What Works Hub for Global Education

What Works Hub for Global Education Synthesis Paper

A conceptual framework for synthesis and evidence translation to improve implementation of foundational learning

Michelle Kaffenberger & Yue-Yi Hwa

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Michelle Kaffenberger
University of Oxford
michelle.kaffenberger@bsg.ox.ac.uk

Yue-Yi Hwa
University of Oxford
yue-yi.hwa@bsg.ox.ac.uk

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1. Introduction

The evidence on what works to improve foundational learning outcomes for children in low- and middle-income countries (LMICs) has grown tremendously over the last 20 years.[1] But the creation of new evidence is only a step on the journey towards improved outcomes. To determine what works best, for whom, and under what circumstances, evidence must cumulate and be synthesised. To inform the design and implementation of new policies and programmes, evidence must be translated into meaningful, actionable insights and guidance.

This paper proposes a conceptual framework for synthesis and evidence translation, with the goal of informing and improving the design and implementation of foundational learning programmes. Synthesis and evidence translation can further this goal through three key mechanisms.

The first is to make sense of the large and growing volume of new research. By one count, the number of impact evaluations in low- and middle-income countries grew from 11 in the decade of 1980-1989 to 1,065 during the 3-year period of 2010-2012.[2] Beyond impact evaluation, the number of studies published in the African Education Research Database of education research by scholars based in sub-Saharan Africa grew from 278 in 2012, to 1,421 published in 2022. The quantity of research is impossible for any one person to navigate, and synthesis of it requires dedicated effort.[3]

The second mechanism is to bring together research findings with implementer experiences and lessons learned to better inform new programmes. Few research publications provide the design and implementation details needed to shape a similar programme in a new context. Implementer knowledge and experiences are often absent from research papers. Elevating the experiences of implementers, particularly those in and from the Global South, will make results more actionable.

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[1] One illustration of the current volume of evidence is that the team behind the 2023 report of the Global Education Evidence Advisory Panel reviewed 13,262 studies before incorporating more than 200 experimental and quasi-experimental impact evaluations into its synthesised research findings. See: Akyeampong, K., Andrabi, T., Banerjee, A., Banerji, R., Dynarski, R., Glennerster, R., Grantham-McGregor, S., Muralidharan, K., Piper, B., Ruto, S., Saavedra, J., Schmelkes, S., & Yoshikawa, H. (2023). *2023 Cost-effective Approaches to Improve Global Learning—What does Recent Evidence Tell Us are "Smart Buys" for Improving Learning in Low- and Middle-income Countries?* FCDO, the World Bank, UNICEF, and USAID.

[2] Cameron, D. B., Mishra, A., & Brown, A. N. (2016). The growth of impact evaluation for international development: How much have we learned? *Journal of Development Effectiveness*, 8(1), 1–21.

[3] https://essa-africa.org/AERD

The third is to recognise that different stakeholders have different needs, and therefore outputs must be tailored to different audiences. Senior policymakers shaping a new policy plan have different needs from on-the-ground implementers designing the details of a new programme, who in turn have different needs from academic researchers defining their research agendas. Each of these needs should be informed by the current state of evidence and knowledge. Each requires a tailored approach.

The framework proposed in this paper endeavours to address not only 'what works' to improve foundational learning, but also how proven approaches can be implemented effectively at scale and embedded in government systems. It aims to support meaningful synthesis and evidence translation that informs policy plans and practice at scale.

"The framework proposed in this paper endeavours to address not only 'what works' to improve foundational learning, but also how proven approaches can be implemented effectively at scale and embedded in government systems."

The framework informs the approach that the What Works Hub for Global Education will take to synthesise and translate evidence for improving foundational learning. This approach has relevance beyond the work of the Hub as well, and the aim is that the framework is useful for others in the global education sector working to bridge evidence and action.

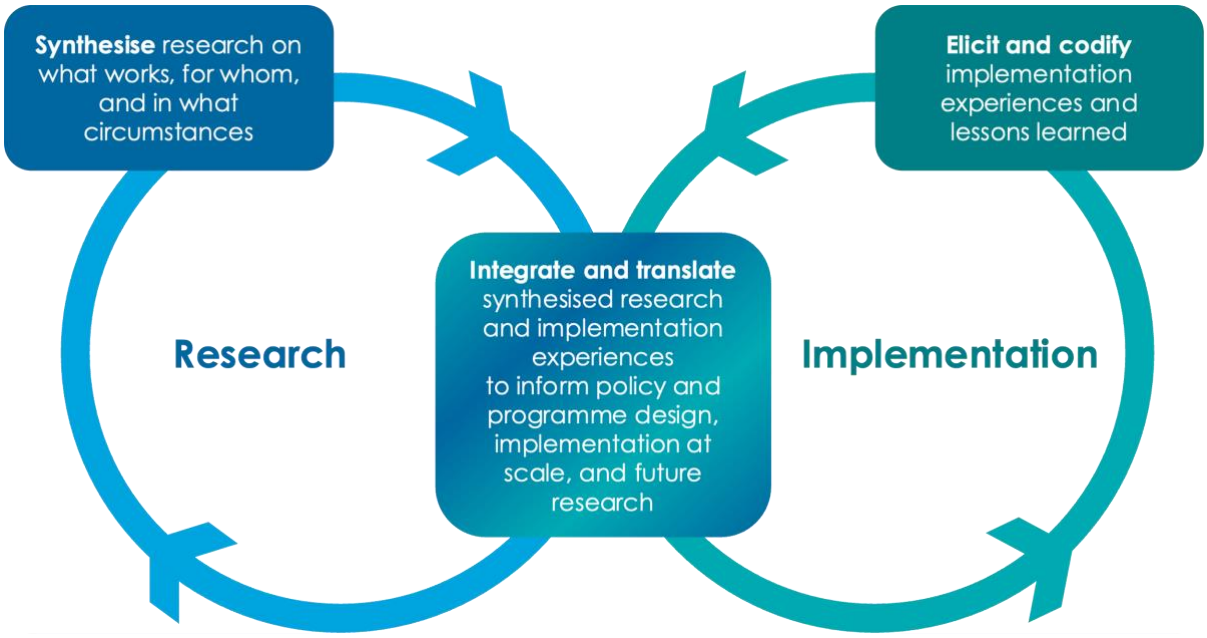
The first two sections of the paper describe the framework and some principles for applying it, including illustrative examples and connections to the research methods literature. The following two sections discuss the connections between the synthesis framework and the broader intellectual framework of the What Works Hub for Global Education and give practical examples of what the Hub's synthesis and evidence translation work will look like in practice. The final section concludes.

2. A framework for synthesis and evidence translation: linking research and implementation

The What Works Hub for Global Education's synthesis and evidence translation framework bridges research and implementation knowledge and expertise to produce principles and guidance for policy and programme design and implementation (Figure 1). In a virtuous cycle, it aims to synthesise research on what works, for whom, and in what circumstances; elicit and codify implementation experiences and lessons learned; and integrate and translate synthesised research and implementation experience to inform policies, programmes, and future research.

FIGURE 1

Conceptual framework for synthesis and evidence translation: a virtuous cycle between research and implementation.



The framework relies on two main sources of evidence: research evidence, and implementation experience and expertise.

- **Research** refers to formal evidence generation processes, typically academic in nature but also including high-quality grey literature, that test hypotheses, produce new knowledge, or otherwise contribute to answering research questions. It encompasses a range of methodologies and data types, including quantitative studies investigating causal relationships, descriptive quantitative studies, and qualitative studies such as ethnographic field studies.

- **Implementation** is the process of putting a plan into effect, including the actions, operational processes, and behavioural changes through which policies and programmes achieve their aims. The experiences and lessons learned through implementation by government actors, non-governmental organisations, and researchers provide rich sources of information that can refine and improve future policy and programme efforts.

In the synthesis and evidence translation framework, research and implementation are linked through three main actions, including:

- **Synthesising** research on what works, for whom, and in what circumstances to improve foundational learning at scale. This synthesis may draw on research from within a specific discipline, such as for systematic reviews of development economics literature, or can be interdisciplinary, drawing on multiple evidence sources to understand problems deeply and explain how and why solutions achieves their outcomes.

- **Eliciting and codifying** implementation experiences and lessons learned. Implementors and other practitioners hold significant tacit and explicit knowledge about why programmes are or are not effective – and this knowledge typically does not make it into research papers.[4] Implementing organisations also typically hold significant quantities of data, such as from monitoring and evaluation efforts, that hold further analytical potential. Eliciting and codifying this knowledge, through interviews, workshops, data analysis, and more, enables it to be integrated with research synthesis findings and inform future implementation.

- **Integrating and translating** synthesised research and implementation experience to produce nuanced principles, guidance, and action-oriented recommendations. These in turn inform policy and programme design and implementation. Bringing together implementer experience

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[4] See also Chapter 6 on utilising stakeholder knowledge in Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. Sage.

and lessons learned with research evidence helps to interpret the evidence base and unpack the black box of how things get done. Translating synthesised research, implementation experience, or both, turns findings into accessible, actionable insights, with clear terminology and tailored for their audience. Integrated and translated findings also identify research gaps and inform future research studies.

As indicated in Figure 1, these three actions form a virtuous cycle where the integrated and translated research and implementer experience informs both future research and implementation. This cycle supports the generation of relevant, implementation-informed research, as well as evidence-based programme design and execution.

Synthesis and evidence translation efforts may begin from different points in this cycle, and any single effort may not include all the actions. Formal evidence aggregations efforts, such as meta-analysis, for instance, may only involve the action of synthesising existing research on a particular topic. Producing guidance on implementing a particular type of intervention, however, may start with interviews to elicit implementer experience, analysis of monitoring data of implementing organisations, and integration of these insights with the formal research evidence base to produce guidance and recommendations for design and implementation. Furthermore, interviews with implementers could inform topical areas for future research and research synthesis efforts.

BOX 1

LEARNING FROM THE EXPERIENCES OF GOVERNMENT AND NON-GOVERNMENTAL IMPLEMENTERS

In the mutually reinforcing cycle between implementation and research, implementation experiences and lessons are elicited and codified, then integrated with research findings to give evidence-based guidance (Figure 1). Relevant experiences, insights, and expertise about the implementation of a programme will be distributed between multiple people holding different roles in the implementation process.[5]

For implementation at scale in education systems, one particularly salient distinction is between the experience and expertise of implementers in non-governmental organisations (whether national or international) and implementers in government. While the experiences of these groups will often overlap, we give indicative examples of the types of insights that may be learned from each.

NGO-based implementers may be able to shed light on:

- the intricacies of advocating for and implementing change (such as working with the timing of government budget and planning cycles)[6]
- strategies for collaborating effectively with governments (such as identifying champions to partner with)[7]
- stages in the development and scaling of an educational intervention[8]
- approaches for using monitoring and evaluation data to capture implementation quality, build buy-in, and iteratively improve[9]
- how to set expectations for teachers and support them to meet those expectations[10]
- strategies to build and sustain the motivation of overloaded middle-tier bureaucrats for implementing learning-oriented reforms[11]

Government-based implementers and policymakers may be able to shed light on:

- tensions between stated policy goals and de facto political priorities[12]
- the full range of governmental, non-governmental, local, and cross-national actors involved in designing and delivering policy[13]
- the influence of individual decisionmakers, personal relationships, power dynamics, and gatekeeping in education policy adoption and implementation[14]
- approaches for diffusing visions of reform through established government systems of paperwork-based communication[15]
- strengths and weaknesses of different modalities of collaboration and coordination for bridging evidence and implementation in government systems[16]
- how bureaucratic norms and organisational cultures affect policy decision-making and implementation processes[17]

- strategies to build and sustain the motivation of overloaded middle-tier bureaucrats for implementing learning-oriented reforms[18]

Both categories of implementers will face constraints in how freely and frankly they may be able to speak about their implementation experiences and lessons, whether because of civil service regulations, political alignments, ongoing funding relationships, or the like. Some of these constraints can be mitigated by good research practice such as approaches for protecting informants and for building rapport. Moreover, one strength of synthesis and evidence translation is combining different informants' perspectives and other sources (e.g. administrative documents, survey data) which can enable anonymity of individual contributions while building a rich picture of implementation processes, challenges, and successes.

[5] See Chapter 6: 'How to construct realistic data' in Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. Sage.

[6] eg Banerji, R., & Venkatachalam, B. (2023). Using Evidence to Scale Up India's Most Promising Education Intervention: The Case of Pratham. In A. Rangarajan (Ed.), *The Oxford Handbook of Program Design and Implementation Evaluation* (pp. 541–564). Oxford University Press.

[7] eg Pattillo, K. (2024). *How to scale with the government: A toolkit for organizations in the Global South*. Global School Leaders.

[8] Colbert, V., & Arboleda, J. (2016). Bringing a student-centered participatory pedagogy to scale in Colombia. *Journal of Educational Change*, *17*(4), 385–410.

[9] eg Curtiss Wyss, M., Qargha, G. O., Arenge, G., Mukoyi, T., Elliott, M., Matsheng, M., & Clune, K. (2023). *Adapting, innovating, and scaling foundational learning: Four lessons from scaling Teaching at the Right Level in Botswana*. Center for Universal Education at Brookings.

[10] eg Piper, B., Destefano, J., Kinyanjui, E. M., & Ong'ele, S. (2018). Scaling up successfully: Lessons from Kenya's Tusome national literacy program. *Journal of Educational Change*, *19*(3), 293–321.

[11] eg Tournier, B., Chimier, C., & Jones, C. (Eds.). (2023). *Leading teaching and learning together: The role of the middle tier*. IIEP-UNESCO, Education Development Trust (UK).

[12] eg Zubairi, A. (2021). *A district level study on the deployment, allocation and utilisation of teachers between and within Malawi's primary schools: An accountability and political settlement approach* [PhD thesis, University of Cambridge]. See also pilot study findings in Spivack, M., Silberstein, J., & Hwa, Y. (2023). *The RISE Education Systems Diagnostic Toolkit*. Research on Improving Systems of Education (RISE).

[13] eg Komba, A., & Shukia, R. (2021). Accountability Relationships in 3Rs Curriculum Reform Implementation: Implication for Pupils' Acquisition of Literacy and Numeracy Skills in Tanzania's Primary Schools (21/065; RISE Working Paper Series). Research on Improving Systems of Education (RISE). Regmi, K. D. (2024). Deliberation and decisionism in educational policymaking: How Nepali educational policymakers negotiate with foreign aid agencies. *Journal of Education Policy*, *39*(3), 432–454.

[14] eg London, J. D. (2023). *Adoption, Adaption, and the Iterative Challenges of Scaling up in Vietnam: Policy Entrepreneurship and System Coherence in a Major Pedagogical Reform* (RISE Essay). Research on Improving Systems of Education (RISE).

[15] eg Aiyar, Y., Davis, V., Govindan, G., & Kapoor, T. (2021). *Rewriting the Grammar of the Education System: Delhi's Education Reform (A Tale of Creative Resistance and Creative Disruption)*. Research on Improving Systems of Education (RISE).

[16] eg Ibarra, A., Javaid, N., & Ross-Larson, B. (2023). *Deliberate Disrupters: Can Delivery Approaches Deliver Better Education Outcomes? (DeliverEd Final Report)*. Education Commission. Araya, M., Tiruneh, D.T., Rose, P., Sabates, R. and Woldehanna, T. (2024*). Research on Improving Systems of Education (RISE) Ethiopia: Impact study* (Research and Policy Paper 24/1). REAL Centre, University of Cambridge.

[17] eg Mangla, A. (2022). *Making Bureaucracy Work: Norms, Education and Public Service Delivery in Rural India*. Cambridge University Press.

[18] eg Tournier, B., Chimier, C., & Jones, C. (Eds.). (2023). *Leading teaching and learning together: The role of the middle tier*. IIEP-UNESCO, Education Development Trust (UK).

3. Principles for applying the synthesis and evidence translation framework

Application of the synthesis and evidence translation framework is guided by the following principles, each of which contributes to **synthesis and evidence translation outputs being both rigorous and actionable**.

- Synthesis and evidence translation draws on a variety of evidence sources to answer not only 'what works', but how proven approaches can be implemented effectively at scale in different contexts.
- Synthesis and evidence translation is tailored to the needs of different actors.
- Synthesis and evidence translation is transparent in its methods and arguments.

These principles align broadly with other approaches for rigorous, policy-relevant synthesis.[19] The principles serve the goal of using synthesis and evidence translation in the shared endeavour of helping all children to master foundational literacy and numeracy.

3.1. Synthesis and evidence translation draws on a variety of evidence sources to answer not only 'what works', but how proven approaches can be implemented effectively at scale in different contexts

To usefully inform implementation, synthesis and evidence translation must engage with both 'what' and 'how' questions. Knowing 'what works' is a critical step for identifying intervention types that are likely to produce intended outcomes. However, this knowledge must be accompanied with an understanding of 'how' interventions work in order to design and implement them effectively in new contexts or at new levels of scale.

[19] See, for example, the four principles for evidence synthesis – inclusive, rigorous, transparent, and accessible – in Donnelly, C. A., Boyd, I., Campbell, P., Craig, C., Vallance, P., Walport, M., Whitty, C. J. M., Woods, E., & Wormald, C. (2018). Four principles to make evidence synthesis more useful for policy. *Nature*, *558*(7710), 361–364.

Questions related to 'what' and 'how' are complementary. For instance, in the education sector, structured pedagogy programmes have a strong evidence base and are featured among the Global Education Evidence Advisory Panel's 'Smart Buys' as an effective approach for improving foundational learning. However, to design and implement a structured pedagogy programme in a new context or at a new level of scale, planners and implementers need further information and contextualisation: what are the most important ingredients of a structured pedagogy programme? How can the approach be adapted for full government implementation (rather than implementing partner implementation)? How can the programme be modified for larger (or smaller) class sizes? Would it be cost effective to replace in-person teacher training with virtual support, or would this compromise overall effectiveness?

"Questions related to 'what' and 'how' are complementary."

To develop such answers, synthesis and evidence translation must be interdisciplinary[20] and inclusive, drawing on multiple types of evidence, analytical lenses from different academic disciplines and sources of implementer experience and expertise. This enables synthesis researchers to draw on the right evidence to meet the synthesis and evidence translation need.

The conceptual framework (Figure 1) facilitates this type of nuanced, rigorous, and actionable synthesis and evidence translation by drawing on both published research outputs and the experience and expertise of implementers and looking across multiple interventions, studies, contexts, and time periods.[21]

Depending on the question being asked, different synthesis and evidence translation approaches can be used. Some evidence translation needs are best served by a formal synthesis method within a specific academic discipline. For example, quantitative systematic review and/or meta-analysis may be the most effective approach for synthesis projects aiming for **comprehensiveness of breadth** in integrating the findings of all relevant studies in a specific domain. In such instances,

[20] As defined by leading interdisciplinary studies scholar Julie Thompson Klein (2021), '*Interdisciplinarity connotes integration of data, methods, tools, concepts, theories, and/or perspectives from multiple disciplines or bodies of knowledge in order to answer a question, to solve a problem, or to address a topic or theme that is too broad or complex to be dealt with by one discipline*' (p. xviii). Klein, J. T. (2021). *Beyond Interdisciplinarity: Boundary Work, Communication, and Collaboration*. Oxford University Press.

[21] Similarly, realist scholars have said the following about the recommendations that would typically emerge from a realist synthesis project: "*Empirical findings are put to use in alerting the policy community to the caveats and considerations that should inform those decisions – for example: 'remember A', 'beware of B', 'take care of C', 'D can result in both E and F', 'Gs and Hs are likely to interpret I quite differently', 'if you try J make sure that K, L and M have also been considered', 'N's effect tends to be short lived', 'O really has quite different components – P, Q and R', and 'S works perfectly well in T but poorly for U'. The review will, inevitably, also reflect that 'little is known about V, W, X, Y and Z'*" (Pawson et al., 2005, p. 31). Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2005). Realist review—A new method of systematic review designed for complex policy interventions. *Journal of Health Services Research & Policy*, *10*(1_suppl), 21–34.

standardised measurement of inputs, process, and outcomes facilitate synthesis efforts. To illustrate:

- A recent study combined systematic reviewing techniques with harmonised measurement of learning outcomes using Learning-Adjusted Years of Schooling to answer the question of what types of interventions tend to improve education outcomes most efficiently in resource-constrained settings.[22]

- Another recent paper used Bayesian meta-analysis to aggregate data on 73,527 students across eight studies to analyse the extent to which implementation quality affects educational outcomes in Teaching at the Right Level interventions.[23]

Other synthesis and evidence translation questions are best answered by drawing on multiple data sources, theoretical frameworks, or methodological approaches. This is likely to apply to questions aiming for **comprehensiveness in depth** by covering multiple levels of mechanisms, actors, and interactions within a particular approach or domain, to enable deeper understanding and explanation of how and why different approaches achieve their impact.[24] For example, a synthesis paper[25] exploring why it is important to align levels of instruction with both systemwide learning goals and children's specific needs drew on:

- cognitive psychology (e.g. on the cumulative nature of learning) at the level of the individual learner;

- pedagogical research (e.g. on Vygotsky's Zone of Proximal Development) at the level of the classroom; and

- impact evaluations (e.g. on specific effective interventions and reforms) at the level of the programme;

- along with a range of primary and secondary sources to build mini case studies of effective instances of such alignment (e.g.

[22] Angrist, N., Evans, D. K., Filmer, D., Glennerster, R., Rogers, H., & Sabarwal, S. (2023). How to improve education outcomes most efficiently? What Works Hub for Global Education Working Paper.

[23] Angrist, N., & Meager, R. (2023). Implementation matters: Generalising treatment effects in education. What Works Hub for Global Education Working Paper.

[24] Examples of methods for synthesising multiple types of evidence include: narrative summary, thematic analysis, grounded theory, meta-ethnography, realist synthesis, meta-study, content analysis, case survey, qualitative comparative analysis, Bayesian meta-analysis. Dixon-Woods, M., Agarwal, S., Jones, D., Young, B., & Sutton, A. (2005). Synthesising qualitative and quantitative evidence: A review of possible methods. *Journal of Health Services Research & Policy*, *10*(1), 45–53.

[25] Hwa, Y.-Y., Kaffenberger, M., & Silberstein, J. (2020). Aligning Levels of Instruction with Goals and the Needs of Students (ALIGNS): Varied Approaches, Common Principles (RISE Insight Series, 20/022). Research on Improving Systems of Education (RISE).

of Teaching at the Right Level and the Tusome structured pedagogy programme).

Besides interdisciplinarity in research methods, synthesis and evidence translation needs to be inclusive and intentional in the sources of evidence it draws on. In particular, while synthesis and evidence translation seeking to improve foundational learning for all children should learn from the insights of established bodies of educational research in global north contexts, it should give greater weight to research in global south contexts. This is not to imply that there is homogeneity across global south contexts – nor, indeed, within or between global north contexts. However, most southern contexts face more constraints than northern ones (e.g. in the size of educational budgets or institutional capacity for implementation); and it is more likely that wisdom about working within such constraints will come from other global south contexts.[26]

"… synthesis and evidence translation needs to be inclusive and intentional in the sources of evidence it draws on."

3.2. Synthesis and evidence translation is tailored to the needs of different actors

Different actors within the education ecosystem have different synthesis and evidence translation needs. That is, they have different questions and need different forms of information to help them in their work.[27]

The synthesis and evidence translation framework is driven by the needs of at least four distinct audiences:

- **policymakers** – who make high-level decisions about which programmes to authorise and how to allocate budget lines, and hence need high-level, principles-based synthesis;
- **implementers** – who may be part of the government or of non-governmental organisations, and who design and deliver programmes and hence need more granular, detailed guidance-oriented synthesis;

[26] At the What Works Hub for Global Education, we are keen to explore ways of foregrounding such research and such voices. Strategies that we will explore include: searching not only 'global' research databases but also the African Education Research Database and similar resources; where appropriate and feasible, augmenting the research base with interviews with implementers from global south contexts to ground-truth and refine emerging synthesis insights.

[27] Academics and practitioners tend to be interested in different topics: Ion, G., Iftimescu, S., Proteasa, C., & Marin, E. (2019). Understanding the Role, Expectations, and Challenges That Policy-Makers Face in Using Educational Research. *Education Sciences*, *9*(2), Article 2. Walker, R. M., Zhang, J., Chandra, Y., Dong, B., & Wang, Y. (2023). Revisiting the academic–practitioner divide: Evidence from computational social science and corpus linguistics. *Public Administration Review*, *83*(6), 1599–1617.

- **researchers** – who build the evidence base and hence need academic-oriented synthesis that helps to identify frontiers and gaps in knowledge; and

- **intermediaries** – who directly or indirectly facilitate connections between research and implementation through roles such being country-embedded technical staff of international organisations.[28]

These categories of actors, and their needs, can overlap, and each of these broad categories encompasses a wide range of actors. For example, 'implementers' include technical staff in education ministries, cross-country implementing organisations, and homegrown NGOs.[29] Producing effective synthesis outputs may require choices and trade-offs about which particular subsets of an audience to target with any given output.

Furthermore, actors face trade-offs, and political economy factors come into play, when designing and implementing programmes. Often, politically savvy 'second-best' policy advice that considers the objectives and constraints of local decisionmakers is more useful than textbook 'first-best' advice that cannot be acted on given contextual conditions.[30] Synthesis and evidence translation that takes this into account will facilitate better uptake and application of findings.

Tailoring synthesis to the needs of different actors includes both the content and form of synthesis outputs. This can yield great diversity in outputs:

- Policymakers making high-level decisions may benefit from well-developed frameworks (summarised in acronyms and/or diagrams) at appropriate levels of detail such that the frameworks can offer rules of thumb for decision-making amid all the other competing priorities and moving parts that they must take into account.[31]

"Tailoring synthesis to the needs of different actors includes both the content and form of synthesis outputs."

[28] Herold, J., Liese, A., Busch, P.-O., & Feil, H. (2021). Why National Ministries Consider the Policy Advice of International Bureaucracies: Survey Evidence from 106 Countries. *International Studies Quarterly*, *65*(3), 669–682.

[29] Teachers are perhaps the most critical group of actors for children's learning achievements. The synthesis and evidence translation framework does not target teachers as a primary audience for synthesis outputs, however. Instead, it targets the intermediaries who train and support teachers, set teacher recruitment and career progression policies, and more. Such intermediaries, in non-government organisations and in government ministries, are best placed to adapt and contextualise synthesis and evidence translation findings into materials and processes for direct use by teachers.

[30] Dercon, S. (2023). *The political economy of economic policy advice* (No. WPS/2023-09). CSAE Working Papers.

[31] Cairney, P., & Kwiatkowski, R. (2017). How to communicate effectively with policymakers: Combine insights from psychology and policy studies. *Palgrave Communications*, *3*(1), 1–8.

- Researchers, whether in universities or implementing organisations, may benefit from curated, categorised databases that facilitate their efforts to conduct literature reviews and define research agendas.

Box 2 gives concrete examples of suites of outputs that cover the same topic but take distinct forms for different audiences. Meeting distinct synthesis and evidence translation needs can also include tailoring synthesis outputs to specific education systems or stakeholders (discussed further in Section 5.3 below).

Besides clearly defining the groups and subgroups of actors for whom a synthesis product is intended, other actions are needed to meaningfully tailor synthesis and evidence translation to the needs of different actors. One obvious but easily neglected approach is consulting representatives of the groups in question. This can happen at different – and, ideally, multiple – points in a synthesis project. At the start of a project, a representative set of informants could be consulted to better understand their highest-priority questions and the most useful formats for the answers to take. Later in the process, a small group of the actors in question could be asked to review drafts of the output toward iteratively improving its accuracy and usefulness.

Tailoring synthesis and evidence translation to different actors' needs also involves recognising that needs – and evidence bases – can change over time. Accordingly, it can be beneficial to iteratively update synthesis outputs as new evidence emerges. In systematic reviews and databases, this might look like updating the reviews and databases with new studies whenever possible (as with the GEEAP and EEF projects)[32] so that decisionmakers and implementers have the most complete information possible. For policy briefs, this could involve updating and reissuing a new version at regular intervals or when a critical mass of new evidence suggests a need to update.

A further – and fundamental – aspect of meeting actors' needs in synthesis and evidence translation is to always begin from the needs of children. Children are not typically the audience for synthesis outputs about implementing education reforms. Nonetheless, their needs, challenges, and aspirations must be at the heart of decisions about what to prioritise in both research and implementation about improving education in the global south.

[32] The Global Education Evidence Advisory Panel (GEEAP) first issued a report of its findings in 2020, and then published an updated report with new evidence in 2023. Further updates are in the pipeline. The Education Endowment Foundation's (EEF) Teaching and Learning Toolkit is updated regularly as new studies related to each toolkit strand are published.

3.3. Synthesis and evidence translation is transparent in its methods and arguments

Transparency is a key principle of synthesis evidence translation. All synthesis projects, even those using formalised methods, involve a series of decisions – such as inclusion/exclusion criteria, categorisation of different approaches, weighting of different arguments or contextual features – that depend on the synthesis researchers' subjective interpretation and judgement.[33] If synthesis and evidence translation is to facilitate an ongoing, cumulative cycle of learning and improvement between research and implementation (as in Figure 1), these decisions must be robustly and transparently documented and justified.

"If synthesis and evidence translation is to facilitate an ongoing, cumulative cycle of learning and improvement between research and implementation, these decisions must be robustly and transparently documented and justified."

Such transparency about methods and arguments has different facets and can take different forms. For example, transparency in methods for syntheses using formal approaches usually means following publication standards (e.g. the PRISMA standards for systematic reviews).[34] For syntheses using more varied approaches, transparency in methods can analogously mean documenting interpretive decisions, analytical approaches, data sources, search terms, etc at each step of the synthesis using research memos, which are then summarised in a research methods section.

Another aspect of transparency is transparency about the strength of evidence for any given argument, conclusion, or recommendation. This may involve clearly specifying the number and variety of contexts in which a given intervention has been successfully implemented. For synthesis projects that draw on multiple disciplines and multiple types of data, this means clearly indicating which types of evidence (e.g. quantitative causal evidence, quantitative descriptive evidence, qualitative multimethod field observations, cross-sectional qualitative interviews, etc) are supporting a given argument or recommendation.

In addition to such transparency on the methodological process of a synthesis project, synthesis and evidence translation should also be transparent in the arguments it puts forward. This includes

[33] For instance, the GEEAP (2023) report drew on a systematic search of the literature but involved multiple instances of researcher judgement shaping the inclusion and categorisation of studies: '*Using these criteria, the research team analyzed the titles and abstracts of 13,262 new papers and shortlisted 725 papers for further review…Looking at the most prevalent categories from this list, the Panel decided to focus on five subcategories of topics…The Panel was consulted on the resulting list and added additional papers based on their expertise*' (p. 40).

[34] Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71.

making arguments using clear terminology as far as possible, and making any underlying assumptions explicit and testable. Another aspect of transparency is using the same concepts and frameworks, where relevant, across different research and synthesis projects. This makes it easier to identify connections between different sets of research findings, and to iteratively refine findings and observations to better inform future research and implementation.[35, 36]

[35] Common concepts are particularly important because this makes it easier for research projects to build incrementally on findings from prior research across contexts, data types, and research methods. Such cumulation is practically valuable in the social sciences, where research questions do not have universal answers that are unchanging across time and space; however, looking across related sets of social scientific answers can yield points of convergence that can become key principles for implementation and practice. Having a common concept for a given area of study can make it much easier to compare answers across study contexts and methods and, thus, to identify points of convergence. Cook, T., Cooper, H., Cordray, D., Hartman, H., Hedges, L., Light, R., Louis, T. & Mosteller, F. (1992). *Meta-Analysis for Explanation*. Russell Sage Foundation. Century, J., & Cassata, A. (2016). Implementation Research: Finding Common Ground on What, How, Why, Where, and Who. *Review of Research in Education*, *40*(1), 169–215.

[36] One example of a framework that can be used to map and draw connections between the findings from different synthesis projects is the intellectual framework of the What Works Hub for Global Education, discussed in the next section.

BOX 2

EXAMPLES OF SUITES OF OUTPUTS ON A COMMON THEME THAT MEET THE SYNTHESIS AND EVIDENCE TRANSLATION NEEDS OF DIFFERENT AUDIENCES

Science of Teaching resources on structured pedagogy:

- *Researchers*: **Literature review** on what we know and don't yet know about structured pedagogy in low- and middle-income countries
- *Policymakers:* **Four-page brief for top decisionmakers** introducing structured pedagogy and what it takes to implement it effectively
- *Implementers:* **Series of eight how-to guides—in English, Spanish, and French** – on different aspects of implementing structured pedagogy programmes effectively (e.g. government leadership and teacher adoption; curriculum and scope and sequence development; ongoing teacher support; data, systems, and accountability)
- *Policymakers and implementers:* **Series of videos** covering the content of the policymaker brief and the how-to guides

Education Endowment Foundation (EEF) synthesis and guidance reports on teacher professional development, focused on the UK

- *Researchers:* **Peer-reviewed article (by EEF-affiliated researchers) reviewing the evidence base** on commonly recommended features of teacher professional development
- *Researchers:* **Working paper developing and testing theories** for how effective teacher professional development programs achieve success, based on a systematic review of 104 RCTs.
- *Implementers*: **Guidance report providing principles and practical guidance** on 'what might work when designing and selecting [teacher professional development]'
- *Implementers:* **Quick-reference recommendations poster and additional tools** such as worksheets, a reflections tool, and a planning tool
- *Policymakers and implementers:* **Animated video** to build buy in and share high-level principles and guidance

4. Synthesis and evidence translation as tools for strengthening implementation pathways toward learning for all

In the previous sections we discussed a conceptual framework for synthesis and evidence translation (Figure 1) and described principles for bringing the research-implementation cycle in the framework to life. Now we show how the research-implementation cycle maps to broader implementation pathways using the **intellectual framework of the What Works Hub for Global Education** (Figure 2).

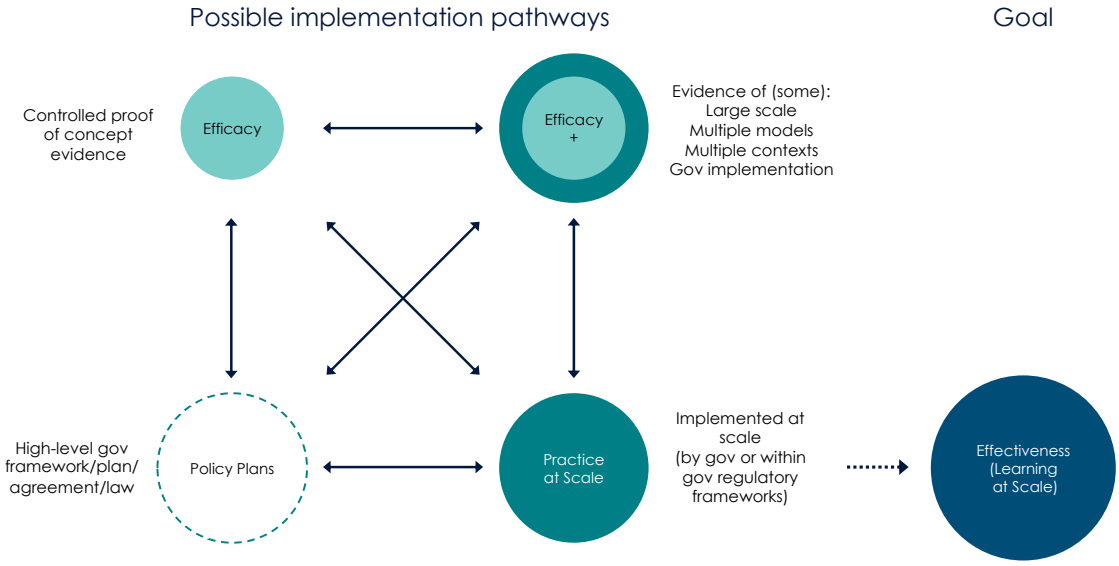
The Hub's intellectual framework offers a simplified representation of the pathways connecting different stages in the evidence generation and implementation process, with the goal of collectively building toward learning at scale for all children (represented in the 'effectiveness' bubble on the right). For example, an intervention that has demonstrated its efficacy at a small scale (top left bubble) could move to efficacy+ (top right bubble) by being tested for efficacy in a wider range of settings, and then move to practice at scale (bottom right bubble) through increasingly wide implementation and integration into government systems. Many other pathways are also possible. A particular approach to improve children's learning could be incorporated into policy plans regardless of its evidence base (bottom left bubble). Alternatively, an approach with evidence of efficacy could diffuse directly into classrooms through a more grassroots approach (moving from the top left to the bottom right).

The journey to practice at scale is likely to be nonlinear and highly context specific. Where a particular intervention, programme, or idea is currently situated in the framework will inform potential future pathways to scale and inform the evidence, synthesis, and translation needs that can help it along the journey.

OUTLINE

FIGURE 2

What Works Hub for Global Education intellectual framework: multiple pathways for moving between implementation stages toward the collective goal of learning at scale for all children



All the pathways to practice at scale, and ultimately children's learning at scale, can be facilitated by synthesis and evidence translation. For instance, moving from a small pilot programme in the efficacy bubble to larger-scale programme implementation in government systems, can benefit from synthesis of evidence identifying which components are core to the programme's success and must be maintained in similar form, and which are peripheral and could be adapted during the scaling process to meet local needs or budgetary constraints. Similarly, moving from a high-level policy plan to practice at scale can benefit from synthesis of evidence on how to support and incentivise the middle tier of the bureaucracy to support implementation at school level. Any intended move from one implementation stage to another would be more likely to succeed if informed by appropriately synthesised and translated evidence about how to navigate these complexities in implementation. (See in Section 3, the principle that 'Synthesis and evidence translation draws on a variety of evidence sources to answer not only 'what works', but how proven approaches can be implemented effectively at scale in different contexts'.)

Synthesis and evidence translation can also support a specific stage in the framework. For instance, within the Efficacy+ bubble, synthesis can help make sense of evidence on programmes being implemented in different contexts or at different levels of scale. As different versions of an intervention are tested, synthesis can further help identify the most cost-effective adaptations.

The forms of synthesis and evidence translation that can usefully inform progress towards effectiveness and learning for all children in Figure 2 may differ considerably depending on the actors involved and their needs. (See in Section 3, the principle that 'Synthesis and evidence translation is tailored to the needs of different actors'.) For a team of researchers and implementers who are jointly seeking to move an intervention along the pathway from efficacy in a small pilot study to efficacy+ at larger scale or in more contexts, the most valuable form of synthesis may be an overview of impact evaluations and implementer experiences with interventions that have successfully made the journey in similar contexts, with equal attention to what went well and pitfalls to avoid. For a civil society organisation or a technical team in a funding organisation advocating for an approach at the efficacy+ stage to be incorporated into policy plans, the most valuable form of synthesis may include both a bird's eye view of the typical cost effectiveness of the approach in different contexts alongside direct narrative quotes from programme beneficiaries.

Besides contributing to the implementation pathways of specific interventions by strengthening the flow of relevant evidence, synthesis and evidence translation also contributes to the broader field of implementation science in education by making connections between different programmes and policies. Such connections are part of the mutually reinforcing flow of knowledge between implementation and research (Figure 1). They can take the form of transferable lessons for ongoing implementation or testable hypotheses for future research – thus contributing to the shared endeavour to advance an implementation science an education. In this endeavour, the Hub's intellectual framework in Figure 2 can serve as a tool for mapping and identifying common pathways, entry points, and areas for further investigation and comparison between interventions. (See above for the principle that 'Synthesis and evidence translation is transparent in its methods and arguments'.)

"… synthesis and evidence translation also contributes to the broader field of implementation science in education by making connections between different programmes and policies."

Within the What Works Hub for Global Education, the synthesis and evidence translation framework and the intellectual framework work hand-in-hand to ensure new evidence on the pathways to effective implementation of foundational learning at scale meaningfully cumulate to inform future endeavours with the same objectives.

5. How the What Works Hub for Global Education will apply the synthesis and evidence translation framework

Having described the conceptual framework for synthesis and evidence translation, and the principles for applying it, we now outline the ways in which the What Works Hub for Global Education will apply the framework through its synthesis and evidence translation work.

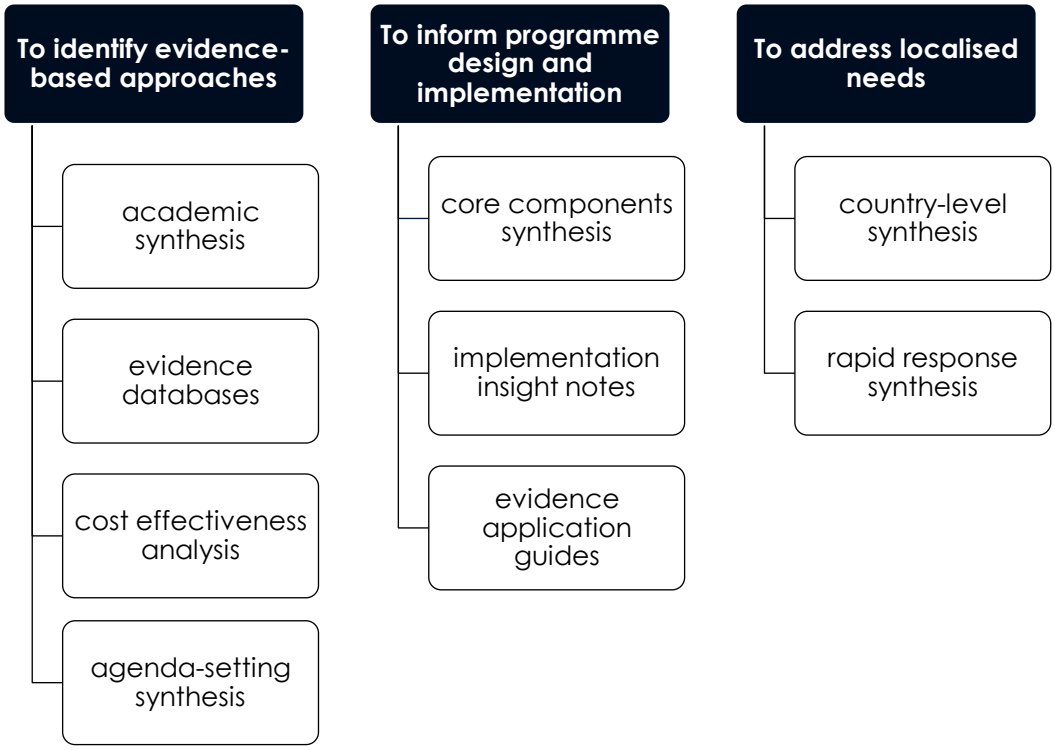
In this section, we give an indication of the types of synthesis and evidence translation analyses and outputs that the Hub will produce. We organise this overview following three loose groupings of outputs according to their purpose, as shown in Figure 3: synthesis and evidence translation to **identify evidence-based approaches**, to **inform programme design and implementation**, and to **address localised needs**.

Note that the groupings of synthesis outputs aren't strictly delineated. For example, a cost-effectiveness analysis could be useful for both identifying evidence-based approaches, and also for informing programme design and implementation. A core components synthesis, described further below, could both inform programme design and implementation and be tailored to addressed localised needs.

OUTLINE

FIGURE 3

The synthesis and evidence translation pillar of the What Works Hub for Global Education will produce a range of outputs serving different purposes.



Contributions to these outputs and efforts will come from a range of partners within the Hub: not only the central team based at the Blavatnik School of Government, but also collaborators among the Hub's consortium partners, strategic partners, and other partnerships.[37]

Alongside the outputs discussed in this section, the evidence translation pillar of the What Works Hub for Global Education will also produce, where appropriate, suites of outputs for different audiences. For example, a longer paper like an academic synthesis may be accompanied by some combination of policy briefs, blogs, overview videos, or podcasts.

5.1. To identify evidence-based approaches

One function of synthesis and evidence translation is to identify evidence-based approaches. Such synthesis projects often look across as broad a range of interventions as possible within a specific category or set of categories (see also Section 3.1 above). By casting a wide net, researchers can confidently make judgements about types of interventions that have most

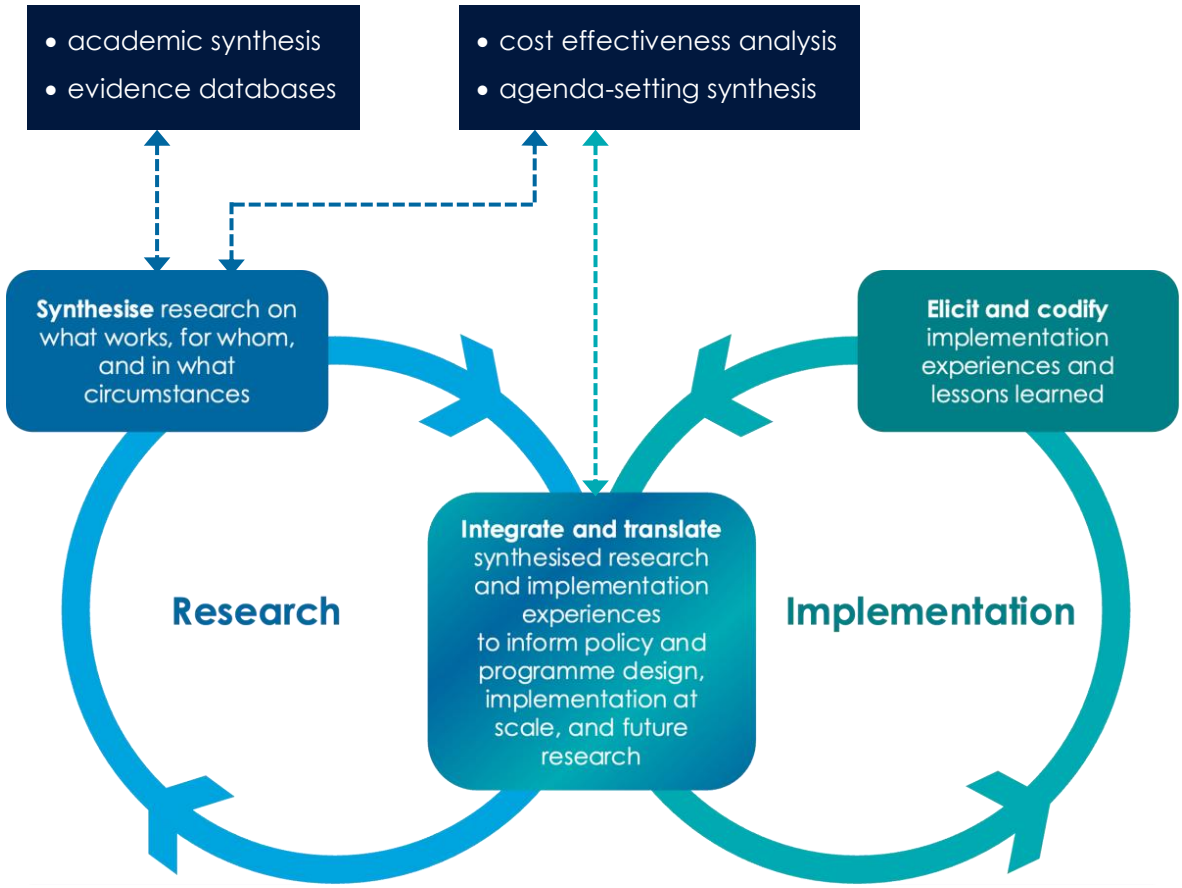
[37] For a full list of our partner organisations, visit https://www.wwhge.org/who-we-are/organisations/.

convincingly demonstrated effectiveness and/or cost-effectiveness in a given context. To do so, these synthesis processes typically draw extensively (though not exclusively) on impact evaluations.

The synthesis and evidence translation pillar of the What Works Hub for Global Education will develop at least four different types of outputs that aim to identify evidence-based approaches for improving children's learning in LMICs. These output types include: academic synthesis, cost-effectiveness analysis, evidence databases, and 'state of the evidence' briefs. All four involve the action of synthesising research (Figure 4). Cost effectiveness analysis and 'state of the evidence' briefs also translate synthesised findings to inform policy and programme design and implementation. We describe each output type briefly below.

FIGURE 4

Synthesis and evidence translation to identify evidence-based approaches



Academic synthesis

Academic synthesis entails academic-oriented synthesis outputs (e.g. systematic reviews, meta-analyses, journal special

issues) on effective approaches for helping children to master foundational literacy and numeracy in low- and middle-income countries. Within the global education sector, existing examples of academic synthesis to identify evidence-based approaches include a systematic review by Paul Glewwe and Karthik Muralidharan of rigorous evaluations of interventions aiming to improve learning outcomes in developing countries,[38] a review of systematic reviews by David Evans and Anna Popova,[39] and one of the earliest working papers produced by the Hub, in which Noam Angrist and co-authors used the common measure of learning-adjusted years of schooling to compare over 200 educational interventions on a single scale.[40]

Three points about the Hub's academic synthesis are worth noting. First, although these pieces are 'academic' in that they follow academic standards of rigour and may be published in academic journals, their findings are often relevant to other audiences – particularly after being 'translated' to reduce technical jargon and foreground findings that are particularly informative for decision-making and implementation. For example, the learning-adjusted years of schooling analysis by Angrist and co-authors underlies the various reports of the Global Education Evidence Advisory Panel, which are designed for policymakers and implementers.[41]

Second, academic synthesis to identify evidence-based approaches can go beyond 'what works' to encompass analyses of why such interventions work and how they can be made more effective. For example, Noam Angrist and Rachel Meager's meta-analysis of Teaching at the Right Level interventions in India found that much of the variation in effectiveness between different Teaching at the Right Level programmes can be explained by the extent to which the programme was actually implemented.[42]

"… academic synthesis to identify evidence-based approaches can go beyond 'what works' to encompass analyses of why such interventions work and how they can be made more effective."

Finally, academic synthesis can encompass both quantitative and qualitative research methods (see also Section 3.1 above). While most systematic reviews, for instance, focus exclusively on

[38] Glewwe, P., & Muralidharan, K. (2016). Chapter 10 - Improving Education Outcomes in Developing Countries: Evidence, Knowledge Gaps, and Policy Implications. In E. A. Hanushek, S. Machin, & L. Woessmann (Eds.), *Handbook of the Economics of Education* (Vol. 5, pp. 653–743). Elsevier.

[39] Evans, D. K., & Popova, A. (2016). What Really Works to Improve Learning in Developing Countries? An Analysis of Divergent Findings in Systematic Reviews. *The World Bank Research Observer*, *31*(2), 242–270.

[40] Angrist, N., Evans, D. K., Filmer, D., Glennerster, R., Rogers, H., & Sabarwal, S. (2023). How to improve education outcomes most efficiently? What Works Hub for Global Education Working Paper.

[41] eg Akyeampong, K., Andrabi, T., Banerjee, A., Banerji, R., Dynarski, R., Glennerster, R., Grantham-McGregor, S., Muralidharan, K., Piper, B., Ruto, S., Saavedra, J., Schmelkes, S., & Yoshikawa, H. (2023). *2023 Cost-effective Approaches to Improve Global Learning—What does Recent Evidence Tell Us are "Smart Buys" for Improving Learning in Low- and Middle-income Countries?* FCDO, the World Bank, UNICEF, and USAID.

[42] Angrist, N., & Meager, R. (2023). Implementation matters: Generalising treatment effects in education. What Works Hub for Global Education Working Paper.

quantitative impact evaluations, recent examples of systematic reviews which combine quantitative and qualitative data include studies on language of instruction[43] and on technology use in teacher professional development.[44] Given the complexities of implementation, granular qualitative data can add nuance for identifying contextual specificities in what makes an intervention effective.

Cost effectiveness analysis

A clear understanding of both the impact and the costs of an intervention is crucial for decisionmakers who are weighing different options for attempting to improve children's learning. However, data on cost is rarely reported in impact evaluations.[45]

At the What Works Hub for Global Education, some of the cost effectiveness work will be produced as part of new primary research being conducted by country research teams, such as impact evaluations of new or ongoing interventions under the implementation science pillar of the Hub.[46] Through its consortium partners, the Hub will conduct new cost effectiveness analyses of promising education interventions. These efforts, along with the broader evidence base, will feed into cost-effectiveness synthesis and evidence translation efforts, and some outputs will overlap with the previous category and result in academic synthesis outputs.

Alongside the cost analysis of individual interventions, a 'common project' across the Hub's research teams will focus on common measurement approaches and comparison of cost effectiveness across interventions. This will build on existing work by the Abdul Latif Jameel Poverty Action Lab (J-PAL);[47] along with more recent

[43] Nakamura, P., Molotsky, A., Zarzur, R. C., Ranjit, V., Haddad, Y., & De Hoop, T. (2023). Language of instruction in schools in low- and middle-income countries: A systematic review. *Campbell Systematic Reviews*, *19*(4), e1351.

[44] Hennessy, S., D'Angelo, S., McIntyre, N., Koomar, S., Kreimeia, A., Cao, L., Brugha, M., & Zubairi, A. (2022). Technology Use for Teacher Professional Development in Low- and Middle-Income Countries: A systematic review. *Computers and Education Open*, *3*, 100080.

[45] For example, one analysis of the International Initiative for Impact Evaluation (3ie) Impact Evaluation Repository found that less than 15% of impact evaluations (across sectors in developing countries, not solely within the education sector) included any form of value for money analysis. Brown, B., Elizabeth, & Tanner, J. (2019). Integrating Value for Money and Impact Evaluations: Issues, Institutions, and Opportunities (Policy Research Working Papers 9041). World Bank Group.

[46] From prior work by principal investigators at the Hub, examples of such cost effectiveness analysis within impact evaluations include: Cilliers, J., Fleisch, B., Kotze, J., Mohohlwane, N., Taylor, S., & Thulare, T. (2022). Can virtual replace in-person coaching? Experimental evidence on teacher professional development and student learning. *Journal of Development Economics*, *155*, 102815. Hirji, S., Park, B., Tsinigo, E., Beg, S., Fitzpatrick, A., & Lucas, A. (2023). Facilitating real-time cost collection and evaluating cost-effectiveness in a multi-armed study with government partners in Ghana. *Journal of Development Effectiveness*, *15*(1), 31–42.

[47] Kremer, M., Brannen, C., & Glennerster, R. (2013). The Challenge of Education and Learning in the Developing World. *Science*, *340*(6130), 297–300. Dhaliwal, I., Duflo, E., Glennerster, R., & Tulloch, C. (2013). Comparative cost-effectiveness analysis to inform policy in developing countries: A general framework with applications

work on learning-adjusted years of schooling and cost-effectiveness.[48] This effort to develop, refine, and expand the use of common frameworks for measuring cost and cost effectiveness will involve knowledge exchange with other efforts in the global education sector working on cost effectiveness.[49]

BOX 3

COMMON MEASURES FOR IMPLEMENTATION SCIENCE IN EDUCATION

To advance the field of implementation science in education, the What Works Hub for Global Education will develop a set of common measurement tools to be used and iteratively refined across its research projects. These common measurement tools will build on existing tools and will include:

- **Learning**: Having a simple, scalable, rigorous, and comparable way of measuring children's learning levels for foundational learning proficiencies is key to ensuring that children's current needs are accurately identified, and that research and implementation focus on meeting those needs.
- **Cost**: Capturing accurate, relevant, and comparable costs of educational interventions in different contexts will enable data-driven decisions about which interventions to adopt in (and adapt for) other settings. Cost measurement will also facilitate further iteration to improve the cost effectiveness of these interventions.
- **Implementation**: Measuring key aspects of implementation – such as compliance, take-up, dosage, and fidelity – is essential both for making on-the-ground changes to improve implementation quality, and for understanding how an intervention works and which components of an intervention are non-negotiables for its effectiveness.

By focusing on learning, cost, and implementation, these common measurement projects get at the heart of understanding and improving education implementation for all children in the global south.

Evidence databases

At the What Works Hub for Global Education, **evidence databases** will be advanced through partnerships with Education Endowment Foundation, the Global Education Evidence Advisory Panel, and the Jacobs Foundation, among others. Within the synthesis and evidence translation framework, such databases

for education. In P. Glewwe (Ed.), *Education policy in developing countries* (pp. 285–338). University of Chicago Press.

[48] Angrist, N., Evans, D. K., Filmer, D., Glennerster, R., Rogers, H., & Sabarwal, S. (2023). How to improve education outcomes most efficiently? What Works Hub for Global Education Working Paper.

[49] For instance, the Brookings Institution and the Gates Foundation, among others, have active workstreams on cost and cost effectiveness.

contribute primarily to the action of 'Synthesise research', in that they facilitate the work of compiling and comparing across different research studies (Figure 4).

Existing examples of evidence databases on education include the US-based What Works Clearinghouse[50] and the UK-based Education Endowment Foundation's Teaching and Learning Toolkit.[51] The latter has collaborated with regional partners in the Evidence for Education Network to develop regionally contextualised versions of the toolkit in Sub-Saharan Africa, Latin America, and the Arab world.[52] In the international development sector more generally, the 3ie Development Evidence Portal includes over a thousand studies on education.[53] Another database that warrants highlighting is the African Education Research Database,[54] an effort to compile and raise the visibility of African research on education.

Within evidence databases, one key area that the Hub intends to advance is partnering with existing evidence databases to support incorporating metrics on implementation, including take-up and fidelity, as these metrics are typically not currently included, yet are pivotal to implementation quality and, consequently, to children's learning outcomes.[55]

Agenda-setting synthesis

Agenda-setting synthesis will assess the state of evidence on key research and implementation questions, identify gaps, and endeavour to set the agenda for future work. Agenda-setting synthesis will take multiple forms.

One form will be articulating major new stylised facts or descriptive statistics that inform future work. For instance, analysing and describing the extent to which implementation is measured in the current literature will both inform the level of effort required in the education sector to improve such measurement and draw attention to this as an area for further work.

Agenda-setting synthesis will also point out underappreciated problems and research gaps. Much synthesis work focuses on

[50] https://ies.ed.gov/ncee/wwc/

[51] https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit

[52] https://evidence.education/our-work/summarising-evidence

[53] https://developmentevidence.3ieimpact.org/

[54] https://essa-africa.org/AERD

[55] Angrist, N., & Meager, R. (2023). Implementation matters: Generalising treatment effects in education. What Works Hub for Global Education Working Paper.

synthesising evidence on solutions, but agenda-setting synthesis will have the flexibility to focus on and improve understanding of problems and gaps. For instance, an agenda-setting synthesis piece may analyse the extent of evidence on implementation at scale and point to areas where this should especially be improved.

Agenda-setting synthesis will also take the form of scoping synthesis briefs. These will give an overview of the state of the evidence on a specific intervention type or thematic area, such as 'structured pedagogy programmes', with a particular focus on evidence on implementation at scale and in government systems. The evidence on implementation at scale is much more limited than small-scale, pilot-based evidence, yet understanding what works at scale and how it achieves its impact is critical for designing programmes for scale. These briefs will describe, for instance, programme adaptations that have been made to facilitate implementation at scale. The briefs will further map the current evidence base to the Hub's intellectual framework, identify key research gaps, and offer recommendations for future research agendas. To inform programme design and implementation

5.2. To inform programme design and implementation

In addition to identifying evidence-based approaches, another function of synthesis and evidence translation at the What Works Hub for Global Education is to inform programme design and implementation. Rather than seeking to cover as much breadth as possible, such synthesis products typically pursue depth in developing a layered, granular understanding of a specific type of intervention, aspect of implementation, or other thematic area (see also Section 3.1 above). These draw on impact evaluations, evidence on intervention mechanisms that facilitate success, case studies, interviews with implementers, ethnographic research, and more, shedding light on how effective approaches are designed and implemented to improve foundational learning.

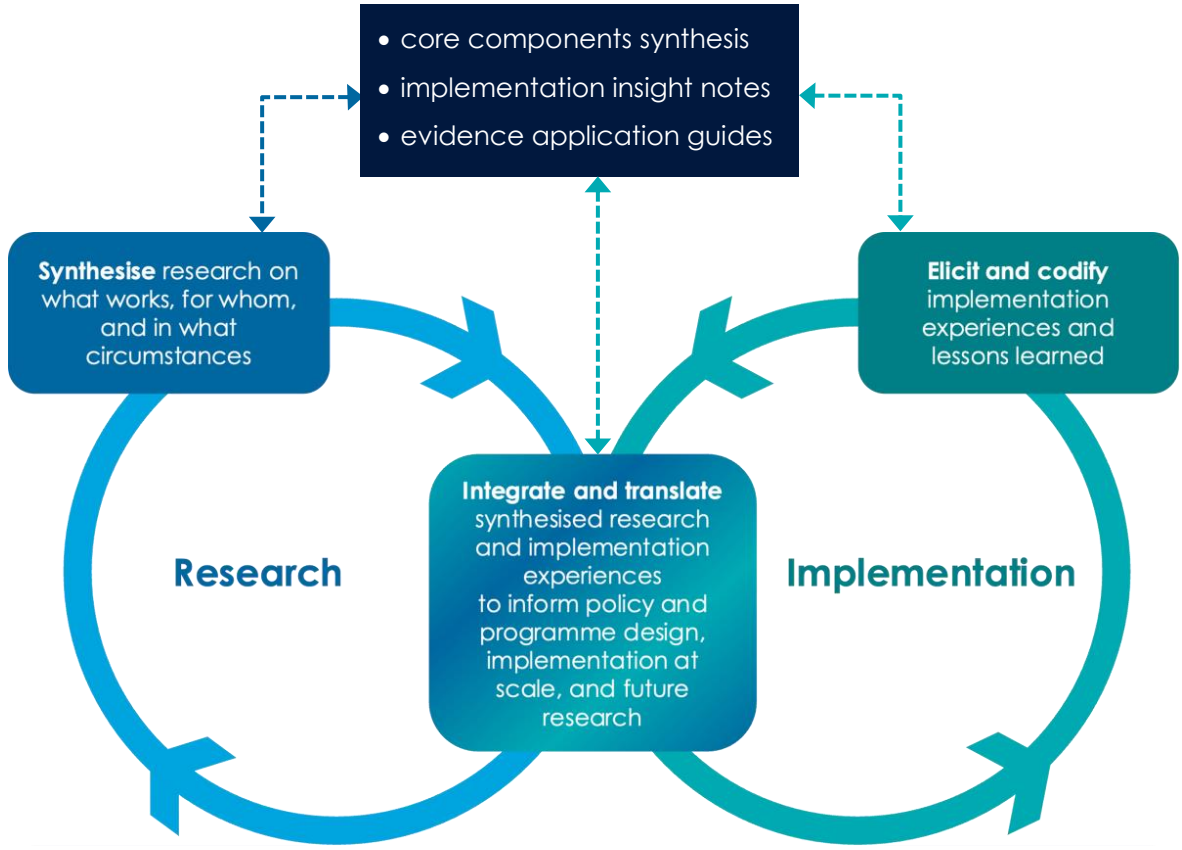
> "… synthesis products [in this category] typically pursue depth in developing a layered, granular understanding of a specific type of intervention, aspect of implementation, or other thematic area."

A distinguishing feature of the Hub's efforts here will be engaging directly with implementers to elicit and codify their knowledge and experience and integrate that with research evidence to produce guidance and recommendations. Thus, as shown in Figure 5, the Hub's outputs in this category will engage with all three actions in the synthesis framework: synthesising research, eliciting and codifying implementation experiences and lessons, and integrating and translating synthesised research and implementation experiences to produce nuanced principles, guidance, and action-oriented recommendations. Next, we

briefly outline how this will work for the three output types: core components synthesis, implementation insight notes, and evidence application guides.

FIGURE 5

Synthesis and evidence translation to inform programme design and implementation



Core components synthesis

Core components synthesis aims to unpack the black box of how effective approaches achieve their impact. A core components synthesis project explores a specific intervention type or reform approach to identify the components that are essential to its success – its core components[56] – and those that are more peripheral and can be added, removed, or otherwise adapted without impacting its effectiveness. Core components outputs inform the design and implementation of evidence-based programmes, such as in a new context or at a new level of scale.

[56] In implementation science research, the core components of an effective intervention are elements that are 'essential and indispensable' for producing the intervention's effects, and that are accompanied by an 'adaptable periphery' of other elements (Damschroeder et al., 2009, p. 3). Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*, *4*(1), Article 1.

For instance, if a government wants to implement a structured pedagogy programme to improve foundational learning in grade two, a core components synthesis product will give guidance on which components are necessary (e.g. well aligned, high quality teaching and learning materials; practice-based teacher training; ongoing, in-person teacher coaching), and guidance on components that can be adapted or not included while maintaining effectiveness (such as adapting the number of teacher training days).[57]

Thus, core components synthesis bridges the gap between academic research and implementation knowledge. The integration and translation of this knowledge then feeds back into both domains. Core components synthesis feeds into implementation by informing design, adaptation, implementation, and scaling of similar approaches in new contexts or improved or expanded implementation in existing contexts. Concurrently, it feeds into research by pinpointing research gaps and open questions that will shape future research agendas. To do so, core components synthesis focuses on and results in mid-level insights and principles rather than either highly abstract theories or strictly context-bound, idiosyncratic intricacies.[58]

"… core components synthesis bridges the gap between academic research and implementation knowledge. The integration and translation of this knowledge then feeds back into both domains."

Related efforts to synthesise the principles underlying the effectiveness of a specific intervention type or reform approach include some of the Education Endowment Foundation's guidance reports,[59] the RISE Programme's insight note on instructional alignment,[60] and the TPD@Scale Framework for technology-mediated teacher professional development.[61]

Core components synthesis will be both systematic and iterative, because the core components of an approach are not always immediately obvious. Programmes often include a set of bundled inputs and activities, and it can be difficult to determine which are core to the programme's effectiveness. Also, in impact evaluation reports and academic papers, programme details and implementation processes are not typically reported at the level necessary to identify core components. Thus, accurately identifying the core components that are necessary and sufficient

[57] Piper, B., Destefano, J., Kinyanjui, E. M., & Ong'ele, S. (2018). Scaling up successfully: Lessons from Kenya's Tusome national literacy program. *Journal of Educational Change*, 19(3), 293–321.

[58] Cartwright, N., Charlton, L., Juden, M., Munslow, T., & Beadon Williams, R. (2020). Making predictions of programme success more reliable. Centre for Excellence and Development Impact and Learning (CEDIL).

[59] eg Collin, J., & Smith, E. (2021). *Effective Professional Development: Guidance Report*. Education Endowment Foundation (EEF).

[60] Hwa, Y.-Y., Kaffenberger, M., & Silberstein, J. (2020). Aligning Levels of Instruction with Goals and the Needs of Students (ALIGNS): Varied Approaches, Common Principles (RISE Insight Series, 20/022). Research on Improving Systems of Education (RISE).

[61] Wolfenden, F. (2022). *TPD@Scale: Designing teacher professional development with ICTs to support system-wide improvement in teaching*. Foundation for Information Technology Education and Development.

for effective implementation may require multiple cycles of hypothesising a set of core components, testing those components through synthesis of relevant research and implementation experiences, and updating the hypothesised core components, and so on. In some cycles, the implementation information that core components are tested against will be drawn from different bodies of research. In others, this information will come from new interviews with implementers.

Implementation insight notes

Another form of synthesis that will inform programme design and implementation is **implementation insight notes**. Implementation insight notes will delve into specific programmes that were implemented in specific contexts to codify the implementation experience. They engage in all three actions within the synthesis and evidence translation cycle. They represent a new, innovative approach to foregrounding the implementation experience and process and connecting them to the wider body of evidence in global education.

These insight notes will begin with eliciting implementation experiences and lessons. They could include quantitative analysis of organisational monitoring and evaluation data, reporting on results from iterative testing of different programme designs (such as A/B testing), qualitative case study approaches, and more, and often will include a combination of these data sources. The findings will be integrated with findings from the broader research literature to reinforce and contextualise the lessons and experiences. The final output will be packaged in an output that is readily accessible and useful to implementers in other contexts.

The What Works Hub for Global Education further intends to support implementers in producing their own implementation insight notes. This could include providing templates or guidance; collaborating on analysis and outputs; and/or providing the Hub's website as a platform for publishing the notes. The goal will be to build a curated and visible platform through which implementers can share their knowledge with others in the global education community.

Evidence application guides

Evidence application guides are related to core components syntheses and implementation insight notes – as well as examples from the global education sector such as the Science of Teaching

guides[62] – in that they will draw on both conventional research and implementer perspectives, and they will go beyond the details typically reported in academic papers to describe how success was achieved. Evidence application guides will focus on specifically defined interventions, providing information implementers need to know to successfully deliver that intervention.

Evidence application guides will offer details such as the chronological background of the intervention, how decisions were made, how the intervention was targeted, what monitoring mechanisms were used, and so on. These will draw on site visits and interviews with implementers, which will be contextualised within the wider body of evidence. Where possible, these guides will also be shaped using input not only from implementers who have already delivered the intervention, but also those who are potential users of the guide to deliver the intervention in the future.

5.3. To address localised needs

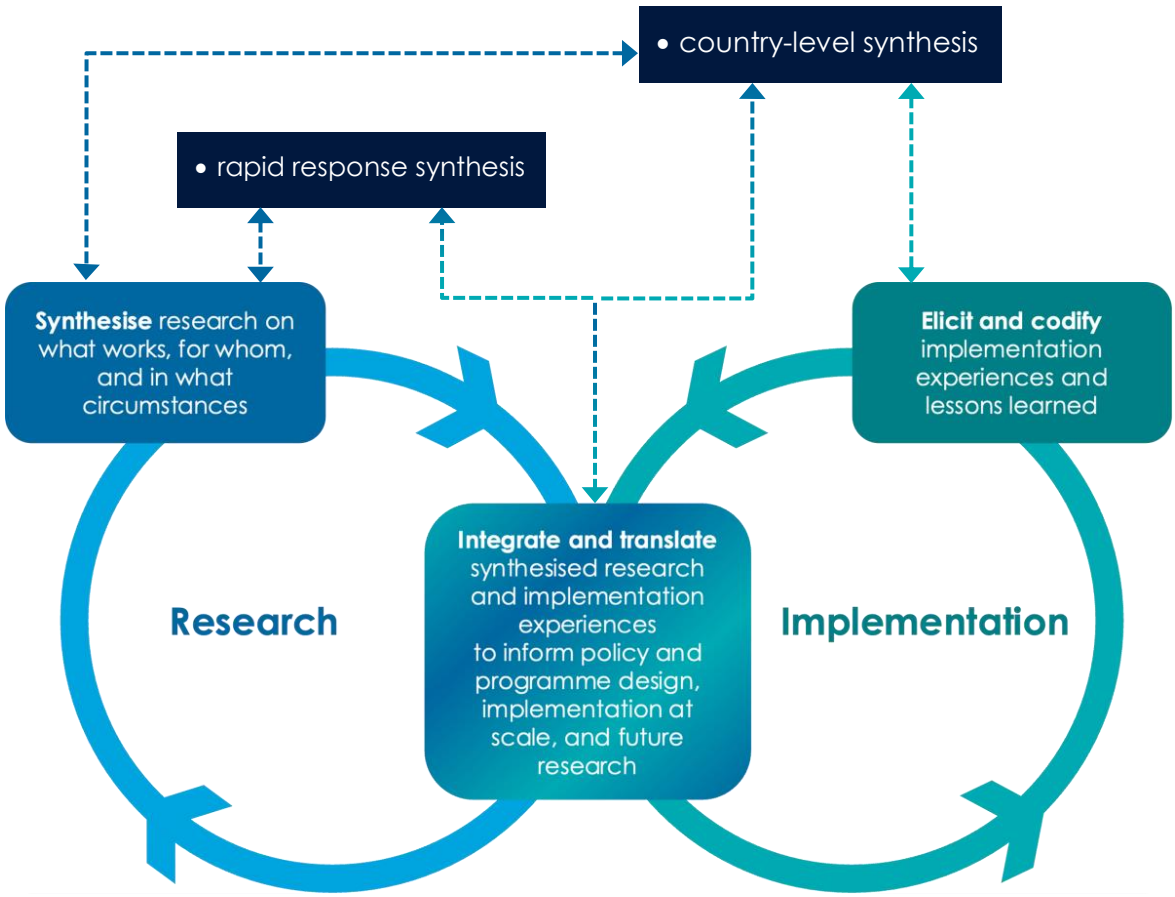
The synthesis and evidence translation outputs outlined thus far – to identify evidence-based approaches and to inform programme design and implementation – will generally be cross-country projects written for audiences at both the country and global levels. These projects will be demand-driven in that they will focus on topics that are relevant to a range of educational actors in the global south. In addition to these cross-country and global synthesis and evidence translation outputs, the What Works Hub for Global Education will conduct synthesis targeted to addressing localised needs. These needs can either be localised in the geographic sense – as with country-level synthesis – or localised to specific subgroups of actors – as with rapid response synthesis (Figure 6

Figure 6). We will capture demand for this type of synthesis through mechanisms such as surveys of topical needs and priorities, and through convenings with country-based partners. We further describe localised and rapid response synthesis below.

[62] https://scienceofteaching.site/

FIGURE 6

Synthesis to address localised needs draws on the wider research base to address tailored questions or to meet specific demands, whether by synthesising and translating existing research or by combining the wider research base with local implementation experiences.



Country-level synthesis

Country-level synthesis will be conducted within countries and typically conducted by locally based researchers and implementers. Such synthesis will emphasise research from the country of focus, while also drawing on the broader literature on improving foundational learning at scale as appropriate.

Country-level synthesis at the What Works Hub for Global Education will be demand-driven, and the focuses and format of country-level synthesis projects will vary based on the synthesis needs, actors, and scope in question.

Beyond the Hub, one example of a country-level project synthesising and translating evidence for a specific context is a policy brief by the Research on Improving Systems of Education's Indonesia's team on recovering learning losses following the

Covid-19 pandemic. The policy brief drew on both local data and global evidence on learning loss and recovery to make recommendations.[63] It was also published bilingually in both Bahasa Indonesia and English, offering an example of linguistic translation alongside evidence translation.

An example of the interplay between cross-country and country-level synthesis is the Spotlight series that has been produced in collaboration between the UNESCO Global Education Monitoring Report, the Association for the Development of Education in Africa (ADEA), the African Union, and various local research teams.[64] Spotlight outputs follow a cross-country analytical framework. Local teams then develop country-specific reports in line with this framework, drawing on both secondary sources and new fieldwork. Cross-country teams then produced larger reports synthesising the country-level findings and the wider evidence base.

Rapid response synthesis

Besides geography-specific needs, localised needs can also take the form of specific questions or problems that specific groups of actors are dealing with, often on a specific timeline. Accordingly, the What Works Hub for Global Education will also conduct some **rapid response synthesis** to provide synthesis to governments, funders, and other partners based on particular needs, as appropriate and feasible. As with country-level synthesis, the format of such rapid response synthesis will vary depending on the needs in question.

In developing rapid response synthesis projects, the Hub will draw on precursors, with a notable recent example being the EdTech Hub's Helpdesk function.[65] Other such efforts include rapid response synthesis conducted on reducing school related gender-based violence conducted during the pilot phase of the What Works Hub for Global Education, and the UK Parliamentary Office of Science and Technology's (POST) rapid evidence assessments.[66]

[63] Beatty, A., Pradhan, M., Suryadarma, D., Trenastri, F. A., & Dharmawan, G. F. (2020). *Recovering Learning Losses as Schools Reopen in Indonesia: Guidance for Policymakers*. SMERU; AIGHD; Mathematica.

[64] https://www.unesco.org/gem-report/en/spotlight-africa

[65] https://edtechhub.org/helpdesk/

[66] https://post.parliament.uk/rapid-evidence-assessments/

6. Conclusion

Rather than an end in itself, synthesis and evidence translation is a means to multiple ends. The conceptual framework proposed in this paper aims to inform synthesis and evidence translation efforts that support policymakers to choose effective policies and programmes, implementers to design and implement effective programmes, funders to fund effective programmes and gap-filling research, and researchers to investigate critical questions where more evidence is needed. All of this is to serve a common end: that children benefit from better-supported teachers, more effective classroom and instructional environments, and ultimately learn the foundational skills that set them up for success in future schooling and later in life.

The conceptual framework further aims to bring the worlds of research and implementation closer together. By bringing together research evidence and implementer experience and lessons learned, synthesis and evidence translation can provide the deep, rigorous, and nuanced findings and guidance needed to inform effective design and implementation of programmes to support foundational learning.

The need is great: in low- and middle-income countries, 7 in 10 ten-year-olds cannot read and understand a simple story, and in Sub-Saharan Africa as many as 9 in 10 cannot.[67] And the need is urgent; every year children are finishing primary school without the basic prerequisites to engage in later learning and fully participate in society. Meaningful synthesis and evidence translation can help implementers learn from each other and avoid having to reinvent the wheel, ensure researchers focus on what matters for supporting effective programmes embedded in government education systems at scale, and push the frontiers of both implementation and research, all with the aim of achieving learning for all children.

[67] World Bank, UNESCO, UNICEF, USAID, FCDO, & Gates Foundation. (2022). *The State of Global Learning Poverty: 2022 Update*.