

Evidence-Based Teaching. Effective Teaching Practices in Primary School Classrooms

eTale 2022



This paper systematises the evidence regarding effective teaching practices in primary school classrooms, with special focus on evidence from low- and middle-income countries. Accordingly, the paper provides theoretical and empirical foundations for the content of the newly developed *Teach* classroom observation tool.

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Source: Molina, E.; Pushparatnam, A.; Rimm-Kaufman, S.; Wong, K. K.-Y. (2018). Evidence-based teaching. Effective teaching practices in primary school classrooms. *Policy Research Working Paper 8656*. World Bank Group. Education Global Practice.

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- A significant number of countries around the world are

facing a 'learning crisis': a large share of children complete primary school without acquiring even basic reading, writing, and arithmetic skills.

- This raises the question how is it possible that after sitting in a classroom for between four and seven hours per day for five to six years, a large portion of students are still not able to read, write, or do basic arithmetic?
- A growing body of evidence suggests that the learning crisis (to a large extent) reflects a teaching crisis.
- *Teach* is a new measure specifically designed for low- and middle-income countries to begin to address these gaps in knowledge and to develop a common language of analysis of teaching practices.
- It focuses on several main elements that reflect universal experiences that lead to learning, regardless of the culture and physical condition of the classroom.

Framework

Over the course of a teacher's lesson, *Teach* measures 1) the time a teacher spends on learning and the extent to which students are on task, and 2) the quality of teaching practices that help develop students' socioemotional and cognitive skills.

The quality of teacher practices is divided into the following subparts:

1. Classroom culture: the teacher creates supportive learning environment by treating all students respectfully, using positive language, responding to students' needs, and setting clear behavioural expectations.
2. Instruction: the teacher instructs in a way that deepens student understanding and encourages critical thinking and analysis.
3. Socioemotional skills: the teacher fosters

socioemotional skills that encourage students to succeed both inside and outside the classroom by instilling autonomy, promoting perseverance, and fostering social and collaborative skills.

Evidence for the *Teach* framework

Time on learning

- Effective teachers maximise the amount of time that students spend on learning.
- Thus, *Teach* includes two observable teacher behaviours for maximising time on learning in the classroom: the teacher's provision of learning activities to most students and students being on task.
- The evidence shows a significant positive association between teachers' instructional time and students' test scores.
- Evidence also shows that when students are on task and engaged, they learn significantly more than when they are not.

Classroom culture

- Classroom culture refers to a set of beliefs, attitudes, and behaviours jointly shared by the teacher and students.
- In *Teach*, classroom culture encompasses two elements: a supportive learning environment and positive behavioural expectations.

Supportive learning environment

- *Teach* includes four behaviours that are used to measure the extent to which the teacher is effective at establishing a supportive learning environment in the classroom:

- The teacher treats all students respectfully.
 - This promotes positive teacher–student relationships and has a positive impact on student academic achievement.
- The teacher uses positive language with students.
 - Praise and encouragement provide information to students about what is expected of them and help children to recognise that the more engaged they are on the task, the more likely they are to reach their learning goals.
- The teacher responds to student needs.
 - Responsive teachers show fairness and justice toward their students, demonstrate compassion toward students as individuals, and provide the emotional or physical support that students need in class.
 - Students whose needs are met enjoy the long-term benefits of being more engaged in school and performing better academically, socially, and behaviourally.
- The teacher does not exhibit gender bias and challenges gender stereotypes in the classroom.
 - Teacher behaviours (such as calling on students of different races and genders equally and using inclusive language) are central features of a positive learning environment and are linked with improved student achievement.
 - It is important that teachers are cognisant of their own biases and how these impact student learning.

Positive behavioural expectations

- Teachers who are consistent and positive in establishing expectations not only help students reach their academic potential but also support students' development of positive behaviour, social skills, and self-control

within a safe environment.

- *Teach* includes three behaviours that measure the extent to which the teacher is effective at setting positive behavioural expectations in the classroom:
- The teacher sets clear behavioural expectations for classroom activities.
 - Studies have demonstrated that teachers who expect positive behaviours from students and set these standards help promote constructive teacher–student interactions, support the development of student socioemotional skills and self-regulation as well as helping to increase student academic success.
- The teacher acknowledges positive student behaviour.
 - The evidence is strongest for teacher praise as a strategy to recognise students’ successful behaviours. In turn, this leads to increases in correct responses, student productivity, and accuracy.
- The teacher redirects misbehaviour and focuses on expected behaviour, rather than on the undesired behaviour.
 - Teachers who redirect misbehaviour by focusing on the expected classroom behaviour (also known as ‘differential reinforcement’) see an increase in desirable behaviours, less aggressive and destructive classroom behaviours, and an overall reduction in classroom stress levels.

Instruction

- Effective teachers deliver content in a way that is clear and interesting to students. They engage students in varied activities that promote thinking, build in ways of assessing understanding, and offer feedback to students.
- In *Teach*, instruction encompasses four elements: 1)

lesson facilitation, 2) checking understanding, 3) feedback, and 4) critical thinking.

Lesson facilitation

- Teach includes four behaviours to measure teacher effectiveness at facilitating the lesson to promote student comprehension:
- The teacher explicitly articulates the objectives of the lesson and relates classroom activities to these objectives.
 - Teachers need to: 1) develop clear and specific learning objectives for the lesson, 2) communicate the learning objectives to the class, and 3) relate classroom activities to the objectives.
 - Research shows that teachers who establish clear and specific learning goals for each lesson use class time more effectively.
- Explanation of content is clear.
 - Teachers' ability to explain concepts clearly to students also promotes academic learning outcomes.
 - Another teaching method found to be helpful is clarifying content to illustrate complicated concepts in the form of logical and/or visual representations using simple concept-maps and graphs.
- The teacher makes connections in the lesson that relate to other content knowledge or the daily lives of students.
 - Effective teachers make lesson content relevant to students by incorporating examples from their daily lives, also known as 'bridging scaffolds'. This process can not only enhance learning outcomes, but it can also promote student motivation, self-confidence, and perseverance.
 - Linking new information to prior knowledge is effective across subject areas, a finding

demonstrated by a variety of key studies.

- Another effective teaching strategy is to engage students in a discussion where they model the connections between old and new content.
- The teacher models by enacting or thinking aloud.
 - Effective teachers model their approach to problems in front of their students.
 - Beyond student gains, modelling is a means of promoting student self-efficacy and self-regulation, which is central to their learning process.
 - Enacting involves showing students the steps needed to complete a task.
 - By thinking aloud and walking students through thought processes, students are then able to take a similar approach to solving similar problems on their own.

Checks for understanding

- Teachers play an important role in checking whether and how much students understand learning material.
- *Teach* includes three specific teacher behaviours that gauge whether the teacher is effective at checking for students' understanding:
- The teacher uses questions, prompts, or other strategies to determine students' level of understanding.
 - Asking students questions and checking the understanding of all students is a type of formative feedback that supports learning and has been identified as a critical component of instruction.
 - Other strategies shown to work include teachers presenting new material in small steps and checking student understanding by having students practice after each step.
- The teacher monitors most students during

independent/group work.

- Active monitoring and facilitation during independent and group work ensure that students are engaged and increase their learning.
- Facilitation during in-class group work activities (such as monitoring student discussions and interjecting to clarify concepts and increase student engagement) is one of the most important principles of good teaching.
- The teacher adjusts teaching to the level of students.
 - Effective teachers are skilled at both recognising and adjusting to students' individual and collective needs. This promotes student engagement, self-regulation, and achievement.
 - The teacher's ability to teach to different student levels (known as differentiated instruction) is grounded in Vygotsky's zone of proximal development (1978), which refers to the area between what a learner can do without guidance and what they cannot do.
 - Several effective teaching strategies of differential instruction at the macro and micro levels include grouping techniques, continual assessment strategies, and tiered lessons.

Feedback

- Teachers who give consistent, periodical, and process-oriented feedback are associated with self-regulated, high-achieving students, decreased off-task behaviour and disruptive classroom behaviours, and increased academic engagement.
- Studies underscore the importance of providing feedback that is instructive, timely, referenced to the actual task, focused on what is correct, and focused on what to do next.
- Metacognitive feedback is recommended because it

provides cues about the content and structure of the problem and possible solutions, whereas results feedback only provides cues related to the final outcome of the problem.

- *Teach* includes two behaviours that capture the extent to which the teacher provides feedback that promotes student comprehension:
- The teacher provides specific comments or prompts that help clarify students' misunderstandings.
 - Teacher feedback that encourages students to ask questions about the learning task or to further clarify their misunderstandings can enhance the overall learning environment of the classroom.
 - Teachers should avoid using general questions or giving general declarations that do not identify specific aspects of the problem or task to be improved as this will only confuse students more.
 - When students need clarification on content or have misunderstood a concept, it is important for teachers to address errors to avoid negative transfer and future misconceptions.
- The teacher provides specific comments or prompts that help identify students' successes.
 - It is important that teachers systematically offer positive reinforcement to students and build upon student responses to solidify these successes.

Critical thinking

- A teacher who encourages students to actively analyse and critique concepts can help enhance the learning process.
- This involves the teacher asking open-ended questions that require reasoning, explanation, or generalisation or that have more than one correct answer.
- Teacher should provide thinking tasks, such as making predictions, identifying patterns, explaining thinking

from different views, making connections, and interpreting information.

- *Teach* includes three behaviours to capture the extent the teacher builds student critical thinking skills:
- The teacher asks open-ended questions.
 - Questions that focus on higher-order skills rather than management-related and information recall-related questions have been found to be effective for developing critical thinking skills.
- The teacher provides thinking tasks.
 - Teachers should encourage a deep learning approach among students by providing prompts and contextualised scaffolding, and encouraging students to ask questions, predict, and explain phenomena during activities.
- Students ask open-ended questions or performs thinking tasks.
 - Student engagement in self-explanation, or higher-order thinking is particularly effective for student learning and knowledge consolidation.
 - For example, students who probe concepts by asking 'why' will enhance their knowledge of the topic, their ability to summarise key points, and their understanding of how such new information can be integrated with existing knowledge.

Socioemotional skills

- Increasing evidence shows that socioemotional skills development plays an important role in academic achievement.
- Effective teachers use techniques and strategies designed to improve children's socioemotional development. Thus, they benefit children's understanding of the people in the world around them as well as support children's ability to understand and work with people who are different from them.

- Emotional processes refer to students' knowledge, awareness, and management of emotion.
- Cognitive regulation involves students' management of their attention and inhibition of inappropriate responses.
- Social and interpersonal skills involve interpreting others' behaviours and interacting in positive ways with other people.
- *Teach* measures how teachers support student autonomy (cognitive regulation skills), perseverance (emotional processes and cognitive regulation), and social and collaborative skills (emotional processes and interpersonal skills).

Autonomy

- Effective teachers foster autonomy in the classroom by creating opportunities for students to take ownership of their own learning by building instruction around students' interests, preferences, and choices.
- *Teach* includes three behaviours that indicate teacher's support for autonomy in the classroom:
- The teacher provides students with choices.
 - Offering students choice helps them engage more actively in learning, feel less negative emotion associated with learning, and develop their own sense of optimal challenge in academic work.
 - Autonomy support behaviours can be categorised into three types: 1) organisational autonomy support, where students are given decision-making roles in classroom management, 2) cognitive autonomy support, in which teachers support student ownership in learning, and 3) procedural autonomy support, in which students have some choice in how they present their work.
 - *Teach* focuses on cognitive and procedural autonomy support.

- Literature suggests that interest and achievement can be enhanced if a teacher provides the right type of autonomy support and meaningful choices regarding how students learn.
- The teacher provides students with opportunities to take on roles in the classroom.
 - The literature on cooperative learning demonstrates that assigning students to specific roles in a team, rotating the roles during the course of learning, and holding individuals and teams accountable is more effective in promoting student learning than independent learning.
 - Reciprocal teaching is an often-used approach involving assigning roles to teach reading comprehension. First, the teacher facilitates reading comprehension by asking students questions and modelling how to ask questions. Next, the teacher invites students to ask teacher-like questions to one another to support learning.
- Students volunteer to participate in the classroom.
 - The extent to which most students volunteer to participate stems from whether teachers have been successful at establishing a supportive classroom environment in which all students are comfortable and willing to take on roles in the classroom.

Perseverance

- Teachers need to encourage students to persevere through learning challenges by 1) helping them understand that their abilities and knowledge can be developed, 2) providing them with strategies for developing their abilities and knowledge, and 3) reassuring them that setbacks are an integral part of learning.
- Teachers should also encourage students to set learning goals for themselves and to persevere in their efforts to reach these goals.

- *Teach* includes three teacher behaviours that capture the extent to which teachers encourage perseverance in their students.
- The teacher acknowledges student effort, rather than focusing only on results, student intelligence, or natural abilities.
 - Effective teachers recognise student effort, not only the output of their work. In doing so, teachers can promote students' 'growth mindset' in learning; that is, the belief that intelligence is malleable rather than a fixed attribute.
 - Teachers who help children see their ability as malleable (through their instructional practices) attribute success to hard work, encourage challenges, and generate strategies for improvement using behavioural practices that can promote a growth mindset in students.
 - Praise that focuses on student effort promotes learning and development.
 - Effective teachers give praise that acknowledges student effort toward mastering new skills and identifies these efforts explicitly, thus encouraging a growth mindset.
- The teacher has a positive attitude toward student challenges.
 - Effective teachers have a positive attitude toward students' challenges and help them to understand that frustration and failure are a normal part of the learning process.
 - Student self-efficacy is an important driver of their approach to failure.
 - High levels of emotional support have been found to relate to higher student self-efficacy.
 - Effective teachers focus on the *process* of learning, not just the result.
- Teacher encourages goal setting.
 - By encouraging students to set goals for their

learning, teachers effectively demonstrate that students need to: 1) identify goal-directed actions, 2) persist in engaging in the task despite obstacles, and 3) be encouraged to restart unfinished tasks even in the presence of more attractive alternatives.

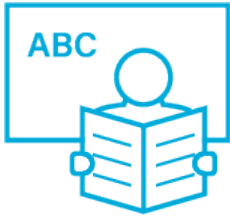
- Teachers also support students in their ability to delay gratification.

Social and collaborative skills

- Positive interactions with same-age peers contribute to students' academic, psychosocial, behavioural, and emotional well-being.
- Through peer relationships and experience, children establish their concept of trust, practice critical social skills, develop a sense of their own identity, and develop perceptions of other people and the world, with effects that last into later life.
- Teachers guide peer culture by establishing classroom norms and producing an equitable social hierarchy within the classroom.
- Teachers can create social environments in which students engage with each other, resulting in enhanced learning.
- *Teach* includes three items to capture effective teacher behaviours that have been found to support student learning through peer interactions:
- The teacher promotes student collaboration through peer interaction.
 - Cooperative learning encourages students to share ideas, see problems from different perspectives, and practice oral, language, and social skills in small groups.
 - Working in groups can help students better understand tasks than working on tasks alone.
 - When paired with peers working at a slightly

higher level of knowledge, scaffolding can occur; that is, the less-skilled student's memory recall and use of learning strategies improve while also increasing the more-skilled student's self-esteem.

- The teacher promotes students' interpersonal skills, such as taking different perspectives, empathising, regulating emotion, and solving social problems.
 - Teachers play an important role in children's social and emotional development by modelling positive behaviours, providing support to students to manage strong emotions, and managing naturally occurring power imbalances that can lead to aggression and bullying.
 - Teachers promote students' interpersonal skills by facilitating their ability to take different perspectives (theory of mind [ToM] skills).
 - Effective teachers promote students' ability to recognise and manage emotions.
- Students collaborate with one another through peer interaction.
 - Two processes of socialisation occur simultaneously in classrooms: teachers socialise students on how to behave in positive ways with one another, and students socialise each other on what is considered acceptable or not acceptable.
 - Warm peer relationships give students an opportunity to listen to each other and talk openly.
 - Peer interactions can also offer autonomy support, whereby working to understand each other's viewpoints, explaining the relevance of school work to one another, and healthy negotiation as part of group work all help students to develop a sense of autonomy.



Conclusions

- There is a need to improve teacher education to move beyond a focus on teachers' content knowledge to informing teachers what they need to do in the classroom and applying evidence-based core teacher practices.
- Once teachers are trained on these practices, *Teach* can support monitoring of their enactment in the classroom, supporting teachers in improving their practices and evaluating teachers' progress.