Reaching SDG4 By 2030: characteristics of interventions that can accelerate progress in the lowest-income countries

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Abstract The COVID-19 pandemic has exacerbated the global learning crisis, with many learners losing access to their classrooms. Recovery from the pandemic and transition back to regular schooling is slow, and there is a need to catch up. Despite some EdTech having been introduced as a mitigating measure, it is clear that the poorest children, especially, have missed significant learning. The present overview paper seeks to offer inspiration, overarching considerations, and research evidence to highlight opportunities for collaboration to build back better after the COVID-19 crises — globally and particularly among low- and middle-income countries — knowing the urgency under which education policymakers are asked to act.

Keywords Sustainable Development Goal 4 · Education improvement · International education · Learning outcomes

Introduction

The COVID-19 pandemic has exacerbated the global learning crisis, with many learners losing access to their classrooms. Recovery from the pandemic and transition back to regular schooling is slow, and there is a need to catch up. Despite some EdTech having been introduced as a mitigating measure, it is clear that the poorest children, especially, have missed significant learning. The recent report Where are we on Education Recovery (UNICEF et al. 2022) paints a bleak picture of the state of ‘post’-COVID-19 education in 2022. The foreword summarises the current state of education as follows:

“We know that even before the pandemic more than half of 10-year-olds in low- and middle-income countries were unable to read or comprehend a simple story. Now that figure is estimated to be as high as 70 percent … In fact, nearly 153 million children missed more than half of their in-person schooling over the past 2 years, with more than 62 million of them having missed at least three-quarters of in-person schooling. And we know that the most vulnerable children are paying the heaviest price.” (p. 5).

The report exhorts governments to urgently work to reach every child and retain them in school; prioritise teaching the fundamentals; and develop psychosocial health and well-being so that every child is ready to learn (p. 5). While governments are, of course, of critical importance to improving education, we must exhort all actors in the sector, including intergovernmental organisations, donors, program implementation agencies, non-governmental organisations, research institutions, and researchers.

It is noteworthy that some of the report’s outcomes were anticipated conceptually in a previously
published paper, A five-part education response to the COVID-19 pandemic (Haßler et al. 2020), then underpinned by emerging evidence (McBurnie et al. 2020).

However, rather than just affecting some marginalised, rural regions, we note that differences in socioeconomic status often affect all countries, including, often, urban areas as well (Silva-Laya et al. 2020). Indeed, COVID has eroded the progress made by disadvantaged pupils, according to a series of reports on Pupils’ progress in 2020–2022 academic years (Department for Education England United Kingdom 2021).

However, there is also ground for hope. The last 2 years of the COVID-19 pandemic, and indeed the recent decade, have provided ample insights and opportunities to learn from successes and failures, as illustrated by the evidence presented in the working paper: Global Collaboration to Build Back Better (Haßler et al. 2022). In fact, arguably, we are closer than ever to being able to scale impactful and cost-effective interventions, at least in some areas.

The view that evidence has been accumulating quickly pre-COVID-19 is corroborated by Evans and Yuan:

“At the same time, evidence on what works to improve the quality of education is accumulating at an unprecedented rate … In recent years, hundreds of impact evaluations in low- and middle-income countries have demonstrated the effectiveness — or lack thereof — of a range of interventions at improving education outcomes, for girls and boys” (Evans and Yuan 2019, p. 3; referencing Popova et al. 2018; J-PAL 2017).

The present overview paper seeks to offer inspiration, overarching considerations, and research evidence to highlight opportunities for collaboration to build back better after the COVID-19 crises — globally and particularly among low- and middle-income countries — knowing the urgency under which education policymakers are asked to act.

Both the present paper as well as the longer working paper (Haßler et al. 2022) consider the question: What does the current research evidence tell us about effective interventions that can be forged into larger holistic interventions, leading to effective and equitable transformation of national systems of education?

This paper forms part of a sequence. These five characteristics were originally devised for a contribution to the IIMC webinar “Dealing with Online and Blended Education in Modern Challenging Times” 5th March 2022, Calcutta, India. We elaborated the approach through a background paper for the Conference of Commonwealth Education Ministers (CCEM) ‘21, taking into account the specific conference themes. The present paper summarises the core tenets. Finally, the working paper (Haßler et al. 2022) details our approach with more rigor. For the working paper, we reviewed 200 + publications for primary and tertiary education as well as lifelong learning against the key themes and questions of this paper, using the following filters: a date filter: ‘since 2020’ and keywords: ‘literature review’ plus education-related terms.

**Intervention characteristics**

We propose the following five characteristics for what constitutes ‘effective’ interventions, meaning choices of interventions that propel us towards the education goals of the Sustainable Development Goals — particularly so that the poorest have the opportunity of leveling up.¹

Interventions must:

1. Enable holistic and relevant student learning;
2. Be affordable and cost-effective;
3. Be effective (also) for the poorest 30%;
4. Have impact, at scale, by 2030;
5. Have a tenfold impact (10x), not 10%.

The first characteristic means that interventions have to target student learning, where such learning is relevant to the student. Relevant student learning means learning the basics: foundational literacy and numeracy. The word holistic refers to the idea that the shortest path towards ‘foundational literacy’ does not depend on a single factor; interventions need to consider the emotional well-being of students so that they are ready to learn. Without such gateway skills,

¹ These five characteristics were devised for a contribution to the IIMC webinar “Dealing with Online and Blended Education in Modern Challenging Times” 5th March 2022, Calcutta, India. [https://www.iimcal.ac.in/iimc-webinar-dealing-online-and-blended-education-modern-challenging-times](https://www.iimcal.ac.in/iimc-webinar-dealing-online-and-blended-education-modern-challenging-times).
other skills, such as digital literacy, cannot be acquired. Realistically, adjusting our goals towards 2030, ‘learning for all’ will mean ‘foundational learning for everyone’.

The second characteristic means that the cost of the intervention needs to be affordable. Available finances per student, not counting recurring costs, are less than USD10 / student / year in some of the lowest middle-income countries. Therefore, interventions must be of comparable cost. Cost-effectiveness means that the learning gains per unit cost must be favorable. Suppose we use ‘learning adjusted years of schooling’ (LAYS) to assess learning; we may say that it is not LAYS alone that matter, but that the critical measure is ‘LAYS per unit cost’. This may mean that we may have to concentrate finances on fewer but more comprehensive interventions (Piper et al. 2018).

The third characteristic is a reminder that interventions need to be effective for the poorest. During the COVID-19 pandemic, many interventions were launched; however, because of an overreliance on technology, globally they reached only the upper 50%–70%, leaving at least 30% without learning continuity (UNICEF et al. 2022). With new ‘post’-COVID interventions, we have to make sure that the poorest 30% are included in the group of primary beneficiaries; the poorest have to be reached first, rather than being reached through future extensions at unspecified dates.

The fourth characteristic proposes a timeline according to which an intervention should show impact. Interventions must have realised their impact by 2030. Many interventions have limited impact and rely on ‘later scaling’. For new interventions, we have to make sure that there is a credible Theory of Change that allows the previous 3 characteristics to be met by 2030.

The fifth characteristic pushes the boundaries in terms of effectiveness. It emphasises that to meet the Sustainable Development Goals, significant acceleration is needed. Many interventions will have some sort of impact. However, for children who are only achieving one year of learning in 6 years of schooling, an acceleration of 10% — 1.1 years of learning in 6 years of schooling — is not sufficient. We need to look at interventions that can accelerate progress tenfold (that is, 10X, by 1000%) rather than by 10%. By combining the right interventions, and coordinating among implementers, it should be possible to drive up the impact factor.

For any given intervention, deciding whether these characteristics are met or not could potentially be a complex process, considering effective assessment methods. However, many decisions will need to be made without such tools at hand. To enable implementation decisions, we propose that an intervention should be considered to be potentially effective if there is a defensible evidence-based Theory of Change, that indicates how the above five characteristics are met. We contend that a basic process like this will filter out a significant range of interventions and approaches. Once decisions on implementation have been made, and as interventions are implemented, we must progress cautiously; based on monitoring, as well as rigorous research and evaluation, implementation decisions have to be constantly adjusted (Haßler et al. 2021c; Haßler 2021a, b).

Areas within the education architecture

The first area we consider our students and the classroom. Classroom materials, such as textbooks, are a significant recurring cost. Therefore, one of the most significant opportunities for collaboration and cost savings is sharing learning resources for schools: global public goods such as classroom materials, curricula, teacher and parent resources, and examination papers. Interestingly, despite some interest in Global Public Goods, there are very few ‘openly resourced’ education systems. There is a significant economy of scale enabled by open-source curricula that align to common standards with an ability to adapt to country needs, ensuring accessible and inclusive learning opportunities. (Chandra 2020; Groeneveld et al. 2022).

The second area is teachers and the education workforce. To improve teaching and learning, teachers must have opportunities for professional development. There are significant disparities between how TCPD is implemented and what is known about effective TCPD implementation (Evans and Mendez Acosta 2021; Popova et al. 2018). There is an urgent need to set standards for TCPD to actualise the impact of the investments being made. Moreover, as with classroom materials, despite significant investments over two decades, very few materials are publicly
available. Additionally, reform of teacher colleges offers significant opportunities for improving efficiency. This cannot just focus on teachers: strengthening school leadership will positively influence learning outcomes for students.

The third area is the administration of national education systems. In light of recent technological advances, new opportunities are arising for how administration functions, which may well offer significant opportunities for acceleration towards the Sustainable Development Goals. This includes technology use for better teacher allocation and better national-level coordination through the use of geospatial information. Particular approaches, such as geospatial methods and teacher allocation algorithms, require only very focused use of financial resources at critical moments of decision-making and benefit the poorest (Evans and Mendez Acosta 2021; Rodriguez-Segura and Kim 2021). We also highlight promising pathways around the importance of data-driven systems and open access research and evidence.

The fourth area is international collaboration. Much of the ‘international aid architecture’ as well as regional collaboration could be strengthened. In the three areas and beyond, there are concrete options for countries, particularly who share commonalities around income levels, territorial and socio-cultural associations, to collaborate and accelerate progress towards the Sustainable Development Goals. Many shared issues that groups of low-income countries face may well have shared solutions, including shared approaches that can significantly accelerate learning.

In our working paper (Haßler et al. 2022) we elaborate on every area of intervention listed above, examining each area in turn, suggesting approaches that meet the aforementioned characteristics and offering opportunities for collaboration.

A word of caution: technology use in education

While educational technology (EdTech), which has received significant attention during the COVID-19 pandemic, can be impactful, we need to be aware that “education technology interventions have decidedly mixed impacts” (Evans and Mendez Acosta 2021, p. 13).

One of the conditions for EdTech to work cost-effectively appears to be the existing availability of infrastructure (Evans and Mendez Acosta 2021). If the infrastructure in a certain domain is not already available, then attempts to use EdTech in that domain will fail. For example, if students do not have devices already and a supporting infrastructure, then trying to introduce devices will not improve student learning outcomes.

Often, it is assumed that as long as an EdTech intervention works at a small scale, that the deployment at scale will be easier and more cost-effective. While this is true in some cases, there are additional costs that only occur at scale. In any case, even where costs are reduced at scale, the cost reduction is usually small.

In other words, unless there is an obvious pathway to scale (such as existing devices), there is no pathway to scale. Attempts to scale EdTech interventions over the last two decades unequivocally show that a ‘magic wand’ that will ‘solve’ education issues with one simple stroke does not exist.

This, however, does not mean that we cannot use EdTech at all. There are several areas where EdTech can support learning outcomes; for example, mass media (newspaper, radio, TV; USAID 2010; Carlson 2013), inclusive teaching and assistive technologies for disabled students (Lynch et al. 2022), potentially for refugees (Lebaron von Baeyer 2018; Taftaf and Williams 2020; UNESCO 2018), and some viable approaches at the teacher level of national education systems (Combe et al. 2020; Evans and Mendez Acosta 2021) as well as for research (Education Endowment Foundation, 2014; Haßler et al. 2021a). In such instances, we should not use the most innovative and highest risk technology, but rather tried and tested approaches.

Outlook

The above sections tentatively propose ideas and approaches that might meet the aforementioned characteristics as a statement of a program towards greater efficiency and collaboration for accelerating education development in low- and middle-income countries.

Following this, our working paper (Haßler et al. 2022) presents concrete evidence to underpin our argument, working toward an agenda for building back better.
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Declarations

Conflict of interest  There are no competing interests.

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