Structured Pedagogy

GUIDE 7

Data, Systems, and Accountability
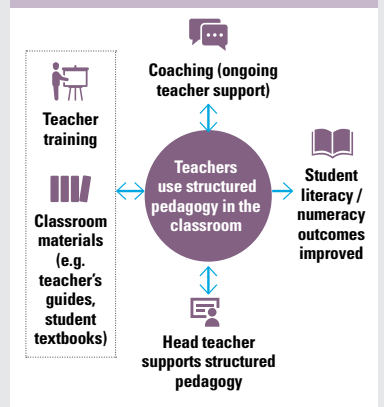
INTRODUCTION

Timely data that are fed back into the system are needed to hold key actors accountable for the implementation of structured pedagogy interventions, to measure the impact of these interventions on teachers' practice, to identify and inform program adaptations and, most importantly, to show what, if any, impact the intervention is having on key programmatic outcomes (such as students' basic literacy and numeracy skills).

The following questions should be used to guide decisions and discussions around data use and accountability for the successful implementation of structured pedagogy interventions to promote foundational literacy and numeracy:

1. What data should be collected?
2. Who should be responsible for collecting data, and how often should data be collected?
3. How will the data be used, and who needs access to results?

To provide concrete and specific guidance, we have developed as an example a simplified structured pedagogy program theory of change to be used as a reference point throughout this section. A program's theory of change should drive decisions regarding the data to be collected. If a program theory of change is not available, one should be developed before determining what data to collect.[1,2]

FIGURE 1. SIMPLIFIED EXAMPLE THEORY OF CHANGE FOR A FOUNDATIONAL LITERACY OR NUMERACY STRUCTURED PEDAGOGY PROGRAM

Teacher training

Classroom materials (e.g. teacher's guides, student textbooks)

Coaching (ongoing teacher support)

Teachers use structured pedagogy in the classroom

Head teacher supports structured pedagogy

Student literacy / numeracy outcomes improved

WHAT DATA SHOULD BE COLLECTED?

As a starting point for determining key data collection requirements, we recommend focusing on the main components of your program's theory of change. For the example program in Figure 1, these are represented by the activities, inputs and outputs displayed in the graphic. **These critical data will allow you to determine whether or not program activities are being implemented and whether the goal of the program is being achieved.** Additionally, collecting data on the mechanisms through which each component affects other, ensuing components in the theory of change is essential. In Table 1, we provide examples of basic indicators, most of which are relatively easy to collect data on, for each of the components in the Figure 1 theory of change.

TABLE 1. Example indicators based on program theory of change

Program Component	Example Indicators
Teacher training	• Number of teachers trained, by sex • Proportion of teachers demonstrating increased knowledge of structured pedagogy best practices (pre vs. post training).
Classroom materials	• Number of classroom materials (e.g., teacher's guides and student textbooks) delivered to schools on time • Proportion of teachers observed with teacher's guide • Proportion of students with student textbooks in the classroom
Coaching	• Proportion of teachers observed by coach at least one time per term
Head teacher support	• Proportion of teachers observed by head teachers at least one time per term
Teachers' use of structured pedagogy in the classroom	• Proportion of teachers using teacher's guide during lesson • Proportion of teachers meeting expectations for time on task • Proportion of teachers demonstrating high-quality techniques (e.g. questioning, remediation, formative assessment) with proficiency
Student literacy/ numeracy outcomes	• Proportion of students reading with fluency and comprehension or meeting mathematics benchmarks, by sex

Most of the indicators in Table 1 focus on "low hanging fruit". In order to get to the crux of the intervention — how teaching and learning is changing, and how that change is effecting students' literacy and numeracy outcomes — you should develop a learning agenda consisting of research questions that determine whether or not (as well as why or why not) key components of the program are being implemented as intended. For example, while the proportion of teachers using teacher's guides is a standard indicator for structured pedagogy programs, a clear understanding of whether teachers have prepared for lessons and the pace of their lesson implementation is also critical.

Include learning agenda questions that will help continually improve your program. In-depth case studies of schools or coaches with greater than average uptake or fidelity of implementation, compared to those with lower than average implementation, will be useful, as will small studies that revisit and provide a comparison point to the student skills review and teacher observations conducted during your initial review of the national curriculum and scope and sequence. Revisit and update the learning agenda, and the theory of change, on an annual basis in order to account for programmatic adaptations stemming from the data collected.

About the symbols in this guide:

Indicates "Red Alert": Something to be aware of and alert to, because it is a common problem

Indicates "Non-negotiable": a must-have

WHO SHOULD BE RESPONSIBLE FOR COLLECTING DATA, AND HOW OFTEN SHOULD IT BE COLLECTED?

Interventions should embed monitoring of data collection in existing government systems. This limits data duplication, increases government leadership, and mitigates the risk of developing a parallel system. Embedding begins with three main steps: 1) Engage government counterparts in backward mapping of data needed, according to the theory of change, to data already being collected by the system (to identify new types of data and determine how these may be obtained through government channels); 2) Map the frequency with which data are collected through the system to the timeline of when these data will be needed to inform adaptation and action; 3) Identify potential technologies, such as data dashboards, that will enable rapid data collection, analysis and review through government channels and reporting structures.

Contextualize data needs within existing government policies, plans, and priorities. **This can be a sensitive arbitration, particularly when the desired outcome of a donor or outside expert is at odds with the allocation of scarce resources by government**. For example, you may want local officials to attend a sample of prescribed teacher meetings, for both monitoring and learning purposes. Because these meetings are held in the evening, however, local administrators may push back, citing that limited fuel allowance must be used to monitor teacher attendance in the morning. **Some types of data, such as recurring classroom observations of teaching practice, are so critical to informing activity adaptations that they should be considered non-negotiable**. While this process is beneficial for ensuring that there are built-in lines of accountability for data collected on behalf of your program, an additional layer of external monitoring could be needed to ensure system monitoring is actually taking place. Data collected outside of the system should be publicized to targeted government actors to build demand for these data inside the system. National benchmarks set using externally collected data should be prioritized for communication - using a concrete, simple message that teachers can apply in their classroom, such as "Your grade 2 students should be reading X words per minute, Take time to check students reading, and if they are below this rate, take these three steps

Data collection technologies such as an online reporting dashboards likely will have a high return on investment by 1) decreasing potential long-term monitoring costs to the government, thus increasing the likelihood of regular monitoring; and 2) creating rapid feedback cycles that inform timely adaptations and prevent the allocation of additional resources to activities that are not achieving desired outcomes. **One caveat, and a major pitfall with technology solutions, is regular maintenance**. **You should always introduce dashboards, data collection**

RECOMMENDATIONS -> WHEN RESOURCES ARE CONSTRAINED
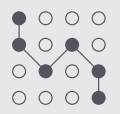
IF key data are not being collected through systems

THEN organize events with government to demonstrate the value of the data and encourage their leadership. Use participatory approaches to transition future data collection to government systems.

IF key data are included in government systems but are collected sporadically

THEN supplement this system through modest stipends or external data collectors. With input from local government, develop a reporting dashboard with accurate, real-time data relevant to both government and the intervention to build a reliance on these data and support the data's sustained use.

tablets, offline teacher support applications, or other technologies through the sytem, and provide ongoing training on technology troubleshooting, installation, programming, maintenance and repair to the relevant information and communication technology officers. If resources are constrained, prioritize dashboards and other online data collection approaches where information needs to be shared rapidly between actors in different locations (i.e. between the school and local government office).

Once data purposes, processes, and timelines are mapped, meet with governing actors at the school, local, and national levels to identify who is responsible for delivery of each element of the structured pedagogy program. Lines of external, organizational, and internal accountability should be clearly drawn at the intervention's inception.

Careful decisions must also be made with respect to the role of a data collector in relation to the nature of the data collection. For example, in many systems, one ministry department will serve as the natural location for both collecting monitoring data and providing support to teachers. If these departments are typically focused more on inspection than on coaching, it would be best to identify other actors who may be available to serve in the teacher support role. Similarly, **school-level actors (or those directly impacted by school-level performance) should not be used to conduct impact evaluations, where independence is essential for ensuring high-quality and reliable data.**

Table 2 shows example purposes for data, potential data collectors, and recommended frequency of data collection for each component of the program in the theory of change example.

TABLE 2. Example data collection assignments and timelines based on program theory of change

Program component	Purpose	Who should collect these data?	How often should these data be collected?
Teacher training	Measure training reach and effectiveness	Teacher trainers	During and after training
Classroom materials	Track materials development, book production, and distribution	Curriculum department (development) Local government (production and distribution)	Content: Initial design and user-testing, before revising Quantity: After distribution, annually
Coaching	Measure coaching reach and effectiveness	Coach supervisors (monitoring) Coaches (self-report through data upload)	Monthly
Head teacher support	Measure frequency and quality of support	Head teacher self-report	Monthly
Teachers' use of structured pedagogy in the classroom	Measure teachers' adherence to/use of materials	Head teacher Coaches	Monthly
Student literacy/ numeracy outcomes	Monitor individual learner progress, target areas of strength/weakness Evaluation: Measure overall learning outcomes	Formative assessment: Teachers* (with coaches) Evaluation: Independent assessors	Daily/Weekly formative assessment; annual evaluation (summative)

* Teacher reported data should be triangulated with third party data to determine reliability and usefulness. Improving the use of teacher reported data (including self-evaluation, self-monitoring and self-reflection data).

HOW WILL THE DATA BE USED, AND WHO NEEDS ACCESS TO RESULTS?

Collecting the right data is important, but data are only as valuable as their ability to effect change and improve the quality of a program's implementation. This can only be achieved by having a clear plan for data use and access, focused on ensuring accountability and on building demand beyond the program itself. **Accordingly, it is essential to provide relevant stakeholders with timely and convenient access to data, findings, and results, so that appropriate action can be taken to improve program performance and ensure that teachers and students are receiving the highest quality teaching and learning opportunities possible.**

Education systems in low- and middle-income countries are typically unable to provide reliable, timely access to data on quality implementation. Therefore, this work requires supporting government information systems to bolster data collection and reporting in ways that align with the job functions of government officers and help them improve the quality of their implementation. In lieu of creating new data collection mechanisms, revise or supplement existing data collection instruments to focus more on quality implementation measures (as opposed to the more typically measured simple inputs such as counting children or teachers). One major challenge interventions face is successfully integrating formative assessment

Examples of Student Assessments

...that can also be adapted for instructional use

UWEZO National Survey Tool: https://www.uwezo.net/assessment/tools

Pratham Teaching at the Right Level: https://www.teachingattherightlevel.org/the-tarl-approach/assessment/

approaches in the classroom that are user friendly, applicable in large classrooms, and drive meaningful decision-making by teachers. The best option towards achieving this is to engage teachers as thought leaders- to design, test, review and revise and disseminate a formative assessment approach.

Additionally, this work should include reliable and continuous avenues for data analysis by, and reporting to government actors at different levels of the system. For example, use dashboards to provide access to real-time data on program implementation activities (from basic indicators such as attendance to quality measures such as coaching and school-based inset (SBI) meetings and fidelity of implementation to key outcomes such as student performance, as shown in Figure 2). Provide users with log-ins that allow differing levels of access depending on their role and the data that would be most beneficial. Furthermore, hold events regularly to share data and results at national and subnational levels. These data-sharing approaches serve to increase accountability by providing performance data up and down lines of management and by allowing for comparisons of performance between and across levels of implementation. This can create healthy competition in areas of implementation essential for program success. Lastly, if these data are then used to improve implementation of the program and increase the effectiveness of government officers' job functions, that success will help build demand for such data beyond the scope of the program.

FIGURE 2. An example dashboard that monitors teaching and learning indicators uses color-coding to highlight strengths and weaknesses in teaching, coaching, and learning outcomes. (CREDIT: FHI 360 GHANA)
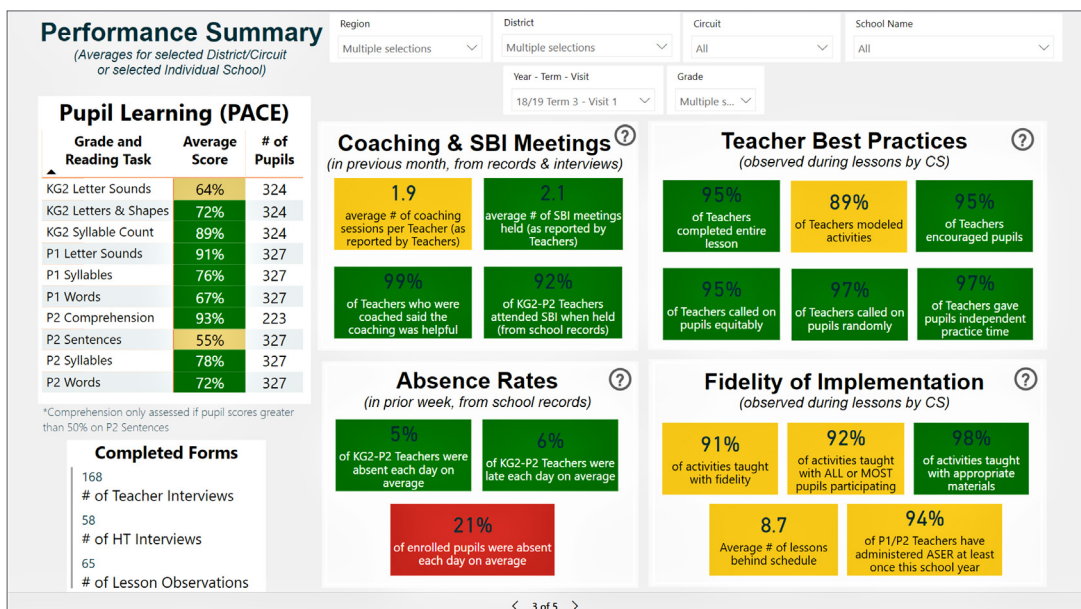
As an example, Table 3 shows the implications of data use and accountability for the coaching component of the hypothetical structured pedagogy program model theory of change in Figure 1. The coaching component consists of monthly coaching visits by trained school supervisors, with the goal of ensuring that teachers are receiving sufficient ongoing support to implement the structured pedagogy program as intended.

TABLE 3. Example data use and accountability for structured pedagogy coaching

How will these data be used?	• Track whether coaching visits and ongoing support align with program expectations • Determine teacher use of structured pedagogy materials and procedures in the classroom
Who needs access to these data?	• Head teachers • Coaches • Local, subnational, and national education officers • Program staff
How can these data ensure accountability?	• A data dashboard with frequency of coaching visits allows local education officials to determine if coaches are visiting schools as intended • A data dashboard of teacher observation results allows national-level directors to compare performance across subnational levels • Coaches' responsibility for presenting results to district directors during biannual data-sharing events increases oversight
How can demand be built for these data and results?	• Provide training on use of the dashboard and review of results to high-level decision-makers • Create the norm of conducting regular data-sharing events to generate demand and buy-in based on usefulness of shared data

CONCLUSION

Two critical themes run through this Structured Pedagogy Guide. The first is the importance of accessible, rapid feedback on the implementation of each component of a program. This feedback enables system actors to use this information for accountability and adaptation. The second is the tension between ensuring monitoring and learning mechanisms critical to a successful structured pedagogy intervention are embedded within systems, while taking into account the limited resources and varying priorities of system actors at each level of government. To this end, close collaboration with government in developing monitoring and data systems from inception is critical, as is working with key actors to analyze, interpret and communicate key findings to create demand and investment in data within the system.

RESOURCES

World Bank Capacity Development Toolkit for M&E Systems: http://documents1.worldbank.org/curated/en/708391468331216900/pdf/533030PUB0moni101Official0Use0Only1.pdf

Room to Read on Why Data Matters for Children Learning to Read (video): https://www.roomtoread.org/impact-and-reach/tracking-results/

Ed Data II Summary of 3 Data Capacity Assessments: https://ierc-publicfiles.s3.amazonaws.com/public/resources/Mozambique%20Data%20capacity%20assessment.pdf

Amanda Makulec on "Why No One Is Using Your Dashboard (MERL Tech DC): https://www.slideshare.net/AmandaMakulec/why-no-one-is-using-your-dashboard-113349607

World Bank and UNESCO Framework for Assessing the Quality of Education Statistics: https://unstats.un.org/unsd/dnss/docs-nqaf/WB-UNESCO-DQAF%20for%20education%20statistics.pdf

Data Visualization Society- Collaboration Opportunities and Resources: https://www.datavisualizationsociety.com/resources

Ensure monitoring indicators for unintended consequences and do no harm: https://www.edu-links.org/sites/default/files/media/file/TWB%20Landscape%20Review_June%202019.pdf

Complete Series of Structured Pedagogy How-To Guides: https://scienceofteaching.site/how-to-guides/

AREAS WHERE TECHNICAL EXPERTISE WILL BE NEEDED

Monitoring and evaluation: to determine indicators of implementation fidelity and achievement of outcomes.

Education research and communication: to support tool design, dashboard development, data analysis and reporting/communicationing monitoring, and evaluation findings that are targeted and accessible.

Data Quality Management to ensure data is collected, stored, accessed and analyzed according to best practice.

REFERENCES

1   Innovations for Poverty Action (IPA), "Guiding Your Program to Build a Theory of Change" (Goldilocks Deep Dive report, IPA, New Haven, CT, February 2016). https://www.poverty-action.org/sites/default/files/publications/Goldilocks-Deep-Dive-Guiding-Your-Program-to-Build-Theory-of-Change.pdf

2   Danielle Stein and Craig Valters, "Understanding Theory of Change in Internataional Development" (paper 1, Justice and Security Research Programme [JSRF], JSRF and The Asia Foundation, London, UK, August 2012). https://www.alnap.org/system/files/content/resource/files/main/stein.pdf

3   The USAID Learning Lab CLA Toolkit is available at https://usaidlearninglab.org/qrg/learning-agenda

4   Demetra Smith Nightingale, Keith Fudge, and Will Schupman, "Evidence Toolkit: Learning Agendas" (Evidence Based Policymaking Collaborative, Washington, DC, March 2018). https://www.urban.org/sites/default/files/publication/97406/evidence_toolkit_learning_agendas_2.pdf

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