while also supporting mothers by providing a place where they can continue with their businesses while breastfeeding (UNICEF, 2023d).

Governments can also promote multigenerational approaches to improve children's early learning environments. In the absence of parental leave policies, children may be left in the care of other family members. Engaging other members of the immediate and extended family in caring for children can support children's development. One evidence-based example is the intergenerational transmission of language and literacy. For children with one primary caregiver, their language input is dominantly and directly from that caregiver. However, children growing up in contexts with multiple caregivers (whether adults or other children) have more diverse sources of language input, either directly from different caregivers or through overhearing caregivers' conversations among themselves. A growing body of scientific evidence shows that children can benefit from language input even when they are not the direct addressee and that this indirect input can be especially helpful in acquiring some aspects of the language (Oshima-Takane et al., 1996; Schneidman and Goldin-Meadow, 2012; Ruan, 2022).

Multigenerational approaches can integrate child care, social protection, poverty reduction and opportunities for adult training and education. By so doing, multiple generations of change can be leveraged. In one example, the LEAPS project in Pakistan (**Box 9**) illustrates how an ECCE intervention can integrate youth skills training (particularly for young women) alongside employment opportunities, and expand access to ECCE for improving the school readiness of children in a rural community.

Paternity leave policies can also be helpful in addressing gendered norms in society. For example, due to persistent gender stereotypes and social inequalities and gender inequalities, mothers are usually the primary caregivers for children. New research with families in low- and middle-income countries indicates that fathers tend to spend less time than mothers engaging in stimulating activities with their young children (Kitamura et al., 2023). From a child development perspective, it is particularly important to engage men in early childhood education and care (World Health Organization, 2022; Diniz et al., 2021). Fathers' engagement has benefits for children's physical, cognitive and social-emotional development, and is particularly important for the development of pre-schoolers' early academic skills (Foster et al., 2016). Involving men in child-rearing may also help relieve maternal stress and depression, in addition

to benefiting men's mental health by improving their relationships with their partners and children (World Health Organization, 2022).

More research will be necessary to better understand men's reluctance to engage in childcaring duties. The emerging use of behavioural sciences to 'nudge' culturally-rooted behaviours towards attitudes and values that support child development shows good potential. Behavioural science refers to an evidence-based understanding of how people actually behave, make decisions and respond to programmes, policies and incentives. Behavioural science approaches deviate from the traditional economic model of decision-making and are informed instead by the cognitive and human sciences. This approach allows for the diagnosis of barriers preventing people from adopting a certain behaviour, helping to understand enablers that help people achieve their aims and to design more impactful interventions (UN Innovation Network, 2021). Behavioural science approaches have shown potential to change parental behaviours during the first few years of their children's lives to promote more positive engagement and learning behaviours (Bernard van Leer Foundation, 2022). **Box 10** illustrates how the behavioural sciences informed the design of a home reading intervention for improving children's school readiness skills in Jordan.

Box 9

Youth Leaders for Early Childhood Assuring Children are Prepared for School (Pakistan)

Youth Leaders for Early Childhood Assuring Children are Prepared for School (LEAPS) is a youth-led ECCE programme. The LEAPS programme was established to address the educational needs of children living in rural communities and to close the gap in ECCE service provision. To achieve these goals, the programme mobilizes a youth-led workforce, targeting especially female youth aged between 18 and 24 years who have attained at least a 10th grade education. The programme employs a gender-equitable, inclusive and community-based model. Youth receive training to become Community Youth Leaders to serve as local advocates for the importance of early childhood development and to deliver ECCE programmes for children aged between 3.5 and 5.5 years in community-based pre-schools.

A pilot programme was conducted in partnership with the National Commission for Human Development in Pakistan and the effectiveness of the programme was evaluated by a cluster-randomized controlled trial (Yousafzai et al., 2018). Results showed that the ECCE programme delivered by female youth was effective in bolstering young children's school readiness. A larger-scale evaluation in Pakistan is under way (Yousafzai et al., 2021) and the same programme is going to be implemented in Colombia in the near future. Importantly, its success indicates that a cross-generational model is a promising approach to support gender-sensitive youth employment, early childhood development outcomes and school readiness.

Sources: Yousafzai et al. (2018); Yousafzai et al. (2021); Harvard T.H. Chan School of Public Health, LEAPS – Youth Leaders for Early Childhood Assuring Children are Prepared for School. Available at: <https://www.hsph.harvard.edu/leaps/>

Box 10**Applying behavioural science to an early years reading intervention (Jordan)**

In Jordan, most children under 6 are cared for at home, but most parents do not engage in literacy-building activities. To change this cultural behaviour, the Queen Rania Foundation designed and implemented the Iqrali Programme (Arabic for 'Read to Me'), which applies a behavioural science approach to encourage parents to read with their children from birth, with the long-term goal of improving school readiness in early literacy skills.

The programme uses behavioural science approaches to affect parental behaviour by gaining deeper insights into the target population, designing targeted solutions that solve real challenges parents face and developing effective interventions, content development and messaging to increase parental reading with children.

The programme has three components:

1. Social Behaviour Change Communications (SBCC) aim to highlight for parents the benefits of reading with their children. Parents are shown that the moments of joy and bonding they can experience while reading with their children outweigh the associated cost of taking away from other parental responsibilities.
2. An intervention component provides parents with know-how and access to children's books, as well as nudge messaging and information and activities they need to start applying the behaviour.
3. A parenting platform supplies parents with resources and support on where to find age-appropriate books, how to read with children, common challenges and how to overcome them, and more.

Behavioural science approaches were used throughout all stages of the programme design.

Exploratory research:

- To gain a deep understanding of the target audience, a barriers analysis methodology was applied in a nationally representative survey to understand parent practices with children under 6 as well as the barriers and motivators to reading with children. A second phase tested social behaviour change messaging to understand what resonates with parents in Jordan using existing material and videos. This second phase helped to inform messaging for the SBCC component and across the programme.
- Influencers of parenting behaviours were studied, including grandparents, and research was conducted to better understand these influencers' role in parents' reading to children.
- Likely early adopters of reading with children from birth were identified using existing data, to help pinpoint those to target first, since once early adopters pick up the behaviour, others are likely to follow suit.

Behaviour targeting:

- A literature review was conducted to identify specific behaviours that have the most impact on early literacy skills (e.g. talking, reading, singing).
- One critical aspect of behavioural science is to focus on a single behaviour to affect. A decision was made to target reading with children from birth, since this behaviour allows for exposure to complex sentence structures, to which children would otherwise not be exposed. Moreover, reading from birth enables exposure to Modern Standard Arabic, the language of instruction at school, but often not the language spoken at home.

Solution design:

- In an exploration phase, programme designers examined the components of successful behavioural programming in other contexts and applied that evidence to their knowledge of the local context. For example, they noted that successful behavioural change takes years of consistent messaging, support to parents and resources that facilitate the uptake of desired behaviour.
- Designing for the context necessitated a deep understanding of the context, as well as working with key stakeholders to co-design strategy and specific interventions.

Solution testing:

- In 2024, efforts are focused on feasibility and impact testing, refining interventions to maximize impact and optimizing for larger scale implementation. Behavioural science approaches are being applied in the use and choice of data collection tools.

Through the Iqrali programme, the Queen Rania Foundation aims to reach 500,000 parents and children in Jordan and increase the percentage of parents who read with their children at home. Creating long-lasting behavioural change takes five to eight years (depending on context) and the Foundation's plan to reach scale includes three phases: 1) testing and piloting (2024–2025); 2) scaling (2026–2027); and 3) running at scale (2028–2030).

Source: Queen Rania Foundation, www.qrf.org

Social protection and housing policies can address multiple levels of disadvantage for vulnerable children

Social protection and housing policies are other parts of a societal approach that can effectively and efficiently protect and promote the living conditions of families and children, which in turn strengthens critical elements of children's well-being and family home learning environments that are essential to making the most of ECCE investments.

Indeed, without complementary policies to address the multiple sub-standard living conditions experienced globally by families with children, these conditions stymie child development from day one and contribute significantly to the learning crisis.

Social protection policies can improve the quality of early learning environments

Social protection policies refer to policies that are designed to reduce income and material poverty risks among households and aim to promote family resilience to income shocks. Evidence from a large range of countries shows that social protection policies can link poverty reduction through family policies with increased investment in social conditions that drive foundational education outcomes, such as through parental leave policies and early child care or pre-school policies, as discussed above, and family cash transfers (Richardson et al., 2020).

There is good evidence to show that child cash grants (including conditional benefits) and family tax credits directed to families for child-rearing can significantly reduce monetary poverty and inequality to varying degrees in different contexts, improve access to health care and outcomes for parents and children, and promote school access and child cognition (including for Indigenous children) (Christl, De Poli and Varga, 2022; Hadna and Askar, 2022; Hincapié, 2021; Macours et al., 2012; Pellerano, Porreca and Rosati, 2020;

Pilkauskas and Michelmore, 2019; Premand and Barry, 2022; Sabates et al., 2019; Whitehouse et al., 2012; Wędrowska and Muszyńska, 2021).

Cash benefits can also support improvements in parenting practices and parental engagement in community groups, as well as the uptake of family services (de Milliano et al., 2021; Fernald et al., 2017), and these behavioural changes are linked to improvements in the home learning environments of pre-school children. Social protection in the form of child cash grants has also been shown to increase consumption related to dietary diversity, preventative health treatments, access to materials for early stimulation (not uniformly education services) and lower housing cost burdens, factors directly related to early learning and well-being. Evidence also links family cash transfers to reductions in conflict in the home and improved parental mental health (Richardson et al., forthcoming).

Overall, evidence suggests that child cash grants that work to address poverty risks and improve living conditions can impact parenting practices and home learning environments, in low-, middle- and high-income settings. A recent global literature review found positive results for conditional cash transfers with the specific goals of improving educational outcomes in Colombia, Indonesia and Nicaragua; for unconditional cash transfers in Ghana and Rwanda; and for cash transfers combined with 'nudging' or 'soft' conditionality in Lesotho, as well as in Mexico and Niger when specifically combined with parental behavioural programmes (Richardson et al, forthcoming). Broader evidence for positive effects in high-income countries has already been established in earlier reviews (e.g. Richardson et al, 2020). Although it covers school-aged children, **Box 11** illustrates the potential of social protection policies for supporting both parental skills development and children's education.

Box 11**Social policies addressing family poverty to promote education (Rwanda)**

Children around the world are still facing a multitude of barriers to accessing schools, with poverty remaining one of the most obstinate (UIS and UNICEF, 2015). Social protection policies, such as conditional and unconditional cash transfer programmes, are regularly used to try to ease income constraints on households and facilitate investments in children's education, such as through school-related fees and costs (e.g. uniforms, transportation and materials).

Using a quasi-experimental design, Sabates et al. (2019) evaluated the influence of unconditional cash transfers on educational investments made by parents, in terms of school uniforms and their children's access to education, measured through school attendance. The Concern Worldwide Graduation programme was implemented in Kibeho and Rusatira, two rural sectors in Rwanda, in 2012, with the purpose of increasing the productivity of low-income households and strengthening their resilience to shocks. The programme included cash transfers, sensitization and reinforcement of savings activities and skills development. The programme ran for 12 months, with results measured at baseline, at the end of the transfer period, and two years after the transfer period, for beneficiary and control groups.

The results on educational investments were limited to a subset of households with school-aged children (aged between 7 and 16 years). Results found that after 12 months of cash transfers, the proportion of children in beneficiary households with school uniforms increased from 31% to 71%. Additionally, a significantly higher proportion of beneficiary children were found to have a school uniform two years after leaving the programme. However, no difference was found between the beneficiary and control groups regarding the likelihood of the children attending school. Researchers suggest that this may reflect the already high percentage of children attending school at baseline, or be due to the programme not being sufficiently focused on that purpose, as increasing investments in education was one of multiple options available to beneficiary households.

The impact of this programme aligns with findings from evaluations of numerous cash transfer programmes, adding to evidence that these can be effective in increasing parents' educational investments without being conditional on it. It also brings to light the complexities present in utilizing such programmes, and the need for coordinated and multisectoral action on removing economic barriers to children's access to school.

Source: Richardson et al. (forthcoming).

Housing policies can promote early learning opportunities and improve children's well-being

Evidence on housing policies and their effects on conditions conducive to children's early learning and well-being shows that policies that provide supportive and stable housing for families can significantly reduce the institutionalization of children, reduce child maltreatment associated with homelessness and promote short-term employment gains for parents, all of which impact children's early learning and well-being (Bassuk et al., 2014; Fowler et al., 2018). Children experiencing more movements between unstable housing conditions are more likely to be disconnected from key family

and educational services, as well as live in households that are less likely to establish and maintain a stock of home learning materials. In their review, Richardson et al. (forthcoming) found evidence of the detrimental effects of poor housing conditions on children's health in 33 sub-Saharan African countries and Bangladesh, as well as detrimental effects of poor housing conditions on child health, mental health and cognitive development of children in OECD countries. The review also found evidence on specific types of housing policies that promote the stability conducive to improvements in children's well-being and cognitive abilities as well as parenting practices. These included housing vouchers, rapid rehousing and permanent supportive housing in the United States (Richardson et al., forthcoming).

Measuring quality in ECCE is hampered by the lack of standardized and contextualized data for the youngest children

Defining universal quality standards that can enable monitoring of the learning environments of very young children is a global challenge. Monitoring quality in ECCE environments is complicated by the fact that, globally, many countries lack robust and evidence-based quality standards, especially for home-based child care and pre-schools serving children aged 0 to 3. Even when regulations and quality standards are well developed, many countries lack effective roll-out, monitoring and enforcement of standards (World Bank, 2021).

Box 12

Data desert: The developmental status of children under 3 years

Although it is well established that children's first three years of life ('the first 1,000 days') play a critical role in their early development, internationally validated tools to assess the development of children in this age range, particularly below 2 years of age, remain scarce, and as a consequence, few globally comparable data are available. To fill this gap, the Global Scales for Early Development (GSED, version 1.0) was launched by the World Health Organization in February 2023. The GSED consists of two measurements: (1) a caregiver-reported Short Form (SF) and (2) a directly-administered Long Form (LM). Considering the concerns around the accuracy of caregivers' subjective reporting, current evidence shows that the psychometric properties of the SF and LM are comparable. In light of this validation, and to facilitate the integration of GSED into large-scale and national-level surveys, a caregiver-reported Household Form (HF) is being tested. These measurement tools (SF, LM, HF) yield a Development Score (D-score) intended to capture children's holistic development across multiple domains, including cognitive, motor, language and social-emotional. To complement this, another caregiver-reported Psychosocial Form (PF) is also being tested to measure non-normative developmental patterns such as behavioural or regulatory challenges. All GSED scores can only be interpreted at population or group level and are not intended to be used for screening or diagnosis of individual children. To date, validation has been completed in Bangladesh, Pakistan and the United Republic of Tanzania and data collection is ongoing in Brazil, China, Côte d'Ivoire and the Netherlands.

Source: Based on World Health Organization (2023b). Available under [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/by-nc-sa/3.0/igo/)

Monitoring quality in informal care settings is especially problematic as data are virtually non-existent. In particular, data are needed for better understanding the diversity of actors and environments in the 0 to 3 years age group, their needs and challenges, the types of formal, informal, and non-formal care arrangements, the costs to households, and the training and qualifications of the people taking care of society's youngest children. Different standards of quality will be needed for different types of programmes and different age groups. Some progress is being made, as illustrated in **Box 12**.

Raikes et al. (2023) break down 'quality' into three core components: structural quality; process quality; and quality as defined by culturally relevant goals for children's learning and development. Structural quality refers to teacher qualifications, teacher-to-children ratios, curriculum and the physical environment. Process quality covers the quality of teacher-child interactions and access to learning materials and age-appropriate pedagogical activities. We already covered process and structural quality in the previous sections.

The third component refers to cultural or contextual quality, which covers the articulation of culturally or contextually relevant learning and development outcomes for all children regardless of ECCE type or setting. For example, in sub-Saharan Africa, initiatives aim to bring culturally specific, home-based learning practices into ECCE curricula and relevant services, especially those aimed at language minority and Indigenous populations (Wadende et al., 2016). Colombia's national Early Childhood Development policy includes a mechanism to include multiple Indigenous groups' definitions of quality in national quality standards, curricula, workforce roles and budgeting (Motta and Yoshikawa, 2018).

A broader approach that builds culturally specific socialization goals and practices into conceptualizations of quality with contemporary applications is also emerging (Ejuu, Apolot and Serpell, 2022). For example, social responsibility, a concept usually lacking in global definitions of SEL and development, is central to some African understandings of child development (Serpell, 2011). In South Asia, regional guidelines were developed for establishing service quality standards that promote a shared vision for the provision of holistic and comprehensive early childhood development services aligned with the principles of child rights, equity and inclusion, and acknowledging the critical role of parents and families as primary caregivers (Venita, 2020).



Monitoring quality in ECCE environments is complicated by the fact that, globally, many countries lack robust and evidence-based quality standards, especially for home-based child care and pre-schools serving children aged 0 to 3.

Conclusion

To improve the ECCE ecosystem, a first requirement is better data, which should inform the definition of standards: we cannot create quality structures if we have not decided what quality means. However, one thing we know for sure is that to provide quality ECCE, we need well-trained teachers. At the moment, millions more and better trained teachers are needed, especially in low-income countries. A priority for governments and for the international community must be to increase teacher supply and improve teacher training. Family-friendly policies, too, are important in ensuring that those who support children are themselves

appropriately supported. Parental leave, breastfeeding support, access to quality childcare, child benefits, as well as social protection and housing policies can all help ensure that children have safe, secure and supportive environments that can enable them to develop and learn.

To be successful, all these policies need to be properly funded. In the next chapter, we discuss the funding of the ECCE ecosystem, from its current shortcomings to the innovations that could inform its possible future development.



CHAPTER 5

How is ECCE financed? Domestic and international efforts in ECCE financing

Highlights

01

A wealth of calls to action have challenged the world to increase investment in ECCE, but with limited results.

- ▶ Governments have been called on to allocate at least 10% of national education budgets to pre-primary education.

02

Domestic spending on pre-primary education is unequal and below the international benchmark.

- ▶ Of 98 countries with data, global median spending on pre-primary education is just 0.4% of GDP.
- ▶ In general, between 2010–2012 and 2019–2021, the share of GDP allocated to pre-primary education has increased by 28% globally, indicating that countries are prioritizing financing for this subsector.

03

Development aid needs to address the large financing gap in pre-primary education.

- ▶ Development aid for pre-primary education rose to USD 282 million in 2022, an increase of 40% between 2021 and 2022, with an average annual growth rate of 8% since 2010.
- ▶ But pre-primary education has a small share of overall education aid, at 1.7% of total direct aid to education in 2022.

04

The financing gap in pre-primary education is much more serious than in other levels of education.

- ▶ Achieving the national targets for one year of pre-primary education in 79 low-income and lower-middle-income countries will cost a cumulative USD 354 billion between 2023 and 2030, or USD 44 billion per year on average.
- ▶ The annual average financing gap between 2023 and 2030 is estimated at USD 21 billion or 47% of the total cost of achieving national targets for one year of pre-primary education.

05

Some countries have been exploring alternative financing sources and mechanisms, often engaging non-state actors.

- ▶ Alternative funding sources include outcomes funds, impact bonds, payroll taxes and lending from financial institutions.

In this chapter, we explore the ongoing calls to increase funding for ECCE, calls that continue to receive an inadequate response. We examine domestic spending on ECCE, including government expenditures and household burdens. We then explore international funding as well as some innovative ways to increase financial resources for ECCE through stakeholder cooperation.

A wealth of calls to action have challenged the world to increase investment in ECCE

The Moscow Framework in 2010 issued a call to increase investment for the provision of ECCE services and programmes. The framework called on Member States to increase financing from all sources, including government departments, the private sector and donor funding. However, no specific financial target was identified. The Education 2030 Agenda in 2015 set two key financial benchmarks for education spending in general: allocate at least 4% to 6% of GDP to education, and/or allocate at least 15% to 20% of public expenditure to education. It did not specify a financial allocation target for each education level, but encouraged Member States to provide 'at least one year of free and compulsory quality pre-primary education', thereby pushing countries to consider the financial costs (UNESCO, 2016, p. 7). This declaration articulated more specifically the need to supplement public spending with international aid from multi-stakeholder partnerships, including the private sector, foundations and philanthropic organizations. Although the call to increase financing was directed to the entire education sector, a recommendation was made to prioritize donor aid to neglected sectors, such as ECCE.

Nevertheless, the adoption of the Education 2030 Agenda spurred the international community to explore and establish benchmark recommendations. As a result, since 2015, groups of researchers, foundations and international agencies have called on governments to allocate at least either 1% of GDP or 10% of national education budgets to pre-primary education. These figures are based on empirical cost estimates of the minimum acceptable public spending for quality provision of pre-primary education, that is, for children aged from 3 years to the start of primary education, and may include an educational component, or only nutrition, health or other child protection services. Where there is an education

component, variability may exist based on quantity, duration and student-teacher ratios, which countries would need to consider based on national feasibility and sustainability (Ravens et al., 2023; Razquin and Newman, forthcoming).

Recently, even more explicit calls have been made for increasing investments in education. Such calls include the Paris Declaration: A Global Call for Investing in the Futures of Education, released at the conclusion of the Global Education Meeting in Paris in 2021 (Global Education Meeting, 2021). The declaration was issued in the wake of the COVID-19 pandemic in response to the educational and social inequalities that the pandemic exacerbated. Member States expressed concern about the financial impact of the pandemic on education financing, particularly in low- and lower-middle-income countries, where less than 1% of COVID-19 stimulus packages was allocated to education.



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As part of the call to invest in key policy priorities for recovery and accelerated progress in education, specific mention was made of the need to invest in inclusive and equitable care and education from the earliest ages. Although the declaration reiterated the call for governments to allocate at least 4% to 6% of GDP and/or at least 15% to 20% of total public expenditure to education, no specific mention was made of the amount to be allocated to the ECCE sector.

Explicit mention of increasing investment in the ECCE sector appeared in one of the Calls to Action issued at the conclusion of the UN Transforming Education Summit held in September 2022. The Call to Action to Invest More, More Equitably and More Efficiently asked Member States to ‘make sure educational investment is equitably distributed at all levels of education, starting with pre-primary, with special attention to those most vulnerable’ (United Nations Transforming Education Summit, 2022).

Despite this specific call, there was no mention of a financial target for the ECCE sector.

The Tashkent Declaration is the first international text adopted by Member States which recommends that countries ‘increase financing for ECCE to a level sufficient to achieve SDG Target 4.2, in particular, working towards the allocation of at least 10 per cent of education expenditures to pre-primary education, and prioritize and reorient public expenditures for ECCE to focus on the poorest and most disadvantaged’ (UNESCO, 2022d, p. 5). The Declaration further states that ‘new measures are needed to increase funding for ECCE through increased public expenditures and well-regulated partnerships, including with the non-profit, private and social sectors’ and that ‘legal frameworks should be built to ensure [ODA] is used to support the implementation of public policies and strengthen State responsibility for ECCE’ (UNESCO, 2022d, p. 4).

Domestic spending on pre-primary education is unequal and below the international benchmark

Internal or domestic sources include a country’s public sector spending at national or subnational levels, as well as private spending by households and non-state actors. **Table 6** illustrates government expenditures on pre-primary education by region and income level, based on 98 countries with available data from 2019 to 2021.⁹

It is important to note that the analysis is restricted to the pre-primary level, meaning services and programmes for children aged from 3 years until the age of entry into primary school.

Of the 98 countries with data, the global median spending on pre-primary education is just 0.4% of GDP.

The analysis indicates that low-income countries and the sub-Saharan Africa region are struggling even to make data available, which makes it impossible to estimate the median spending of these countries. Europe and Northern America, along with Central and Southern Asia, spent a median of 0.5% of GDP on pre-primary education. For Europe and Northern America, this amounted to a median of 11.9% of total education expenditures on pre-primary education. All other regions spent below the target of 10%. High-income countries dedicated about 0.4% of GDP or 10.3% of total education expenditures to the pre-primary level, while upper-middle-income countries spent on average a median of 0.3% and 6.9%, respectively.

⁹ Data for this analysis are drawn from a database held at the UNESCO Institute for Statistics (UIS) that pools data from any year between 2019 and 2021 (except for Bermuda, the only country with 2022 data). Depending on the indicator, the data set covers 94 to 98 countries of all 194 countries in the UIS data set (representing about 48%–51% of all countries). On average, only 29% of countries have data for any year (non-pooled data) between 2019 and 2021. For comparison purposes, average data availability is 59% of all countries before the SDG 4 years (2010 to 2015). Regional and income level medians and averages are only reported for regions or income groups with 50% or more of countries with data.

Table 6

Government expenditures on pre-primary education by region and income group, latest pooled data available for 2019–2021

Region and income group	Total # countries	As % of GDP		As % of total education expenditure	
		% countries with data	Median	% countries with data	Median
By region					
Central and Southern Asia	15	53	0.5	47	--
Eastern and South-Eastern Asia	17	53	0.2	53	6.5
Europe and Northern America	47	72	0.5	72	11.9
Latin America and the Caribbean	40	53	0.3	53	5.7
Northern Africa and Western Asia	16	56	0.3	44	--
Oceania	13	38	--	31	--
Sub-Saharan Africa	46	26	--	26	--
By income group					
Low-income countries (LICs)	24	13	--	13	--
Lower-middle-income countries (LMICs)	51	49	--	43	--
Upper-middle-income countries (UMICs)	46	57	0.3	57	6.9
High-income countries (HICs)	69	62	0.4	61	10.3
Unclassified	4	25	--	25	--
Total	194	51	0.4	48	--
		(N=98)		(N=94)	

Note: All calculations are those of the authors and explained in Razquin and Neuman (forthcoming). Countries are classified according to the income groupings of the World Bank.

Source: Razquin and Neuman (forthcoming).

The analysis reveals that about one-quarter of all countries worldwide (representing 53.3% of the 94 countries with data) need to increase their allocations to pre-primary education in order to meet the target of 10% of education budgets. Only about one-third of countries (with data) are close enough to meet this target. The rest are so far from allocating at least 10% of education expenditures to pre-primary education that current financing efforts are nearly negligible.

In general, between 2010–2012 and 2019–2021, the share of GDP allocated to pre-primary education has increased by 28% globally, indicating that countries (at least those with data) are prioritizing financing for this subsector.

As expected, progress varies by region and income group and some regions have decreased investments. For example, countries in Eastern and South-Eastern Asia have increased the share of GDP allocated to pre-primary education by 67.1% (or 72.4% of total education expenditures). By contrast, countries in Latin America and the Caribbean have regressed. On average, spending decreased in this region by 5% of GDP (or -4.1% of total education expenditures) from 2010–2012 to 2019–2022. However, even though some regions have increased their spending on pre-primary education over the period, in general, less is being spent, which is true for high-income countries as well (Table 7). For example, although high-income countries have seen an average increase of 6.9% of total education expenditures on pre-primary, this represents a decrease of 3% of GDP.

Table 7**Changes in government expenditures in pre-primary by region and income group (2010–2012 to 2019–2021)**

Region and income group (N=Total # countries in group)	As % of GDP			As % of total education expenditure		
	Median (% countries with data)		% change	Median (% countries with data)		% change
	2010/12	2019/21		2010/12	2019/21	
By region						
Central/Southern Asia (N=15)	0.41 (53%)	0.50 (53%)	20.07	-- (47%)	-- (47%)	--
Eastern/South-Eastern Asia (N=17)	0.12 (59%)	0.21 (53%)	67.1	3.76 (59%)	6.49 (53%)	72.44
Europe/Northern America (N=47)	0.51 (79%)	0.54 (72%)	5.82	10.95 (79%)	11.87 (72%)	8.42
Latin America/Caribbean (N=40)	0.28 (68%)	0.27 (53%)	-5.00	5.96 (63%)	6.71 (53%)	-4.11
Northern Africa/Western Asia (N=16)	0.24 (50%)	0.31 (56%)	25.06	-- (44%)	-- (44%)	--
Oceania (N=13)	-- (31%)	-- (38%)	--	-- (31%)	-- (31%)	--
Sub-Saharan Africa (N=46)	-- (59%)	-- (26)	--	1.96 (57%)	-- (26%)	--
By income group						
Low-income (N=24)	0.01 (50%)	-- (13%)	--	0.50 (50%)	-- (13%)	--
Lower-middle-income (N=51)	0.14 (55%)	-- (49%)	--	3.98 (51%)	-- (43%)	--
Upper-middle-income (N=46)	0.26 (76%)	0.33 (57%)	26.72	6.85 (72%)	6.87 (57%)	0.33
High-income (N=69)	0.45 (64%)	0.43 (62%)	-2.87	9.62 (62%)	10.29 (61%)	6.90
Unclassified (N=4)	0.38 (50%)	-- (25%)	--	11.18 (50%)	-- (25%)	--
Total (N=194)	0.27 (62%)	0.35 (51%)	28.36	6.89 (60%)	8.26 (48%)	--

Note: All calculations are those of the authors and explained in the report. Countries are classified according to the income groupings of the World Bank.

Source: Razquin and Neuman (forthcoming).

Reliable and systematic data needed to get a clear understanding of government spending on ECCE are lacking. Another issue with determining total domestic spending is that government expenditures do not track households' direct and indirect spending towards the care and education of their children. For example, even in countries where pre-primary education is free, some household costs may not be visible in government budgets, such as the costs of daily meals, supplies, school uniforms or supplemental fees for child care workers. When government expenditures fail to cover the costs for universal pre-primary education, the burden falls on private households to compensate. This situation is particularly challenging in low- and lower-middle-income countries, where historical underinvestment in public provision has given rise to private, non-state actors. This has resulted in unequal access, excluding many children from low-income families and widening the opportunity gap between children from the poorest and wealthiest households. Globally, household economic status is among the most common barriers to a child's participation in pre-primary education (UNICEF, 2019c). One innovative mechanism to assess the financial burden of paying for pre-primary education for households is presented in **Box 13**.

Several strategies are available to governments for building national child care service systems that are affordable for families and of good quality. Governments can fund the supply of child care by giving subsidies to facilities, for example, by subsidizing private child care centres, or by offering a free public service. Governments can also fund the demand for child care by providing subsidies to parents to pay for private child care services. **Figure 28** illustrates how pre-primary education for children aged 3 years and above is financed between households and governments in the countries surveyed by the International Labour Organization. Out of the 178 countries surveyed, 105 countries have a statutory pre-primary education service system for children between the age of 3 and the start of primary education, meaning that the government is providing nationwide regulation and funding for publicly organized child care services.

Box 13

Assessing the household financial burden for pre-primary education and associated socio-economic inequalities

Ensuring universal access to quality pre-primary education requires adequate investment and effective design of cost-sharing mechanisms between governments and households. However, in many low- and middle-income countries, government financial support for pre-primary education remains limited, which, combined with socio-economic inequalities, makes it difficult for many households to pay for pre-primary education.

To remove household financial barriers and achieve universal pre-primary education, policy-makers need a mechanism for identifying families that would incur a heavy financial burden from paying for pre-primary education, so that effective policy instruments can be designed to support families that most need financial assistance. To achieve this, the education sector could learn from the health sector, where household spending on health care is also a challenge in low- and lower-middle-income countries. An approach measuring 'catastrophic health spending' is in use by the World Bank and the World Health Organization to assess the effects of national health policies. For example, the World Bank defines a household as having catastrophic health spending if it spends 10% or more of its total annual expenditures on health. The 10% cut-off has been widely used as an important policy measure for tracking progress towards universal health coverage.

Some experts have proposed that a similar approach could be used to identify households incurring heavy financial burdens from paying for pre-primary education (HBPPE). A financial threshold could be implemented to measure household financial burden, which could then be used to hold governments accountable for their promise to implement SDG Indicator 4.2.2.

Since a threshold of 10% of a household's spending on health has been accepted as 'catastrophic' to households in low- and low-middle-income countries, the same threshold could be applied for household payments for pre-primary education as well. In the United States, the Office of Child Care under the Department of Health and Human Services established the federal benchmark at 7%. Households receive subsidies if their out-of-pocket spending on pre-primary education exceeds 7% (previously 10%) of household income. This 7% threshold could also be applied to the context of low- and middle-income countries, since the cut-off established by the United States is in terms of proportion of income rather than actual income; if 7% of income is considered unduly burdensome in a high-income country, it should also be considered so in low- and middle-income countries.

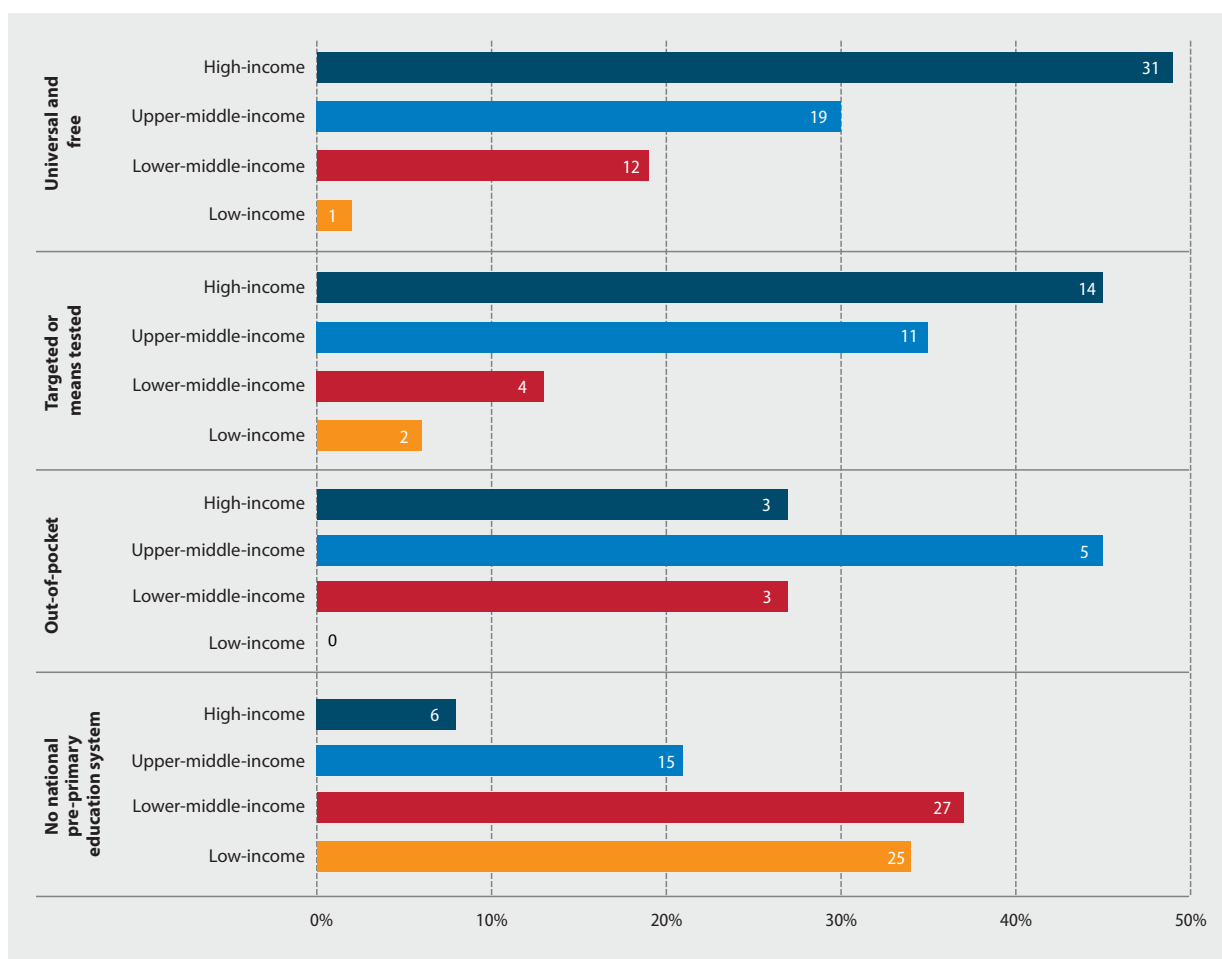
Source: Based on Wei et al. (2023). Available under [CC BY](#).

Governments can also provide targeted services that are directed towards certain populations or are means tested (Figure 28). Cost-sharing between governments and households is one available mechanism, whereby child care services are fully or partially paid by the government for parents whose child care needs cannot be met out of their own resources. Globally, 63 countries provide universal pre-primary education services that are entirely subsidized by the government. In 31 countries, pre-primary education services are targeted, meaning

they are directed towards certain populations or are means tested. In 11 countries, parents must pay out-of-pocket costs to access national pre-primary education services (International Labour Organization, 2022).

Domestic financing of the ECCE ecosystem can be complex, especially in the case of federated countries. Box 14 illustrates how Canada is implementing a universal and inclusive child care service system with cost-sharing between households and governments.

Figure 28
Types of financing strategies for pre-primary education for children aged 3 years and above between governments and households, by number and per cent of countries (2021)



Note: Numbers of countries are shown in the bars, while bar length represents the percentage of countries providing that type of strategy.
 Data Source: International Labour Organization, 2023, Global Care Policy Portal. Available at: <https://www.ilo.org/globalcare/?language=en#home>

Box 14**Multilateral cooperation for financing a low-cost, universal and inclusive child care system (Canada)**

Canada is a federation, composed of ten provinces and three territories. Under the Constitution Act (1867), provinces and territories are responsible for managing and delivering a range of programmes and services, including early learning and child care (ELCC). Each province and territory has its own system governed by legislation and regulations, including establishing licensing standards. Early learning and child care services in Canada are a mix of publicly and privately delivered programmes and services. Indigenous governments can also exercise jurisdiction in ELCC and have essential Indigenous control in the design and delivery of child care for Indigenous children.

Working with provincial, territorial and Indigenous partners, the federal government is aiming to build a Canada-wide ELCC system to ensure that families in Canada have access to affordable, high-quality, flexible and inclusive ELCC, no matter where they live.

ELCC multilateral frameworks

In 2017, in recognition of their shared commitment to increase access to high-quality, affordable, flexible and inclusive ELCC for children in Canada, federal, provincial and territorial governments, with the exception of the province of Quebec, signed the Multilateral ELCC Framework. (Canada and Quebec signed an asymmetrical agreement to provide funding to support additional direct services for families; Quebec is seen as a leader in early learning and child care in Canada and has been investing significantly in family policy and services since the Québec Educational Child care Act was instituted in 1997). A complementary distinctions-based Indigenous ELCC Framework was co-developed with Indigenous Peoples and released in 2018. Both Frameworks set out principles to guide joint investments in ELCC. Federal Indigenous-specific ELCC investments seek to advance federal-Indigenous priorities aimed at realizing change in structures and programmes relating to governance, capacity and culturally appropriate care.

Canada-wide ELCC system

Canada's 2021 federal budget made a transformative investment of nearly 30 billion Canadian dollars (CAD) over five years to build a Canada-wide ELCC system, including CAD 2.5 billion over five years targeted directly to Indigenous ELCC. Combined with previous investments since 2015, it also committed to ongoing annual investments of no less than CAD 9.2 billion for ELCC and Indigenous ELCC, starting in 2025–2026. A Federal, Provincial and Territorial Forum of Ministers Most Responsible for ELCC was established in 2022 to allow ministers to meet, share information and advance shared priorities, with the province of Quebec participating in the Forum as an observer.

Of this investment, more than CAD 27 billion over five years is being provided to provincial and territorial governments via negotiated bilateral agreements to support and grow the ELCC system within their jurisdictions. Federal funding is provided in addition to existing provincial and territorial investments in ELCC. These agreements include commitments for reaching shared objectives. Key objectives include reducing parent fees for regulated ELCC to an average of CAD 10 per day and the creation of 250,000 new regulated spaces across Canada by 31 March 2026. As of January 2024, over half of the provinces and territories in Canada (everywhere outside of Quebec) are delivering regulated ELCC for an average of CAD 10 per day or less; the remaining jurisdictions have reduced fees by at least 50% from 2019 levels.

Federal ELCC legislation

To support a lasting federal commitment to increasing access to affordable, high-quality, inclusive and flexible ELCC, the federal Minister of Families, Children and Social Development introduced the Canada Early Learning and Child Care Act (Bill C-35) in Parliament on 8 December 2022 and adopted on 29 February 2024. The Act enshrines the principles of a Canada-wide ELCC system, as well as a federal commitment to maintain long-term federal funding for provinces, territories and Indigenous peoples, into federal law. It also requires the federal government to report on federal investments and progress being made on the Canada-wide system, and enshrine in law the National Advisory Council on ELCC, composed of caregivers, practitioners, academics and advocates, which has the role of providing third-party expert advice to the Government of Canada and serves as a forum for engagement on issues facing the early learning and child care sector.

ELCC Innovation Program

Starting in 2018, the Government of Canada has also committed to the ELCC Innovation Program CAD 100 million over ten years and CAD 15 million annually, ongoing, starting in 2028–2029. This programme funds eligible organizations to support ELCC projects that explore, test and develop innovative approaches, which aim to improve the quality, accessibility, affordability, inclusivity and flexibility of ELCC programmes and services. Twenty-two organizations received funding as a result of the 2020 Call for Proposals.

Sources: Government of Canada (2017); Government of Canada (2018a); Government of Canada (2018b).

Development aid needs to address the large financing gap in pre-primary education

Disbursements of official development assistance (ODA) for one year of pre-primary education have seen a significant upward trend in recent years, reaching a peak of USD 282 million in 2022, marking a substantial 40% increase from the 2021 allocation of USD 201 million, and almost triple the figure in 2010 (Figure 29).

Fluctuations in disbursement patterns can be attributed to the limited number of donors contributing to this sector. Nonetheless, pre-primary education has gained increasing attention over the years, with an impressive average annual growth rate of 8% in real terms since 2010. The disbursement amount in 2022 is approximately four times larger than that of 2017.¹⁰

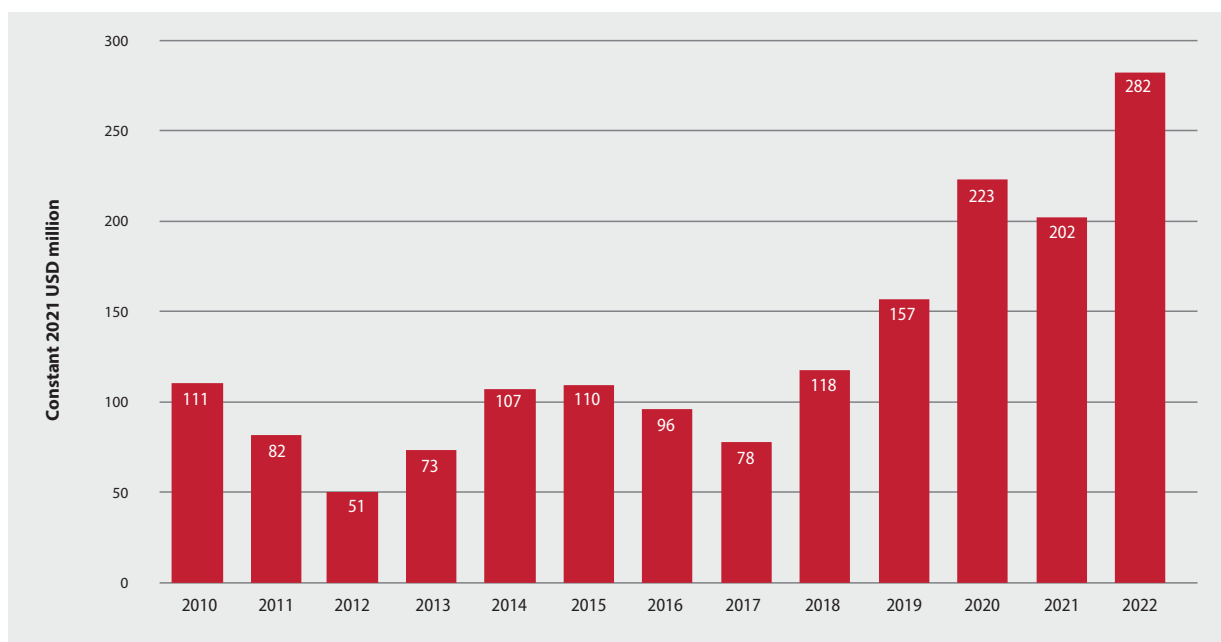
Despite this notable increase, pre-primary education still constitutes a relatively small share of overall education aid, accounting for a record

high of 1.7% of the total direct aid to education

in 2022. This share has experienced a considerable rise from its lowest point of 0.4% in 2014, steadily increasing to over 1.0% by 2019. Since then, pre-primary education has consistently maintained its share above 1.0%.

Among bilateral and multilateral donors providing data for reporting, the World Bank's International Development Association (IDA) has consistently maintained its position as the primary contributor over the past three years. Notably, from 2020 to 2022, the World Bank's annual average contribution amounted to a substantial USD 129 million. However, contributions from other donors have been comparatively modest. UNICEF emerges as the second-largest donor, with a contribution of USD 19 million, closely followed by the EU at USD 18 million (Figure 30).

Figure 29
Donor aid to one year of pre-primary education (2010–2022)

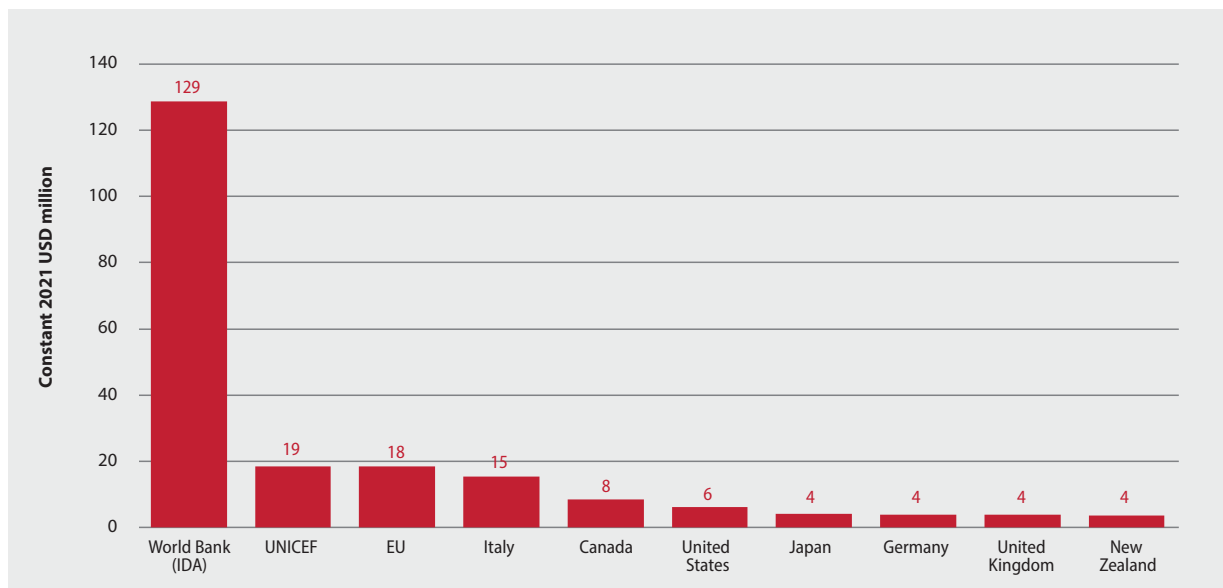


Note: Amount of aid (in million USD) for each year is given in the bars.

Source: Global Education Monitoring Report team analysis based on OECD Creditor Reporting System, 2024.

¹⁰ The OECD's Development Assistance Committee (DAC) publishes its Official Development Assistance report using its Creditor Reporting System (CRS). In the CRS framework, ECCE is defined as early childhood education that constitutes formal and non-formal pre-school education. The level of education is part of basic education and categorized as a subset of the education sector within allocable aid. CRS records donor aid activities based on disbursement allocation, organized by project. Despite education aid projects incorporating ECCE, unless it constitutes a significant component, the allocation does not fall under the early childhood education category. Consequently, the calculated value may underestimate the actual funds dedicated to the sector.

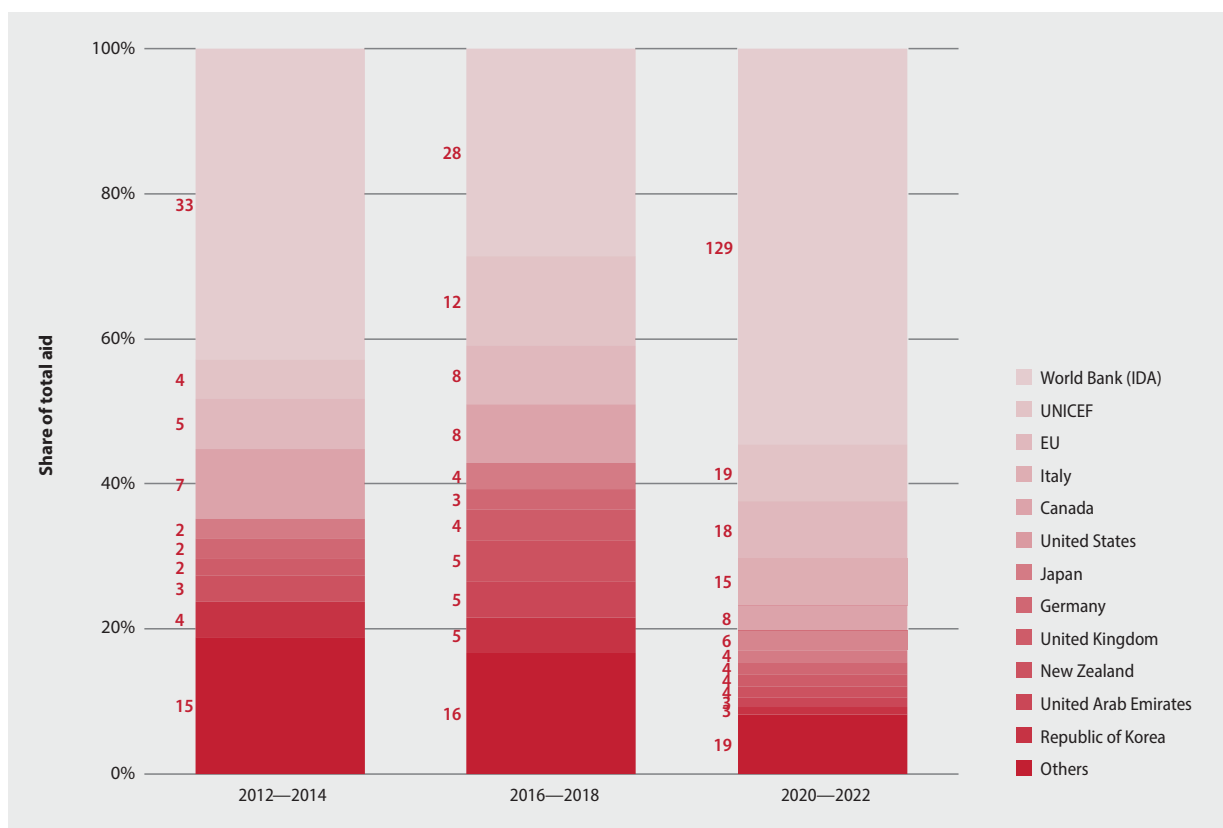
Figure 30
Top 10 largest donors to one year of pre-primary education, three-year annual average (2020–2022)



Note: Amount of aid (in million USD) from each donor is given above the bars.

Source: Global Education Monitoring Report team analysis based on OECD Creditor Reporting System, 2024.

Figure 31
Bilateral and multilateral donors in total aid to one year of pre-primary education, three-year annual averages (2012–2014, 2016–2018, 2020–2022)



Note: Amount of aid (in million USD) for each region is given beside each bar.

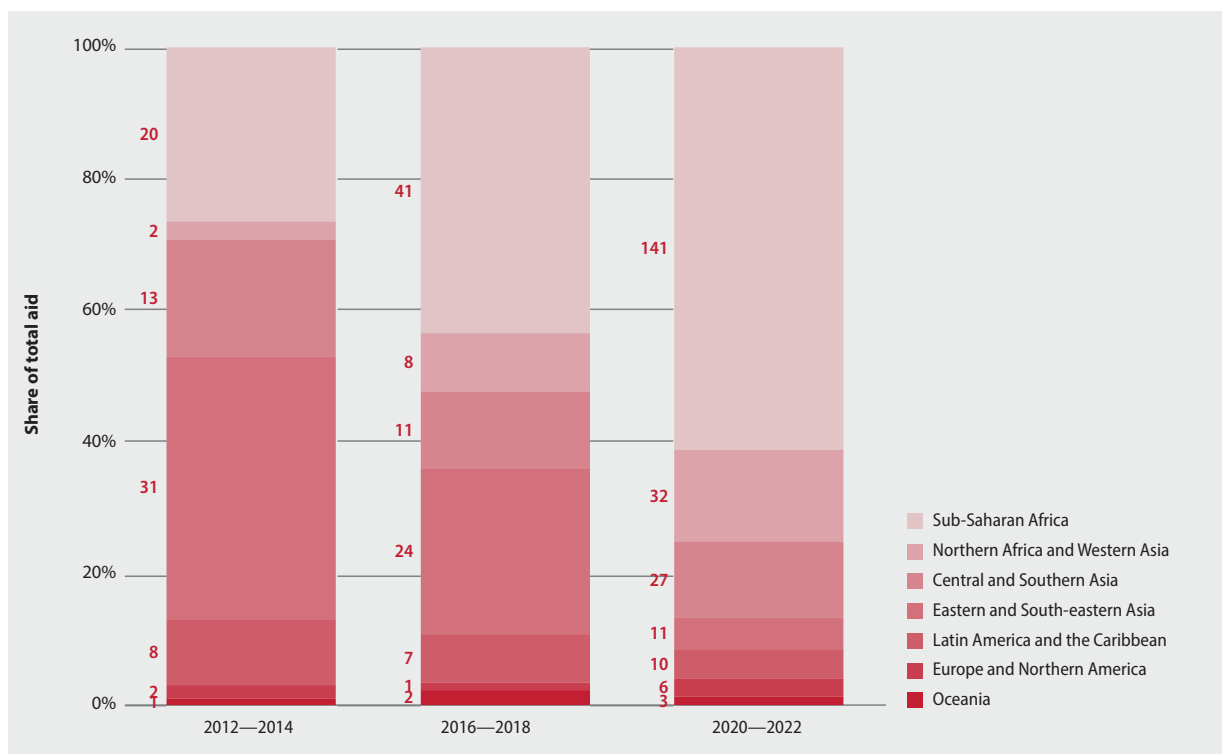
Source: Global Education Monitoring Report team analysis based on OECD Creditor Reporting System, 2024.

The World Bank’s contribution ranged from a low of 30% in 2016–2018 to a high of 55% in 2020–2022 (Figure 31). Over a three-year period, from 2012–2014 to 2016–2018, UNICEF’s contribution exhibited a remarkable surge, increasing nearly fivefold from USD 4 million to USD 12 million.

Given its need to address the challenges posed by population growth and the increasing number of children in need of ECCE, sub-Saharan Africa is the region with the most pressing demand for donor contributions. It appears that donor responses have aligned with this demand, evidenced by the rise in aid allocated to pre-primary education. Specifically, aid in sub-Saharan Africa surged from an annual average of USD 20 million in 2012–2014 to USD 41 million in 2016–2018, and further increased to USD 141 million in 2020–2022 (Figure 32).

Conversely, aid to one year of pre-primary education in Eastern and South-Eastern Asia has experienced a gradual decline, decreasing from USD 31 million in 2012–2014 to USD 24 million in 2016–2018, and dropping further to USD 11 million in 2020–2022. While the increase in aid to sub-Saharan Africa is encouraging, the overall aid package of USD 282 million is distributed among 133 recipient countries and regions. This distribution reveals a concerning level of aid fragmentation, ranging from a substantial contribution to the United Republic of Tanzania at USD 41.2 million to much lower amounts provided to countries like Eritrea and the Islamic Republic of Iran, slightly surpassing USD 1000 each on a three-year annual average.

Figure 32
Aid flows to one year of pre-primary education by region, three-year annual averages (2012–2014, 2016–2018, 2020–2022)



Note: Amount of aid (in million USD) for each region is given beside each bar.

Source: Global Education Monitoring Report team analysis based on OECD Creditor Reporting System, 2024.

Financing gap in pre-primary education is much more serious than in other levels of education

Using the SDG 4 benchmarks established by 79 low- and lower-middle-income countries, a costing exercise was conducted to explore the amount of financing needed for achieving countries' SDG Indicator 4.2.2 national targets (the participation rate in one year of organized learning before entry to primary school) before 2030. The costing analysis encompasses the period from 2023 to 2030 and reveals a significant financing gap (UNESCO, 2023a).

The costing exercise revealed that achieving the national targets for one year of pre-primary education in low-income and lower-middle-income countries will cost a cumulative USD 354 billion between 2023 and 2030, or USD 44 billion per year on average. Of that, the average annual cost will be USD 5 billion in low-income countries and USD 39 billion in lower-middle-income countries. The annual cost of one year of pre-primary education will surge to more than three times its current amount during this timeframe.

Notwithstanding optimistic budget projections, low tax revenues will prevent many countries from adequately increasing their budgets. **As a result, the annual average financing gap between 2023 and 2030 is estimated to be USD 21 billion or 47% of the total cost of achieving the national targets for one year of pre-primary education.** This is over twice as large as the overall annual education financing gap between 2023 and 2030 across pre-primary, primary and secondary levels, which is estimated to be

USD 97 billion or 21% of the total cost (UNESCO, 2023a). The average gap is USD 3 billion (62% of the total cost) in low-income countries and USD 17 billion (45% of the total cost) in lower-middle-income countries (Table 8). This annual financing gap is equivalent to 0.3% of GDP during the period.

Sub-Saharan African countries represent half of the low- and lower-middle-income countries (41 out of 79) but account for the largest share of the financing gap: USD 11 billion per year on average. While the annual average total budget is expected to increase from 0.23% of GDP in 2023 to 0.29% by 2027 and 0.35% by 2030, it remains limited due to the low tax base and falls short of meeting growing financing needs. As a share of GDP, the total cost of one year of pre-primary education is expected to increase from an average of 0.3% in 2023 to 0.7% in 2027 and 1.5% in 2030. Sub-Saharan Africa is the region with the highest education exclusion rates, with 20% of primary school-age children and almost 60% of upper secondary school-age youth not in school (UNESCO, 2023a).

Achieving these national targets over the few years remaining before 2030 still involves rapid cost increases, which even optimistic assumptions of domestic revenue mobilization cannot match. A considerable part of the gap could be covered by major aid policy changes, increasing their level of generosity while improving equity and effectiveness, but the long-term stagnation of aid in donor countries' budgets does not give cause for optimism.

Table 8
Average annual total budget, cost and financing gap for one year of pre-primary education (2023–2030) (in USD billion)

	Low-income			Lower-middle-income			Total		
	Budget	Cost	Gap	Budget	Cost	Gap	Budget	Cost	Gap
In USD billion	2	5	3	21	39	17	23	44	21
As share of GDP	0.4%	0.9%	0.5%	0.3%	0.5%	0.2%	0.3%	0.7%	0.3%

Note: Reported estimates are unweighted country averages. All figures are expressed in constant 2019 USD.

Source: UNESCO (2023a), p. 333.

Some countries have been exploring alternative financing sources and mechanisms

When countries cannot meet the financial costs for universal and free pre-primary education, alternative sources of financing and non-traditional financing mechanisms could sustain and transform their ECCE ecosystems. **Table 9** illustrates how some countries across the economic spectrum have supplemented national budgets for ECCE through alternative sources. These examples show how various levels of government can partner with non-state actors to increase funding for the ECCE sector through innovative financial sources and delivery mechanisms.

Alternative financing mechanisms are innovative and non-traditional mechanisms that can support governments to increase access to and improve the quality of ECCE services and programmes by engaging the non-state sector and leveraging other untapped sources of revenues (UNESCO, 2022e). **Table 10** illustrates some emerging innovations. Such mechanisms can be more stable and predictable than official development assistance (though perhaps less stable than assistance from governments). Innovative financing can mobilize domestic as well as international aid and involve multilateral management and partnerships with private entities. As a result,

they can generate substantial and stable flows of funds for development projects and help to enhance the efficiency of financial flows (UNESCO Bangkok Office and SEAMEO CECCEP, 2019). It is important, however, that innovative financing be complementary to traditional financing; it should not be used to substitute for traditional public investment. There is also a risk that, without appropriate accountability, some approaches could incentivize implementers to target specific groups of children at the exclusion of others.

Box 15 is an example of outcomes-based financing for ECCE that is gaining momentum. In this approach, a government ties funding to measurable outcomes, incentivizing its implementing partners to prioritize programme effectiveness in achieving children's development outcomes. In another example, South Africa has created a new Social Compact for Early Childhood Development that pulls together the early childhood sector, implementing partners, donors, business, and the government to work together to improve outcomes for children, families and communities (Department of Basic Education of the Republic of South Africa, 2023).

Conclusion

At present levels, domestic financing and aid combined are not sufficient to provide ECCE of good quality to all children. Governments are not meeting the suggested benchmark, which calls for at least 10% of education spending to be dedicated to ECCE. Development aid is not sufficient to bridge the sizeable financing gap. Alternative sources of financing may hold some promise, but it will be important to ensure that accountability remains, even where sources of funding have changed.

Exploring these alternative financing arrangements is just one of the actions that governments need to take. In the following and final chapter, we lay out recommendations that governments and the international community should act on to secure the futures of our youngest children.

Box 15**The potential of outcomes-based financing (Sierra Leone)**

Outcomes-based finance is an innovative financing approach that holds immense promise for increasing the effectiveness of public investments in ECCE. Unlike traditional grant contracts where a payment is made in advance for a pre-specified activity or programme, in outcomes-based contracts payments are made for achieving pre-agreed outcomes. These contracts require an agreement between the government and its implementing partners on specific outcomes on which the payment is wholly or partly dependent, as well as a rigorous external evaluation of these outcomes. When using outcomes-based contracts in ECCE, governments could tie funding to various measurable outcomes, such as ECCE services meeting government quality standards or achieving target improvements in children's holistic development outcomes. By doing so, outcomes-based contracts could also contribute to strengthening governments' regulatory and oversight capabilities for ECCE service provision.

Outcomes-based finance enables and empowers governments to place early childhood development outcomes at the core of their ECCE programmes, and to focus on the most crucial measure of an ECCE programme's success – improving outcomes for children. By doing so, outcomes-based finance also strengthens implementing partners' accountability for pre-agreed outcomes, while providing these implementing partners with the flexibility to adapt their programmes and innovate using context-relevant solutions to achieve these outcomes. The ability of implementing partners to adapt and innovate in response to outcomes data also creates an opportunity for context-specific evidence generation, whereby the government and its implementing partners learn about effective ECCE models, their impact and cost drivers, and use these learnings in designing future programmes. Finally, the ability of outcomes-based finance to align different ECCE partners around early childhood development outcomes could also facilitate a more integrated and coordinated approach to ECCE, not only among the government's implementing partners but also across different government institutions. This alignment could avoid fragmented efforts, foster multisectoral collaboration and draw funding from different sources.

Outcomes-based finance encompasses various models, each with a different rationale and design. Outcomes funds in particular have gained significant traction in recent years. In 2022, the Government of Sierra Leone partnered with the Education Outcomes Fund to launch the Sierra Leone Education Innovation Challenge (SLEIC). SLEIC is an outcomes fund dedicated to strengthening foundational literacy and numeracy skills for over 134,000 children attending 325 government primary schools. Under this outcomes fund, five implementing partners have been contracted to achieve a set of pre-specified learning gains in literacy and numeracy skills, with a particular focus on girls' learning. Each partner has been assigned to work in government primary schools in one of five regions, which collectively cover the entire country, where they implement a wide range of intervention models, including teacher training, student support, community engagement and child protection advocacy.

Recognizing the potential of outcomes funds for tackling challenges faced in expanding high-quality ECCE services in remote areas, the Government of Sierra Leone and the Education Outcomes Fund are developing an outcomes fund for ECCE, with implementation planned to commence in 2025. This outcomes fund aims to expand access to quality early childhood education services for 3-to-5-year-olds living in rural areas. Elsewhere, as of 2024, the Governments of Rwanda and South Africa are developing outcomes funds for ECCE in partnership with the Education Outcomes Fund and supported by multiple donors. The growing momentum of outcomes-based finance in ECCE is an area to watch, in light of its potential to align and sharpen focus on the quality of ECCE provision and child development outcomes, as well as its promise as an innovative finance tool that governments can use to improve the effectiveness of their investments in ECCE.

Source: Education Outcomes Fund. <https://www.educationoutcomesfund.org/>.

Table 9
Examples of alternative financing sources for ECCE

Name	Description	Examples
Lottery	Through income from lottery ticket sales, grants are awarded to projects.	<ul style="list-style-type: none"> • South Africa: The National Lotteries enabled the Family in Focus fund by the Western Cape Foundation for Community Work to establish its ECCE Mobile programme. • United Kingdom: Big Lottery Fund distributes some funds through grant awards to ECCE projects designed and run by community organizations. • United States: More than 80% of lottery funds in California are used for K–12 public education.
Sin tax (also known as excise tax)	The government imposes a tax on goods that are regarded as harmful to society to raise funds for particular programmes or services.	<ul style="list-style-type: none"> • Philippines: The Philippines Amusement and Gaming Corporation provides funding generated from casinos to construct and implement ECCE centres. • United States: In Philadelphia, a significant portion of proceeds from a city-wide soda tax is allotted to the city's pre-kindergarten system. In California, revenue from cigarettes and tobacco taxes are used to fund community health care, better quality child care and early childhood education programmes.
Payroll tax	The government imposes a tax on the salaries of employees or employers to raise funding for specific programmes or services.	<ul style="list-style-type: none"> • Colombia: The Colombian Institute for Family Welfare mobilizes funding for ECCE activities through a 2%–3% payroll tax. The tax covers 85% of community-based care for vulnerable children, and must be used to improve home facilities. Parents still pay a fee, which represents about 37% of the minimum salary of the community caregiver.
Corporate Social Responsibility (CSR) (Corporate Social Investment)	Private companies contribute in various forms, forming partnerships and finding creative ways to support social services.	<ul style="list-style-type: none"> • Bhutan: Companies like Druk Green Power Corporation, Royal Bhutan Police and Dungsam Cement Project invest in constructing ECCE centres. They also pay staff salaries and cultivate partnerships with UNICEF and education ministries to invest in the quality of ECCE centres. • Japan: Stock companies promote ECCE by inviting child care facilities to operate on their premises. • South Africa: Standard Bank supports improved access to quality education. The bank funds organizations dedicated to strengthening the capacity of teachers and caregivers and developing and implementing future skills curricula, including pre-school and foundational learning interventions. • Sri Lanka: Hemas Holdings provides full-scale financial support for setting up pre-schools for children aged 3 to 5, including funding for maintenance and operational costs, teacher salaries and learning materials.
Lending by financial institutions	<p>Private sector providers borrow from banks to finance capital and recurrent costs of service provision.</p> <p>Parents may borrow to pay fees and other education-related expenses.</p>	<ul style="list-style-type: none"> • Opportunity International conducts market research to understand the demand for local education financing. Then, it partners with financial institutions to design financial products that meet the needs of parents (school fee loans) and school owners (school improvement loans). Training is offered to school borrowers to equip them to run sustainable schools and increase the quality of education over time.

Source: Razquin and Neuman (forthcoming).

Table 10
Innovative financing mechanisms

Name	Description	Examples
Results-based budgeting	Results-based budgeting links public policy goals with the budget and the effective management of ECCE services. In some models, payments are made after the achievement of pre-agreed and independently verified results.	<ul style="list-style-type: none"> Peru: The Ministry of Development and Social Inclusion is responsible for coordinating budgets tied to results as part of its multisectoral approach to early childhood development. The Ministry has designed 11 interventions targeted by age group and aimed at improving pregnant women's and children's health and nutrition, the home environment, child care and learning, protection systems and family support.
Outcomes funds	Outcomes funds pool funding from one or more funders and contract multiple implementers to achieve predefined results. Programmes can be rigorously evaluated and information on their impact and cost-effectiveness can be generated.	<ul style="list-style-type: none"> Sierra Leone: The Sierra Leone Education Innovation Challenge (SLEIC) fund is a collaboration between the Government of Sierra Leone and the Education Outcomes Fund, an independent trust fund hosted by UNICEF. SLEIC supports basic education in Sierra Leone.
Impact bonds and social impact investments (source and delivery mechanism)	<p>In these mechanisms, an investor provides upfront capital to a services provider. These bonds and investments can also be results- or outcomes-based: if pre-set outcomes are achieved, a third party repays the investor.</p> <p>In some cases, the investors are large-scale philanthropic organizations and foundations directing their money to support social innovation and impact, including in ECCE.</p>	<ul style="list-style-type: none"> South Africa: The Impact Bond Innovation Fund (2018–2020) financed a home-visiting programme in Western Cape targeting 3- to 5-year-olds. Private investors and foundations included Standard Bank, LGT Philanthropies, Innovation Edge and Volta Capital. Thailand: Sansiri, a leading real estate developer, issued a corporate bond worth 100 million Thai baht in a pledge to support the public national Equitable Education Fund (EEF). EEF was established by law in 2018 to provide tax incentives for private donations. Sansiri channels the support through its project Zero Dropout: All Children Go to School. The bond, launched in February 2022, has two benefits: (a) for companies, it offers a 3.2% interest of investment per annum and (b) for children, it aims to achieve a zero dropout rate in three years. EEF also targets early childhood. United States: The Utah High-Quality Pre-school Program uses a social impact bond to finance a high-impact pre-school programme for at-risk children.
Block grants	Governments use block grants as a form of grant-in-aid to state and local governments to raise funds for specific programmes or services.	<ul style="list-style-type: none"> Indonesia: Block grants are distributed to local governments to support public, private and community-based ECCE services. Sweden: Municipalities receive block and equalization grants from the national government to support ECCE services and distribute more resources according to need. United States: The Child Care Development Fund is allocated as a direct block grant from the federal government to states to provide fee subsidies for low-income parents and to fund quality improvement.
Social franchising	This mechanism enables non-state providers to achieve socially beneficial ends rather than profit.	<ul style="list-style-type: none"> Kenya: Kidogo is a social enterprise and child care innovator, training 'mamapreneurs', or female entrepreneurs, to provide quality child care, thereby providing livelihoods for vulnerable women in Nairobi's urban slums.

Source: Razquin and Neuman (forthcoming).



CHAPTER 6

Moving forward with the right to a strong foundation: Recommendations for governments and the international community

The Tashkent Declaration and Commitments to Action for Transforming Early Childhood Care and Education tasked UNESCO to engage with UN agencies and other development partners in preparing a joint, biennial review to report on progress made on SDG Target 4.2, complementing the Global Education Monitoring Report and other ECCE-related indicators. This report, the first in the biennial series, is in response to this commitment.

The report has applied a child-centred and developmental ECCE ecosystem approach to demonstrate how governments can adopt various policy measures and implement programmes to improve the learning opportunities available to young children. Policy measures, services

and programmes can be implemented through micro-, meso- and macrosystem enablers in the ECCE environment, such as parents, caregivers and educators who play a pivotal role, that have been shown to directly influence child learning and development.

Throughout this report, we echo the calls of declarations, statements and instruments that have gone before and which have often not materialized: the world knows what needs to be done to support our children to learn and grow, and the time has come to act. Governments and the international community must now take action with greater urgency and address each of the priority recommendations outlined here.

Promote ECCE to prepare young children for foundational learning

We must address the crisis in foundational learning. But simply providing access to ECCE is not enough: ECCE opportunities must support children by preparing them to develop the foundational skills that they need to succeed in education and in life.

In countries with data, only 70% of children are developmentally on track, including just 55% of children growing up in the poorest households. Meanwhile, less than half of children in low and lower-middle-income countries, especially in sub-Saharan Africa, participate in any form of organized learning the year before beginning primary school. Globally, and especially in low- and middle-income countries, many young children who are already vulnerable and marginalized are missing out on early learning opportunities, adding to the cumulative risk that affects their long-term educational, economic and social outcomes. Much focus has justifiably been placed on the health, nutrition and safety of very young children, and more needs to be done to secure these aspects. But along with these key areas, a greater focus on readiness for school education is needed, and specifically, on learning and learning processes. Millions of young children, especially in low- and middle-income countries, are not prepared for starting school and the acquisition of foundational skills. If unaddressed, this will further aggravate the global learning crisis.

We have shown that children who are engaged more frequently in early literacy activities at home show greater school readiness, and that children in countries with lower participation in organized learning one year before official primary school entry age are less likely to achieve a minimum proficiency level in reading by age 10. Developing ECCE opportunities that include a strong focus on foundational skills such as emerging literacy, numeracy and social-emotional skills, therefore, can support better outcomes later.



We must address the crisis in foundational learning. But simply providing access to ECCE is not enough: ECCE opportunities must support children by preparing them to develop the foundational skills that they need to succeed in education and in life.

Prioritize the most vulnerable children

Access to ECCE of good quality needs to be extended to all, including the most vulnerable children: those living in poverty, those in low-income countries, those with physical or learning disabilities, and those who face disadvantage due to conflict, displacement, migration, historical inequity or other reasons. Vulnerability and disparities start early, and when vulnerable children are particularly excluded from quality early care and education services, the impact is long lasting for their learning and in life. Children younger than 3 are particularly vulnerable to early disadvantage. The need for particular attention to children younger than 3 was already recognized in the Moscow Framework and recalled in the Tashkent Declaration.

Our modern understanding of brain development and how early childhood adverse experiences can disrupt the mechanisms underlying the developing brain makes a strong case for the need to invest not only in young children's health, nutrition and security needs, but also in supporting executive function, self-regulation, resilience and the other foundational skills that children need for learning.

Children with developmental delays or disabilities also need more attention: early screening and intervention services need to be provided, which in many countries are made possible by the provision of multisectoral ECCE services. Early screening and interventions are vital for preventing achievement disparities and mental health problems that emerge early and persist among children growing up in adversity. There is clear evidence showing that early screening and interventions are also more effective in producing more favourable learning and well-being outcomes than remedial interventions implemented later in education.

Differences in brain and cognitive development have often been discussed as deficits, as children from lower socio-economic backgrounds tend to perform lower on cognitive and academic measures compared to children from higher-income families.

However, recent research has explored how differences in brain and cognitive development may be adaptive for high-adversity contexts, and many researchers have argued that research should focus on the strengths of children growing up in diverse contexts. Further exploration could help create new approaches to support all children's learning.



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Children with developmental delays or disabilities also need more attention. Early screening and intervention services need to be provided for such children, which in many countries are made possible by the provision of multisectoral ECCE services.

Support parents and caregivers for promoting positive home environments

Parents and caregivers are children's first and in many cases most impactful teachers, and the importance of their involvement in children's early learning and development cannot be overstated. But not all children have access to quality home learning environments. Children in low- and middle-income countries lack access to books and playthings and miss out on early stimulation and nurturing care known to promote healthy child development and well-being. Some children experience harsh disciplinary methods or are left alone without adult supervision for long periods of time. Parents need support to support their children.

The proven benefit of a supportive family environment, where children have emotional security, attachment and stable, responsive relationships, highlights the important role of intergenerational processes. This has led resilience experts to recommend policies and programmes to better support the caregivers in children's lives. The broader ECCE ecosystem, including the school, community and broader social and cultural context, can also provide important safeguarding supports that can avert, moderate or buffer the consequences and additional risks of early childhood adversities, thereby improving social equity.

This report has demonstrated how parental support programmes, family-friendly policies and social services have shown a positive effect, not only on children's developmental and learning outcomes, but also on parents' mental health and employment opportunities, which in turn support a more positive home environment and improved parent-child interactions. But more needs to be done, especially in low- and lower-middle-income countries, to support parents' caregiving skills and education, both for their own lifelong learning and development, and to help children learn.

While parental leave policies are another necessary aspect of the support that parents need, all but one country out of 185 countries surveyed by the International Labour Organization have adopted statutory provisions for maternity leave, and just 123 countries offered fully paid maternity leave. Although paid paternity leave is offered in 102 countries, its uptake is low; more needs to be done to nudge fathers to be more involved in the care of their young children, which is shown to have positive benefits for children's cognitive and social-emotional development.

Alongside the provision of equitable and equal access to child care and pre-school, a whole-of-society approach should include social programmes, including social protection, social services and housing policies, to strengthen children's well-being and family home learning environments. Cash transfers and family tax credits can reduce poverty and inequality, giving children a better foundation from which to learn. By helping families, governments can help children develop into engaged, active and healthy citizens.



The proven benefit of a supportive family environment, where children have emotional security, attachment and stable, responsive relationships, highlights the important role of intergenerational processes.

Value the teaching profession and invest in teacher quality

Teachers, along with parents, are key actors in children's early learning, and thus need to be supported to address the learning crisis and ensure that children have access to the best possible early learning opportunities. But globally, there is a huge shortage of the teachers and child care professionals needed to provide ECCE of good quality to all children: at least 6 million more teachers are needed by 2030 to reach nationally-defined benchmarks of one year of organized learning before entry to primary school in low- and middle-income countries. Few countries are on track to have the number of teachers they need to meet the needs of SDG Target 4.2. Moreover, insufficient numbers of teachers have received the pedagogical training they need to teach at pre-primary level: the global average of pre-primary teachers who have received the minimum required pedagogical training stands at 85%, while only 57% of teachers in low-income countries are trained to teach at pre-primary level. Worse, the proportion of teachers who are appropriately pedagogically trained is declining over time, at a rate of 0.4 points per year for the last 10 to 12 years.

But simply increasing the supply of teachers will not be enough to reduce by 50% the global share of 10-year-old children unable to read and understand a simple text by 2030. Teachers need to be equipped with adequate knowledge and skills for fostering quality early learning environments using evidence-based teaching practices. We reviewed the scientific evidence showing that social-emotional skills are precursors for setting strong foundations for learning literacy

and numeracy, and that along with self-regulation and executive functions, social-emotional skills are among the most foundational skills that a child can develop. However, research in low- and middle-income countries indicates that early childhood education teachers need more training on fostering children's social-emotional skills, putting children growing up in disadvantage at risk of falling further behind.

Teacher education programmes need to leverage the understanding of how children learn and develop in order to improve curricula, pedagogies and teacher training for more effective foundational learning outcomes. More needs to be done to ensure children get well-trained teachers who have the skillset to create safe, healthy and stimulating environments to instil foundational skills in children from the earliest ages.



Teachers, along with parents, are key actors in children's early learning, and thus need to be supported to address the learning crisis and ensure that children have access to the best possible early learning opportunities.

Invest in data, especially for children younger than 3 years of age

Much remains to be done, at national and international levels, to improve the research and data available to support ECCE policy development. New indicators need to be developed to better support and monitor the development of the ECCE sector, in particular with regard to children's early learning opportunities in the home, pre-school and community environments. A better understanding is needed of the diversity of actors and environments in the 0 to 3 years age group and their needs and challenges, the types of formal, informal and non-formal care arrangements, the costs to households, and the training and qualifications of people taking care of society's youngest children. This information can support policy-makers to develop evidence-based policies and strategies, improve services and programmes for the ECCE sector, and design targeted social policy instruments for families with children.

A global framework needs to be developed for monitoring progress on implementation of the commitments in the Tashkent Declaration and Commitments to Action for Transforming ECCE. This will require collecting and using data for existing indicators, as well as defining new indicators on critical aspects of early childhood development.

But before creating new indicators, a better understanding of the ECCE ecosystem is needed. Variations in how ECCE is defined and organized have consequences on the design and implementation of policies for children between the ages of 0 and 8, such as which age groups are targeted by which

government ministry or department (e.g. education, health, nutrition, social services) and how financing is allocated across the ECCE ecosystem. Lack of consistency makes comparative analyses at international level difficult, if not impossible. This lack of agreement also has consequences for the classification, training and remuneration of practitioners and child care workers who provide ECCE services (whether they are categorized as teachers, care staff, nurses, social workers or another category), and as a result the quality of the service. Tackling this challenge will require a coordinated effort among ECCE experts, the international community, funders and donors.



A better understanding is needed of the diversity of actors and environments in the 0 to 3 years age group and their needs and challenges, the types of formal, informal and non-formal care arrangements, the costs to households, and the training and qualifications of people taking care of society's youngest children.

Harness research and scientific knowledge to improve ECCE policy and practice

Governments and the international community should adopt a multidisciplinary and scientific understanding of learning and development to improve the relevance and quality of ECCE curricula and pedagogy. A stronger focus on children's development and early learning processes could support efforts in defining standards and measures of quality for the ECCE sector, and, in turn, the shaping of more effective policies.

Traditionally, the education community has been focused on inputs (policies, planning and financing), outputs and outcomes. A new focus on learning and learning processes, including fostering executive functions and self-regulation skills as well as emerging literacy and numeracy skills, could help to ensure that inputs serve to achieve the desired outputs and outcomes children need. With appropriate additional resources wisely and efficiently invested, more can be done to advance progress.

Child development experts have argued for an approach to defining quality based on articulating the learning and development outcomes for all children regardless of ECCE type or setting, since currently there is no global consensus on how to define and measure high-quality ECCE programmes. Rather than designing and implementing quality standards, for which a universal definition that could enable global comparisons may not be possible, countries could address policy and practice gaps by monitoring children's developmental stages and expected outcomes, for which science-backed milestones exist.

However, greater investments in research are necessary to address global knowledge gaps. Culturally specific measures of early language, literacy and numeracy are lacking and needed to track children's developmental progress. For example, a better understanding is needed of ways to support children's developing cognitive and social-emotional skills, especially in the global South and low-income countries. Collaborative, transdisciplinary work will be important to draw on the practical expertise of early educators and local community members in order to generate knowledge on ways to measure and support early learning in diverse contexts.

Executive function, self-regulation and resilience are key to children's success in education and in life, and new ways should be explored to support the development of these competences in pedagogies and curriculums. Leveraging the ways in which children learn the foundations for literacy and numeracy can support the design of more effective, age-appropriate and culturally relevant curricula and pedagogies for very young children, built upon emerging social-emotional skills, as well as the design of improved screening and intervention programmes. But more systematic and rigorous research is needed here too, at both national and global levels. Reforming policies and practices, and even creating new indicators to monitor progress, should have a scientific and evidence-based grounding.



Leveraging the ways in which children develop and learn the foundations for literacy and numeracy can support the design of more effective, age-appropriate and relevant curricula and pedagogies.

The scientific knowledge base continues to grow and the international scientific community can consider publishing an update to the Lancet series that was issued in 2016 to synthesize this new knowledge. Furthermore, behavioural science research methods are being used more and more, and this approach has potential for innovation in the ECCE sector. The UN Secretary-General urged UN agencies and partners to explore and apply behavioural science approaches in programmatic and administrative areas for realizing the achievement of all SDGs. Behavioural science approaches have the potential to enable impactful changes needed for improving children's learning opportunities and experiences. Future editions of this global report should explore this emerging area of work.

Increase and diversify investments to address the financing gap in the ECCE ecosystem

Governments need to address ECCE through an integrated, multisectoral approach and ensure appropriate funding levels for ECCE opportunities. Since 2015, researchers, foundations and international agencies have called on governments to allocate at least 10% of national education budgets to pre-primary education. But too few countries are achieving this goal: of 98 countries with data, the global median spending on pre-primary education is just 0.4% of GDP. Public expenditures must be increased to achieve quality outcomes for young children.



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There is a serious financing gap in ECCE. Achieving the national SDG targets on pre-primary education in low-income and lower-middle-income countries will cost a cumulative USD 354 billion between 2023 and 2030, or USD 44 billion per year on average. Because of low tax revenues, many countries will not succeed in increasing their budgets sufficiently. As a result, the annual average financing gap between 2023 and 2030 is estimated to be USD 21 billion or 47% of the total cost of achieving the national targets for one year of pre-primary education, twice as large as the overall financing gap. Immediate attention is needed from the international community, development partners and governments to explore every possible scenario to further increase public expenditure dedicated to ECCE, while prioritizing support for children of the most vulnerable and disadvantaged groups of the population.

Innovation can be encouraged in finding new ways to fund ECCE opportunities. Non-traditional mechanisms can be explored to mobilize new sources of domestic and international financing, including and involving multilateral management and partnerships with private entities, to ensure more stable financing flows and increase the funds available to support children and families.

“ Immediate attention is needed from the international community, development partners and governments to explore every possible scenario to increase public expenditure dedicated to ECCE.

Improve the coordination of international efforts and partnerships

As we have discussed, calls to action on ECCE have been many, and the results have been inadequate. More needs to be done to follow through on commitments made and actions proposed.

International cooperation and solidarity will be key to transforming ECCE, putting forward a global response to addressing persistent and new crises in learning and education. However, global initiatives with a focus on young children or education are many. One challenge may be that global efforts for advocacy and financing of ECCE are severely fragmented and that efforts need to be better synergized. For example, the global Coalition for Foundational Learning could expand its scope to include early learning beginning from 0 (or at least 3 years), which would have a stronger likelihood of achieving the Coalition's efforts of halving the global share of 10-year-old children unable to read and understand a simple text by 2030.

The international community may need to establish a global initiative or alliance that brings together these fragmented efforts to better work together on partnership and coordination opportunities, dedicated to children from (before) birth to 8 years of age, with a specific focus on learning using a child-centred and developmental ECCE ecosystem approach. One such initiative already exists and could be leveraged for more impact: the Global Partnership Strategy (GPS) for Early Childhood that UNESCO and its development partners collaboratively established in 2020 (UNESCO, 2022b). Collaboration and coordination around the GPS could have more significant impact as part of the SDG 4 High-Level Steering Committee, which is the apex body for global education cooperation and the global multi-stakeholder consultation and coordination mechanism for education in the 2030 Sustainable Development Agenda.



International cooperation and solidarity will be key to transforming ECCE, putting forward a global response to addressing persistent and new crises in learning and education.

Last, but not least: Expand the right to education to include early childhood

Expanding the right to education to include ECCE is part of UNESCO's initiative on the Evolving Right to Education. The right to education as it was conceived in the early international instruments has evolved, and it is now widely recognized and accepted that learning begins before birth and continues along a lifelong journey that extends beyond completion of formal education.

The Tashkent Declaration mandated UNESCO to 'Examine the feasibility, suitability and necessity of enshrining the right to ECCE in an international normative instrument'. A new legally binding international framework establishing the right to ECCE could articulate states' obligations pertaining to the legal right to ECCE, promoting greater state accountability and monitoring and ensuring minimum resource allocation for ECCE.

Other rights in the early years could include a progressive right to free, affordable or subsidized child care settings outside the home for families wishing to benefit and rights for parents in terms of parental leave, parental education or counselling for supporting healthy child development. A rights-based approach to ECCE can highlight the interdependence of rights, associating the right to ECCE with other human rights and freedoms, such as the right to decent work and gender equality for women, whose rights are affected the most by caring for young children.

Children's right to learn in the mother tongue must also be upheld, especially in the early years where language abilities are strongly associated with developing literacy skills. This is especially relevant for those who speak alternative languages to the language of instruction, including migrants, refugees, asylum-seekers, Indigenous groups and other minorities. For these children, being offered the opportunity to develop their language skills, while still respecting the principle

that children should learn first in their mother tongue, is indispensable to their ability to succeed at primary level and engage in the local community.

Establishing a legal right to ECCE could also be a mechanism to obligate states to ensure not only access to child care, but also that ECCE services and programmes are of good quality, for example, by establishing the minimum quality standards for ECCE infrastructure and personnel.

A legal instrument could also articulate that the right to ECCE must include a requirement that curriculum and pedagogy be age-appropriate and that play should be the primary means of learning, in alignment with the findings of scientific research. This would help combat the risk that expanding access to ECCE may be misunderstood as 'schoolification', with an overemphasis on teaching of academic skills at the expense of play and socialization. Most importantly, the legal right to ECCE could ensure that early learning opportunities are inclusive of all children by establishing the obligations of states to implement measures for early identification and interventions for children with developmental delays, disabilities and/or in at-risk situations. The consensus among scientists and professionals that every child learns differently through a complex combination of internal factors and the political, social and cultural context, attests that every learner should be entitled to receive a personalized learning experience as a human right.



The right to education must begin with the right to a strong foundation.

Conclusion

From Moscow in 2010 to Tashkent in 2022, not enough has changed in supporting children's foundational learning. As this report has shown, the world is off track to meet SDG Target 4.2, and our youngest children are not receiving the early opportunities they need to develop and reach their full potential. The COVID-19 pandemic set back global efforts towards progress, but those efforts were already inadequate: the world's youngest children, particularly those facing disadvantage, need more and better help to escape the learning crisis and build the foundational skills they need for school readiness and later achievement.

Children, parents, educators and teachers all need greater support, and these supports must be

provided through policies, actions and funding. Research, data and science-based approaches must all be leveraged towards this end, and in service of this goal, they too must be better funded and targeted towards diverse populations. Only through a coordinated, concerted and whole-of-society effort can we succeed in improving the ECCE ecosystem to the extent that it benefits all children.

The next edition of this report will be released in two years. This call to action is issued in the hope that, before then, the world will act with urgency to strengthen ECCE, and by so doing, support our youngest children's right to a strong foundation.

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1. Global initiatives with a focus on young children or education

Name	Lead agency, partners, and priority focus
Foundational Learning Compact	<p>The Foundational Learning Compact (FLC) is a multi-donor umbrella trust fund led by the World Bank. It was designed to enhance global and country-level efforts to pursue systemic and sustained improvements in education. Donors to the FLC Anchor Trust Fund are the Bill & Melinda Gates Foundation, the LEGO Foundation, the Ministry for Foreign Affairs of Finland, and the United Kingdom's Foreign, Commonwealth & Development Office (FCDO). The FLC Anchor and its associated Early Learning Partnership (ELP) Trust Fund (see below) support countries to implement evidence-based interventions for reducing learning poverty and increasing learning-adjusted years of schooling. The FLC Anchor focuses on primary and secondary education, while the ELP focuses on early childhood development for children aged 0–5.</p>
Early Learning Partnership	<p>Associated to the Foundational Learning Compact (see above), the Early Learning Partnership (ELP) is a multi-donor trust fund housed at the World Bank which supports countries to invest in early childhood development. At country level, ELP grants provide teams with resources for early seed investments that can generate large financial commitments through World Bank finance and government resources. At the global level, ELP research and special initiatives work to fill knowledge gaps, build capacity and generate public goods.</p>
Global Partnership for Education	<p>The Global Partnership for Education (GPE) is the largest global fund that has as its sole focus the provision of quality education in lower-income countries. GPE is a multi-stakeholder partnership that unites all partners invested in education, including governments, donors, international organizations, civil society, youth and teacher organizations, the private sector and private foundations. Recently, it has adopted a focus on ECCE and provides funding support based on the policy priorities identified through the Partnership Compact, while tapping on joint funding through mechanisms such as the Girl's Education Accelerator and Multiplier grants.</p>
Education Cannot Wait	<p>Education Cannot Wait (ECW) is the global fund for education in emergencies and protracted crises established in 2016. ECW works through the multilateral system to increase the speed of responses in crises and connect immediate relief and longer-term interventions through multi-year programming. ECW works in close partnership with governments, public and private donors, UN agencies, civil society organizations and other humanitarian and development aid actors to increase efficiencies and end siloed responses.</p>
Education Outcomes Fund	<p>The Education Outcomes Fund (EOF) is an independent trust fund, hosted by the United Nations Children's Fund (UNICEF), that aims to link funding to measurable results in order to make spending more effective. EOF partners with governments, donors, implementing partners and investors to meet concrete targets related to learning, skill development and employment.</p>
International Finance Facility for Education	<p>The International Finance Facility for Education (IFFEd) multiplies donor resources to enable countries to make urgent investments in education and skills development. IFFEd is a public-philanthropic partnership designed to help low- and middle-income countries. It complements other funding mechanisms and bodies, such as UN agencies and specialized global funds like the Global Partnership for Education and Education Cannot Wait. The IFFEd mechanism makes use of a mix of direct grants and guarantees to multiply donor resources and works with existing multilateral development banks (MDBs), such as the African Development Bank and the Asian Development Bank.</p>

Name	Lead agency, partners, and priority focus
Global Partnership Strategy for Early Childhood	UNESCO and its partners created the Global Partnership Strategy for Early Childhood (2021–2030) to address the gap in early childhood services and ensure quality early childhood education for all children. The Global Partnership Strategy outlined five key strategies to successfully harness support to develop well-designed early childhood care, education and intervention policies and programmes in countries around the five areas: (1) evidence for action and rights; (2) data, monitoring and evaluation for accountability; (3) scaling-up access, inclusion, equity and quality; (4) strengthened policy, governance, financing and advocacy; and (5) international and national coordination and cooperation.
Early Childhood Development Action Network	The Early Childhood Development Action Network (ECDAN) is a global network of networks launched by UNICEF and the World Bank that brings together over 100 partners, including the Inter-American Development Bank, UNESCO, the World Health Organization (WHO), regional early childhood networks, foundations and international non-governmental organizations (NGOs). ECDAN's mission is to catalyse collective action with and for young children and their caregivers by connecting and aligning partners, sharing knowledge and good practice, and advocating for better policies, more resources and accountability for results.
NurtureFirst	NurtureFirst was launched by ECDAN (see above) in partnership with the Global Development Incubator with the aim of building systems that support the improvement of home-based child care globally. The initiative is in response to the recommendations in a report published by Spring Impact, a non-profit focused on scaling social impact, which analysed support programmes available for home-based child care settings in Brazil, Chad, Colombia, France, India, Kenya, South Africa, the United Kingdom, the United States and Viet Nam. The report concluded that all programmes and networks faced significant barriers to scaling up, including lack of financial support, lack of political will and the challenge of collecting evidence of impact. It recommended increasing investments in support programmes for home-based child care providers, creating a global learning community to spark innovative models and developing standards on quality for home-based child care settings.
Theirworld	Theirworld is a global children's charity dedicated to ending the global education crisis. It brings together diverse networks of youth, social entrepreneurs, campaigners, businesses and researchers for projects and campaigns reaching more than 100 countries around the globe. Theirworld is a United Kingdom-registered charity. Theirworld USA is an assumed name of the Global Business Coalition for Education, Inc. (GBC-Education), a registered 501(c)(3) organization in the United States established in 2012 by Theirworld. Theirworld USA creates awareness, raises financial resources, and takes action to end the education crisis in the United States and around the world.
Invest in Child care	Launched by the World Bank under the ELP (see above), Invest in Child care is a cross-sectoral work programme that brings together analytical and operational teams to strategically address the child care challenge in countries, including through research, new data collection, policy changes and new operational approaches that can work at scale.
Global Financing Facility	The Global Financing Facility (GFF) is a country-led partnership, hosted at the World Bank, that fights poverty and inequity by advancing the health and rights of women, children and adolescents. To do so, it helps countries to strengthen health systems and increase access to care through prioritized plans, aligned public and private financing and policy reform.

Name	Lead agency, partners, and priority focus
Moving Minds Alliance	<p>The Moving Minds Alliance works to scale up the financing, policies and leadership for effectively supporting young children and families affected by crisis and displacement. The initiative is a collaboration of different types of members that combine programmatic, funding and research expertise to support prioritization of the youngest refugees and their caregivers.</p>
Global Partnership to End Violence Against Children (Safe Online)	<p>The Global Partnership to End Violence Against Children was launched by the United Nations Secretary-General in 2016 as a unique global platform for collective advocacy, action and investment to accelerate progress on SDG Indicator 16.2, aimed at ending abuse, exploitation, trafficking and all forms of violence and torture against children. The Partnership shifted on 1 October 2023 to a narrower focus on current and future investments for Safe Online, an initiative investing in and supporting global efforts to prevent and respond to the growing threat of digital harms to children. These arrangements will be reviewed in 2025, informed by a forthcoming strategic visioning process for Safe Online. Previous partners include End Corporal Punishment (now hosted by WHO and overseen by a multi-partner Steering Committee) and Safe to Learn (now hosted by UNICEF, with ongoing involvement of the Safe to Learn coalition of partners and oversight from the Safe to Learn Advisory Board). A multi-stakeholder group of partners is preparing to form a coalition to advance the global agenda on Ending Violence Against Children. The coalition will focus on advocacy and preserving the collective voice of the various constituencies brought together in the Partnership. Positive Parenting will continue within the Partnership until existing funds are fully disbursed and will continue to work closely with partners in the Global Initiative to Support Parents.</p>
Scaling Up Nutrition	<p>The Scaling Up Nutrition (SUN) Movement was launched in 2010 by the UN. Its four SUN Networks (SUN Civil Society Network, SUN Business Network, United Nations Nutrition and SUN Donor Network) bring together more than 4,000 civil society organizations, around 1,400 businesses, five UN agencies and international donors and foundations. The SUN Movement aims to advance national nutrition targets and contribute to the achievement of SDG 2 on eliminating hunger.</p>
Power of Nutrition	<p>The Power of Nutrition is a global charitable foundation that raises money and creates partnerships to advance the fight against malnutrition in Africa and Asia, to reduce stunting in children under 5 years old and help increase funding for nutrition. The Power of Nutrition was founded in 2015 by the United Kingdom's Department for International Development and Children's Investment Fund Foundation, following the first Nutrition for Growth Summit, which was hosted by the UK in 2013. UBS Optimus Foundation joined shortly afterwards as the first investor, along with UNICEF and the World Bank as implementing partners.</p>
School Meals Coalition (World Food Programme)	<p>The School Meals Coalition was created to ensure that all school-aged children have access to school meals and are healthy and ready to learn. The World Food Programme (WFP) is the Secretariat of the School Meals Coalition. Members of the Coalition are governments that have signed a Declaration of Commitment to expand access to school meals, supported by partners from academia, think tanks, foundations, networks, multilateral organizations, development banks, international financial institutions, NGOs, regional bodies and cities and the United Nations.</p>

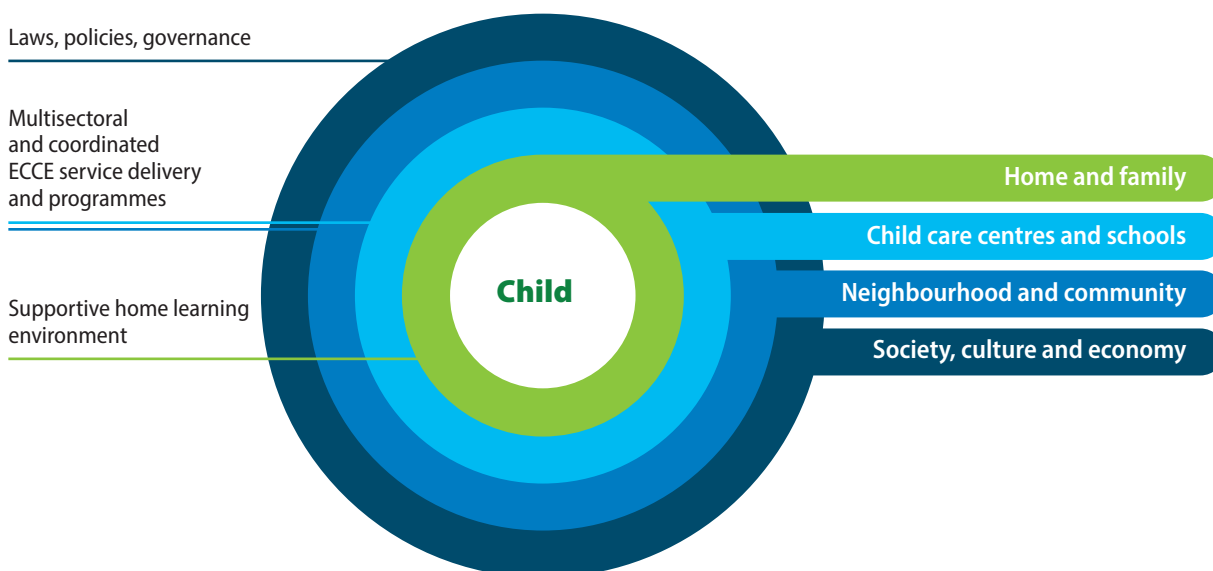
Name	Lead agency, partners, and priority focus
Global Compact on Refugees	The Global Compact on Refugees aims to ensure more predictable and equitable responsibility-sharing, fostering international cooperation towards a sustainable solution to refugee situations. It helps governments, international organizations and other stakeholders to ensure host communities are supported and refugees can lead productive lives. Its current set of indicators look at enrolment in primary and secondary school only, so the scope needs to be expanded to include the ECCE sector.
Inter-agency Network for Education in Emergencies	The Inter-agency Network for Education in Emergencies (INEE) is an open, global network of members working together within a humanitarian and development framework to ensure the right to a quality, safe, and relevant education for all who live in emergency and crisis contexts through prevention, preparedness, response and recovery. INEE has several key functions which include community-building, convening, knowledge management, advocating, facilitating and capacity-building. The Early Childhood Development Working Group aims to serve as a community of practice for front-line providers, field managers, technical staff and other relevant stakeholders.
Global Parenting Initiative	The Global Parenting Initiative (GPI) is a collaboration of universities, foundations and implementing partners, which aims to provide access to free, evidence-based, playful parenting support to every parent in the world, to equip them with the knowledge and tools to help their children learn and to prevent child sexual abuse, exploitation and family violence.
Global Initiative to Support Parents	Global Initiative to Support Parents (GISP) was set up by UNICEF, WHO, ECDAN, the End Violence Partnership and Parenting for Lifelong Health at the University of Oxford. GISP works with governments, civil society partners, researchers and donors to promote universal access to parenting and caregiver support. GISP is a global platform to support existing initiatives and accelerate investment in innovations and scaling up of projects.
Global Coalition for Foundational Learning	The Global Coalition for Foundational Learning was founded in 2022 by founding partners FCDO, UNICEF, UNESCO, the United States Agency for International Development (USAID), the World Bank and the Bill & Melinda Gates Foundation. The Coalition aims to ensure the international community meets the commitments agreed in the Commitment to Action on Foundational Learning, launched by the Coalition at the UN Secretary-General's Transforming Education Summit in September 2022.
The Early Childhood Workforce Initiative	The Early Childhood Workforce Initiative is the only global network that focuses exclusively on the early childhood workforce. It is a partnership of the early childhood regional networks, the Asia-Pacific Regional Network for Early Childhood (ARNEC), the Arab Network for Early Childhood Development (ANECD), the Africa Early Childhood Network (AfECN), alongside the International Step-by-Step Association (ISSA) and Results for Development. It advocates for better support and recognition of early childhood workforce professionals through research and data, leveraging effective capacity-building programmes and supporting countries to adopt policies that strengthen workforce professionalization and career development.

2. Organizing framework: Enabling environments in the ECCE ecosystem

As early as 1974, Bronfenbrenner proposed a bioecological model that viewed child development as a complex system of relationships affected by multiple systems in the surrounding environment, from the immediate family and school settings to the wider context (or ecology) that encompasses broader cultural values, laws and customs. Bronfenbrenner divided the child’s environment into five different systems: microsystem, mesosystem, exosystem, macrosystem and chronosystem. The microsystem is the first and most influential level because it encompasses the child’s immediate environment where the child has direct contact with parents, siblings, teachers and others in the immediate community, such as the school and neighbourhood. In the microsystem, relationships are bidirectional: the people in the child’s environment can influence the child’s behaviours, beliefs and actions, and in turn, the child’s reactions

can influence how people behave towards them. The mesosystem encompasses the interactions between these relationships. The exosystem incorporates environments that are external to the child and do not have a direct influence, but that can affect the child indirectly through others. For example, a parent may experience stress in the workplace, which may affect how they behave towards the child at home. The macrosystem encompasses the wider cultural, social and economic conditions that will affect the child’s development through the transmission of cultural beliefs, social stereotypes and cycles of poverty. Finally, the chronosystem consists of the changes that occur over the child’s life course that influence their developmental trajectory, such as starting a new school, the loss of a parent or forced migration due to a political conflict or natural disaster (Bronfenbrenner, 1974).

Figure A 1
Enabling environments in the ECCE policy ecosystem



Source: Based on Bronfenbrenner and Evans (2000).

Bronfenbrenner's bioecological model is complex, but has important implications for educational policy and practice because it illustrates how children's opportunities for learning are influenced by multiple intersecting levels that include their families, schools, communities, government policies, cultural attitudes and changes over time (Bronfenbrenner and Evans, 2000). Two important aspects of Bronfenbrenner's model should be noted. First, the model puts the child at the centre. At its core, the bioecological model uses a 'whole-child' or holistic approach to child development and learning. A second important aspect is that the model uses a lifecourse perspective, meaning that learning does not end with formal schooling. Rather, learning is viewed along a lifelong continuum.

In this report, we use a simplified version of Bronfenbrenner's model as our organizing framework, illustrated in **Figure A 1**. Similar to the bioecological model, our framework acknowledges that the most important influences are children's immediate family and home environments because these provide children's first learning experiences. With the child at the centre, the microlevel consists of the family and home. At the mesolevel, children's experiences in the wider neighbourhood and community, which would include child care centres and pre-schools, exert the next levels of direct influence. In the earliest years, experiences within the family and other adults such as child care and pre-school staff exert a strong influence on children's developmental paths, but as children develop through the primary years, their peers begin to exert a stronger influence than their parents and other adults. Although we consider that child care centres and pre-schools fall within the larger neighbourhood and community, we place both at the mesolevel for simplification purposes.

One important distinction is that our ECCE ecosystem considers the enabling factors that can promote children's learning and well-being within a developmental and lifecourse approach.



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For example, at the microsystem level, governments can support early learning opportunities for children in vulnerable or disadvantaged contexts with parental support programmes coupled with family-friendly policies, such as paid parental leave, breastfeeding support, access to quality affordable childcare, and child benefits. At the mesolevel, early learning opportunities can be promoted through coordinated, multisectoral and integrated ECCE programmes and service delivery. For example, policies about age-appropriate curriculum and pedagogies, as well as screening programmes for identifying and providing interventions for children at risk of learning difficulties or developmental delays, can be provided through child care centres, pre-schools, health care and community centres. Finally at the macro-level, children and adults experience macrosystem factors regularly and directly through national laws, policies and governance mechanisms which influence children's learning opportunities and may have the strongest and lasting impacts (Osher et al., 2020). For example, whether children have access to quality ECCE may depend on whether there is national legislation for free or compulsory ECCE, whether there is sufficient infrastructure to expand access to all children, whether there are standards to regulate the training and qualifications of ECCE personnel, or whether there is sufficient financing for the sector to allow for adequate public provision.

3. The conceptualization and organization of ECCE

Various different terms are employed across different organizations in connection with ECCE, often reflecting the specific organization's mandate and areas of expertise. For instance, the World Health Organization's definition of Early Childhood Development (ECD) covers cognitive, physical, language, motor, social and emotional development of children between 0 and 8 years of age. This definition takes a holistic perspective of child development and views child development as an outcome (WHO and UNICEF, 2023). On the other hand, the World Bank, which has human capital development as one of its priorities, defines child development as part of lifelong human capital formation. UNICEF adopts a multisectoral approach to protecting child rights which recognizes ECD as an outcome that encompasses the physical, cognitive, motor, language, social and emotional development of children in the early years (UNICEF, 2023c). UNESCO, being one of the UN agencies to cover all aspects of education within a lifelong learning perspective, approaches early childhood as part of the evolving right to education, with an emphasis on the opportunities for early learning and its role in laying the foundation for lifelong learning. These terms and how they are defined by various UN agencies and other organizations are summarized in **Table A2**.

Services related to ECCE are organized differently worldwide. According to the International Standard Classification of Education (ISCED). Programmes that target children below the age of entry into primary education are categorized as ISCED Level 0. Programmes are typically designed with a holistic approach to support children's early cognitive, physical, social and emotional development, and introduce young children to organized instruction outside of the family context. These programmes aim to develop social-emotional skills necessary for participation in school and society. They also develop some of the skills needed for academic readiness and prepare children for entry into primary education. At this level, programmes are not necessarily highly structured but are designed to provide an organized and purposeful set of learning

activities in a safe physical environment. They allow children to learn through interaction with other children under the guidance of staff and educators, typically through creative and play-based activities. ISCED 0 programmes can be further broken down into Early Childhood Educational Development (ISCED 01) and Pre-primary Education (ISCED 02). Programmes classified as Early Childhood Educational Development have educational content designed for younger children from 0 to less than 3 years, whereas those classified as Pre-primary Education are designed for children from the age of 3 years to the start of primary education. This categorization was established by the UNESCO Institute for Statistics and has been adopted worldwide for monitoring and comparability purposes, although considerable variation still exists across countries. For example, these programmes may also be referred to as play school, reception, pre-school, or *educación inicial*, and may be provided in crèches, child care centres, nurseries or *guarderías* (UNESCO-UIS, 2012). **Figure A2** illustrates how ECCE is organized by different organizations.

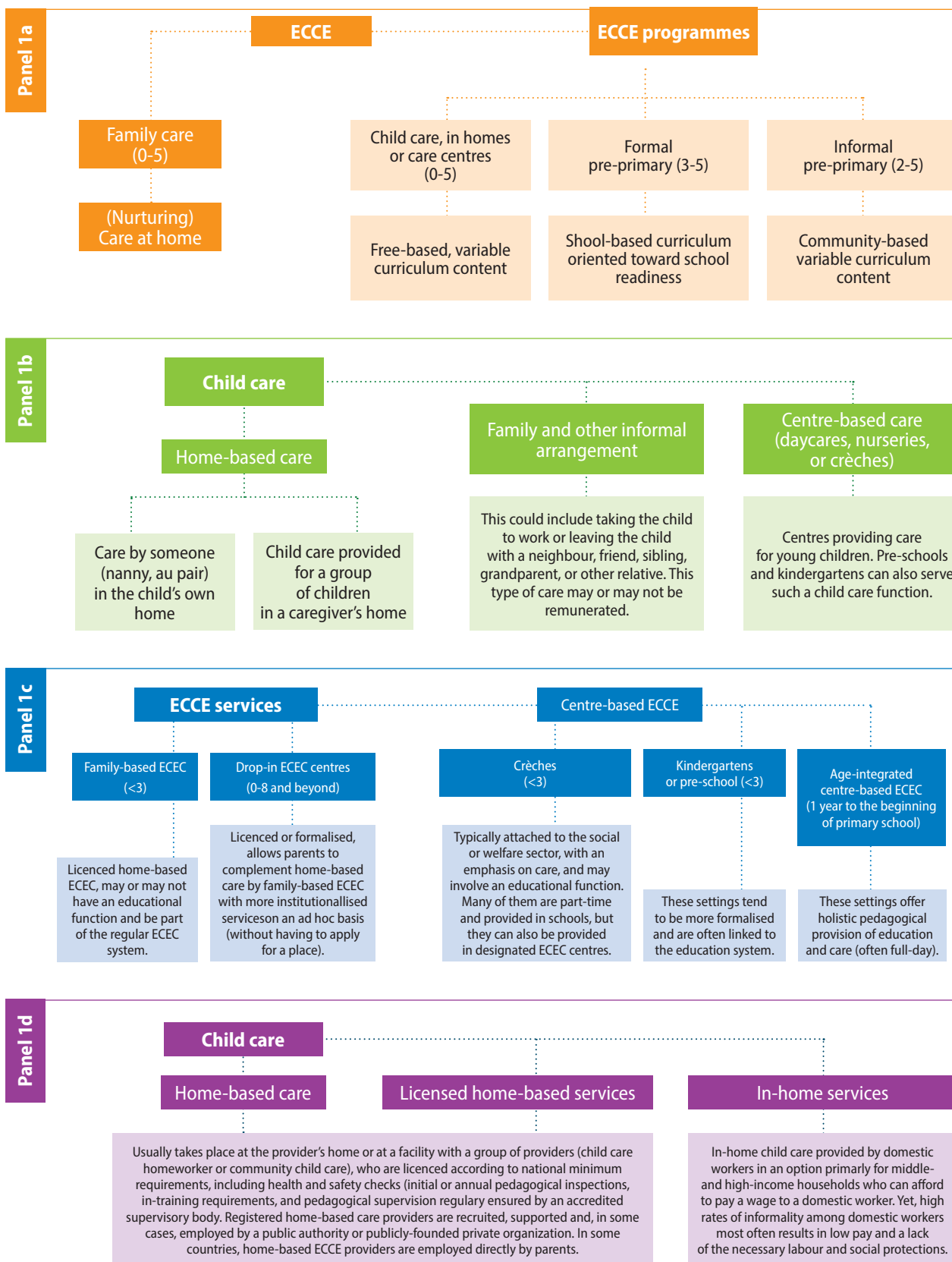
Variations in how ECCE is defined and organized have consequences for the design and implementation of policies for children between the ages of 0 and 8, such as which age groups are targeted by which government ministry or department (e.g. education, health, nutrition, social services) and how financing is allocated across the ECCE ecosystem (Black et al., 2017). Lack of consistency makes comparative analyses at international level difficult, if not impossible. This lack of agreement also has consequences for the classification, training and remuneration of practitioners and child care workers who provide the ECCE services (whether they are categorized as teachers, care staff, nurses, social workers or another category), and, as a result, the quality of the service.

Table A 1
Conceptualizations of early childhood care and education

Organization	Terminology	Definition
UNESCO	Early Childhood Care and Education (ECCE)	Early childhood care and education (ECCE) concerns children from (before) birth to age 8, beginning from prenatal care to promoting a smooth transition to primary school. It includes both in-home and out-of-home settings and can target parents, caregivers and children. The role of families in ECCE is paramount: parents are children's first educators and caregivers. ECCE includes 'care' (health, nutrition and child care in a nurturing environment) and 'education' (play, socialization, guidance and developmental activities), ideally provided in an integrated manner. UNESCO promotes ECCE as part of its mandate to support countries to implement normative and standard-setting instruments, such as the UN Convention on the Rights of the Child (1989) and the Convention Against Discrimination in Education (1960).
UNICEF	Early childhood education (ECE) Early childhood development (ECD)	Used interchangeably with pre-primary education, early childhood education (ECE) refers to organized learning programmes for children aged 3 years and up to the start of primary education. Early childhood development (ECD) is recognized as an outcome that encompasses the physical, cognitive, motor, language, social and emotional development of children in the early years. This period is typically defined as the period from birth to 8 years of age. UNICEF's work focuses on the period from birth up to primary school entry, with emphasis on the first 1,000 days as this is the most sensitive period for children's physical growth and brain development.
WHO	Early childhood development (ECD)	Early childhood development (ECD) refers to the cognitive, physical, language, motor, social and emotional development between 0 and 8 years of age. One of the components, early learning, refers to any opportunity for the baby, toddler or child to interact with a person, place or object in their environment, recognizing that every interaction (positive or negative, or absence of an interaction) contributes to the child's brain development and lays the foundation for later learning.
World Bank	Early Childhood Development (ECD) Early Childhood Education (ECE)	The World Bank uses ECD, ECE and other terms to align with the terms used by the countries with which it works to refer to holistic support for children's cognitive, physical, language, motor and social and emotional development from before birth through the transition to primary school. The World Bank's Investing in the Early Years (IEY) Framework highlights the need for investments in children across three pillars to ensure they reach their full potential: (1) children are healthy and well nourished, especially in the first 1,000 days; (2) children receive early stimulation and learning opportunities; and (3) children are nurtured and protected from poverty and stress.
International Labour Organization (ILO)	Early Childhood Care and Education (ECCE)	Early childhood care and education (ECCE) services and programmes are broadly classified into two types: (1) early childhood educational development (ECED) programmes designed for children in the age range of 0 to 2 years; and (2) pre-primary education programmes designed for children from 3 years of age to the start of primary education.
Organization for Economic Co-operation and Development (OECD)	Early childhood education and care (ECEC)	Early childhood education and care (ECEC) refers to programmes for children from birth until entry into primary education. The ECEC Quality Framework covers five dimensions: (1) quality standards, governance and financing; (2) monitoring and data; (3) workforce development; (4) curriculum and pedagogy; and (5) family and community engagement.
International Standard Classification of Education (ISCED)	Early Childhood Education (ISCED 0) Early Childhood Educational Development (ISCED 01) Pre-primary Education (ISCED 02)	ISCED Level 0 programmes (Early Childhood Education) target all children below the age of entry into ISCED Level 1 (Primary Education) and refer to early childhood education programmes that have an intentional education component. There are two categories of ISCED Level 0 programmes: Early Childhood Educational Development (ISCED 01) programmes have educational content designed for younger children from 0 to less than 3 years, while Pre-primary Education (ISCED 02) is designed for children from age 3 years to the start of primary education.

Sources: UNESCO (2013); WHO (2020); UNICEF (2023f); OECD (2022); UNESCO-UIS (2012); ILO (2022); World Bank (2016).

Figure A 2
Organization of early childhood care and education



Source: Based on Raikes et al. (2023) for Panel 1a; Devercelli and Beaton-Day (2020) for Panel 1b; OECD (2022) for Panel 1c; and ILO (2022) for Panel 1d.

4. The COVID-19 pandemic affected children's school readiness

The COVID-19 pandemic, declared by the World Health Organization in March 2020, brought about unprecedented challenges with far-reaching implications for individuals and communities worldwide, as well as for children's access to learning opportunities. Parents, educators and policy-makers alike questioned whether social distancing measures and the closure of child care centres and pre-schools would cause developmental delays that affected children's school readiness.

Research exploring the effects of COVID-19 policy measures on young children's learning and development is emerging, but findings are still mixed. For example, studies in Canada, China and the United States report mixed results around delays in motor skills, communication, problem-solving and personal-social skills among young children (Foster, 2023). On the other hand, evidence from a few cohort studies suggests an association between the COVID-19 pandemic and early developmental delay. One cohort study conducted in a Japanese municipality showed that the cohorts of children that experienced pandemic policy measures were 4.39 months behind in development at age 5 compared to a cohort that was not (Sato et al., 2023). This delay appeared to be amplified for children whose caregivers suffered from depression. Another cohort study of Chinese children aged 6 months and 1 year showed that experiencing the COVID-19 pandemic and related public health regulations might be associated with a higher risk of delay in the development of fine motor and communication skills in 1-year-old children, but not in 6-month-old infants (Huang et al., 2021). Regardless of age, variations in development widened during the pandemic, which is a concerning trend that needs to be addressed (Sato et al., 2023).

COVID-19 policies mandating the closure of child care centres and pre-schools resulted in children spending increased time at home with caregivers. A national survey of parents of children aged 3 to 5 and not yet in kindergarten conducted in the United States revealed a significant loss of important learning opportunities both at home and in pre-school programmes as a result of the policies (Barnett and Jung, 2021). The survey showed a decline in pre-school participation and decreased support for learning activities at home.

Using parental reports, a study of children in the United Kingdom aged between 8 and 36 months found that less time spent in child care during the pandemic period between spring and winter 2020 was associated with decreases in receptive vocabulary and executive functions (Davies et al., 2021). The loss of early learning opportunities was especially significant for children from less advantaged backgrounds. In another study, researchers looked at the period from March to September 2020 to analyse the vocabularies of 1,742 children aged 8 to 36 months across 13 countries and 12 languages (Kartushina et al., 2022). Children who had more passive screen exposure and whose caregivers read to them less often showed smaller gains in vocabulary development during the lockdown period, after controlling for socio-economic status and other caregiver-child activities.

Less research has investigated the social-emotional impact of ECCE closures on young children. In the aforementioned national survey conducted in the United States (Barnett and Jung, 2021), parents reported heightened rates of social-emotional and mental health problems among young children aged 3 to 5. In alignment with that, a study in Ireland sheds light on the social-emotional impact of ECCE closures (Egan et al., 2021). The authors of this study surveyed 506 parents of children aged 1 to 10 years during lockdown between May and June 2020. The survey revealed that, despite some positive aspects of lockdown for children and families (e.g. more time to play with siblings), most children missed their friends, playing with other children and the routine and structure of ECCE and school settings, which parents suggested resulted in tantrums, anxiety, clinginess, boredom and under-stimulation. This study emphasized the importance of the nurturing environment provided by ECCE programmes that offered a structured routine and supported children's social-emotional well-being.

The impact of COVID-19 policy measures on children's school readiness is evident across various international studies. A study in Uruguay reported that, among 4- to 6-year-old children attending public pre-schools, motor and cognitive development, attitudes towards learning and internalizing behaviours were negatively affected

by the COVID-19 pandemic, as assessed via a school readiness instrument in comparison to a control group of children assessed before the start of the pandemic. (González et al., 2022). In a study in Hong Kong Special Administrative Region of China, the authors looked at parents' perceptions of their children's school readiness. Children were in their final year of kindergarten and transitioning to their first year of primary school in September 2021. Most parents reported that their children were not fully ready for primary school, especially in terms of academic skills, self-management and mental preparation for the transition (Lau and Li, 2021).

Another study in the United Kingdom explored the academic achievement and social-emotional development of children aged 3 to 4 years during the first COVID-19 lockdown (between March and June 2020) and entering kindergarten (reception year) at 4 to 5 years old during subsequent lockdowns (between November and March 2021). The authors reported that both parents and schools perceived that the children had been disadvantaged in their social-emotional well-being, language and numeracy skills when entering reception classes in 2020 due to their experiences during the COVID-19 pandemic. Although both parents and schools reported that some 'educational recovery' had been achieved by the end of the 2020/21 academic year, standardized assessments based on the previous (pre-pandemic) reception year cohort of 2018/19 indicated that attainment levels in literacy skills, personal and social development, communication and language were below what could have been expected. Importantly, schools reported a 50% advantage in attainment levels over children who were not able to attend the reception year due to lockdowns (Tracey et al., 2022).

The negative impact of the COVID-19 pandemic on children's school readiness is reported to be less pronounced among children from higher socio-economic backgrounds, and more profound for children from less advantaged backgrounds (González et al., 2022; Davies et al., 2021).

The COVID-19 pandemic also shed light on the impact of caregivers' psychological well-being on children. Several studies have reported that the combined stressors imposed by the pandemic significantly affected maternal mental health, subsequently influencing

the development of young children (Hendry et al., 2023; Penna et al., 2023; Giesbrecht et al., 2023). Stress, anxiety and depression among pregnant women and caregivers escalated during the pandemic due to job losses, food insecurity, child care closures, social isolation, health-related fears and other factors, with potential developmental setbacks for their children. A national survey conducted in the United States from March to June 2020 showed that 27% of parents reported worsening mental health for themselves and 14% reported worsening behavioural health for their children. Worsening mental health for parents co-occurred with worsening behavioural health for children in 1 in 10 families (Patrick et al., 2020).

Experts warn that the long-term consequences of the pandemic, including increased poverty, food insecurity and heightened stress, may have lasting effects not only on the entire life course of the child, but also future generations through physiological, psychological and epigenetic changes occurring in utero and during early childhood (Yoshikawa et al., 2020). These potential devastating impacts need to be mitigated by taking urgent and coordinated actions by governments, NGOs, civil society and communities. For example, education and health care professionals are advised to consider the child's COVID-19 pandemic experience as part of important factors that can affect their neurodevelopment, academic performance and physical and mental health, and take into account that their needs may be different than those of prior generations (Mulkey et al., 2023).

As research is still emerging, findings can change. More research – and time – will be needed to fully understand the long-term effects of the COVID-19 pandemic on children's development and learning outcomes.

More time and research will also reveal whether the increase in the use of digital technologies had an impact on children's learning and development. With the move to online and digital learning in response to mandated school closures, children of all ages experienced a form of learning that is already changing the future of learning environments, despite the need for more rigorous research. The section which follows reviews some of the research on the effect of digital technology on young children.

5. Digital technology's effect on early learning and well-being remains to be established

Young children today are growing up in a digital environment and parents, pediatricians and educators are concerned about the impact of digital technology on children's learning and well-being. **Although the number of scientifically robust and rigorous comparative studies on digital technology use and its impact on young children is limited, the available research evidence has been sufficient for the World Health Organization, as well as paediatric societies around the globe, to develop or adopt guidelines on the use of digital media by young children.** According to them, screen time should be avoided by children younger than 2 years old and should be limited to one hour per day for children aged 2 to 5 years old. However, the findings of a meta-analysis (McArthur et al., 2022) demonstrate that the implementation of these guidelines has been problematic. Only one in four children younger than 2 years old and one out of three children aged 2 to 5 were meeting the guidelines, suggesting an increased likelihood of reported behavioural problems and poor developmental outcomes for many (e.g. Hutton et al., 2020). For example, in a study of 5 South-East Asian countries, over 66% of parents of children aged 3 to 8 years reported that the children used their parents' mobile touchscreen devices (Unantenne, 2014). In another study, researchers surveyed over 450 families from the Paris area to explore the touchscreen habits of children aged between 5 and 40 months (Cristia and Seidl, 2015). Results showed that over 75% of families reported that their children used some touchscreen technology and that frequency of technology use increased with age.

Existing evidence on the impact of digital media use on child development is mixed in terms of focus, method and findings. The systematic reviews of this research evidence target various age groups (e.g. children aged 0–6; children aged 2–8; children aged 4–8), different types of devices (e.g. touchscreen devices such as tablets; robots; smart toys; portable computers; wearables) and applications (e.g. e-readers; games; virtual reality) and a variety of learning outcomes including but not limited to literacy skills (e.g. Eustler et al., 2020), mathematics skills (e.g. Verbruggen et al., 2021), creativity (e.g. Fielding and Murcia, 2022)

and computational thinking (e.g. Bakala et al., 2022). Various research methodologies have been employed to generate this empirical evidence. However, it seems that randomized control trials and quasi-experiments are the dominating paradigm; descriptive studies, pre-experimental research and case studies are in the minority (e.g. Arabiat et al., 2023; Taherian Kalati and Kim, 2022).

Mixed research findings represent an important challenge to the practice of early childhood education (Eustler et al., 2020). For example, some argue that more frequent screen time leads to a decrease in social interaction with caregivers and creative play (UNESCO MGIEP, 2022), a loss of ability to pay attention after screen time (Santos et al., 2022) and a worsening of sleep (Merin et al., 2024), and thus that overexposure to screen use is detrimental to children's development. Others suggest that content quality is more important than screen time, and that higher exposure to content that is entertainment only might lead to reduced academic achievement and attention regulation (UNESCO MGIEP, 2022). Hence, it is of critical importance to purposefully design multimodal features so that they include corrective meaningful feedback, semantic support and gaming elements (Eustler et al. 2020).

In fact, the impact of technology on learning and development is multidimensional, since children's cognitive, health and social-emotional outcomes are influenced by both external (i.e. content, social context of viewing, active or passive use) and internal attributes (i.e. gender, age and genetic factors). Evidence also tends to suggest that educational applications might be more beneficial for children at school entry (Outhwaite et al., 2023). Parental engagement can also mitigate any detrimental impacts of digital technology (Nicolai et al., 2023). Conclusive evidence of the impact of digital technology on very young children is lacking, mostly due to the difficulty of measuring low frequency of use by younger children (Cristia and Seidl, 2015), limited access to young children of exactly similar age, and the challenge of capturing the intersection of multiple factors with very young children (Taherian Kalati and Kim, 2022).

Despite the concerns raised by education and health authorities, digital technology will continue to grow and advance, and its use in education will continue to increase. In light of this, the available empirical evidence about the appropriate use of digital technology by and with young children can be consolidated around a number of broad policy areas. For instance, the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP) emphasizes the need for:

1. Addressing the holistic development and well-being of the whole child.

Guidelines on using digital media should address the importance of adequate physical activity, healthy nutrition, good sleep hygiene and nurturing social environments in promoting children's well-being outcomes. Interventions on screen-based media use should include curtailed use within an hour before bedtime and particularly in darkness. Health and education professionals as well as parents and caregivers should encourage screen-based activities that are beneficial to individual children based on their developmental stages and individual characteristics and needs, rather than categorically limiting screen time.

2. Improving the quality of screen-based activities.

Policy should support the development of high-quality educational content for digital devices. Parents should be encouraged to participate in screen time activities for children from early childhood to at least the early years in school.

3. Encouraging further research and strengthening the research-policy-practice nexus.

Further research should be promoted to disaggregate the notion of 'screen time' and deepen the understanding of the impact of the contexts and content of digital devices on learner well-being, particularly in relation to mobile digital devices. A long-term follow-up should be conducted, controlling for confounding variables and producing longitudinal data to gain a better understanding of screen time and its positive and negative impacts. Research studies should be conducted by a team of multidisciplinary experts and, where possible, multi-stakeholder groups to provide a more holistic understanding of the multidimensional impacts that might emerge from digital media use by young children and adolescents.

The recommendations proposed by Mantilla and Edwards (2019) zoom in on two important factors: relationships and pedagogies. First, using technologies that enable live interactions across home and formal settings strengthens the relationship between children, families and educators and facilitates family agency to participate in children's learning. Second, the knowledge and skills of educators shape how children experience use of technology; therefore, adequate support and professional learning about digital technology use should be ensured to help educators develop confidence in using digital technology with children and families in the settings that promote collaboration (e.g. in pairs or groups of children with whom they collaborate well in other non-digital activities) and/or independent use of technology alongside adult interactions.

Highlighting the need to improve the rigour of research, Eustler et al. (2020) suggest that researchers should partner with schools and teachers to design replicable larger-scale studies (e.g. medium sample size or larger) which use an experimental design and standardized achievement measures. Other researchers argue for the need to come up with standardized measures or at least more reliable methods of tracking current usage of screens and devices, such as media diaries or device monitoring (Arabiat et al., (2023), and more objective measures such as actigraphy (Merin et al., 2024). These should be used alongside detailed analysis of other usage factors, including co-use and type of use, and contextual factors such as physical context, gender, ethnicity, culture and parental self-efficacy.

Fielding and Murcia (2022) place importance on the features of digital technology. The affordances of digital technologies should be considered, such as the ability of some technologies to function as several different tools, enabling educators to include these technologies in a variety of ways, across the curriculum and beyond it. Where cost may be an issue, digital technologies which can be used flexibly should be considered.

6. Foundational capacities for environmental sustainability and global citizenship

Education for Sustainable Development (ESD) and Global Citizenship Education (GCED) are two important goals within the Education 2030 Agenda and Framework for Action. ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society empowering people of all genders, for present and future generations, while respecting cultural diversity (UNESCO, 2020c). A roadmap for realizing ESD established priority action areas, which include transforming learning environments, building capacities of educators, empowering and mobilizing youth and accelerating local level actions. Most recently, UNESCO established the Greening Education Partnership to support countries to green schools, green curriculum, green teacher training and education systems' capacity, and green communities (UNESCO, 2024b).

Meanwhile, GCED aims to empower learners to assume active roles to face and resolve global challenges and to become proactive contributors to a more peaceful, tolerant, inclusive and secure world (UNESCO, 2015). UNESCO's guidance on GCED consists of three learning domains: (1) cognitively, learners are expected to acquire knowledge, understanding and critical thinking about global, regional, national and local issues and the interconnectedness and interdependency

of different countries and populations; (2) in the social-emotional domain, learners should aim to have a sense of belonging to a common humanity, sharing values and responsibilities, empathy, solidarity and respect for differences and diversity; and (3) behaviourally, learners should study to act effectively and responsibly at local, national and global levels for a more peaceful and sustainable world. From these three domains of learning, the guidance detailed key learning outcomes, key learner attributes, learning topics and corresponding objectives for different ages and levels of education.

Efforts to provide learners with the education described by ESD and GCED goals can potentially benefit from a scientific understanding of how children develop. This is because development can influence educational progress, but also because education (whether formal or informal) is one of many important influences on how children's development progresses. A range of perceptual, cognitive and social-emotional processes are involved in the acquisition of ESD and GCED competencies, and developmental changes in these processes may offer insight into the effectiveness of different educational approaches. Howard-Jones (forthcoming) explored changes in development and learning that may be relevant to ESD and GCED outcomes. A graphic summary is provided in **Figure A3**.

Figure A 3

Development of foundational capacities for environmental and civic actions

AGE (years)	0-5	6-11	12-18
DEVELOPMENT	Tuning of perception and attentional abilities, development of self-regulation, empathy, executive function, language	Learning knowledge about the world, skills for learning, organization, collaboration, agency	Formation of independent identity, increased agency, increased peer sensitivity, decrease in self-concept
LEARNING	<p>Long lasting effects of nature contact</p> <p>Home participation</p>	<p>Home discussion</p> <p>Learning abstract concepts and knowledge (e.g. global warming)</p> <p>"Private sphere" environmental action (e.g. recycle, green consumerism, conservation)</p> <p>Explicit discussion</p> <p>Increased pro-environmentalism →</p> <p>Able to condemn harmful environmental behaviours</p> <p>Anthropocentric → Biocentric → Compositional thinking</p>	<p>Potential pubertal environmental dip</p> <p>Participation beyond private sphere (e.g. advocacy, civic action)</p> <p>Shift from parental to peer influence</p>

Source: Howard-Jones (forthcoming).

In early infancy, the brain's perceptual and attentional abilities are tuned by the infant's everyday experience. This tuning affects how information will later be received, including that required for constructing concepts relevant to sustainability and global citizenship. Hearing different languages and seeing different types of faces in the first few months of life help determine how an individual will later interact with people of different ethnicities and language, with infant training of attentional abilities also likely to impact on how the natural world comes to be observed. In infancy, caregiver-infant interaction begins to transmit social norms, while also scaffolding development of the empathy required to transcend the self and have concern for others. The quality of caregiver interaction impacts on the development of empathy, with early educational experience also contributing (e.g. through play in the natural environment). At around 3 to 5 years old, there is rapid development of executive function skills including self-regulation, which is required for learning and for acting out civic and environmental intentions. Fostering self-regulation strategies, across all educational phases, can help empower learners to achieve their intended actions.

While some pro-social and pro-environmental behaviours can be learned through observation, the emergence of language ability accelerates this learning by allowing participation, verbal interaction and instruction. Social interaction with adults and peers, at home and at school provides opportunities to acquire concepts such as fairness and justice, along with simple civic and environmental concepts. This conceptual knowledge and understanding furthers development of moral reasoning in the primary school years, which begins extending to the non-human natural world. Supporting children to make their own decisions individually and collaboratively, can help empower them as 'change makers'.

As children progress through primary school, they become increasingly able to condemn actions that are harmful to the environment, whether occurring locally or featuring in international news. The home environment and how a child is encouraged to participate in and talk

about the wider world will impact on these and other behaviours relevant to ESD and GCED. Encouraging young children to participate in adults' positive behaviours, for example, can help transmit social norms for guiding their own behaviour. Interaction and discussion with peers also help children reflect upon and develop their own perception of what is socially appropriate.

During the school years, moral reasoning about the environment shifts from a more anthropocentric perspective to become more ecocentric. In middle childhood, pro-environmental attitudes and behaviour increase with this growing understanding, and more sophistication can be expected in children's thinking about environmental issues as they grow older. However, developmental changes help explain evidence of a plateauing and dip in pro-environmental attitudes and behaviour in the teenage years, alongside increasing influence from peers. Addressing emotions may be helpful in bridging the ESD and GCED knowledge-action gap among teenagers, and also for benefiting student well-being.

Beyond education, a limited range of other environmental factors may play a role in ESD and GCED outcomes via development. Socio-economic contexts can impact on acquisition of knowledge and understanding about ESD and GCED through pathways that may include the development of executive function. Gender differences have also been reported in the development of some capacities that provide a foundation for ESD and GCED. Notably, these differences include empathy, which appears stronger in females across the lifespan. Socio-economic status can impact on the acquisition of knowledge and understanding about ESD and GCED and this may explain reports of economic disadvantage being associated with less positive environmental attitudes and behaviours. However, evidence for the link between socio-economic status and empathy are mixed and differences in environmental behaviour and attitudes appear to be better explained by socio-cultural factors, such as cultural values, than by gender, socio-economic status or ethnicity.¹¹

¹¹ For a more comprehensive review of children's development and learning for sustainability and global citizenship, see Howard-Jones (forthcoming).

7. Understanding the science behind early childhood adversity for building lifelong resilience

Early brain development is a critical period of human development; researchers now estimate that more than one million new neural connections are formed every second within the first few years of life. Children's first three years of life ('the first 1,000 days') play a critical role in their early development and build the foundation for their lifelong learning and well-being. The first 1,000 days of life – the time spanning the period between conception and a child's second birthday – is a unique period of opportunity when the foundations for optimum health, growth and neurodevelopment throughout the lifespan are established (Moore et al., 2017; Likhar and Patil, 2022). Many neuroscientific, cognitive and behavioural research studies establish an important association between early experiences and brain development, which sets the foundation for all learning, health and behaviours that follow (Center on the Developing Child at Harvard University, 2016).

For children living in vulnerable or marginalized contexts, negative early experiences may cause an irreversible detour from healthy development that can adversely impact educational, social and economic outcomes throughout life. Research has shown empirically that brain development is impaired when children are exposed to adverse experiences early in life. The good news is that children are resilient. Therefore, understanding these pathways will be important for both policy-makers and practitioners to better support such children to get back on track.

Professionals define adverse childhood experiences as those that involve stressful or traumatic events experienced before the age of 18. Children may be exposed to adverse experiences in the home, in the community or within the larger ecosystem. For example, physical or sexual abuse, emotional neglect, domestic violence, parental mental illness or substance abuse, poverty, hunger, loss of a parent, family dysfunction or parental separation may occur in the home and will affect children's lived experiences. In the community, children may be exposed to community violence, discrimination, challenging peer relationships, economic disadvantage or stressful

experiences within the school or child welfare system. Risk factors tend to be cumulative; for example, children growing up with adversity in the home, to whom quality child care is not available, are more likely to miss important opportunities for early cognitive and social-emotional stimulation that will affect their readiness for learning in school.

Exposure to early stressful or traumatic events fundamentally alters children's developing brains, with important implications for learning, health and well-being. Neuroscience research suggests that early experiences influence not only the outcomes of brain development, but also the pace of brain development (Tooley et al., 2021), suggesting an effect on the rates at which children reach developmental and academic milestones. Specifically, experiencing a lot of stress in early childhood has been linked to an increased rate of brain maturation (Tooley et al., 2021).



Prolonged exposure to frequent stressful events, termed toxic stress, results in chronic elevation of stress hormones that disrupt and damage the maturation of children's developing brain architecture and physiological systems that impact key systems needed for learning, such as self-regulation, executive function, attention, memory and language.

Adverse experiences early in life are deviations in or disruptions to the expected environment for normal human (brain) development, such as the expectation of nurturing care and access to nutritious foods that enable the individual's survival (Nelson III and Gabard-Durnam, 2020). Prolonged exposure to frequent stressful events, termed toxic stress, results in chronic elevation of stress hormones that disrupt and damage the maturation of children's developing brain architecture and physiological systems that impact key systems needed for learning, such as self-regulation, executive function, attention, memory and language. Chronic stress may further impact children's mental health, resulting in conditions such as mood dysfunctions or attention-deficit hyperactivity disorder (Cantor et al., 2019).

Macrosystemic structures, such as poverty and institutionalized discrimination, increase children's risk of exposure to additional adverse childhood events (Cantor et al., 2019). Children exposed to prolonged adversity, such as poverty or community violence, are at greater risk of developmental delays and poor academic achievement (Immordino-Yang et al., 2019), as well as at increased risk of heart disease, diabetes and substance abuse later in life (Center on the Developing Child at Harvard University, 2016). Almost every domain of growth can be compromised by growing up in a low-income family (Longo et al., 2017). For example, lower socio-economic status is associated with poorer development of executive functions among pre-schoolers (Raver et al., 2013), which are important for supporting all educational learning. Socio-demographic risk has been proposed as an important predictor of individual differences in childhood self-regulation (Eisenberg et al., 2014). Malnutrition associated with poverty has been found to disrupt brain development and cognitive functioning (Prado and Dewey, 2014). Socio-economic adversity can also increase parental distress and the likelihood of negative parenting practices and child maltreatment (Baker and Brooks-Gunn, 2020).

These impacts of adverse childhood experiences, unfortunately, can be transmitted intergenerationally (Narayan et al., 2021). For example, mothers' stress levels impact their babies' brain development and poverty is a major stressor on families (Blair, 2010). However,

beneficial factors in the microsystem context, such as positive relationships with parents, family members, teachers and peers, as well as positive mesosystem factors in the community and neighbourhood, can provide a buffer against negative structural macrosystem factors (Osher et al., 2020). Most research linking socio-economic status and self-regulation has focused on at-risk children, and these studies have helped emphasize the important role of effective parenting for protecting children from the risks to self-regulation generated by low household income (Lengua et al., 2014; Shimomaeda et al., 2023). Families and communities also play a critical role in protecting young children from the external stressors of discriminatory practices, which can prevent the physiological disruptions of a toxic stress response (Center on the Developing Child at Harvard University, 2023; Shonkoff et al., 2021).

Forced displacement and climate change impact children's educational outcomes

Forced displacement is a source of adverse experience that can have long-term consequences for children's learning and development. A record 43.3 million children were living in situations of forced displacement, a figure that has doubled over the past decade (UNICEF, 2023e). Of these 43.3 million, almost 60% (25.8 million) were internally displaced due to conflict and armed violence. In the event of forced displacement, many systems that individuals depend on can be threatened and compromised, such as the facilities that provide basic needs for survival (e.g. shelter, food, WASH, health care), education (e.g. schools being destroyed by natural disasters or used as shelters), public safety, cultural traditions, communication and transportation. In addition to malnutrition and starvation, forced displacement may also cause acute or chronic mental health issues (Masten et al., 2019). Most children displaced today will spend their entire childhoods in displacement.

Around 3.6 billion people today live in areas that are highly susceptible to climate change (WHO, 2023a). Between 2016 and 2021, weather-related disasters alone led to 43.1 million displacements of children (UNICEF, 2023a). Children are particularly at risk, with alarming statistics revealing that around half a billion children live in areas prone to frequent and severe flooding, while almost 160 million children live in areas

facing high or extremely high levels of drought (UNICEF et al., 2022). Climate change is a complex phenomenon that impacts human development in multiple ways (Sanson and Masten, 2024). The most evident impact is that it can amplify the frequency and intensity of natural disasters, such as monsoons, flooding, drought and wildfires, causing acute and chronic damage. The effects of climate change also involve slow-onset environmental changes, such as rising sea levels and desertification, which in the long term can cause or reinforce political and economic instability, forcing populations to migrate. People may be affected by climate change psychologically through direct experience, known as 'climate distress'. Given recent trends, today's children are more likely to experience multiple climate-related stressors with impacts that can accumulate over time.

Forced displacement results in homelessness, and homeless children experience cumulative risk (Masten et al., 2015). Homelessness due to extreme poverty may also be associated with socio-demographic risks (such as single-parent household, parental unemployment, low parental education levels) and adverse life experiences (such as domestic violence, loss of or separation from parents). When compared to children from similar socio-economic backgrounds but housed, homeless children in the United States change schools significantly more often, have fewer friends and spend less time with friends (Masten et al., 1993). In addition to these risk factors that harm children's overall well-being, homeless children are also more likely to be associated with low school attendance and low academic achievement (Palmer et al., 2023; Masten et al., 2015).

Resilience as a protective factor against adverse experiences

Compared to adolescents, young children may experience less direct exposure to the horrors of war or disaster, since they may be better sheltered by adults or not capable of fully understanding the situation. On the other hand, young children may experience loss or separation from their caregivers due to the consequences of war or climate disaster, and are more vulnerable to the long-term negative effects of early trauma due to its impact on their developing brains. But that same plasticity and malleability of the developing brain equips young children with

resilience (Masten et al., 2021), and many children who experience forced displacement or homelessness in fact manage to succeed in school (Masten et al., 2015; Masten et al., 2019).

Human resilience can be defined as 'the potential or manifested capacity of an individual to adapt successfully through multiple processes to experiences that threaten [their] function, survival or development' (Masten and Cicchetti, 2016), and is understood to be a multilevel and biopsychosocial-ecological process that facilitates the potential for positive outcomes (Cantor et al., 2019). Importantly, resilience is dependent on the social and cultural context, and children's responses to adversities vary as a function of individual sensitivities and dispositions, as well as the safeguarding supports available to them to buffer the impact of adverse experiences. In other words, responses to early childhood adversity can result in either positive or negative adaptations, and the availability of, or access to, preventative or intervention efforts can mitigate against negative outcomes.

Safeguarding supports are the key to children's resilience. Researchers have reported that supportive family environments and relationships promote positive adaptations to early stressful or traumatic events (Masten and Palmer, 2019). Strong, supportive relationships with parents and other caregivers can help reduce the negative effects of stress on children's development (Immordino-Yang et al., 2019). Children who have at least one stable and responsive relationship with a parent, caregiver or other adult tend to have better outcomes from adverse experiences (Center on the Developing Child at Harvard University, 2016). Indeed, the proven benefit of a supportive family environment, providing emotional security, attachment and stable, responsive relationships, highlights the important role of intergenerational processes. This has led resilience experts to recommend policies and programmes to better support the caregivers in children's lives. The broader ecosystem, including the school, social and peer networks and the cultural context, can also provide important safeguarding supports that can avert, moderate or buffer the consequences and additional risks of early childhood adversities (Cantor et al., 2019).

Without these buffering supports, children are at risk of developing maladaptive responses with negative consequences for learning and well-being outcomes. Children's reactions to stressful events may range from reactive and impulsive at one end to proactive and goal-directed at the other end, and their responses will affect how family members, peers and teachers interact with them, further affecting learning and social-emotional development (Center on the Developing Child at Harvard University, 2016). For example, children who lack self-regulation skills (due to elevated levels of stress hormones that have disrupted or damaged the developing brain) are less likely to develop supportive relationships, engage in school and pay attention in class. As children develop, previous maladaptive responses accumulate, which may result in a higher likelihood to withdraw from school and to develop antisocial behaviours due to negative relationships with peers (Cantor et al., 2019).

Buffering supports are extremely important to mitigate against the intergenerational transmission of adversity. Development is an integrative and progressive process, and the lack of developmental supports can have

cumulative effects that can produce intragenerational as well as intergenerational risks. Research has shown that the intergenerational transmission of both adaptive and maladaptive systems is rooted in relational bioecological processes (Osher et al., 2020). The malleability and plasticity of the developing brain means these processes can be positively affected by addressing the macro- and microsystem factors that support healthy child development.

The research on early childhood adversity and resilience makes a strong case for the importance of early preventative interventions that can mitigate against and protect children from the consequences of stressful or traumatic events. Three approaches have emerged from the research of Sanson and Masten (2024). The first approach is risk reduction, which focuses on preventing or lowering the intensity of threats to human survival and development. The second approach is to boost assets and resources. Efforts can be directed to meet survival needs (such as food, water, shelter and medical care), but can also include the provision of child care, education and learning materials such as internet access, play and recreational activities.



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Box A 1**Pre-school care in hard-to-access settings
(Syrian Arab Republic)**

Despite mounting evidence on the developmental benefits of early childhood education, millions of children in conflict and crisis-affected areas lack access to ECCE programmes (UNICEF, 2019c). In hard-to-access or highly mobile settings, infrastructure, facilities and resources for the provision of these services are often inadequate, and in-person programmes are not always feasible. Ensuring children's access to pre-primary education in such settings, however, is especially crucial: in addition to strengthening learning skills, pre-primary education can have large and lasting benefits for children facing adverse experiences.

The Global Ties for Children Centre at New York University (2023) conducted a randomized control trial to evaluate the Ahlan Simsim programme's impact on development outcomes in Syrian refugee children aged between 5 and 6 years and on caregiver parenting and well-being outcomes in four regions in Lebanon.

Ahlan Simsim is a short-term, remote early learning programme focused on social, emotional and school readiness skills, taught by qualified teachers through multimedia content, distribution of learning kits, and caregiver guidance. Parenting programmes were also provided to caregivers who attended classes on early childhood education and received other support from teachers. The programme involved 1,606 eligible families, each of which received either the child programme alone or both the child and the parenting programmes, or were assigned to a control group. Programme impact was measured in children's emerging literacy and numeracy skills, motor skills, social-emotional skills, play and overall development. Results of the programme showed significant, positive impacts on children's social-emotional and motor skills. Additionally, for the children whose caregivers attended the parenting programme, significant positive impacts were found on emergent literacy and numeracy, play and overall child development. No quantitative impacts were found on caregiver well-being, but reduced rates of spanking by caregivers in the parenting programme were reported.

Ahlan Simsim provides evidence that remote education models can work within early age groups and that caregivers can be engaged successfully in early learning, regardless of their education and literacy levels. Notably, this intervention was created to be shorter, cheaper and potentially more scalable than full-year and in-person options, and is disability-inclusive (Rohwerder, 2023).

Source: Richardson et al. (forthcoming).



Indeed, the proven benefit of a supportive family environment, providing emotional security, attachment and stable, responsive relationships, highlights the important role of intergenerational processes. This has led resilience experts to recommend policies and programmes to better support the caregivers in children's lives.

The third approach is to mobilize promotive and protective processes that foster positive adaptation or recovery. This can be done through intervention programmes that restore a sense of safety and hope for the future, through, for example, rebuilding schools and offering psychosocial support to children and families. Interventions to improve children's early learning and enhance their well-being can focus on reducing the sources of adversity-related stress, as well as strengthening the social-emotional capacities of children and their caregivers (Luby et al., 2020). While the family and home are the most important safeguarding supports against adverse childhood experiences, macro-level supports, such as policies and laws calling for high-quality ECCE services, can provide vulnerable children – those at highest risk of experiencing situations of toxic stress – with the opportunities to develop the cognitive and social-emotional skills needed for school readiness.

Box A1 illustrates how even in cases of conflict or crisis-affected areas, quality pre-primary programmes can support young children's development as well as improve parental skills.

Global Report on Early Childhood Care and Education

The right to a strong foundation

The call to transform education must begin with the youngest children.

The world is not on track in meeting Sustainable Development Goal (SDG) Target 4.2 committing countries to ensure that all girls and boys have access to quality early childhood development, care and pre-primary education by 2030. There is solid scientific evidence that early opportunities matter for child development outcomes. But inequalities start early and persist throughout life. Many children around the world, especially those living in low-income countries and facing disadvantage, do not have access and exposure to quality care and learning experiences early in life that prepare them for school success and foundational learning. Access to quality Early Childhood Care and Education matters for building a strong foundation and flourishing throughout life.

This report is in response to a commitment in the Tashkent Declaration and Commitments to Action for Transforming Early Childhood Care and Education in which governments and the international community reaffirmed their commitment to the right to education, beginning with the youngest children. The report is the first in a biennial series dedicated to monitoring achievement of SDG Target 4.2. This edition explores how children learn and develop and how the key actors in children's early environments – parents, families, educators and the community at large – can be leveraged through public policies and social programmes to improve young children's learning and wellbeing.

The right to education must begin with the right to a strong foundation.

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