Acceleration of Education and Learning

Emma Näslund-Hadley

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Emma Näslund-Hadley
Lead Education Specialist
Inter-American Development Bank

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In Latin America and the Caribbean (LAC), the regional standardized learning test shows that some 40% of third grade students and 60% of sixth grade students do not develop basic competencies in reading and mathematics (CIMA, 2023). The limited learning levels have profound long-term implications for individual students and for society, as it limits opportunities for future studies, work, earnings, and economic growth.

To respond to these high levels of unfinished learning, grade repetition is a common policy throughout LAC. Students' access to grade-level education is postponed until they have reached the minimum learning targets for the previous academic grade. The proportion of students affected by this policy is important. In 2020, at the primary level of education repetition rates varied across countries with between 1 and 14% of the regions' students that were held back. This translates to some 2.7 million of the region's 106 million primary students who repeated the year (UIS, 2023). These annual repetition rates accumulate, producing high proportions of students who are older than the corresponding age for their grade level, resulting in overcrowded classrooms.[1] Around 2020, an important group of countries had over 10% of primary students who were overage: the Dominican Republic (10%), El Salvador (12%), Colombia (13%), Guatemala (14%) and Surinam (18%). At the lower secondary level around a fifth of students in Belize (17%), Dominican Republic (19%), El Salvador (18%), Colombia (21%), and Guatemala (23%) were overage. In Surinam, the corresponding proportion was 35% (UNESCO, UNICEF & ECLAC 2022).

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1. Although late entry into school contributes to the elevated rates of overage students, student become over-age mainly due to grade repetition.

The reasoning behind grade retention is that a student who did not master the content and concepts of the fourth grade would obviously not be able to learn the course material of the fifth grade. The aim is to enforce learning standards by giving students a second chance to develop grade-level skills before progressing to a higher level. The problem is that if the student did not acquire the skills the first time, there is a risk that accessing the content a second time through the same pedagogical approach will not be helpful. In the literature, there is scant evidence on repetition leading to improved learning, and extensive data shows associations between grade repetition and low achievement levels (OECD 2011).

In terms of socioemotional development, although retention in first grade has been found to have short-term positive psychosocial effects (Wu, West & Hughes 2010), a meta-analysis of 20 studies (Jimerson 2001) suggests that grade repetition has a negative socioemotional impact. If a student perceives grade retention as a punishment, associated with shame and inferiority, it is not surprising that the literature also finds that grade repetition may increase the risk of dropping out of school altogether (Glick & Sahn 2010).

Neither does the widespread use of retention in LAC make economic sense as the financial cost of grade repetition is substantive. With an average annual cost per student of some US$2,000 (Bertoni, 2020), Latin America and the Caribbean spend US$5.3 billion of its education budget each year on retaining 2.7 million primary students. This estimate considers only the additional cost of providing an additional year of schooling. The cost for society is of course much higher, including the opportunity cost of entering the labor market one year later, the cost of increased school dropout, the emotional cost of grade repletion for the individual student, as well as the cost of decreased learning associated with higher student-teacher ratios.

Taken together, the literature suggests that retention is not an effective policy response for unfinished learning. So, what are the alternatives to grade repetition? What can be done to recover learning loss without holding students back? Education systems are increasingly turning to different types of acceleration strategies.

As acceleration gains traction in education communities across the globe, the term has become something of a catch-all phrase to refer to a wide spectrum of different programs and strategies to help students complete unfinished learning. This note reviews the terminology, conceptualization, and effectiveness of different acceleration strategies.

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Core Elements of Accelerated Learning

Accelerated Learning is based on science on how we learn. The approach emerged in the fields of psychology and neuroscience in the 1970s. While Bulgarian psychiatrist Georgi Lozanov (1978) is credited as the father of accelerated learning, an entire group of researchers were influential to its development (Levin 1988; Meier 2000; Rose & Nicholl 1997). The creators of Accelerated Learning argued that the teaching approaches used at the time – focused on the transmission of curriculum content knowledge through lecture-style instruction – were out of sync with how our brains process and recall information. Instead, they argued that the learner is more important that the teacher. That learning requires a holistic approach, involving the whole student in the learning process through emotion, play and collaboration with other learners. The approach is multisensory and often use music, color, play, and creativity as part of the learning experience. McKeon (1995) provides the following definition:

> *"Accelerated learning is a multisensory, brain-compatible teaching and learning methodology. It uses information from brain research to ensure that less time is wasted than in more traditional learning processes. Accelerated learning involves both the packaging of the content and the conditioning of the learners so that students can absorb and retain material faster through overcoming traditional barriers to learning. Accelerated learning is a multidimensional approach in which the learner is the focal point of the experience. The learners are in control of the learning" (McKeon 1995 p 63).*

The approach was revolutionary at the time and faced resistance from traditionalists, but as evidence accumulated on the effectiveness of basing instruction on the functioning of the brain, the approach became influential in the education literature.

To explain how to implement Accelerated Learning, it is often easiest to start by explaining what it is not (Table 1). Accelerated Learning does not narrowly focus on the achievement of academic goals but promotes long-term success of each child by focusing on the whole child in collaboration with caregivers and the education community. Accelerated Learning does not hold low expectations for what any student can achieve. This is a shift in mindset for LAC where racial and socioeconomic learning gaps existed long before the COVID-19 pandemic. The Accelerated Learning approach requires that educators genuinely believe that every child can learn, transmitting a Growth Mindset mentality with expectations for every child to succeed. Accelerated Learning does not mean cramming two grade-levels of content into one academic year. With just-in-time assistance, Accelerated Learning enables students to learn material appropriate for their grade. The method puts an emphasis on getting students ready for the learning of forthcoming grade-level material and skills. Accelerated learning offers targeted support on fundamental skills and concepts, which is in line with current grade-level education, as opposed to attempting to cover the whole spectrum of lost information.

Table 1. What Accelerated Learning is and isn't

Accelerated Learning does not	Accelerated Learning does
Have low expectations for students	Expect all students to be able to learn
Focus on the learning gaps of the student	Develop a long-term plan that builds on the skills and funds of knowledge that the student has
Speed up teaching	Spend additional time on core concepts and skills
Try to cover the entire spectrum of lost content from previous grades by cramming two grade-levels of content into one academic year	Seek to get students ready for the learning of forthcoming grade-level material and skills, by focusing on key concepts and skills
Focus on procedural fluency through drill, practice, and memorization	Offer targeted support, such as scaffolding and just-in-time instruction, to allow students to access grade-level content
Narrowly focus on academic achievement	Focus on the whole child by addressing socioemotional skills and needs
Restrict the learning process to the classroom	Engage caregivers and the education community in the learning process

Source: Developed by author based on AEWG 2011, Boisvert (2017), Levin (1988), and Meier (2000).

Accelerated Learning in the Classroom

Implementation of Accelerated Learning in the classroom – whether provided through a regular education or a complementary education program – involves four phases (Meier 2000; McKeon 1995). Although the names of the phases vary in the literature, these generally encompass:

1. Preparation. The aim of the preparation phase is two-fold to create a positive learning environment that make students feel at ease, and to pique their curiosity about the lesson. As part of the preparation phase, the teacher should plan for activities that encourage cooperation among students, setting the stage for collaborative learning. At the start of the lesson, the teacher should explain what the lesson will focus on and what students will learn. The room can be prepared to make learners feel at ease through colors, art, and music. As an example, Lozanov often initiated lessons with Baroque musique, telling his students that what they would learn would be easy. His aim was to break down mental barriers to learning (McKeon 1995). While telling students that the material was easy, was unconventional at the time, today we know that students perform better if told at the beginning of an activity that members of their group tend to do well. And conversely, that they will perform poorly when told the opposite (Spencer et al 1999; Steele and Aronson 1995).

2. Acquisition. The aim is to introduce grade-level content and concepts in a way that is engaging and captures the interest of the student. This phase should be through-provoking and allow access for students with different learning styles (e.g. auditory, somatic, and visual), content can be introduced through group work, individual research, interactive exercises, hands-on exploration, or audio-visual materials (Meier 2000). These approaches also allow students to build on the funds of knowledge[2] that they bring to the classroom (Rodriguez 2011).

3. Integration. This phase has also been called practice or playtime. The aim is to make students fully engaged in the learning process by providing them the opportunity to be producers of information and knowledge. In his experiments, Lozanov often used storytelling, which has been found to increase retention when implemented with imagery and natural dialogue (McKeon 1995). Other Accelerated Learning methods used in this phase include role play, game-based learning, teach-back, and meaningful discussions.

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2. Funds of knowledge are the cultural practices and knowledge that a student learns outside the classroom. For example, a student living close to the border with the United States may bring knowledge to the mathematics class of how to convert Mexican pesos to dollar. An indigenous student may bring ethnomathematics abilities to the classroom.

4. Application. The final phase gives students the opportunity to apply the newly acquired skills to new situations, increasing retention by practicing the skills. Students may have the opportunity to apply their new skills to real world examples, for example, by exploring questions and trying to find solutions using their new skills.

More recent researchers have expanded on the four phases, breaking them down into concrete steps. Perhaps most importantly support provided to help students access content despite skill gaps, is highlighted, particularly in phases #2 and #3. Students receive education in prior knowledge and remediation of prerequisite abilities that, if lacking, may create hurdles to the learning process to prepare for a new topic or lesson. Sometimes this implies moving more slowly to provide just-in-time support and scaffolding for the development of fundamental skills necessary to meet the grade-level learning goals, a 7th grade algebra unit, for instance, might require 30 lessons rather than 20. For example, Rollins (2014) calls this step "Scaffold and Practice Essential Prerequisite Skills." She also breaks out a step that she calls "Introduce New Vocabulary and Review Prior Vocabulary," underlining that a rich vocabulary is particularly important for students in Accelerated Learning modalities as it allows them to access the content.

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Acceleration in Practice

Accelerated Learning has been implemented in high resource settings with effects on a range of student outcomes, including school completion rates, learning and socioemotional development. However, in low resourced settings, due to large content and pedagogical gaps of teachers, it is often not feasible to implement Accelerated Learning as originally conceived. Instead, ministries of education and international partners have designed alternative acceleration strategies that mainly seek to accelerate learning through a condensed curriculum.

As a result of the wide spectrum of initiatives, programs and approaches that have emerged under the banner of acceleration, today conceptualizations and definitions of accelerated learning vary across the literature. To bring more consistency to the terminology, the Accelerated Education Working Group (AEWG) has proposed to group these programs together under the umbrella of Accelerated Education Programs (AEP), defined as:

> *"A flexible, age-appropriate programme, run in an accelerated timeframe, which aims to provide access to education for disadvantaged, over-age, out-of-school children and youth. This may include those who missed out on, or had their education interrupted by, poverty, marginalisation, conflict and crisis. The goal of Accelerated Education Programmes is to provide learners with equivalent, certified competencies for basic education using effective teaching and learning approaches that match their level of cognitive maturity"* (AEWG 2017 p 1).

While the terms AEP and Accelerated Learning are often used interchangeably by practitioners, the education literature distinguishes between the two approaches. While AEP accelerates learning by condensing the curriculum, it usually relies on traditional pedagogy. Accelerated Learning, on the other hand, seeks to accelerate learning by shifting to a pedagogical practice that is more conducive to learning (Fitzpatrick 2020).

While AEP in many ways is a scaled-back version of Accelerated Learning as conceptualized by its creators, the two approaches have many elements in common (Graph 1). Accelerated Learning and AEP both place the student at the center of the learning experience, have high expectations for what every student can achieve and offer targeted support with additional time on core concepts. Other elements that are sometimes included, but often scaled back in AEPs include: (i) Socio-emotional learning; (ii) at the school, long-term development plans for each student across grade-levels; (iii) collaboration with families through caregiver engagement; and (iv) community outreach. Almost always absent from AEP is the multisensory brain-compatible teaching with a pedagogy based on neuroscience.

Graph 1. Core Elements of Accelerated Learning and AEP

Source: Developed by author.

Table 2 contrasts AEP and Accelerated Learning with remedial education. While the term remedial education is sometimes used to refer to grade retention, in the table it is used to describe a third acceleration strategy through targeted short term support to students.

Table 2 Conceptualizing Acceleration in Education

Terminology	Curriculum	Pedagogical Practice	Uses	Strategy
Accelerated Learning	Core content and socioemotional learning.	Learner centered pedagogy based on how the brain processes and retains information, seeking to overcome barriers to learning for faster absorption and retention.	Overage children and youth who have missed 1-2 years of school.	Used within the regular classroom, when an entire cohort has missed schooling (e.g. during the COVID-19 pandemic), or used in small classes to spend additional time on the development of core competencies.
Accelerated Education	Condensed curriculum focused on literacy and numeracy. Often eliminating non-core subjects.	Often based on traditional teaching practices.	Overage children and youth who have missed 1-2 years of school.	Often implemented with small classes to spend additional time on the development of core competencies.
Remedial Education	Targeted interventions to develop specific skills.	Often based on explicit instruction, but also other approaches are used.	Short-term support for students who do not master specific grade level skills.	With help of a special education teacher or teaching assistant within the regular classroom, in a pull-out session, or through after school tutoring.

Source: Developed by author based on AEWG (2017) and Boisvert (2017).

Acceleration Strategies through Edtech

Education technologies (Edtech) have potential as a tool to support acceleration in learning. A systematic review finds that when the infrastructure for EdTech is available, it can be helpful to accelerate learning through promoting interactivity, learner-centered pedagogy, and social and emotional development. However, thoughtful analysis is necessary in each case to determine if Edtech should be used as part of the acceleration strategy (Damani 2020).

An example of an Edtech AEP is the Zearn K-5 online mathematics platform, which is used in over 100,000 classrooms in the United States. In what would be the Acquisition Phase in the original conceptualization of Accelerated Learning, the teacher introduces mathematics concepts through visible and tangible strategies. In a subsequent Integration or Practice Phase, students explore grade-level content through the Zearn online platform. The platform provides just-in-time support with differentiated instruction whenever a student struggles with a concept, thereby allowing them to access grade-level content despite learning gaps. If the student continues to struggle on a specific concept, the teacher receives an alert to provide additional support. Although no experimental evaluation has been conducted, the scale of a study of the program, makes the findings compelling. A comparative study of 50,000 students in 6,000 elementary education classrooms in the United States that either use traditional remediation and or the Zearn online mathematics platform suggests that this Edtech AEP is effective. Compared to students who began at the same level but underwent remediation, students who experienced learning acceleration through Zearn faced less difficulty and learned more. Students from low-income households and students of color benefited most from acceleration (TNTP 2021).

While the study of the Zearn mathematics platform suggests that acceleration through Edtech has the potential to be effective in a high-resource setting, limited evidence is available from Low- and Middle-Income countries (LMIC). Additional research is needed to determine what types of Edtech AEP are effective for different age groups and socio-economic and cultural contexts in LMIC. Such research on Edtech and acceleration strategies should also include the study of what works in teacher professional development.

Conclusion

Despite its popularity as a policy option, grade repetition may not guarantee learning recovery. Contrary to retention, which holds students back until they master skills from a prior level, acceleration is forward-looking. Acceleration helps students access grade-level content by getting support to develop any critical skills they need to access the new material.

While the initiatives that are implemented under the banner of acceleration are increasing, the pedagogical and curricular elements of acceleration strategies vary widely. The neuroscientists and psychiatrists who created Accelerated Learning in the 1970, introduced the world to a completely novel pedagogical approach that they designed based on how the brain processes and retains information.

In LMIC, acceleration strategies implemented today tend to focus on condensing the curriculum, rather than changing the pedagogical approach as is done in the original conception of Accelerated Learning. Also, the socioemotional learning and community engagement elements of the original approach are often not implemented in these contexts. Although these are scaled-back versions of the original conceptualization of accelerating learning, AEP implemented in LMIC share key characteristics of the original approach, including its learner-focused approach, its focus on skill development, and its high expectations for every child to be able to learn. The emerging evidence on the effectiveness of AEP show that these programs are effective in improving learning.

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