Schools cannot produce learning without prepared, present, motivated learners. Around the world, many children receive too little investment in nutrition and stimulation during their early years, and many lack access to quality early learning opportunities that can prepare them for first grade. The one in four children worldwide who are stunted cannot achieve their potential in school. Nor can the 263 million young people who do not make it to school at all. Among those who do attend, motivation to learn often suffers when the quality of education is low. A poor-quality basic education also means that learners who should be gaining advanced skills from tertiary education or technical training lack the preparation to do so. Thus, just as the fundamental investments needed for primary education must be made before a child enters school, the same is true for skills training. In many cases, the failure to invest effectively can be understood through models of human behavior, which also point the way to solutions (table 5.1). A synthesis of the evidence in these areas reveals three key principles for improving learning:

- To set children on high-development trajectories, foster cognitive and socioemotional development through early child nutrition, care, stimulation, and learning opportunities.
- To get children into school—an essential first step to learning—lower school costs and then use other tools to boost motivation for learning.
- To address the fact that so many youth leave basic education lacking skills, recognize that remediation often needs to be the first step in further education and training.

There is no learning without prepared, motivated learners

Investing in their early years prepares children for school

Children's early years offer a rare window for societies to make investments in their children with extremely high returns (figure 5.1). Efforts to improve children's lives can significantly increase individual and societal productivity while reducing inequality. Children cannot thrive with stunted bodies and brains, and early gaps in learning and skills trap them in lower developmental trajectories from which it becomes increasingly difficult to escape (spotlight 2). Though children's bodies are resilient, and catch-up after early childhood may be possible when inputs improve, it is extremely difficult to reverse the effects of exposure to risk factors in the first few years of a child's life. Doing so entails costly, high-quality interventions that typically need to happen at a sufficiently young age to be effective.

Strong foundations underpin all learning and skills development. Learning depends on students who are prepared, present, and motivated—but getting students there will often require policy change within and beyond education systems.

Recognizing the dangers that poverty poses to children's development and learning

Children need quality environmental inputs to grow in a healthy, timely fashion. Essential physical inputs
### Table 5.1 Models of human behavior can guide actions to improve learner preparation: Some examples

<table>
<thead>
<tr>
<th>Synthesis principle</th>
<th>Where this fails</th>
<th>Models that identify a mechanism behind this failure</th>
<th>Approaches that address the modeled mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide early child nutrition, care, stimulation, and learning opportunities.</td>
<td>Just one in five children in low-income countries attend preschool. One in four children worldwide are stunted.</td>
<td>Information failure: Stakeholders may not be aware of relative returns to early investments or how to support early development.</td>
<td>In Jamaica, a program taught caregivers to provide psychosocial stimulation that improved stunted children’s developmental scores and later life outcomes.</td>
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<tr>
<td></td>
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<td>Simple optimization with liquidity and credit constraints: Parents are aware but lack the resources to invest.</td>
<td>In Mexico, a conditional cash transfer program improved cognitive and motor development.</td>
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<td>Behavioral (mental bandwidth): Stress of poverty undermines parenting capacity.</td>
<td>In Argentina, Bangladesh, China, and Uganda, center-based programs improved children’s outcomes.</td>
</tr>
<tr>
<td>Lower school costs; boost motivation and effort.</td>
<td>263 million children remain out of school. Many countries still charge fees for lower secondary school, and primary school, while usually tuition-free, still entails cash outlays in many settings.</td>
<td>Simple optimization with liquidity and credit constraints: Parents are aware but lack the resources to invest in any or all children.</td>
<td>In Cambodia, providing scholarships to girls dramatically increased enrollment.</td>
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<td></td>
<td></td>
<td>Information failure: Youth and parents may underestimate the returns to education.</td>
<td>In the Dominican Republic and Madagascar, providing information on the returns to education improved enrollment and learning.</td>
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<tr>
<td></td>
<td></td>
<td>Behavioral (hyperbolic discounting): Youth may recognize the value of education but plan to invest later (yet “later” never comes).</td>
<td>In Pakistan, reporting child test scores to parents increased enrollment and learning outcomes.</td>
</tr>
<tr>
<td>Ensure that, where needed, remediation is the first step in further education and training.</td>
<td>Many skills training programs assume prerequisite skills that youth do not have.</td>
<td>Information failure: Training programs receive imperfect signals about the quality of incoming learners.</td>
<td>In U.S. community colleges, improving course placement accuracy and support services helped increase students’ long-term performance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simple optimization (on the part of training centers): Remedial students are highly likely to drop out.</td>
<td>In the United States, bridge programs help learners move past remediation quickly.</td>
</tr>
</tbody>
</table>

Source: WDR 2018 team.

- Include quality pre- and postnatal nutrition, health care, and safe physical environments. Equally crucial are social inputs, including nurturing, protection, and stimulation. Interactions between children and their caregivers—who are often, but not always, their parents—leave a significant imprint, literally shaping the developing brain. Yet poor children’s access to these inputs—along with caregivers’ awareness of their importance—is often limited. So are programs that invest in children’s early development and the policies that guide them.

Poor children are more exposed to health shocks and less likely to receive stimulation, care, and protection from stress. Nutrient deprivation, infectious diseases, and chemically toxic or physically dangerous environments affect many poor children not only after birth, but also in the womb. Exposure to any of these factors during sensitive periods can inhibit normal biological development (spotlight 1), but poor children often encounter these factors in tandem and over time. At the same time, the strains associated with poverty can disrupt parents’ decision making and limit their availability, sensitivity, and responsiveness. As a result, poorer children not only have fewer resources such as books or toys, but also receive less stimulation, direction, and support. Poor children are also more likely to experience neglect and harsher discipline, which disrupts early
Governments do not invest enough in young children. Insufficient understanding of the high payoffs to early interventions, budget constraints, and the challenges of delivering wide-ranging early childhood interventions—health, nutrition, early learning—result in low public investment in young children in most regions. In Sub-Saharan Africa, on average just 2 percent of the education budget goes to preprimary education. In Latin America, the average per capita government spending on children under 5 is a third of that for children ages 6–11. Investments in the early years have increased in developing countries, but strategies often focus on building preschools, neglecting children who have not yet reached preschool age. Though preschool can help, foundations across developmental dimensions are set before age 3. Yet this age group typically receives little government coverage beyond health and nutrition checkups—not enough for healthy overall development.

Early exposure to risks associated with poverty may prevent children from realizing the promise of education. Intense deprivation can result in poor developmental outcomes—such as stunted growth or impaired brain development—that are difficult to address (figure 5.2; spotlight 2). Children who have fallen behind in their physical, cognitive, linguistic, or socioemotional development are more likely to enter grade 1 late, score poorly in school, repeat grades, drop out before they complete primary school, experience poor health throughout their lives, engage in high-risk behavior (particularly in adolescence), be less productive, and have lower earnings. The scale of the problem is vast: nearly half of children under 5 in developing countries are stunted or live in extreme poverty, threatening their prospects of benefiting from the opportunities education can provide.

**Figure 5.1 Investments in high-quality programs during children’s early years pay off**

Source: WDR 2018 team, based on Carneiro, Cunha, and Heckman (2003); Martin (2012).

<table>
<thead>
<tr>
<th>Age</th>
<th>Preschool</th>
<th>School</th>
<th>Postschool</th>
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</thead>
<tbody>
<tr>
<td>Rate of return to investment in human capital</td>
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<tr>
<td>Brain development</td>
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<tr>
<td>Investments in the early years</td>
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<tr>
<td>Schooling</td>
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<tr>
<td>Job training</td>
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</table>

Effective early childhood interventions can significantly improve poor children’s ability to learn. In the United States, at-risk children who participated in well-designed interventions—Perry Preschool, Abecedarian, the Nurse-Family Partnership—benefited well beyond their early years: their school performance, employment, income, overall welfare, and social integration all improved. Such interventions have substantial potential in developing countries because of their lower baselines. In Jamaica, the Reach Up and Learn program, which promoted early child stimulation, led to lower crime rates, better mental health, and 25 percent higher earnings two decades later. There is a consensus on what children need: nutrition, care, stimulation, nurturing, and protection. The evidence on when to implement programs is in line with biological evidence: prevention and early remediation are most cost-effective at specific points in development because adjustments beyond sensitive periods are emotional organization—the keystone of socioemotional abilities—and is associated with worse school performance.

Early childhood development programs are insufficient in number and quality to compensate for poor children’s disadvantages, especially in the developing world. In poor communities, resources that stimulate early development outside the home—including quality child care, libraries, recreation centers, and preschool programs—tend to be limited and low in quality. Only half of 3–6-year-olds have access to preprimary education. Coverage is strongly associated with income, ranging from 19 percent in low-income countries to 86 percent in high-income countries, with poorer children enrolled at the lowest rates in every country. Children under 3 are widely underserved, with access to services for this age group especially inequitable and uncoordinated. Moreover, reliance on poorly compensated child care workers who receive little to no training, mentoring, or monitoring undermines sustainability, retention, and quality.

Governments do not invest enough in young children. Insufficient understanding of the high payoffs to early interventions, budget constraints, and the challenges of delivering wide-ranging early childhood interventions—health, nutrition, early learning—result in low public investment in young children in
difficult, costly, and usually incomplete. But identifying the most effective approaches to improving poor children’s developmental outcomes has proven challenging because of the enormous heterogeneity in interventions as well as contexts. Still, several approaches show promise.

Health and nutrition interventions during the first 1,000 days of life (starting at conception) improve children’s development. Programs that increase access to maternal health services improve maternal nutrition through diet, supplements, and fortification, while reducing child mortality and early health problems. In isolation, nutritional interventions for children have only modest effects on height or stunting. But when combined with improved sanitation, along with access to child health services, nutritional interventions can yield significant benefits. Breastfeeding and micronutrient supplements are associated with better health and greater cognitive ability, leading to better educational outcomes in developing countries. Deworming, iodine supplements, and immunizations have also led to major improvements in children’s ability to learn.

Programs that build caregivers’ capacity to support healthy development can substantially improve children’s outcomes. Interventions include coaching caregivers at home on positive discipline, as well as promoting increased frequency of quality interventions through nurturing, protection, and stimulating activities (storytelling, singing, playing with household objects). Such interventions have been delivered in diverse ways, including home visits, community meetings, and health checkups. The most effective programs have systematic training and curriculums, as well as opportunities for caregivers to practice and receive feedback. An emerging generation of programs is offering parents incentives through positive reinforcements, with indirect “nudges” when providing information is insufficient or when beliefs or norms are detrimental.

Programs that provide caregivers with cash or psychosocial support complement interventions to improve parenting. Cash transfer programs can address acute material deprivation in households and improve developmental outcomes, particularly when provided alongside—or conditional on—prenatal care and child services. For example, conditional cash transfer (CCT) programs in Ecuador, Mexico, and Nicaragua have reduced stunting, improved cognitive development, and promoted better parenting practices. In Mexico, parenting support programs integrated with CCT programs improved child outcomes beyond the direct effects of the transfers. Also important, transfer programs can alleviate parental time and psychological constraints. In addition, interventions delivered by supervised, nonspecialist health or community workers to address acute maternal stress, depression, and anxiety have led to

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**Figure 5.2 Intense deprivation can impair brain development**

Brain structure and wiring by stunting status

a. Infant representative of never-stunted growth

b. Infant representative of stunted growth

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Note: The images illustrate two infants, 2–3 months old. The growth of one infant was stunted (panel b); the growth of the other infant was not (panel a). The images were obtained in Dhaka, Bangladesh, using magnetic resonance imaging (MRI). The left side of each panel shows the left side of the head. Each gold line represents a fiber tract—the long, thin fibers (axons) in the brain that transmit information to different neurons, muscles, and glands. It is apparent how much denser and more elaborate the connections are in the nonstunted infant. The colored images on the right side of each panel illustrate the same principles (neural connections) from a different orientation—a cross-section of the brain, from front to back.
better cognitive development, more physical growth, less diarrhea, and higher immunization rates.29

Center-based care can promote foundational skills. In countries from Ethiopia to the United States, high-quality, center-based programs have shown substantial benefits in developing children’s language, cognitive, motor, and socioemotional skills.30 By contrast, attending a low-quality, center-based program can be worse than attending none at all.31 The quality of child-caregiver interactions is a key determinant of such programs’ impacts, as Indonesia and Mozambique demonstrated with effective center-based preschool programs for children ages 3 to 6. These programs included minimal infrastructure investments but improved children’s cognitive abilities thanks to their interactions with well-trained caregivers (box 5.1).32 Delivering quality, center-based interventions for children under 3 is harder because they require costlier structural investments (such as lower child-to-staff ratios). Consequently, programs to build parenting capacity might be most cost-effective for children under 3 in resource-constrained environments or to reach marginalized populations.33

**Box 5.1 Early childhood education prepares young children for school**

Preschool programs targeting children ages 3–6 can foster foundational skills and boost children’s ability to learn. Children who attend preschool have higher attendance and better achievement in primary school. Moreover, they are less likely to repeat, drop out, or need remedial or special education, all of which benefit not only students but also education systems because efficiency is increased.4 Across countries at all income levels, the most disadvantaged children benefit most from quality early child education programs.5 But early child education programs are not all equally effective; overly academic and structured programs for children under 5 may undermine their cognitive and socioemotional skills, as well as their motivation to learn, because young children learn best through exploration, play, and interaction with others.6 Key elements of programs that have led to strong preschool outcomes include curriculums that foster crucial pre-academic abilities (emotional security, curiosity, language, self-regulation) through play; professional development plus coaching that enable teachers to effectively implement relevant curriculums; and positive, engaging classrooms that promote children’s innate drive to learn.7 For early child education gains to be sustained, the content, budget, and capacity of providers of preschool programs should be integrated into formal education systems. In addition, the quality of subsequent learning environments in primary school is an important determinant of the long-term effects of preschool programs.8

**Providing demand-side support can get kids to school, but not necessarily to learn**

School is a key input to at-scale learning. Despite major gains in access, many children still don’t attend school. Even though school is not the only place that
Figure 5.3 Integrated programs through the early years are necessary for proper child development

Key interventions for young children and their families

<table>
<thead>
<tr>
<th>Pregnancy</th>
<th>Birth</th>
<th>1 year</th>
<th>2 years</th>
<th>3 years</th>
<th>4 years</th>
<th>5 years</th>
<th>6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Family support package</td>
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<tr>
<td>Parental support for vulnerable families: planning for family size and spacing; maternal education; education about early stimulation, growth, and development; parental leave and adequate child care; prevention and treatment of parental depression; social assistance transfer programs; child protection regulatory frameworks</td>
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<td>Health, nutrition, and sanitation for families: access to health care; access to safe water; adequate sanitation; hygiene/handwashing; micronutrient supplementation and fortification</td>
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<td>2 Pregnancy package</td>
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<td>Antenatal care; iron and folic acid; counseling on adequate diets</td>
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<td>3 Birth package</td>
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<tr>
<td>Attended delivery; exclusive breastfeeding; birth registration</td>
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<td>4 Child health and development package</td>
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<tr>
<td>Immunizations; deworming; prevention and treatment of acute malnutrition; complementary feeding and adequate, nutritious, and safe diet; therapeutic zinc supplementation for diarrhea</td>
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<tr>
<td>5 Preschool package</td>
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<tr>
<td>Preschool education programs (early childhood and preprimary); continuity to quality primary schools</td>
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Source: Denboba and others (2014).

children learn (box 5.2), most parents want their children to go to school. Moreover, most children want to go. In a survey of Indian mothers with an average of less than three years of education, 94 percent hoped their children would complete at least grade 10. In Kenya, among parents with no education at all, more than half wanted a university education for their children.

Significant costs—both formal fees and a wide array of other expenses—prevent children, especially the most vulnerable, from learning. Nearly 90 percent of the world’s low-income countries proclaim free primary education. But for lower secondary education, more than 40 percent of the countries charge fees, along with 10 percent of middle-income countries. In Africa, almost half the expenditures that households incur to send their children to school—for school supplies, learning materials, transportation—are in addition to formal fees. These costs of schooling widen the gaps in school participation separating poorer children from their wealthier peers.

High aspirations for schooling among children and their parents explain why initiatives that ease constraints to schooling for households—so-called demand-side interventions—have been so effective at getting children to school. In many countries, the elimination of school fees has raised enrollments, suggesting that parents simply did not have the resources to pay the fees (figure 5.4). The interventions, which have sought to reduce other costs associated with school, have consistently improved access in the form of enrollment as well as attendance. Nonmerit scholarships—which reduce fees on a smaller scale—have increased enrollment at the...
Box 5.2 Communities can leverage the many hours spent outside the classroom to boost learning

Much learning happens outside the classroom, including from tutoring and at-home programs. Across Africa and Asia, the Literacy Boost program has implemented community reading activities to leverage the many hours that learners spend outside school. These include pairing struggling readers with stronger readers (“reading buddies”), implementing read-a-thons (in which all the books that children read during a specific period are recorded), and providing mini-libraries. Children who participate in such activities have better reading outcomes. In Rwandese communities, implementing Literacy Boost led to better reading skills and school advancement.\(^a\)

Source: WDR 2018 team.
a. Dowd and others (2017); Friedlander and Goldenberg (2016).

Figure 5.4 What happens when school fees are eliminated? Evidence from eight countries

Gross enrollment in years before and after elimination of school fees, selected countries

![Graph showing gross enrollment before and after school fee elimination](image-url)


Note: Vertical line indicates last year with fees. Gross enrollment rates include students whose age exceeds the official age group for a particular education level, and so the rate may exceed 100 percent.

primary level in Kenya and at the secondary level in Ghana.\(^4\) The flip side of reducing school fees is increasing household income, which cash transfer programs do. These programs have increased both primary and secondary enrollments.\(^45\)

Information interventions are particularly promising because they cost little.\(^46\) In some cases, demand for education remains low because students and their families underestimate the returns to education. In the Dominican Republic and Madagascar, simply providing information on the returns to education led to improved educational outcomes, though a similar intervention in rural China had no impact.\(^47\) In India, providing job recruiting services for women in their 20s increased school enrollment for teenage girls. Gender leadership quotas in Indian villages eliminated the gender gap in educational attainment.\(^48\)

Though interventions that reduce the cost of schooling are highly effective at increasing school participation for most children, especially at young ages, some children do require additional incentives to attend school. In some countries, parents give priority to sending to school their children with the highest cognitive ability or higher perceived—not necessarily actual—returns to schooling (such as boys).\(^49\) In Burkina Faso, beginning in 2008, some families received unconditional cash transfers, while others received cash transfers conditional on children’s school enrollment. Boys and children who scored better on tests were equally likely to be enrolled in school under both schemes, but transfers with conditions were significantly more beneficial for girls and children who started out at lower levels of learning.\(^50\) This finding suggests that the most vulnerable children may need more than simple cost reductions to guarantee enrollment in school.
Demand-side interventions can improve learning when programs increase either capacity to learn or student effort. Targeted cash transfers have led to more learning when framed to induce more effort, as have some information interventions.\textsuperscript{51} Even in low-quality education systems, students learn more in school than out of it; there is a learning crisis, but the positive relationship between schooling and literacy persists (figure 5.5). When individuals with similar literacy and numeracy levels are compared, those with more schooling have higher earnings, most likely because of other benefits of schooling, including improved socio-emotional skills such as discipline.\textsuperscript{52} Getting learners into school is beneficial in its own right.

In addition to getting to school, learners must be motivated. One way to increase motivation is to ensure that learners’ skills are rewarded, whether by a labor market that offers high returns or by a higher education system that admits students based on merit rather than connections. Perhaps the most immediate way to motivate students is to provide relevant, quality education that reaches them at their current level of learning. In Kenya, students who drop out of school say their inability to perform well, rather than costs or parental pressures, caused them to leave.\textsuperscript{53} Some systems seek to further motivate students with merit-based scholarships or prizes. Such incentives can improve effort as students strive to qualify—whether for a direct financial prize, such as in Benin and Mexico, or a scholarship for girls, such as in Kenya.\textsuperscript{54} Direct financial incentives have been less successful in high-income countries, though alternate designs that deliver incentives immediately after tests have raised test scores.\textsuperscript{55} Providing caregivers with information about learner performance can also have a large impact, helping caregivers to translate motivation into action (box 5.3). But in general, a positive overall educational experience is likely the backbone of student motivation.

**Remedial education can prepare learners for further education and training**

Many young people leave formal education with weak foundational skills, and thus they are unprepared for further education and training. Globally, of every 100 students entering primary education, 61 complete lower secondary education, and just 35 complete upper secondary (figure 5.6).\textsuperscript{56} About a third of youth leave school between lower and upper secondary. This problem is especially pronounced in several developing countries, where sizable shares of 15- to 24-year-olds score below the minimum level of literacy proficiency—23 percent in Chile, 29 percent in urban Bolivia, 34 percent in urban Ghana.\textsuperscript{57} Improving foundational skills early can alter workers’ labor market trajectories. Employed adults ages 15–64 who score at level 2\textsuperscript{58} or above in literacy proficiency have significantly higher probabilities of holding high-skill, better-paid white-collar jobs (figure 5.7).\textsuperscript{59} Youth vary greatly in skills and maturity, putting them on a range of different pathways. Some young school leavers enroll in second-chance programs seeking to obtain formal education equivalency diplomas so they can gain access to further education or training\textsuperscript{60}; Others pursue remedial coursework to fulfill admission requirements for postsecondary education or training institutions.\textsuperscript{61} Another group—usually those with the most serious skills gaps—goes into unstable, low-wage, low-productivity jobs, while some youth remain out of both school and the labor force.\textsuperscript{62} It is difficult to reach all these young people.

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**Figure 5.5** Not all education systems are equally productive, but even the least productive deliver some learning to some learners

Percentage of women ages 25–34, by highest grade completed, who can read all of a single sentence in their chosen language, selected countries

![Graph showing literacy rates by highest grade completed for selected countries](http://bit.do/WDR2018-Fig_5-5)


*Note:* The average is calculated across 51 countries.
Box 5.3 Providing information on children’s school performance can help parents to motivate their children

Most parents want their children to succeed in school. Promising interventions in several countries show that providing parents with information about their children’s performance can lead to better educational outcomes. In the United States, text messages sent to parents when secondary school students missed assignments led not only to more assignment completion but also to higher test scores.a Sending letters to parents about student absences also reduced absenteeism.b In Malawi, providing parents with information about their children’s academic ability enabled them to buy the appropriate books for their children.c In Chile, low-income families received text messages each week detailing their child’s attendance record along with a monthly message on behavior and test performance. Students whose parents received the texts were less likely to behave poorly in school, had better grades, and were more likely to move up to the next grade. After receiving the messages, parents expressed a willingness to pay for the service, suggesting that they saw real value to it.d But simply providing information to parents is no guarantee of success: a program in Kenya that provided parents with information on their children’s literacy levels and suggested strategies to improve them did not lead to change.e The programs that have been effective have provided parents with regular updates on the inputs to learning—attendance and performance on individual assignments—rather than just on learning levels. Such information interventions can be automated, making them extremely cost-effective because they leverage the intrinsic motivation of families.

Source: WDR 2018 team.
b. Rogers and Feller (2016).
d. Berlinski and others (2016).

Figure 5.6 Young people follow different paths in their education

Completion and attrition rates (percent), by cohort and region

a. Of 100 students who enter primary around the world…

- 90 complete primary
- 61 complete lower secondary
- 35 complete upper secondary
- 10 leave before completing
- 29 leave before completing

b. But given disparate attrition rates across regions, upper secondary attainment varies greatly

- Europe and Central Asia
- East Asia and Pacific
- Middle East and North Africa
- Latin America and the Caribbean
- South Asia
- Sub-Saharan Africa


Note: Estimates are for circa 2010.
Second-chance programs offer early school leavers, many of whom are low-skilled, an opportunity to reengage with education and training.

Remedial coursework at the onset of postsecondary education and training increases young people’s chances of completing their programs of study.

Remedial education interventions can work—if they reach the right people using the right approach. Effective remedial education interventions meet young people where they are, helping them transition into careers. Remedial programs are more likely to support students’ interests when they are short, relevant to students’ lives, delivered by experienced teachers, and part of a long-term plan for career growth. Most evidence to date comes from programs in high-income countries, with three main types of interventions standing out as promising:

- Remedial prevention programs support academically weak students by strengthening their foundational skills and encouraging them to complete a formal education.

Remedial prevention programs can help low-performing students and keep them in school

Remedial prevention programs can help at-risk youth who are in the formal education system to prepare for rigorous academic work in further education or training. Three remedial prevention approaches show promise. The first offers support to primary and secondary students willing to stay in school and master foundational skills. Programs in India and Mexico City that offer additional instruction for disadvantaged students have shown positive impacts on foundational skills (especially in India). The second approach offers students early assessments of their academic standing, along with extra instruction to improve performance. A statewide early assessment program in California that supports academically at-risk students shows declining needs for remediation at later stages of education and training. The third approach gives secondary school students the option of registering concurrently in postsecondary courses. Participants in such programs in the United States are less likely to require remediation and more likely to persist in tertiary education and improve academic outcomes.

Second-chance programs offer a way to return to education and obtain training

Second-chance programs give youth who have dropped out of school a path to reengage in nontraditional learning environments, obtain secondary education equivalency qualifications, and enter job training. These programs offer a learning experience that signals a level of achievement to participants, their families, and employers. In Australia and the United States, early school leavers are encouraged to enroll in programs that provide an equivalent to an upper secondary diploma. Though equivalency programs can improve employment, wages, and other education indicators (relative to outcomes for individuals with no credentials), such impacts are often smaller than those for individuals holding traditional educational credentials. Across second-chance interventions, socioemotional skills play an important role in student success—with skills such as the ability to work toward long-term goals.

Motivating them to join second-chance or remedial programs is not easy, especially if they have been out of the education system for some time. Many are uncertain about the benefits of remedial courses, and returning to school settings can stir up negative feelings. In Uganda, early school leavers said they suffered from diminished self-worth, limited life opportunities, and social exclusion associated with early departure from formal education.

Remedial education interventions can work—if they reach the right people using the right approach. Effective remedial education interventions meet young people where they are, helping them transition into careers. Remedial programs are more likely to support students’ interests when they are short, relevant to students’ lives, delivered by experienced teachers, and part of a long-term plan for career growth. Most evidence to date comes from programs in high-income countries, with three main types of interventions standing out as promising:

- Remedial prevention programs support academically weak students by strengthening their foundational skills and encouraging them to complete a formal education.
sometimes mattering more than the equivalency certificate itself.

The demand for second-chance programs is high and the evidence is promising, but keeping youth engaged in further education and training requires an integrated policy approach. In Sub-Saharan Africa, there is a demand for programs to reengage early school leavers, especially in low-income or conflict regions.\textsuperscript{74} But in practice, programs tend to be small, and few operate within a policy framework that integrates them into the formal education and training systems.\textsuperscript{75} For low-income students, who usually make up a disproportionate number of early school leavers around the world, second-chance programs like the Open Basic Programme in India can provide important pathways to educational opportunities.\textsuperscript{76} In India, Indonesia, the Philippines, and Thailand, equivalency programs for early school leavers improve students’ self-development, especially when programs are aligned with the formal education system.\textsuperscript{77} Similarly, second-chance programs in Latin America and the Caribbean yield better results when they take into account the multidimensional needs of young people, connect students to pathways for further education and training opportunities, and provide support to help participants return to productive adulthood.\textsuperscript{78}

**Postsecondary remedial education programs can help youth succeed in their programs of study**

Many students enrolling in postsecondary education and training are not prepared for the rigor of their programs of study. In Chile and Mexico, several postsecondary institutions offer remedial support to academically underprepared students, but impact evaluations of such interventions are rare.\textsuperscript{79} In the United States, participation in postsecondary remedial education is widespread, often at great cost to individuals and institutions.\textsuperscript{80} About 42 percent of incoming students in two-year institutions and 20 percent in four-year institutions enroll in remedial courses at an annual cost of $1–$7 billion, depending on how the estimates are calculated. Due to this high cost, U.S. institutions have been experimenting with new approaches. There are three main types of remedial models that show promise: accelerated remediation, contextualized instruction, and intensive student support.\textsuperscript{81}

Accelerated remediation models reduce the time students spend on remedial coursework. Conventional remedial education programs are often designed as a series of sequential courses that can take multiple semesters to complete, which often leads students to drop out.\textsuperscript{82} New accelerated remedial models addressing this problem include fast-track courses, self-paced modularized courses, and efforts to mainstream students directly into postsecondary courses while providing additional instructional support. In the U.S. state of Indiana, a study of two fast-track programs found participants achieve better course pass rates and fewer course withdrawals than students in longer remedial programs.\textsuperscript{83} Similarly, evidence on self-paced modularized and mainstreaming programs indicates that participants have higher postsecondary pass rates in math, complete more rigorous course requirements, and attempt tertiary courses at higher rates than nonparticipants.\textsuperscript{84}

Contextualized instruction improves the effectiveness of remedial education interventions, because learners benefit most when they engage, interpret, and generate meaning from instructional content relevant to their background.\textsuperscript{85} These models are designed to reinforce foundational skills, while emphasizing learners’ career aspirations.\textsuperscript{86} New approaches include contextualized vocational learning. An example that blends foundational skills upgrading with occupational training is the I-BEST (Integrated Basic Education and Skills Training) program in the U.S. state of Washington. An evaluation of the program finds that participation has positive effects on student learning, including course credit accumulation, persistence in tertiary education, and earning of occupational certificates.\textsuperscript{87} Learning community approaches, which emphasize multisubject instruction, project-based work, and learner social interactions, also are showing promising results. In the United States, participation in these programs has a significantly positive relationship with a number of factors associated with student success, such as level of course engagement, student and faculty interactions, or continuation to advanced courses.\textsuperscript{88}

Intensive student support can provide an institutional safety net for at-risk youth. New approaches showing promising results include intensive tutoring with supplemental instruction, intensive advising, and student success courses. Intensive tutoring programs range from providing general academic counseling and tutoring to offering special skills training.\textsuperscript{89} Evaluations of programs offering sustained tutoring show improvements in course completion and academic standing.\textsuperscript{90} Intensive personalized advising services help students navigate course selection and develop career plans. These services can help students take advantage of other forms of support; beneficiaries are also more likely to complete their remedial coursework and stay on in school after
program completion.\textsuperscript{10} Student success courses are usually stand-alone, credit-bearing courses for new students that emphasize the development of study skills. Experimental evidence from the United States shows promising results on participants’ number of credits earned, classes passed, and class standing.\textsuperscript{11}

Finally, recent developments in self-directed technology models are opening new opportunities for youth to work independently to meet their learning needs and upgrade their skills, but this remains a new area for remedial education research, and evidence on their impacts is still sparse.\textsuperscript{93}

Notes

10. Bradley and Corwyn (2005); McCoy and Raver (2014); Shonkoff and others (2010).
12. These numbers likely overestimate global preschool coverage because many low-income countries do not report access data (Save the Children 2017).
15. ACPF (2011).
18. Black and others (2017). This is likely an underestimate of the true number of young children who are at risk of not reaching their developmental potential, given the multiple risk factors associated with poverty.
22. Elander and others (2010); Horta, Loret de Mola, and Victora (2015).
25. Aboud and Youssafzai (2015); Britto and others (2016).
26. For a review, see World Bank (2015).
27. Britto and others (2016); World Bank (2015).
30. Berlinski, Galiani, and Gertler (2008); Engle and others (2011); Favara and others (2017); García and others (2016); Rao and others (2014).
32. Martínez, Naudeau, and Pereira (2012); Nakajima and others (2016).
33. However, center-based care can have the important added benefit of increasing labor force participation or further skills acquisition among parents, especially mothers.
34. Attanasio and others (2014); Denboba and others (2014).
35. Britto and others (2016).
38. Serneels and Dercon (2014).
40. World Policy Analysis Center (various years).
41. Foko, Tiyab, and Husson (2012).
42. Al-Samarrai and Zaman (2007); Bold, Kimenyi, and Sandefur (2013); Deininger (2003); Grogan (2009); Lucas and Mbiti (2012); Nishimura, Yamano, and Sasaoka (2008).
43. Morgan, Petrosino, and Fronius (2012); Zuilkowski, Jukes, and Dubec (2016).
45. Filmer and Schady (2008); Fiszbein and Schady (2009).
47. Avitabile and de Hoyos (2015); Jensen (2010); Loyalka and others (2013); Nguyen (2008).
52. Valerio and others (2016).
55. Fryer (2011); Levitt and others (2016).
56. The primary completion cohort is approximated by estimating the net intake rate to last grade in primary, and the lower secondary completion rate is modeled as a function of three components: primary completion rate, effective primary-to-lower-secondary transition rate, and net intake rate to last grade in lower secondary. The regional upper secondary completion rates are estimates from UNESCO’s World Inequality Database on Education (WIDE 2017), and the global upper secondary completion rate estimate is based on UNESCO’s 2015 projection (UNESCO 2015).
57. OECD (2016); Roseth, Valerio, and Gutiérrez (2016).
58. Low proficiency is defined as level 1 and below on OECD’s Programme for the International Assessment of Adult Competencies (PIAAC) and the World Bank’s Skills Measurement Program (STEP) literacy assessments, and indicates limited understanding of basic texts. Medium to high proficiency is defined as level 2.
and above and indicates the ability to integrate, evaluate, and interpret information from a variety and complexity of text materials.

59. Estimates are based on marginal effect of literacy skills at or above level 2 on the predicted probabilities of entry into high-skill white-collar and blue-collar and other jobs (base outcome). The full specification includes background control variables such as sex, age, education attainment, and proxies for family endowment.

60. Zachry and Schneider (2010).


62. de Hoyos, Rogers, and Székely (2016).


64. The terms “remedial education” and “developmental education” are often used interchangeably to describe programs aimed at supporting low-performing students to enter and complete postsecondary and training programs. The Report uses the term “remedial education” because it is a more widely recognized concept in low- and middle-income countries. (See Bailey and others 2010; Bailey, Bashford, and others 2016; Long and Boattman 2013.)

65. Post (2016).

66. “At-risk” students are defined here as having a higher propensity of dropping out of formal education or of not completing post-basic education and training programs.

67. The typology used is from a systematic review of remedial (developmental) education by Rutschow and Crary-Ross (2014); Tukundane and others (2015); Wilson and Tanner-Smith (2013); and Zachry Rutschow and Schneider (2011).

68. Gutiérrez and Rodrigo (2014); Lakshminarayana and others (2013).


70. Karp and others (2008).


73. Tyler and Lofstrom (2009).

74. Inoue and others (2015).

75. Tukundane and others (2015).

76. UNESCO (2010).

77. UNESCO (2010).

78. Cunningham and others (2008).

79. Cabrera (2013); Figueroa and others (2015); Micin and others (2015).


82. Bailey (2009); Clotfelter and others (2010); Zhao and Kuh (2004).


85. CSS (2007).

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