Improving the teaching of FLN: Insights from behavioral sciences

SYNTHESIS REPORT

February 2022

“Every organization trying to create impact is a behavior change organization.”
Kevin Starr, CEO, Mulago Foundation

better purpose

SUMMARY

- The Bill & Melinda Gates Foundation (BMGF) commissioned this report to draw **insights on how the behavioral sciences could provide a lens** to help us (1) better understand the problem of low foundational learning levels in low- and middle-income countries (LMICs) by shedding light on what influences teachers' decision-making in the classroom, and (2) help shape solutions to improve foundational learning by supporting teachers to implement effective instructional practices.
- Significantly improving foundational literacy and numeracy (FLN) outcomes at scale across LMICs remains a major challenge in education. Much is known about the sorts of instructional practices that can promote FLN. But given all we ask of teachers (research estimates that teachers typically make around 1,500 decisions in a single day), **making it easy for them to take-up and implement effective instructional practices and do so consistently and at scale is critical**.
- The sector is starting to explore some aspects of teacher behavior – for example, there have been studies of the **impact of extrinsic and intrinsic motivators** on teacher behavior (with mixed results). There is also an increasing body of evidence about the **impact of teacher beliefs on student outcomes**. For example, Guskey's model of teacher change states that long-term change in practices occurs as a result of a shift in their beliefs, which happens when teachers see improvements in their student outcomes as a result of changed instructional practices. We are also learning more and more about the **important influence that other system stakeholders** have on teacher behavior.
- However, **few FLN interventions explicitly look to learnings from behavioral sciences** to explore how to improve the take up of effective instructional practices.
- In this report, we propose that **the Integrative Model of Behavior Prediction can be a useful conceptual model to understand teacher behavior and take-up of instructional practices**. According to this model, human behavior is driven by a number of factors, including: 1 – whether the person has the **knowledge and skills** to carry out the behavior, 2 – **how enabling the environment** around them is and whether there are any barriers to carrying out the behavior, and 3 – whether the individual has the **intention (or motivation) to embark on the behavior**. (Note that knowledge and skills and the environment can also impact on intent to act – motivation, as well as directly influencing behavior.)
- Although the Model hasn't been explicitly used in the design of FLN interventions to date, findings from many effective FLN interventions support its logic.
- FLN interventions typically focus on addressing barriers relating to teachers' knowledge, skills and the environmental constraints which impact their practice. Less focus is placed upon what drives their intention to act – this is an area the Integrative Model of Behavior Prediction can help to unpack.
- A number of **practical applications of behavioral sciences principles** have been developed which take into account the automatic systems of information processing in the brain that drive human behavior and decision making. These applications (such as MINDSPACE and EAST) could be helpfully used in the education sector to inform teacher development in pursuit of improved FLN outcomes.

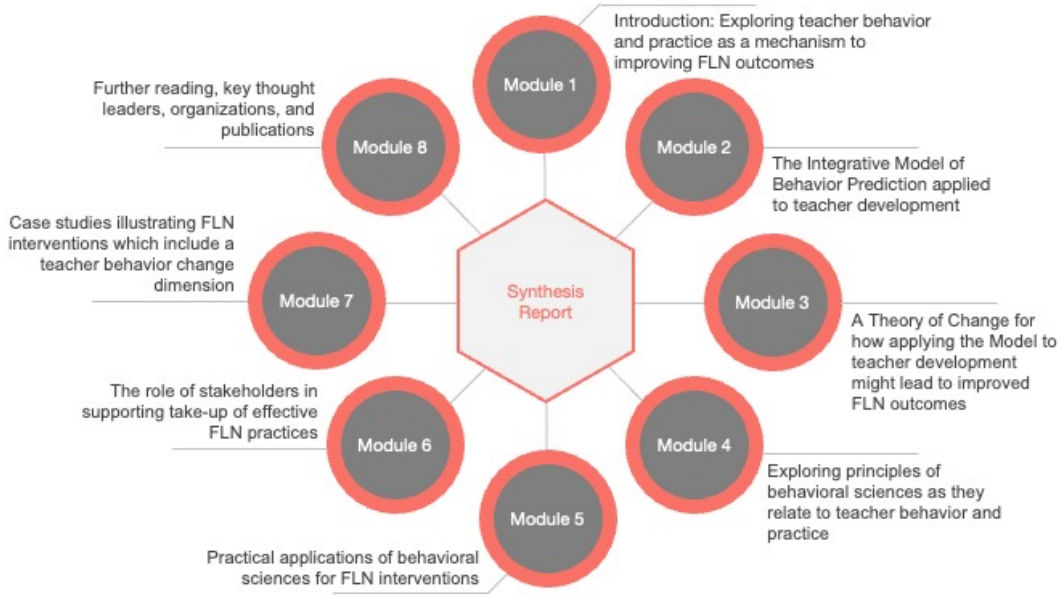
HOW TO USE THIS REPORT

This synthesis report provides an overview of some of the key insights provided by the behavioral sciences for improving the teaching of FLN. Specifically, it is designed to be used to stimulate discussion in the sector and as an input to a learning session on teacher behavior, convened by the Bill & Melinda Gates Foundation in March 2022. A longer, companion report is available upon request for those that wish to explore any of the key messages in more depth. The longer report is split into 8 modules, each of which can be read alongside different sections of this shorter report. A breakdown of how this synthesis report relates to each of the full modules is provided below. A separate document with full references for both reports, as well as a list of acronyms and glossary of key terms is also available separately.

Contents of this synthesis report *(and how it links to associated modules)*

Section	Page	Associated modules
The importance of quality instruction	4-8	Module 1
Introducing the Integrative Model of Behavior Prediction	9-11	Module 2
Applying learnings from behavioral sciences to better understand teacher behavior	12-17	Module 4
Practical applications of behavioral sciences principles and their implications for teacher development	18-25	Module 5
The influence of other stakeholders on teacher behavior	26-27	Module 6
Examples of FLN programs tackling teacher behavior change	28	Module 7

Overview of the longer, companion report *(available upon request)*



Note – This report is based on publicly available information, as well as insights from interviews with experts, rather than a systematic review of the evidence. The findings are for general guidance. The authors would like to thank colleagues at the BMGF, UNICEF and at the World Bank for valuable feedback on an earlier draft of this report.

See Module 1

BEHAVIORAL SCIENCES STUDY WHY WE DO WHAT WE DO

- This report is designed to explore how **behavioral sciences** could be used to understand **teacher behavior change**, and specifically how to improve the take up evidence-based **FLN instructional practices**. The box to the right provides high-level definitions for these key terms which are used throughout the report.
- The sector is starting to explore some aspects of teacher behavior – for example, there have been extensive studies of the impact of extrinsic motivators on teacher behavior (with mixed results). There is also an increasing body of evidence about the impact of teacher beliefs on student outcomes. We are also learning more and more about the important influence other system stakeholders have on teacher behavior.

What do we mean by 'behavioral sciences'?

- Behavioral sciences study why we do what we do and help us to understand the mechanisms humans use to make judgements and decisions which inform our behavior.
- Behavioral sciences are not a clearly defined discipline and may mean different things to different people. Broadly, it is an umbrella term for the science of understanding how people behave and brings together insights from a range of disciplines including (but not limited to) behavioral economics, social and cognitive psychology, anthropology, neuroscience and philosophy.

What do we mean by 'behavior'?

- Behavior is everything a person does and can be observed, heard, seen and measured.
- Behavior varies across context and is subject to cognitive biases, emotions and social influences.

What do we mean by 'practice'?

- In the context of this document, we use the concept of teacher behavior (and teacher behavior change) specifically as it relates to teachers' instructional practices, in particular with respect to FLN.
- See pages 6 and 7 for specific examples of effective instructional practices for FLN that might be the target of teacher development interventions or programs.

Sources: Amin (2017), Kappes (2016).

See Module 1

THE QUALITY OF TEACHERS' INSTRUCTIONAL PRACTICES IS KEY TO SUCCESS

- Much is known about the sorts of instructional practices that can promote FLN (see next page), but a huge amount is expected of teachers in the classroom. By some estimates, **teachers make around 1,500 decisions a day**. Given all we ask of teachers, making it easy for them to take-up and implement effective instructional practices and do so consistently and at scale is critical.
- We know from systems that have made substantial progress in FLN that **a significant driver of change is the quality of teaching**, and the ability of teachers to deploy evidence-based teaching practices that meet children at their starting place. This requires:
  - Support, via **coaching and in-school leadership** to help teachers to embed and sustain effective practices.
  - Teachers to be **motivated to support children to learn** and to be accountable to their coaches, supervisors and trainers for their own improvement and role in children's FLN progress.
  - **Learning assessment and data systems** for management and improvement, which link long-term goals to curriculum-based short-term goals.
  - **Evidence-based pedagogy**, often delivered through structured pedagogy.
  - **Integration of assessment-informed instruction and teaching at the right level** into classroom practice.

Sources: Perrier, C (2020), Crouch (2020A).

The OECD states that high quality instruction is the result of both **professional knowledge** (which includes content and pedagogical knowledge) and **affective motivational characteristics.** This framework applies to all levels of the education system, though the content knowledge will differ between, say, primary teachers and secondary teachers and between teachers of different subjects.

Professional knowledge	Affective-motivational characteristics
• **Content knowledge** (knowledge of a content area, such as mathematics) • **Pedagogical content knowledge** (PCK) (knowledge about the teaching and learning of a content area) • **General pedagogical knowledge** (principles of high-quality teaching that are not content-specific)	• Teachers' beliefs about their content area • Teachers' beliefs about teaching • Teachers' beliefs about student learning • Teachers' own motivation • Teachers' own self-regulation • Teachers' orientations, goals, and professional responsibility

- Very few studies measure teachers' pedagogical knowledge following training, especially in LMICs. Evidence from Uganda, India, Malawi and Lao PDR suggests that PCK remains low even after professional development.
- Professional knowledge and affective-motivational characteristics are influenced by continuous professional development (CPD), peer networks and teachers' autonomy to take charge of their development.

Sources: Shulman (1986, 1987), Lauermann (2017), Guerriero (2017), Westbrook et al. (2013).

See Module 1

WE KNOW WHICH INSTRUCTIONAL PRACTICES ARE EFFECTIVE FOR FLN

- Research and frameworks on effective instructional practice for FLN abound. These include a report by *Deans for Impact* which summarizes key research on how children up to age eight develop skills in literacy and numeracy; they also include RTI International's recently-published *Science of Learning How-To Guide* which provides suggestions for the design and implementation of numeracy programs in LMICs.
- The following table provides examples of the practical strategies suggested for promoting **foundational literacy**, while the tables on the following pages provide examples for **foundational numeracy**, taken from these two sources.

Focus area	Evidence base	Practical strategies
Understanding alphabet	• The relationships between letters and sounds, and 'phonemic awareness' must be explicitly taught, as most children do not learn this naturally.	• Provide explicit instruction in: letter sounds and combinations, spelling patterns, pronunciations, and "decoding" printed words to oral ones. • Provide 'retrieval practice', by asking students to sound letters and combinations of letters they are working on or have already mastered.
Reading fluency	• Fluency helps comprehension as it allows children to focus on thinking about, and remembering, meaning instead of sounds. • Lots of reading practice with varied text is key to reading fluency. • Developing intrinsic motivation to read is more likely to result in long-term reading habits than using extrinsic rewards.	• Develop reading speed and accuracy by reading brief passages of text aloud, calling attention to key elements (e.g. key words, punctuation) and ensuring students read the passage several times aloud with guidance. • Ensure ample time for "independent reading", explicit instruction and guided practice.
Reading meaning	• Interactive reading aloud to children is most effective at developing their vocabulary and conceptual understanding of story and text structures. • Reading a wide range of texts helps to develop content knowledge by creating a web of connected facts, ideas, and words. • Teaching comprehension strategies can support understanding of texts but cannot compensate for lack of vocabulary or content knowledge.	• Ensure reading aloud is interactive by including opportunities to ask questions, make predictions, or analyze the text. • Reflect on topics and ask comprehension questions when reading aloud. • Read a range of different books aloud to support learning new words. • Model and guide practice of comprehension strategies.
Writing	• Handwriting fluency has long-term impacts on writing ability and can be developed through systematic instruction in letter formation. • Children must learn to handle writing devices (e.g. pencil and paper or digital devices), and generate, elaborate on, connect and sequence ideas to write stories.	• Monitor the production of letters to catch and address bad habits early. • Ensure frequent, small doses of practice through the day and avoid extended, repeated practice of the same letters. • Ask children to retell stories in detail, after reading them, using prompts and questions.

Sources: Deans for Impact (2019), Lutfeali et al. (2021).

See Module 1

WE KNOW WHICH INSTRUCTIONAL PRACTICES ARE EFFECTIVE FOR FLN

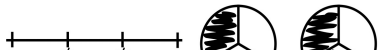
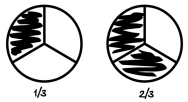
- The following tables, summarized from the *Science of Learning How-To Guide* and from *Deans for Impact (2019)* provides examples of the practical strategies suggested for promoting **foundational numeracy**:

Foundational Numeracy – Building Mathematical Proficiency		
Focus area	Evidence base	Practical strategies
Building conceptual knowledge	• A curriculum that "spirals" (i.e. learning within a domain is spread out and concepts are revisited repeatedly over months and across grades) supports building deep understanding in mathematics. • Children start to understand abstract mathematical concepts through concrete representations. • Children learn to solve abstract new problems in new contexts by gradually transitioning from concrete (e.g. 3 cubes) to pictorial (e.g. a drawing of 3 cubes) to abstract (e.g. the written numeral '3'), under structured guidance.	• An example of a "spiral" approach: children first learn how to add single-digit numbers (such as 4 + 5) and return to that concept multiple times over the year, each time with increasing complexity (e.g., first adding 4 + 5 with objects). • Guide students to progress from concrete models of objects to visual and abstract representations. This is key to understanding place value. • Teach children that symbols and abstract representations represent quantity, and symbols gradually replace concrete representations in their thinking.
Building procedural fluency and process skills	• Engaging children in diverse and challenging mathematical activities that require higher order thinking helps to develop their process skills, which then allows them to engage in more complex mathematics. • Children should retrieve basic arithmetic facts fluently to free their working memory to solve more complex problems.	• Include opportunities for classroom "math talk" during which the teacher guides students to explain their thinking and consider multiple strategies to solve a problem. The teacher uses "questioning" to ask student why an incorrect solution is incorrect. • The 100s chart is a learning aid for supporting procedural fluency in arithmetic by helping students see and understand the patterns and relationships between numbers up to 100. • Ensure children model their approach to problem solving in their work.

Sources: Lutfeali et al. (2021), Deans for Impact (2019).

See Module 1

WE KNOW WHICH INSTRUCTIONAL PRACTICES ARE EFFECTIVE FOR FLN

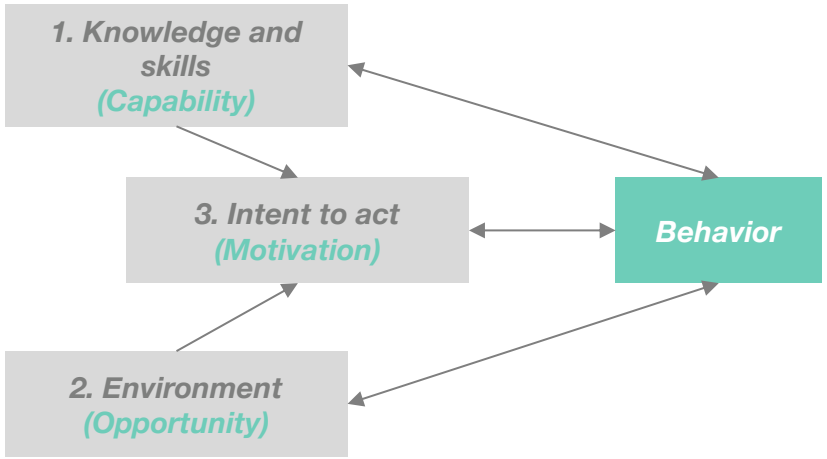
Foundational Numeracy – High-Impact Strategies		
Focus area	Evidence base	Practical strategies
Linking informal and formal mathematics	When introducing the concept of division, the teacher gives students a familiar, real-life problem to work on: • Akilah has 6 mangoes. She and her two sisters want to share them equally. How many mangoes does each sister get? After teaching the concept of division, the teacher asks students to apply their knowledge to solve complex problems, such as: • There are 80 watermelons that need to be packed into boxes that hold 10 watermelons each. How many boxes do you need?	• Helps students bridge math they learn outside of school with the knowledge they learn inside of school. • Linking informal and formal math provides students with a deeper understanding of math. • Knowledge from out of school is formalized and represented with symbols such as + and =. • Knowledge from school is given meaning through everyday application.
Discussing mathematics	When discussing a problem, the teacher facilitates a discussion where multiple students share the strategies they used to arrive at the same solution: • Students use **explanation and justification** to show why they think their solution is correct. • The teacher uses **questioning** to ask students to explain why an incorrect solution is incorrect.	• Helps students learn to question their solution. • Helps students understand and clarify key concepts. • Contributes to developing new and deeper understanding. • Supports development of new strategies. • Holds students accountable for their own learning.
Using appropriate models and representations	The teacher models for students two different ways of representing fractions and then asks them to practice using the models to compare fractions.   	• Enables children to “see” abstract mathematical concepts. • Helps students reason concretely with mathematical ideas. • Provides meaning to abstract symbols.
Using knowledge of students and learning progressions to target instruction	Students are working on using the standard algorithm to solve the problem: 28 + 53 Many students think that the answer is 71, not 81. The teacher realizes she needs to review the concept of place value before proceeding with the algorithm.	• Uses learning progressions to provide appropriate instruction. • Allows for reteaching of concepts and skills when needed. • Provides multiple opportunities and practice to build knowledge.

Sources: Lutfeali et al. (2021), Deans for Impact (2019).

See Module 2

THE INTEGRATIVE MODEL OF BEHAVIOR PREDICTION IS A USEFUL CONCEPTUAL MODEL TO UNDERSTAND TEACHER BEHAVIOR AND TAKE-UP OF INSTRUCTIONAL PRACTICES

- The effectiveness of education systems is dependent on the behavior of the individuals and groups within it; as such, it can be useful to apply a behavioral sciences lens to challenges facing the education sector. For example, as seen in in the previous pages, much is known about effective FLN strategies in the classroom. For these to have an impact on student learning, however, teachers who are not using these practices must change their "behavior" and adopt and implement these effective practices consistently, and over time.
- According to the **Integrative Model of Behavior Prediction**, human behavior is driven by a number of factors, including: 1– whether the person has the knowledge and skills to carry out the behavior, 2– how enabling the environment around them is and whether there are any barriers to carrying out the behavior, and 3– whether the individual has the intention to embark on the behavior. Note that knowledge and skills and the environment can also impact on intent to act, as well as directly influencing behavior (see diagram on the right).
  - A very similar model for explaining behavior, the **COM-B model**, conceptualizes these components slightly differently, suggesting that a person's capability and the presence of an opportunity for the behavior both influence behavior directly, but also influence a person's *motivation* to engage in the behavior (see pale-green additions in parentheses in diagram on the right).
  - The concepts of "*intent to act*" and "*motivation*" are both used in the literature focused on explaining behavior (and therefore both terms will be used throughout this report). Simply put, intent denotes a person's desire or decision to do something whereas motivation relates to the reason behind, or the strength of that desire.
  - Guskey's model of teacher change states that a teacher's motivation to take-up practices in the long term occurs as a result of a shift in their beliefs, which happens when teachers see improvements in their student outcomes as a result of trying new practices.



Note: There are many other conceptual models that attempt to explain behavior, or that categorize the factors that can influence behavior. These are just used as illustrations.

Source: Hagger et al. (2020), Almeida et al. (2016), Fishbein & Yzer (2003), Michie et al. (2011), Guskey (2002).

See Module 2

THE INTEGRATIVE MODEL OF BEHAVIOR PREDICTION PROVIDES A FRAMEWORK TO BETTER UNDERSTAND THE BARRIERS TO TEACHERS ENGAGING IN EFFECTIVE CLASSROOM PRACTICE

What are the barriers to teachers engaging in effective classroom practices?

Knowledge and skills

- Low levels of:
  - Content knowledge (knowledge of a content area, such as mathematics)
  - Pedagogical content knowledge (knowledge about the teaching and learning of a content area)
  - General pedagogical knowledge (principles of high-quality teaching that are not content-specific)

Lack of knowledge and skills can also impact on motivation and intention to act (e.g. low levels of knowledge can be de-motivating and affect confidence and self-efficacy)

Intent / motivation

- Resistance to change
- Perceived complexity of change
- Fear of the unknown
- Innovation fatigue
- Entrenched beliefs about content area, teaching, student learning that are opposed to the change
- Entrenched habits that are opposed to the expected behavior and that are hard to break
- Lack of self-efficacy, or belief in one's own ability to carry out a behavior successfully
- Lack of collective efficacy
- Lack of career goals and professional responsibility
- Lack of confidence or fear of exposure of lack of knowledge
- Fear of threats to teachers' own expertise or allocation of resources
- Fear of threats to existing friendships in the school
- Fear of seeding control in lessons
- Fear of misbehavior

Environment and resources

- Limited availability of teaching and learning resources
- Poor quality of infrastructure (including school businesses, WASH facilities etc.)
- Poor nourishment of students
- Very large classes sizes and/or high numbers of students who are disadvantaged / marginalized
- High workload
- Insufficient time to implement changes
- Poor pedagogical leadership support
- Poor behavioral and school safety climate

Environmental constraints can impact on intention to act (e.g. lack of resources and high workload can be de-motivating etc.)

Source: Webster et al. (2012), Lauermann (2017), Pouezevara (2018).

See Module 2

GENERALLY, TEACHER DEVELOPMENT TENDS TO FOCUS LESS ON THE TEACHER MOTIVATION OR INTENTION TO ACT COMPONENT OF THE MODEL

Professional development programs targeting teachers focus on building teachers' knowledge and skills to deliver improved instructional practices.

Knowledge and skills	Intent / motivation	Environment and resources
Does a person have the knowledge and skills to carry out the behavior?	Does the person intend to carry out the behavior?	Are the right enablers in place in the environment to support them in carrying out the behavior, and are there any constraints?
For teachers to effectively adopt and implement effective FLN practices they need to have:		
Teachers need **knowledge and skills** to be able to carry out effective teaching practices in the classroom. These could be developed through pre-service teacher education and on-going professional development (including training, coaching and other support).	Teachers need the **intention to adopt and implement** effective teaching and learning practices. For example, they must have the intention to apply what they have developed in training, to use prescribed teaching and learning materials etc. This can be supported through coaching, but also through giving teachers the opportunity to try and practice an approach, giving them an opportunity to see success taking place.	Teachers also need the **right environmental conditions and resources** to enable them to carry out effective teaching practices. For example, there are some conditions that may constrain good practice, e.g. lack of accountability mechanisms, lack of teaching and learning materials, very large class sizes, etc.

Policies and programs often consider how to create the optimal environment for teaching and learning. Environmental constraints are often a result of inadequate resourcing of education.

'Intention to act' and the factors which influence this is an under-explored area within approaches to teacher development.

Source: Hagger et al. (2020), Almeida et al. (2016), Fishbein & Yzer (2003), Guskey (2002), Pouezevara (2018).

See Module 4

FOR TEACHERS TO ADOPT HIGH QUALITY FLN PRACTICES, IT REQUIRES THEM TO BE MOTIVATED TO ACT

For teachers to adopt and implement more effective practices consistently over time with autonomy, they must be motivated to do so (and they need to have the intention to act). Teacher development that is designed to address behavioral drivers/factors that affect intention to act is more successful in changing teacher behavior that will result in implementing effective instructional strategies. The following slides explore three key elements:

Extrinsic and intrinsic motivation

Studies looking at the impact of extrinsic motivation on teachers have had mixed results, with recent positive findings in a sub-Saharan African context. Emerging research on intrinsic motivation of teachers suggest this could could have an impact on student outcomes.

(see p.13)

Influences on motivation and intention to act: perceived norms, attitudes & beliefs and self-efficacy

The Integrative Model of Behavior Prediction introduced on p. 6 (and in Module 2 of the companion report) provides a framework for understanding motivation and intention to act in more depth. This is informed by perceived norms, attitudes & beliefs and self-efficacy.

(see pp.14-15)

Decision making also occurs as a result of automatic systems of thinking

Some thinking processes are intuitive, automatic, experience-based, and relatively unconscious. These are informed, for example, by heuristic, salience, status-quo bias, and optimism bias. The formation of habits in teaching fall in this category as well.

(see pp.16-17)

See Module 4

IMPROVING TEACHER INTRINSIC MOTIVATION COULD CONTRIBUTE TO IMPROVED STUDENT OUTCOMES

- Extrinsic motivation refers to motivation to perform a behavior to earn a reward (e.g. monetary) or avoid punishment. Intrinsic motivation refers to motivation to perform a behavior for its own sake.
- There have been extensive studies on the impact of extrinsic motivators (e.g. salary increases / bonuses) with mixed results, especially in HICs. However, recent evidence in Tanzania suggests that teachers, school leaders and parents have **positive views of performance pay and that it is linked to better student outcomes**. (The role of incentives in human behavior is explored in more depth in Module 4 of the companion report.)
- Less is known about the impact of intrinsic motivation in education, but emerging findings suggest that improving **teacher intrinsic motivation has the potential to contribute to improved student outcomes**, particularly if initiatives encourage autonomy, foster innovation and encourage both mastery and purpose amongst teachers. Education systems may be able to improve outcomes by considering how to intrinsically motivate teachers to improve effort and practice. The Integrative Model suggests, however, this this alone will not be sufficient to bring about change.
- Teachers' motivation to take up effective practices can also be linked to them seeing incremental gains in student performance. Guskey's model of teacher change (2002) states that **long-term change in teachers' practice occurs as a result of a shift in their beliefs and attitudes, which happens when teachers see improvements in their student outcomes as a result of changed instructional practices**.

Source: Mbiti et al. (2019), Mbiti and Schipper (2021), Lauermann (2017), Aslam and Rawal (2019), Guskey (2002), Piper (n.d.).

Implications:

- Anticipating how different incentives may influence teachers' motivation to take up effective FLN practices could help the design of more effective teacher development programs. For example, recent research in Tanzania suggests that teachers in LMICs may be more welcoming of performance pay incentives than teachers in HICs.
- When asking teachers to take up new practices, it may be important to consider things that they not want to give up (e.g. practices that were easier to perform, previous ways of working that felt comfortable, etc.). These could be perceived as "losses" and and pull away from the take-up of new practices.
- Teachers may be more likely to take up effective practices if they can see immediate and incremental small benefits to their workload and to their students' learning rather than by being told of possible wider and longer-term impacts in the future. For example, FLN interventions in Kenya told teachers they could expect to see impacts within one month of implementation.

See Module 4

PERCEIVED NORMS, ATTITUDES, AND SELF-EFFICACY INFLUENCE TEACHERS' MOTIVATION AND 'INTENTION TO ACT'

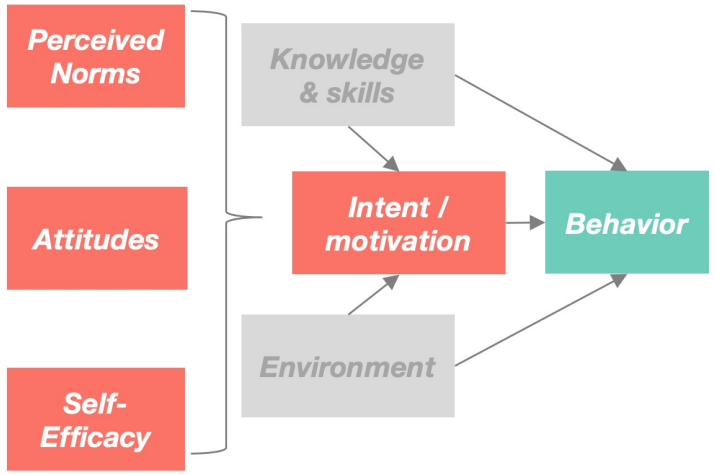


Figure - 'Integrative Model of Behavior Prediction', adapted from Almeida et al. (2016) and Fishbein & Yzer (2003).

- The Integrative Model of Behavior Prediction states that intent to act is influenced by:
  - **Perceived norms**, or the belief that the behavior is socially acceptable (and thus has been done before).
    - People's behavior is molded by explicit or implicit behavioral expectations or rules within a society or group. These vary across context and culture.
    - Social norms signal 'appropriate' behavior followed by the majority, in particular, behavior that the majority believes "ought to" be followed (normative beliefs).
    - We are more likely to trust individuals who are from our own social group.
  - **Attitudes** towards the behavior.
    - Attitude is shaped in part by a person's beliefs about what the outcome of a behavior will be, and their evaluation of the advantages and disadvantages of that outcome. If by experience teachers believe most newly-imposed programs will fail or will not last, they are likely not to engage.
    - Change in teachers' practice occurs as a result of a shift in their beliefs and/or attitudes, **but this happens when teachers see positive change in students and outcomes as a result of changed instructional practices**.
  - **Self-efficacy**, or belief in one's ability to carry out the behavior.
    - Individuals are more likely to engage in activities where they have high self-efficacy and less likely to engage in activities where they have low self-efficacy. This underscores the importance of teachers' practicing new practices to see positive change happen.
    - **Collective teacher efficacy** is the collective belief of teachers in their ability to have a positive educational difference to their students through combined efforts.
- This model can help us to understand some factors that influence teacher behavior and draw implications, as illustrated on the next page.

Sources: Almeida et al. (2016), Fishbein & Yzer (2003), Chavez et al. (2021), Michie et al. (2011), Bicchieri (2017), Samson (2014), Thaler and Sunstein (2008), World Bank (Theories of Behavior Change - undated), Bandura (1977), Donohoo and Katz (2017), Hattie (2016), Katz, Dack, & Malloy (2017), Donohoo & Velasco (2016), Guskey (2002).

See Module 4

THE IMPLICATIONS FOR INFLUENCING TEACHER MOTIVATION AND INTENT TO TAKE-UP EFFECTIVE FLN PRACTICES ARE WIDE-RANGING

The influence of perceived norms:

- When considering how to influence teachers' practices, it will be useful to understand who is important to them and to identify any social norms that are encouraging or restraining the practices they should adopt. The take-up may be more likely if teachers perceive it to be an actual priority for their superiors/leaders.
- Teachers may be more likely to adopt a practice if others around them are doing the same and/or if they have made a public commitment to it.
- Strategies of collective change (rather than individual change) may be needed to target groups of teachers who share common reasons preventing them from adopting effective practices.
- Teachers are more likely to value information from someone they respect (e.g. whose practices they consider to be relevant and high quality). This implication should be considered carefully selecting trainers and coaches to work with teachers.

The influence of attitudes and beliefs:

- Interventions should stress the ease of the behavior, the social appropriateness of the behavior and its positive effects and benefits.
- Teachers should have the opportunity to practice new skills and see the positive result for themselves.
- Information should be presented consistently to help teachers form an understanding about the proposed behavior (e.g. being clear and consistent is important to help shape attitudes).
- Teachers can be more receptive to a message by linking it to a related one which teachers already have a positive view on.
- Teacher beliefs about students' potential can create reinforcing cycles, where it can shape their actions, which in turn impacts their students' progress, and feeds into teachers' beliefs of the abilities of their students. Providing data, as well as anecdotes, related to this to teachers can help.

The influence of self-efficacy:

- Teachers must perceive that they are able to perform the behavior successfully. This underscores the importance of teachers' practicing new practices to see positive change happen.
- Teacher development should actively address what might be negatively impacting their self-belief (e.g. by supporting teachers to take up new practices in small chunks; using coaches and communities of practice to develop teachers' efficacy and create a safe environment for risk taking).
- Efforts to positively influence teachers' understanding of their own impact and capabilities can create a sense of collective self-efficacy. This includes enabling teachers to have conversations (e.g., establishing regular "learning circles") around a topic to learn from each other about what has been tried, and what has and has not been successful.

See Module 4

HUMAN BEHAVIOR AND DECISION MAKING OFTEN OCCURS AS A RESULT OF AUTOMATIC SYSTEMS OF INFORMATION PROCESSING IN THE BRAIN

- A criticism of the Integrative Model of Behavior Prediction is that it does not fully account for the automatic decision-making processes that happen in the brain.
- Dual System Theory (Kahneman) proposes that there are two distinct 'systems' operating in the brain that impact human behavior. **System 1** describes the thinking processes that are intuitive, automatic, experience-based, and relatively unconscious *('thinking fast')*. **System 2** is more reflective, controlled, deliberative, and analytical ('*thinking slow*'). It monitors or provides a check on our mental operations and overt behavior.
- System 1 thinking is informed by, for example:
  - Heuristics – the short-cuts we use for rapid decision making (e.g., recent events have a big impact on our behavior). Heuristics are related to our subconscious biases.
  - Salience – information that stands out, sometimes because it is novel, or seems relevant is more likely to affect our thinking and behavior.
  - 'Status Quo Bias' (also know as 'Inertia') – we have a natural aversion to change and form habits that are hard to break (habits are automatic behavioral patterns that are the result of repetition and associative learning). One of the causes of status quo bias is a lack of attention. Default options therefore, act as powerful behavior 'nudges' (see box to the right).
  - 'Optimism Bias' – we over-estimate the probability of positive events happening and underestimate the probability of negative events happening.
  - Overconfidence – associated with excessive risk taking. Kahneman says overconfidence 'may well be the most significant of the cognitive biases.'
- Supporting novice teachers to practice sufficiently to eventually automate certain effective routines into their teaching can help them face the other many cognitive demands of the classroom.

Nudge theory

- Small details and framing have significant impact on human behavior. Behavior can therefore be influenced by 'nudging' individuals and groups in a particular direction by using positive reinforcement or indirect suggestion rather than direct instruction.
- In their 2008 book 'Nudge: Improving decisions about health, wealth and happiness', Thaler and Sunstein popularized the concept of Nudge Theory.
- Nudge Theory is built on the idea that people should have freedom of choice but that it is legitimate for 'choice architects' to influence behavior for individual and society's benefit; choice architects are trying to 'nudge' people to make choices that are better for them and society.
- Nudge Theory was used to encourage teacher and student engagement in an online literacy platform during the Covid-19 pandemic in South Africa. Printed versions of the exercises were provided to teachers and organized according to the same topics as the curriculum lessons plans to make them easy to use and salient for teachers, especially those less comfortable with technology. These printouts could easily be read-out by the teachers to assign homework on the platform before students signed-off for the day.

Source: Thaler and Sunstein (2008); Brinkmann (2017); Better et al. (2021).

Sources: Institute for Government (undated), Samson (2014), Thaler and Sunstein (2008), Foster (2021).

See Module 4

THE FORMATION OF HABITS CAN IMPEDE TEACHER EFFECTIVENESS AND BE HARD TO BREAK THROUGH TRADITIONAL PROFESSIONAL DEVELOPMENT MODELS

- Evidence from HICs shows that teachers rapidly become more effective (in terms of impact on student outcomes) in the early stages of their career, but then their rate of growth slows as they remain in the profession. Evidence also shows that the majority of interventions that focus on teachers do not lead to improved student outcomes.
- One possible explanation for this is the formation of habits.
- Habits are: 1) ordered, structured action sequences; 2) automatically elicited by environmental cues; 3) insensitive to goals or rewards; 4) associated with separate anatomical circuits.
- The implications of this are that habits are behaviors that teachers produce automatically, in response to an environmental cue and without consideration of their consequences. Habits can easily, therefore, lead to ineffective behaviors as they will continue to be produced even if they are not having a positive impact. This means that professional development interventions which seek to introduce new goals for teachers may fail to have an impact on teachers' automatic, habitual behavior.
- Certain environmental factors – such as, stress, time and performance pressure – can accelerate the production of habitual behaviors. These factors are often prevalent in the teaching profession.
- 'Survival habits' can form early in a teacher's career which become more automatic over time and harder to break. For example, early-career teachers may form bad habits in pursuit of establishing their authority in the classroom (e.g. filling silences with teacher talk). Such habits can become less productive, or even harmful, over time.
- Instructional coaching can be a helpful tool to break established habits as it provides an opportunity for deliberate practice of new techniques in a controlled environment, alongside targeted feedback. There is good evidence showing that coaching is effective in changing teacher practice; this could be because it is better suited to breaking habitual behaviors than more traditional professional development approaches.

A five-step approach for changing teacher habits (Fletcher-Wood, 2022)

Step	Description
Specify a single, powerful habit to pursue	Make it clear what habit will be changed and what will happen instead.
Maintain the inspiration and motivation to act	Make the action more tempting by minimizing any 'cost' and maximizing the immediate benefits of it.
Plan a commitment to a time and place to act; set reminders	Telling others what you are going to do makes action more likely.
Make it easy to start	If an action is complicated or time-consuming, it is unlikely to stick. The first step to change needs to be easy.
Keep it going until it becomes a habit	It is important to keep trying the new action until it sticks; it helps if the context stays the same.

Sources: Fletcher-Wood (2022), Hobbiss et al. (2020).

See Module 5

PRACTICAL APPLICATIONS OF BEHAVIORAL SCIENCES PRINCIPLES HAVE BEEN DEVELOPED THAT COULD INFORM TEACHER DEVELOPMENT FOR FLN

Tool	Background	Usage	Usage in education	Opportunities to support teacher behavior change in LMICs
MINDSPACE (see p. 19)	MINDSPACE was published in 2010 by the Institute for Government as a tool for policy makers. A criticism is that the nine elements can be hard to keep in mind for busy policy makers.	MINDSPACE has been used extensively in UK policy making, especially in policy relating to crime, climate change, health, tax etc.	MINDSPACE has been used to explore teacher behavior change by the University of Bristol. It has also been used internally by education-focused organizations in LMICs but it is not understood to have been used systematically or at scale.	*MINDSPACE could be used by policy makers or program designers to help them consider how they could improve existing efforts to improve teachers' instructional practices. E.g. Recruiting lesson guide authors who are respected and ensuring guides are attractive and promoted by senior officials.*
EAST (see p. 24)	The EAST framework was developed in early 2012, designed as a simpler alternative to MINDSPACE which simplified messages to increase uptake and focus on the key changes that can produce the most reliable effects. It can be used as a complement to MINDSPACE.	Has been used extensively used in policy design in the UK and beyond. Recently, it was used in the UK and in the Canadian province of British Columbia to help with the development of health policies as part of the COVID-19 response.	EAST has been referenced by UNICEF as a tool that can be used to help support behavior change in education in LMICs but it is not understood to be used widely yet. Many effective structured pedagogy programs already use the EAST principles to support uptake of new practices (Case Study 3 - Funda Wande – is a good example).	*EAST could be used to pre-empt potential behavioral hurdles in programs for teachers. E.g. EAST could be used to guide the design of Teacher Guides (see case study 3 – Funda Wande) or technologies that support teachers.*
5 Drivers of Motivation (see p. 25)	The '5 Drivers of Motivation' were introduced in Peps Mccrae's 2020 book, 'Motivated Teaching'.	The framework was developed as a tool to be used *by* teachers to understand how they can maximize the motivation of their students.	In the book, Mccrae offers ideas for how teachers can use the framework to help motivate themselves to adopt and sustain positive practices.	*The '5 Drivers of Motivation' could be used to support the design of teacher support programs (including training, coaching and professional learning communities)*

Sources: Mccrae (2020), Webster et al. (2012), Institute for Government (undated), bi-team (2021), Almeida et al. (2016), Fishbein & Yzer (2003).

See Module 5

THE **MINDSPACE** FRAMEWORK PROVIDES A PRACTICAL APPLICATION OF BEHAVIORAL SCIENCES TO SUPPORT BEHAVIOR CHANGE INTERVENTIONS

MINDSPACE was developed by the Behavioral Insights Team in the UK in 2010 to capture the nine most robust (non-coercive) influences on human behavior and was intended to help policy makers improve efforts to change or enhance public behaviors by considering the MINDSPACE principles. The mnemonic, MINDSPACE, captures nine major influences on human behavior:

Messenger	We are heavily influenced by who communicates information – we are influenced by people who we like, are trustworthy, similar to us and experts
Incentives	Our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses and overweighting small probabilities
Norms	We are strongly influenced by what others do
Default	We "go with the flow" of pre-set options
Salience	Our attention is drawn to what is novel and seems relevant to us
Priming	Our acts are often influenced by sub-conscious cues
Affect	Our emotional associations can powerfully shape our actions
Commitment	We seek to be consistent with our public promises, and reciprocate acts
Ego	We act in ways that make us feel better about ourselves

MINDSPACE is intended to help policy makers in three ways:

1) **Enhance**: It can help policy makers consider how to improve existing efforts to change behavior by deepening understanding of the MINDSPACE influences.
2) **Introduce:** It can introduce influences that are not yet being used extensively by policy makers, but which have the potential to have a strong impact.
3) **Reassess:** It provides a framework for government to assess whether and how government in shaping the behavior of its citizens (even if unintentional).

Source: Institute for Government (undated).

An illustration of how this could be used to guide teacher focused FLN interventions is provided on the following pages.

See Module 5

MINDSPACE IMPLICATIONS FOR TEACHERS (1 OF 4)

Influence	Theory outline	Evidence shows that:	Applications for teacher behavior
Messenger	How we perceive those who communicate information deeply influences behavior	• We are more likely to accept and use information given to us by those who we perceive as experts. • Influence is likely to be stronger if those who give and receive information have behavioral or demographic similarities.	• Teachers may be more likely to respond to advice from those they view as having expertise (e.g. a trained, instructional coach with over much experience in the classroom). • Teachers may be influenced to engage in a new FLN program if it has been used successfully in rural schools similar to theirs.

Incentives	Our minds make predictable shortcuts which affect the way we respond to incentives	• People are likely to be more motivated by fear of failure or loss than they are of the idea of achievement or reward.
		• Small incentives can significantly influence behavior in some circumstances, but increasing their size is unlikely to make a difference to outcomes.
		• People tend to overestimate the probabilities of unlikely scenarios (e.g. winning the lottery).
		• People strongly prefer immediate benefits to long term benefits
		• Using external rewards risks damaging the strength and long-term benefits of intrinsic motivation.
			• Incentives alone are unlikely to be strong enough to prevent other influences (e.g. schools norms), but are likely to work when:
			  • Liked to simple, actionable goals and expectations for teacher performance are clearly communicated.
			  • Linked to other strategies that influence teacher actions.
			  • They consider what teachers may be most frightened of losing if they fail to perform (e.g. peer respect etc.)

Norms	We are strongly influenced by the behaviors of others	• Socially enforced or shared behaviors strongly influence the behavior of individuals.
		• People are more likely to decide to start or stop smoking or drinking alcohol when those around them have made similar choices.
			• Evidence shows schools that establish their own norms (e.g. “every child in Grade 2 can read and do math”) have a strong influence on teaching practices. The key challenge is ensuring practices become prevalent norms, and may include:
			  • Providing information to staff emphasizing that most quality teachers use the desired techniques.
			  • In-service training that builds on school initiatives that have already achieved norm status.

Source: Adapted from Webster et al. (2012).

See Module 5

MINDSPACE IMPLICATIONS FOR TEACHERS (2 OF 4)

Influence	Theory outline	Evidence shows that:	Applications for teacher behavior

Defaults	We behave in predictable ways and subconsciously make pre-selected decisions	• The decisions we make have a default option, although we are often unaware of it.
		• We regularly accept our default choices, even if they have significant consequences. (*Defaults* are pre-selected options in behavior that occur when a person does not make an active choice.)
			• Studies suggest:
			  • Teachers prefer existing routines and practices and practices can be harder to change when teachers feel reforms are not relevant.
			  • Establishing desired practices as default is challenging but could be approached by gradually embedding some aspects of new methods into daily procedures. Ensuring the program is used everyday rather than only on some days can also help establish it as a default.

Salience	We focus our attention on what we perceive to be novel and relevant to us	• Our behavior is deeply influenced by our attention. • People are bombarded with sensory stimuli throughout the day, and are more likely to respond to stimuli that is novel, accessible and simple. • We are more likely to process information that is easy to understand and relates directly to our personal experience. • We are more likely to pay attention to information that supports our existing beliefs, and pay little attention to information that challenge them. This is known as *confirmation bias*.	• We should ensure recommendations are framed in ways that teachers see as relevant. • Information and recommendations may be better absorbed if it is a primary source of focus. This is likely to be easier when people begin new experiences or life-stages (e.g. early career teacher training).

Source: Adapted from Webster et al. (2012).

See Module 5

MINDSPACE IMPLICATIONS FOR TEACHERS (3 OF 4)

Influence	Theory outline	Evidence shows that:	Applications for teacher behaviour
Priming	Behavior can be influenced when people are exposed to sub-conscious cues	• People can subconsciously behave differently after they have been exposed to certain sights, words, sensations (e.g. a person who is subliminally exposed to a picture of a happy face is likely to drink more alcohol than a person exposed to a frowning face). • Priming is the least understood of MINDSPACE effects, and we do not yet know which cues can significantly impact behavior, and why. • Priming has caused significant controversy as some fear it can be used intentionally or unintentionally by governments or advertisers to manipulate our actions in undesirable ways.	• Experts are not yet clear how priming can be used to influence teacher behavior. • However, systems and leaders could consider what unconscious cues may be present when teachers are introduced to new practices, and when they make decisions.
Affect	Our emotional responses can have a powerful impact on our actions	• Emotions that we experience in response to words, images and events can impact our actions in fast and involuntary ways. • We are prone to making logically questionable decisions as our mood can influence our judgement and overpower our capacity to make deliberate decisions. • Provoking emotions has been shown to change health behaviors (e.g. increase the use of soap when washing hands) and increase spending behaviors. • There are risks associated with creating emotional responses without connecting them to positive behavior changes, and Affect should be carefully used by policy makers and commercial industries.	• Affect is likely to influence the decisions and behaviors of teachers. • In the classroom, teachers can respond in ways which are sometimes perceived as irrational, as working with young people can provoke strong emotional reactions.

Source: Adapted from Webster et al. (2012).

See Module 5

MINDSPACE IMPLICATIONS FOR TEACHERS (4 OF 4)

Influence	Theory outline	Evidence shows that:	Applications for teacher behavior
Commitments	We are more likely to act on behaviors we commit to publicly	• People are prone to procrastinating actions or decisions that impact our long-term interests. • Publicly pledging particular actions improves the chances of long-term goals being fulfilled (e.g. people are more likely to maintain weight loss if they share their goals with others). • We are also more likely to commit to changing our behavior when others also change.	• Teachers are more likely to commit to new practices if they have declared their commitment to colleagues. • Teachers are less likely to commit to change if they feel that students, parents and/or school leaders are not committed. • Written contracts between parents, teachers and students can sometimes act as powerful tools to encourage teachers to commit to change.
Ego	We behave in ways that make us feel better about ourselves	• Once we start behaving a specific way, we are more likely to continue those behaviors through life. • We tend think of ourselves as self-consistent, and changes to behavior can cause us to adjust our beliefs and even memories. • When things go well, we are likely to attribute it to ourselves, and when they go badly, we are likely to blame others, or the situation we are in. This affects how we see the world and our actions. • People are more likely to behave in ways that strengthen a positive self-image. • Advertisers often aim to make people feel better about themselves to provoke specific actions (e.g. men are shown to donate more to charity fundraisers they perceive as more attractive).	• Implementing a new teaching practice daily is more likely to persist in the long-term. • More is needed to overcome confirmation bias, if teachers have pre-existing contrary beliefs. • Many teachers are motivated by an image of themselves as someone who can implement change. The introduction of new practices should reinforce, rather than threaten, this self-image. • Teachers are more likely to positively respond to and action feedback which reinforces a positive self-image. • Therefore, to influence teacher behavior change, formal inspection or observation information should be strategically communicated (e.g. negative aspects should be carefully filtered).

Source: Adapted from Webster et al. (2012).

See Module 5

THE **EAST** FRAMEWORK OFFERS ANOTHER PRACTICAL APPLICATION OF BEHAVIORAL SCIENCES TO SUPPORT BEHAVIOR CHANGE INTERVENTIONS

EAST was developed by Behavioral Insights Team in the UK in 2012 for policy makers and practitioners to help apply behavioral science principles to behavior change interventions. It suggests that, to encourage people to adopt of modify a behavior, it should be 'easy', 'attractive', 'social' and 'timely'.

The following examples demonstrate how the EAST behavior change framework could be used to guide teacher-focused FLN interventions and increase teacher take up of effective FLN practices.

Make it easy	*Make it attractive*	*Make it social*	*Mike it timely*
▪ Harness the power of defaults. ▪ Reduce the 'hassle factor' of taking up a service. Reducing the effort required can increase uptake or response rates. ▪ Simplify messages.	▪ Attract attention. People are more likely to do something that our attention is drawn towards. ▪ Design rewards and sanctions for maximum effect.	▪ Show that most people perform the desired behavior. ▪ Use the power of networks. ▪ Encourage people to make a commitment to others.	▪ Prompt people when they are likely to be most receptive. ▪ Consider the immediate costs and benefits. ▪ Help people plan their response to events.
Implications for teachers			
▪ Teachers, school leaders and district officials could be automatically enrolled in phone messaging programs which share data on students' FLN outcomes. ▪ Teachers can be given reminders about using the FLN program consistently.	▪ Shared goals for FLN could be communicated across communities and schools, and at all levels of the system. ▪ Teachers' efforts could be recognized and rewarded through celebration events, certification etc.	▪ Teachers/schools could receive messages with what percentage of classes/schools are outperforming them on FLN outcomes. ▪ Social networks could be used to demonstrate teachers' commitment to new practices and their successes.	▪ SMS prompts could be timed to encourage certain practices linked to the time of school year / where students are in the curriculum, etc.

Source: bi.team (2021).

See Module 5

MCCRAE'S 'MOTIVATED TEACHERS' OFFERS FURTHER PRACTICAL APPLICATIONS TO SUPPORT TEACHER BEHAVIOR CHANGE INTERVENTIONS

In 'Motivated Teaching', Mccrae describes **5 drivers of motivation.** Although the framework has primarily been developed for teachers seeking to motivate learners, the same principles can be applied when considering how to motivate teachers to change practices

Motivation driver		Key idea	Implications for teacher behavior change
Economic - How we appraise the value, expectancy and cost of the opportunities we offer	Secure success	Motivation is heavily influenced by the anticipation of future success. If you have been successful in the past in something, you are more likely to invest again in the future.	Interventions should offer opportunities for teachers to be successful by promoting small, achievable changes and ramping up expectations gradually. Teachers should be clear what success looks like and encouraged to track their progress and plan for failure.
	Run routines	When considering a new behavior, individuals are influenced by how much effort will be required to put in, in order to see a benefit.	Expectations of teachers should be manageable and easy to implement; they should not add to workload. Interventions should seek to help teachers form and embed habits – cues can help ingrain habits.
Social - How the actions of others influence our economic appraisal	Nudge norms	Individuals are heavily influenced by the behavior and attitudes of others.	Teachers may be more likely to adopt new practices if others around them are. Teachers should be surrounded by people who are doing the same thing and are passionate about it (e.g. through professional learning communities).
	Build belonging	The influence of others is greatest when people feel part of a group and identify with others exhibiting particular norms.	A sense of belonging can be developed by giving teachers the opportunity to get to know others doing similar things and sharing their experiences. Interventions should establish shared goals and a common purpose and establish an identity amongst participating teachers.
Metacognitive - How we can cater for preferences of autonomy	Boost buy-in	Individuals are attracted to opportunities that afford them a perception of autonomy or choice over their actions.	Make clear to teachers the benefits of engaging in new practices and provide opportunities for them to opt in. Offer opportunities for teachers to publicly declare their intentions and commitment.

Source: Adapted from Mccrae (2020).

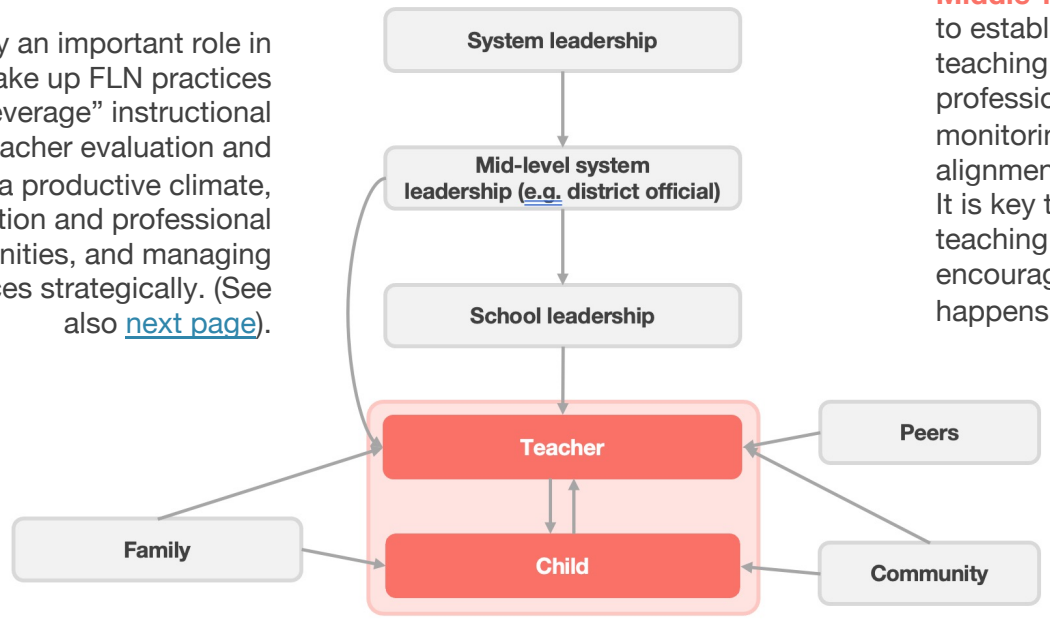
See Module 6

TEACHERS' BEHAVIOR IS HEAVILY INFLUENCED BY OTHER STAKEHOLDERS IN THE SYSTEM

Teachers' behaviors are influenced by the systems they work within. A number of different stakeholders within the education system directly influence teachers and, as a result, their behavior:

System coherence is critical within systems which achieve strong FLN outcomes.

School leaders play an important role in supporting teachers to take up FLN practices by engaging in "high-leverage" instructional activities (such as teacher evaluation and feedback), establishing a productive climate, building collaboration and professional learning communities, and managing personnel and resources strategically. (See also next page).



Middle-level officials play an important role in supporting teachers to establish effective behaviors by providing support for school and teaching improvement, providing and promoting opportunities for professional collaboration, ensuring data-driven accountability and monitoring and providing instructional direction and system alignment (between the state and the school). (See also next page.) It is key that mid-level civil servants reinforce the message that teaching using the FLN methods is a priority, and that they encourage and mandate the activities needed to ensure this happens (e.g. coaching visits, lesson observations etc.).

Peer networks and school staff members play a critical role in supporting teachers to embed FLN practices into habit and adapt them to the context of their classroom, by engaging in collaborative and supportive activities that enhance teachers' understanding of: pedagogical practices, professional responsibilities, student needs, and the impact of their own practices. Peers also play an important role motivating teachers to succeed by reinforcing quality professional working cultures and goals.

Although there is weaker evidence, especially in LMICs, **family** and **community** members can play a role in supporting teachers to take up FLN practices by enhancing teachers' understanding of learners needs, or by improving learners' attitudes, revisiting learning outside of the classroom, or engaging 'hard to reach' parents and community members.

See Module 6

EFFECTIVE PEDAGOGICAL LEADERSHIP AND USE OF DATA CAN SUPPORT IMPROVEMENT OF TEACHERS' INSTRUCTION

Responsibilities of leaders of teacher development in high-impact systems in LMICs

A report by the World Bank (2021) found common practices between leaders of teacher pedagogical change in high performing LMICs, and recommends that in order to be effective, leaders should:

- Support or evaluate teacher performance
- Visit teachers in person at least once a month, or twice a month remotely
- Observe teachers for the full lesson
- Use varied observation tools which are linked to the structure of the program
- Maintain records of the teacher's observation and feedback sessions
- Be supported by policy maker efforts to embed ongoing support across the education system and ensure teachers participate
- Interact with teachers face-to-face, where possible
- Link ongoing support to practical, initial group training that introduces teachers to new practices

Source: World Bank (2021)

Emerging research in LMICs suggests the importance of school leadership training on improving student outcomes

A review of evidence by Global School Leaders identified the following elements as key for leader training to be effective at supporting teaching and learning improvements:

- Training focused on supporting leaders in the use of student-level learning data
- Training focused teacher development activities as being the main channel through which leaders can influence student outcomes
- Training that incorporates coaching for leaders

Similarly, data usage by mid-level leadership can support student learning:

- Share data that influence behavior – focus on the areas that mid-level officers can control (e.g. how many classroom visits coaches made).
- Share data that focus on instruction – promote a laser focus on instructional quality through the data (e.g. what proportion of teachers used the prescribed teacher guides?).
- Reduce the number of indicators – focus on the essential measures of success and the key behaviors that need to change.
- Make the interface extremely simple – education leaders are very busy and the resource needs to be very simple to use of it won't be used.
- Make sure the data-visualization software works – the dashboard needs to work on the devices that offers have (including when in remote areas.)
- Include indicators that matter to the system – the FLN program data needs to link to other government priorities (e.g. teacher attendance).

Source: Global School Leaders (2020), Piper (2021).

See Module 7

CASE STUDIES OF FLN PROGRAMS TACKLING TEACHER BEHAVIOR CHANGE

The following are case studies of FLN programs which include a teacher behavior change dimension. Whilst none of these case studies (apart from the mini-case study on Uttar Pradesh) explicitly identify as a behavior change program, each offers some key takeaways which support the behavior change models explored in this report. More details on these case studies can be found in Module 7 of the full report.

Case Study	Key takeaways
Sobral, in the state of Ceará in Brazil, underwent a city-wide reform aimed at strengthening pedagogical action, school management and teacher practice and prestige.	The Sobral model shows the importance of aligning all stakeholders in a system towards clear FLN goals. Teachers (and other stakeholders) were motivated to adopt new practices because leaders appealed to the community's deep-seated moral impetus to improve learning outcomes for the most disadvantaged. Teachers were able to convert their intent to improve to action in the classroom because they have the knowledge, skills, tools and support to be successful.
STiR is an international NGO that works across India and Uganda to develop the intrinsic motivation of education system actors – including teachers - by fostering autonomy, mastery and purpose.	The STiR model is a useful case study to better understand the drivers of motivation in teachers. The model suggests that intrinsic motivation can be developed when teachers believe that they can make a positive difference in the classroom, when they see themselves progressing and when they believe that their behaviors contribute to improved learning.
Funda Wande is an NGO that uses a structured pedagogy approach to improve reading and mathematics outcomes in Eastern Cape, South Africa.	The Funda Wande model recognizes the importance of deeply understanding teachers' contexts and the environmental constraints that can prevent them for taking up new practices. The program seeks to make change as easy to adopt as possible – for example, by providing highly streamlined, well-designed, easy to use materials, and by offering training and coaching to support the behavior change.
Central Square Foundation are in the early stages of a partnership with the Centre for Social and Behaviour Change, and others to test behavior change strategies that will improve foundational learning outcomes in **Uttar Pradhesh**, India.	The initiative in Uttar Pradesh has undertaken a detailed needs analysis to understand the barriers to teacher behavior change for FLN; these include motivational barriers and barriers which prevent teachers converting intent into action (these are often linked to environmental constraints and teacher knowledge / skills). Behavior change interventions are being designed with these barriers in mind.

Better Purpose is an education-focused consultancy that shapes and accelerates the work of organisations that want to make a difference to education outcomes all over the world. Better Purpose provides support with strategy, policy and the design and delivery of education initiatives.

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